

# **Developing 21<sup>st</sup> Century Skills for 11-19 Year Olds through Project-Based Learning and Youth Participatory Action Research: Policy Analysis and Literature Review**



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*June 2022.*



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## Acronyms

AfL – Assessment for Learning  
BPL – Big Picture Learning  
DfE – Department for Education  
EEF – Education Endowment Foundation  
EPQ – Extended Project Qualification  
IBD – International Baccalaureate Diploma  
MAT - Multi Academy Trust  
NC – National Curriculum  
OECD – Organisation for Economic Cooperation and Development  
Ofsted – Office for Standards in Education  
PBL – Project-based learning  
PISA - Programme for International Student Assessment  
SDL – Self-directed learning  
SRL – Self-regulated learning  
YPAR – Youth Participatory Action Research





## Executive summary

### Introduction

This report was commissioned by Enactus, a non-profit organisation whose work with secondary schools and further education colleges sees them partnering with business and universities to engage young people in real life social action through extra-curricular activities. From their own research, Enactus is aware of the value of what they do and in particular how working with young people in this way promotes independent learning and employability skills.

Initial discussions with Enactus helped focus this review around two key purposes, which are:

1. To analyse the current context for young people aged 11-19 in relation to skill development and employability;
2. To analyse the research literature in relation to the key outcomes for young people who engage in pedagogies like those offered by Enactus.

A scoping of the research literature resulted in aligning Enactus's offer to schools with three interrelated pedagogies (project-based learning; youth participatory action research; and citizenship education) and three competency-based outcomes (cognitive, intrapersonal and interpersonal). In line with this, and given that a number of systematic literature reviews relating to these pedagogies and competencies have already been undertaken, a sequential three-phase design was employed for this report:

- Phase 1: Analysis of the national and international policy landscape
- Phase 2a: Analysis of existing, relevant systematic reviews
- Phase 2b: Systematic review of specific research papers relating to pedagogical approaches and skill outcomes

### Key findings

Key findings from Phases 1, 2a and 2b have been integrated and broken down into three sections: Policy; Pedagogy; and Outcomes for Students.

#### *Policy:*

- The skills and competencies required by 21<sup>st</sup> century employers are not prioritised in the English national curriculum (DfE 2014), which is overtly knowledge based. Whilst there are more student driven and society facing trajectories in Citizenship education (DfE 2014) and some aspects of the School Inspection Framework (Ofsted 2021), these leanings are held in check by more curriculum driven leanings also found within these policy documents.
- Independent learning is viewed in policy as part of the 16-19 educational offer (Ofsted 2021), supported by level 3 qualifications like the Extended Project Qualification (EPQ). However, it could be argued that this emphasis upon independent learning is both too little and too late for young people in terms of their skill development.
- Despite some schools prioritising 21<sup>st</sup> century skills at school-policy level, it is likely that in many schools in England young people will not develop the 21<sup>st</sup> century skills required by employers.

- Singapore outperforms other countries in the Programme for International Student Assessment (PISA) rankings and mandates project work with all ages in order to promote the development of 21<sup>st</sup> century skills and competencies.

### *Pedagogy:*

- Project-based learning (PBL), youth participatory action research (YPAR) and citizenship education are all pedagogical approaches that are most effective when they are student driven and involve students addressing issues in their local communities.
- PBL, YPAR and citizenship education can be seen as effective ways of promoting 21<sup>st</sup> century skills in young people in both extra-curricular and curricular contexts.
- UK students from disadvantaged backgrounds are less likely to experience different pedagogical approaches like PBL (OECD 2020b). This is worrying as research from the US suggests that students from disadvantaged backgrounds can develop intrapersonal and interpersonal competencies through PBL pedagogical approaches (Zeiser 2014).
- PBL, YPAR and citizenship education all require and promote student motivation and engagement.
- PBL, YPAR and citizenship education all require the adult to take on the role of a facilitator who uses assessment for learning (AfL) strategies to guide young people in their projects and monitor their progress towards their driving questions.
- PBL, YPAR and citizenship education all involve the development of self-regulated learning (SRL) and, more specifically, metacognition. The phases and strategies relating to these intrapersonal competencies should be mapped by teachers and adults when using these pedagogies.
- PBL, YPAR and citizenship education all involve the development of collaborative learning skills and the strategies relating to this interpersonal competency should be mapped by teachers and adults when using these pedagogies.
- The teacher or adult should be prepared to provide “autonomy support” rather than “directive support” to students in order to promote SRL and metacognition (Hansen, Moore et al. 2018, Moseki and Schulze 2019). This requires the teacher or adult to have an understanding of the phases and components of SRL and collaborative learning.
- PBL, YPAR and citizenship education are most effective when they are centred on civic engagement and social action.
- YPAR also involves capacity building as students learn about research methods and how to apply these to their projects.

### *Outcomes for students:*

- Research into the use of PBL, YPAR and citizenship education with young people demonstrates a range of positive outcomes.
- A wide range of evidence demonstrates how student motivation is both a prerequisite for other positive outcomes related to PBL, YPAR and citizenship education as well as an outcome of these pedagogies in its own right.

- Attainment increases for secondary school aged students using PBL, particularly when PBL is student driven and community based. This is evidenced in a systematic review (Chen and Yang 2019) and three longitudinal studies (Parker, Lo et al. 2013, Friedlaender 2014, Arnold 2020).
- Attainment increases for secondary aged students using YPAR, which is always student driven and community based. This is evidenced in two longitudinal studies (Cabrera, Milem et al. 2014, Voight and Velez 2018).
- There is a wealth of evidence to demonstrate that the cognitive competency of critical thinking is developed by PBL and YPAR.
- There is now more evidence of how the intrapersonal competencies of SRL and metacognition are developed by PBL, YPAR and citizenship education.
- There is now more evidence of how the interpersonal competency of collaborative learning is developed by PBL, YPAR and citizenship education.
- Evidence suggests that the development of intra- and interpersonal competencies go hand in hand when they are developed through these pedagogies.
- When 21<sup>st</sup> century skills are defined as three competencies (cognitive, intrapersonal and interpersonal), it is clear that they can be developed for young people through PBL, YPAR and citizenship education.
- There is some evidence to suggest that engagement in PBL can lead to “vocational growth” (Arnold 2020), although further research is needed.
- There is some evidence to suggest that using student driven, community based PBL with socially disadvantaged students can help increase engagement and attendance (Creghan and Adair-Creghan 2015) and attainment (Friedlaender 2014, Holmes and Hwang 2016). However, more research into this is needed.
- Students who engage voluntarily with these pedagogies in either extra-curricular or out of school settings tend to experience personal growth and positive changes in self-concept (Schwartz and Suyemoto 2013, Scott, Pyne et al. 2015, Hansen, Moore et al. 2018, Nabors, Poteet et al. 2019, Trott 2020, Tang Yan, McCune et al. 2022).
- There is some evidence to suggest that the personal gains from out of school and extra-curricular activities can transfer to school for some students (Schwartz and Suyemoto 2013), although more research is needed.
- Young people working in mixed age groups may have a positive impact in terms of their personal growth and self-concept.
- It is clear that 21<sup>st</sup> century skills can and should be taught to younger students and not just students who are preparing to go into higher education (Duke, Strachan et al. 2021).

## Key recommendations

Key recommendations are targeted at specific stakeholder groups: Enactus; Policy Makers; Secondary School Practitioners and Senior Leaders; Employers; and Researchers.

In their offer to schools, it is recommended that Enactus highlights:

- the positive outcomes of their pedagogy in line with the development of 21st century skills, including cognitive competency, intrapersonal competency and interpersonal competency development. Enactus should also highlight the transferable nature of these skills to students' school work.
- how their offer enriches Citizenship subject content by allowing 14-16-year olds to experience "the different ways in which a citizen can contribute to the improvement of his or her community" by participating "actively in community volunteering" (Ofsted 2021, p.84).
- how their offer helps schools to meet the 8 Gatsby Benchmarks in careers education. Rather than just learning from "employers about work, employment and the skills that are valued in the workplace" (DfE 2021a, p.28), PBL can give students the opportunity to develop these skills first-hand and contribute to and shape the future workforce.
- how competency development will strengthen curriculum leaders' regulatory need to articulate "curriculum intent" (Ofsted 2021), as schools can bring to the surface some of the skills and competencies underpinning their curriculum.
- how "personal development", including the development of motivation, self-concept and critical consciousness, will be strengthened through their extra-curricular activities with mixed age groups (Ofsted 2021). This is especially important for students from disadvantaged backgrounds who have less access to these kinds of learning activities (OECD 2020b).
- the contribution they can make to the new levelling up agenda. There is growing evidence to suggest that this kind of pedagogy is effective with socially disadvantaged young people in terms of attainment and competency development.
- how students develop "vocational growth" (Arnold 2020), having a clearer idea about their future careers, whilst also developing the skills and competencies to undertake these careers.
- how sixth form students can develop "independent learning skills" required by the inspection framework (Ofsted 2021, section 339).
- how independent learning, including metacognition, can and should also be developed with younger students. This involves myth-busting and promoting the idea that leaving independent learning until the 6th form is tokenistic and too little, too late – something that is evidenced in the skills gap as articulated by employers.

In reviewing their current programme, it is recommended that Enactus considers:

- mapping the phases of SRL (Zimmerman 2002) to their programme to ensure that SRL is effectively developed by students;
- mapping metacognitive strategies to their programme to ensure that metacognition is effectively developed by students;
- mapping collaborative learning components to their programme to ensure that collaborative learning occurs effectively;

- providing guidance for adults working on the programmes to enable them to provide “autonomy support” (Hansen, Moore et al. 2018) to students through AfL strategies in relation to the overall driving questions agreed with the students;
- capacity building in line with YPAR so that students develop research skills they can apply to real life contexts and issues;
- exploring ways of accrediting their offer with UCAS points. This would have a unique selling point – unlike the EPQ, Enactus’s offer not only promotes SRL but also promotes collaborative learning skills and social action.

In seeking to externalise the findings of this report and showcase their offer, it is recommended that Enactus:

- publishes articles in Schools Week, TES and The Conversation;
- undertakes press releases;
- presents key findings and documentation to the relevant All-Party Parliamentary Group;
- shares findings, particularly those relating to SRL and metacognition, with the Education Endowment Foundation to build upon their previous evaluation into PBL (Menzies et al., 2016);
- shares findings with business networks like The Entrepreneurs Network to further engage businesses in secondary education;
- attends local and national school and Multi Academy Trust (MAT) meetings, including local curriculum leader meetings and the Headteachers’ Roundtable;
- shares findings through a range of platforms with relevant networks, including CollectivEd’s Alternative Provision network and the British Education Research Association’s Alternative Education Special Interest Group.

### *Policy Makers*

- Address the skills gap by reimagining the national curriculum to include cognitive, intra- and interpersonal competency development.
- In reimagining the national curriculum, focus on intra- and interpersonal competency development from the beginning of secondary school education.
- Actively encourage secondary schools to utilise alternative pedagogies like student driven, community based PBL and YPAR in line with the regulatory focus on “curriculum intent”, “personal development” and careers education (Ofsted 2021).
- Subsidise non-profit making organisations like Enactus who can help engage young people and provide them with 21<sup>st</sup> century skills.
- Incentivise local employers to give their time and expertise to engaging in these pedagogies with schools and organisations like Enactus.

### *Secondary schools*

- Curriculum leaders could work with senior leaders to identify time and space within the curriculum for students of all ages to engage progressively with these student driven, community based pedagogies. This could be within Personal Social Health and Economic education but also other curriculum areas. Not only

will this help satisfy the regulatory framework in terms of personal development and curriculum intent, it will also enable students to develop 21<sup>st</sup> century skills from a younger age.

- Senior leaders could actively partner with local employers to enrich and develop PBL and/or YPAR opportunities (see School21 as an example).
- Careers leaders could actively partner with Enactus to develop PBL and/or YPAR opportunities which would meet and exceed the Gatsby Benchmarks (DfE 2021a).
- Senior leaders could work with organisations like Enactus, who can contribute to an extra-curricular offer which develops students' 21<sup>st</sup> century skills, motivation and employment prospects.
- Senior leaders could utilise resources (e.g. the BiE's HQPBL framework) in order to provide professional development for teachers.

### *Employers*

- Understand the role employers can play in secondary education to develop key skills and attitudes for employability.
- Identify the key skills and competencies they require and audit the extent to which these skills exist in school and university leavers. This could also involve helping to undertake research, including the longitudinal tracking of students through to employment.
- Think about how they could actively engage with secondary schools to promote the skills they require.
- Partner with local secondary schools and organisations like Enactus, sharing time and expertise through PBL and/or YPAR activities.

### *Researchers*

Researchers should work with the full range of stakeholders to research into:

- the impacts of student driven, community based PBL, YPAR and citizenship education upon socially disadvantaged groups of students in terms attainment and competencies;
- the impacts of these pedagogies upon specific aspects of SRL and metacognition;
- the relationship between the role of peers and teachers in collaborative learning and how this supports SRL and metacognition;
- the ways in which mixed age group working impacts upon students' competency outcomes and affective skills;
- how working in this way with younger age groups develops competencies over time;
- how students' participation in extra-curricular and out of school activities might transfer to a school context in terms of competencies, skills and self-concept;
- how teachers and adults should support student autonomy during these activities;
- how other skills like creativity, curiosity and empathy are developed through these pedagogies;

- how the development of competencies and skills prepares students for employment;
- the impact that participating in these pedagogies has upon the experiences of individuals in their careers.

Researchers should also undertake knowledge exchange activities with American partners to understand and implement aspects of the pedagogy of YPAR.





## Overarching methodological approach

### *Phase 1: Analysis of the national and international policy landscape*

The report is framed by a discussion of employers' views of the 21<sup>st</sup> century skills that should be developed by education. This leads to a discussion of key ideologies of education, which are put forward as a lens to analyse educational policy. A global view of educational policy in relation to 21<sup>st</sup> century skills is established through the discussion of four recent Programme for International Pupil Assessment (PISA) reports relating to student skill development (OECD 2014, 2017, 2020a, 2020b). Research questions which consider the work of Enactus UK in relation to the education policy and employability contexts for young people are then articulated. Set against this global context, key statutory policy documents in England relating to developing 11-19 year olds' skills in secondary and further education are identified. A critical analysis of these policy documents is undertaken to illuminate how these skills are positioned by the policy frameworks within which schools and colleges in England operate. The situation in England is compared globally with other countries whose educational policies are more in line with 21<sup>st</sup> century skills. School-level policies in England and America are then discussed alongside grey literature and personal communications to demonstrate how schools can operate a skills-based curriculum despite national educational policies. The policy landscape overview concludes by answering the Phase 1 research questions.

### *Phase 2a: Analysis of existing, relevant systematic reviews*

Taking into account the findings of Phase 1, research questions for Phase 2 are articulated. These questions are addressed by an analysis of the substantive existing systematic reviews on relevant pedagogies and skill development.

A particular focus is placed upon:

- the relationship between pedagogies and skill outcomes for different student groups in different school and extra-curricular contexts;
- the nature of independent and collaborative learning skills and how to foster these for 11-19 year olds.

Phase 2a concludes by answering the Phase 2a research questions, which help shape the research questions for Phase 2b.

### *Phase 2b: Systematic review of specific research papers relating to pedagogical approaches and skill outcomes*

Taking into account the findings of Phases 1 and 2a, specific research questions for Phase 2b are articulated, which focus on skill outcomes of relevant pedagogical approaches for particular groups of young people. In order to answer these specific questions, a systematic review protocol is utilised, which enables the identification of peer reviewed research articles which align directly with the underpinning ideologies and practices of Enactus. The research articles are then analysed against Phase 2b research questions, with conclusions made by integrating the findings of Phases 2a and 2b.

Conclusions from the three Phases are then integrated to provide overall findings and recommendations.

## **Phase 1: Analysis of the national and international policy landscape**

### **21<sup>st</sup> century skills**

A range of frameworks outlining 21<sup>st</sup> century skills and competencies have been identified in Europe, America and beyond. These frameworks are developed by partnerships between industry and education and include:

- Partnership for 21st century skills (P21), America;
- En Gauge, America;
- Key Competencies for lifelong learning, European Reference Framework (EU);
- New Millennium Learners, Organisation for Economic Cooperation and Development (OECD);
- DeSeCo, OECD;
- Assessment and teaching of 21st Century Skills, various countries.

In an analysis of these frameworks, a range of key similarities and nuanced differences are highlighted (Voogt and Roblin 2012), with the key similarities exemplified by P21's four C's model of "collaboration, communication, critical thinking and creativity" (BattelleforKids 2019).

The development of these skills in young people leads to the development of key competencies. Usefully, these competencies can be broken down into three key domains (National Research Council 2012, p.4):

1. The Cognitive Domain includes three clusters of competencies: cognitive processes and strategies, knowledge, and creativity. These clusters include competencies such as critical thinking, information literacy, reasoning and argumentation, and innovation;
2. The Intrapersonal Domain includes three clusters of competencies: intellectual openness, work ethic and conscientiousness, and positive core self-evaluation. These clusters include competencies, such as flexibility, initiative, appreciation for diversity, and metacognition (the ability to reflect on one's own learning and make adjustments accordingly);
3. The Interpersonal Domain includes two clusters of competencies: teamwork and collaboration and leadership. These clusters include competencies, such as communication, collaboration, responsibility, and conflict resolution.

In line with this and for the purposes of this report, skill development for young people will be considered as resulting in cognitive, intrapersonal and interpersonal competencies.

### **Ideologies of education: A framework for policy analysis**

Conceptually, the work of Enactus links to Freire's concept of "praxis". Arguing against the theory/ practice divide, praxis is seen by Freire as "reflection and action upon the world in order to transform it" (1972, p.36). For Freire, praxis is a basic human right, with "freedom" being defined as "expressed through intentional,

reflective, meaningful activity situated within dynamic historical and cultural contexts that shape and set limits on that activity” (Glass 2001).

Enactus’ view of young people as independent learners, who can collaborate meaningfully with others to take social action, resonates with wider debates about the purposes of education. Such debates have a long tradition and pose questions about the relationship between the child and knowledge as well as the relationship between education and society. Questions about the purposes of education are brought to the surface. What is more important: the holistic development of young people or ensuring young people learn a prescribed body knowledge? What is more important: preparing children with the skills to take up employment in society or preparing children to actively change society?

Morrison and Ridley’s (1989) typology of ideologies of education neatly encapsulates the different answers to these questions. In relation to knowledge and young people, *classical humanism* views the key purpose of education as to impart a prescribed canon of knowledge to the child; *progressivism*, on the other hand, views the key purpose of education as the development of the holistic child. In relation to education and society, *instrumentalism* views the key purpose of education as preparing the child to become part of the future workforce; *reconstructionism*, on the other hand, views the key purpose of education as empowering children to change society for the better.

These four ideologies, however, are not mutually exclusive. For example, it would be difficult to see how a young person could develop independent learning skills without both holistic development *and* knowledge acquisition, just as it would be difficult to empower a young person to change society without providing them with the skills to take up employment within society. When undertaking a policy analysis which identifies ideologies underpinning government policy documents, therefore, the approach taken here will be to identify ideological leanings and emphases. Whether policy is more classical humanist than progressivist or vice versa and whether a policy is more instrumentalist than reconstructionist or vice versa is, therefore, identified and related to 21<sup>st</sup> century skills and competencies.

## Research questions for Phase 1

Set against this articulation of key skills and competencies required by employers as well as the discussion of the different ideologies of education, Phase 1 of the report focusses on answering three questions:

1. What is the relative importance placed upon skill and competency development by global policy drivers, national policy makers and school level policy makers for students aged 11-19?
2. Which pedagogical approaches are seen to be most effective by these policy drivers and makers in developing these skills and competencies?
3. To what extent are these skills and competencies being developed by students aged 11-19 years in mainstream education? What are the barriers to and facilitators of this?

## A global view of skill development

The OECD aims to shape educational policy through comparative analyses of educational outcomes across its 32 partner countries. Whilst the metrics used by the OECD are open to critique, an analysis of four of their recent reports (OECD 2020a, 2020b, 2017, 2014) is a useful starting point for thinking about students' skill and competency development in the United Kingdom (UK) in relation to a global context.

In terms of school options for 15 year olds, the most recent relevant report highlights that the UK has one option compared with other countries who offer different types of education and vocational training (OECD 2020a). For example, Switzerland offers six types of schooling, Germany five and Singapore four. The related report explores the implications of the variety of education and training options for young people by considering whether they are "ready to thrive in an interconnected world" (OECD 2020b). The focus is "global competence", which includes students' abilities to "examine issues of local, global and cultural significance" and, in line with the United Nations Sustainable Development Goals, "take action for collective well-being and sustainable development" (ibid, p.55). Defining self-efficacy as "students' confidence in their ability to achieve the desired results through their action", the report shows that in the UK, social and cultural status impacts negatively upon students' self-efficacy regarding global issues in comparison to other countries (ibid, p.77). Furthermore, in relation to taking action for collective well-being and sustainable development, the UK is below average in the "number of actions taken by students" (ibid, p.146). Some correlation is made between these abilities and pedagogies, with the UK scoring below average in comparison to other countries in terms of the number of different learning activities to which students are exposed (less than five). The implication is that more transmissive pedagogies are used in the UK, as opposed to some countries where co-operative learning and project-based learning (PBL) takes place (ibid, p.181). Finally, the type of pedagogy and activity is more limited in the UK for students from disadvantaged backgrounds as "advantaged students have access to more learning opportunities" (ibid, p.206).

Earlier OECD reports focus on individual "creative problem-solving skills" (2014) and "collaborative problem-solving skills" (2017) developed by students across the 32 countries. The driver behind both reports is employment with the first report identifying a "long-term trend in demand for problem-solving skills" in the workplace (2014, p.26) and the second broadening this to focus on the collaborative nature of problem-solving as "workplaces around the globe are demanding people with well-honed social skills" (2017, p.3). For individual creative problem-solving, the OECD focuses on four dimensions: exploring and understanding; representing and formulating; planning and executing; monitoring and reflecting. As an average, students' competency in problem-solving in the UK is "not statistically different from the OECD average" (2014, p.64) and "weaker than expected" in planning and executing (ibid, p.86). For collaborative problem-solving, three further dimensions are considered: "establishing and maintaining shared understanding; taking appropriate action to solve the problem; establishing and maintaining team organisation" (ibid, p.47). Despite scoring above average for student performance across the three dimensions, the UK is listed as average in relation to "students' attitudes to collaboration" (ibid, p.109).

Taken as a whole, the four OECD reports indicate that the UK's educational policies are neither as progressive nor as reconstructionist as some other countries'.

Furthermore, the reports highlight that for young people in the UK, social and cultural status means that students from disadvantaged backgrounds are more likely to only be exposed to learning activities which are classical humanist and instrumentalist – a narrowing which directly impacts upon skill and competency development, particularly in relation to taking social action.

Aside from social and cultural status, students' overall competency in individual and collective problem-solving demonstrates a need for changes in government policy and school pedagogy, specifically in relation to “planning and executing” and “attitudes to collaboration”.

## **Education policy documents in England**

Whilst the OECD focusses on the UK, the devolved nature of education policy in the UK means that this report focusses mainly on education policy documents in England, produced by the Department for Education (DfE). Education policy documents which relate to 11-19-year olds in schools and colleges in England were identified and then sifted in relation to Phase 1 research questions. Three relevant policy documents were then selected for analysis as follows:

- DfE (2014) The national curriculum in England key stages 3 and 4 framework document;
- DfE (2019) Character Education – Framework Guidance;
- DfE (2021a) Careers guidance and access for education and training providers - statutory guidance for schools and guidance for further education colleges and sixth form colleges.

As the implementation of these policy documents is evaluated by the government's Office for Standards in Education (Ofsted), their *School Inspection Handbook* (2021), which articulates what the successful implementation of policy looks like in practice, was also included in the analysis.

These four policy documents were analysed in relation to their ideological leanings and the relative emphasis placed upon skill and competency development. In relation to skill and competency development, in line with Enactus UK's initial research questions, a particular focus was placed upon the intrapersonal domain and independent learning as well as the interpersonal domain and collaborative learning.

## **The national curriculum - intrapersonal and interpersonal competency development**

The intrapersonal domain and, more specifically, the idea of young people becoming independent in their learning, is notably absent from the aims of the national curriculum (NC) and the skills of the different subject areas. The search for “independent” and its synonyms yielded only one relevant citation, which was in English, where children would be “choosing and reading books independently for challenge, interest and enjoyment” (DfE 2014, p.15). Equally, the interpersonal domain and a search for “collaborative” and its synonyms yielded only one citation, which was in physical education.



Aligned with the absence of the intrapersonal and interpersonal domains, the NC is largely classical humanist in its ideological underpinnings. This is set out in its first overarching aim: “The national curriculum provides pupils with an introduction to the essential knowledge that they need to be educated citizens. It introduces pupils to the best that has been thought and said; and helps engender an appreciation of human creativity and achievement” (DfE 2014, p.5). Here pupils are positioned as passive recipients of “essential” knowledge which, in relation to society, is seen as preparing the child for later life in an instrumentalist way.

Interestingly, the NC’s leaning towards classical humanism is only in part mirrored in the ways in which the delivery of the curriculum in schools in England is inspected. For 14-to-16-year olds, the key emphasis for a quality education is encapsulated in the promotion of academic learning through students learning core subjects in the form of the EBacc (GCSEs in English, Maths, Science, a humanity and a language): “At the heart of an effective key stage 4 curriculum is a strong academic core: the EBacc. The government’s response to its EBacc consultation, published in July 2017, confirmed that the large majority of pupils should be expected to study the EBacc. It is therefore the government’s national ambition that 75% of Year 10 pupils in state-funded mainstream schools should be starting to study EBacc GCSE courses nationally by 2022 (taking their examinations in 2024), rising to 90% by 2025 (taking their examinations in 2027)” (Ofsted 2021, section 202).

At the same time, however, Ofsted’s recent focus upon “curriculum intent” gives more autonomy to school leaders to decide what the ultimate purposes of this mandated curriculum might be. Accordingly, “Inspectors will draw evidence about leaders’ curriculum intent principally from discussion with senior and subject leaders. Inspectors will explore: how carefully leaders have thought about what end points the curriculum is building towards, what pupils will be able to know and do at those end points, and how leaders have planned the curriculum accordingly” (Ofsted 2021, section 204). Although these “end points” will be to some extent shaped by the NC with its classical humanist leanings, there is scope here in the Inspection Framework for schools to articulate more progressivist aims which could, hypothetically, include students’ developing independent and collaborative learning skills belonging to intrapersonal and interpersonal competencies.

Whilst Ofsted leaves the door open for schools to include independent learning in articulating their “curriculum intent”, their only explicit reference to students as independent and collaborative learners comes in the inspection of schools’ sixth forms, where, “inspectors will consider how well students develop personal, social and independent learning skills” (Ofsted 2021, section 339). This inclusion of independent learning skills for sixth form students is symptomatic of Ofsted’s stated sequential view of learning: “Inspection experience and research show that the most important factors to consider are the following: All learning builds towards an end point. Pupils are being prepared for their next stage of education, training or employment at each stage of their learning. Inspectors will consider whether pupils are ready for the next stage by the point they leave the school or provision that they attend” (2021, section 218).

From an Ofsted perspective, therefore, the promotion of “social and independent learning” in sixth form is about preparing students for Higher Education, where independent learning is seen to be a key skill to be both developed and assessed. This view is matched by the Frameworks for Higher Education Qualifications (QAA,

2014), which uses a range of synonyms for independent learning to stipulate some of the skills students need to achieve awards at different levels. In relation to employment, for example, at level 5 holders of the qualification will have “the qualities and transferable skills necessary for employment requiring the exercise of personal responsibility and decision-making” (QAA 2014, p.23). At level 6, holders will have “the qualities and transferable skills necessary for employment requiring: the exercise of initiative and personal responsibility; and decision-making in complex and unpredictable contexts” (ibid, p.26).

A report by Thomas, Jones and Ottaway (2018) emphasises how students find this transition to independent learning in Higher Education difficult due to a lack of emphasis upon intrapersonal and interpersonal competencies. It could be argued that Ofsted’s sequential view of learning, where independent learning skills are seen to belong to Higher Education, means that a lack of focus on intrapersonal and interpersonal competencies for 11-16 year olds will only serve to perpetuate these difficulties of transition to Higher Education. Having said this, Ofsted’s inclusion of “curriculum intent” means that at school level there is potential for a focus on intrapersonal and interpersonal competencies for 11-16-year olds, which is in contrast to the NC where independent and collaborative learning has almost no presence at all.

### **Citizenship education and personal development**

In the NC overall, the progressive ideology of “personal development” is given little emphasis and is mainly housed within the Citizenship subject curriculum. Here the purpose of study is outlined as: “A high-quality citizenship education helps to provide pupils with knowledge, skills and understanding to prepare them to play a full and active part in society ... Teaching should equip pupils with the skills and knowledge to explore political and social issues critically, to weigh evidence, debate and make reasoned arguments. It should also prepare pupils to take their place in society as responsible citizens” (DfE 2014, p82). From a curriculum perspective, the underpinning of Citizenship is balanced between classical humanism, with knowledge being provided to pupils, and progressivism, with pupils exploring issues “critically”; from a societal perspective, personal development is also balanced between instrumentalism, with pupils “taking their place in society as reasonable citizens” and reconstructionism, with pupils playing a “full and active part in society”. This balance between ideologies is reiterated in the subject content for Citizenship for 14-16-year olds where pupils are taught about “the different ways in which a citizen can contribute to the improvement of his or her community” whilst also being given the opportunity to “participate actively in community volunteering” (DfE 2021, p.84). This means that whilst the NC as a whole omits and precludes children’s independent and collaborative learning through heavily leaning towards classical humanism, the Citizenship subject curriculum does appear to open up some potential for independent learning through the inclusion of some progressivist and reconstructionist ideologies.

The Citizenship subject curriculum is supported by guidance on Character Education (DfE 2019). Here character is framed as “virtues” to be learned, “for example, courage, honesty, generosity, integrity, humility and a sense of justice” (ibid, p.7) as well as appreciating “long-term goals” and “long term commitments”. The leaning is to more of a classical humanist approach to teaching and learning.



Alongside this, “self-regulation” and “self-efficacy” are highlighted as essential character traits for students, although it is unclear how these traits are to be developed or acquired. Six Character Benchmarks are put forward, the assumption being that these will help to develop the character traits. They include: “how good is our co-curriculum?” and “how well do we promote the value of volunteering and service to others?” (ibid, p.5-6). The latter is accompanied by the question “are opportunities effective in making pupils civic-minded and ready to contribute to society?” which indicates a more reconstructionist ideology in line with aspects of the Citizenship National Curriculum.

In the Ofsted document (2021), on the other hand, personal development is given a much greater emphasis than in the NC (2014). This is in line with “personal development” constituting one of the five areas in which schools are now evaluated, the others being: “overall effectiveness”; “the quality of education”; “behaviour and attitudes”; and “leadership and management” (Ofsted 2021). Personal development is defined in terms of how schools prepare “pupils for their adult lives” (Ofsted 2021, section 242). This judgement is made against “the dimensions of the personal development of pupils that our education system has agreed, either by consensus or statute, are the most significant”, which includes: “developing responsible, respectful and active citizens who are able to play their part and become actively involved in public life as adults; developing pupils’ character, which we define as a set of positive personal traits, dispositions and virtues that informs their motivation and guides their conduct so that they reflect wisely, learn eagerly, behave with integrity and cooperate consistently well with others” (Ofsted 2021, section 243).

From a societal perspective, the emphasis of the Ofsted document is more heavily weighted towards instrumentalism than it is in the Citizenship subject content of the NC, especially in the articulation of a set of “dimensions” of personal development which have been predetermined by “our education system”. Here the Ofsted document takes a stance in relation to debates around character education which originate in the United States. According to Nucci (1989, xiii), character education is polarised between those who see “morality in terms of norms” and developmentalists who view “moral action as a product of moral judgement”. The statement “a set of positive personal traits, dispositions and virtues that informs their motivation and guides their conduct so that they reflect wisely, learn eagerly, behave with integrity and cooperate consistently well with others” demonstrates that the Ofsted document (2021) is underpinned by a view of morality as a set of norms. By implication, therefore, these norms will need to be transmitted and learnt by students in line with the classical humanist leanings underpinning Ofsted’s conceptualisation of personal development.

This means that despite the NC (2014) opening up the potential for independent learning through more progressive and reconstructionist ideologies within the Citizenship subject curriculum, this potential could be precluded by the ways in which schools are judged by Ofsted (2021) in relation to students’ personal development.

The Ofsted document also includes a new focus on careers within the personal development section. Here the evaluation focuses on: “the quality of the unbiased careers advice and guidance provided to pupils; the school’s implementation of the provider access arrangements to enable a range of education and training providers to speak to pupils in Years 8 to 13; how the school provides good quality,

meaningful opportunities for pupils to encounter the world of work” (Ofsted 2021, section 256). Ideologically, the underpinning is once again classical humanist with information being “provided” to pupils who take a passive role.

This section of the Ofsted document responds to the government’s new policy on schools providing careers guidance to its pupils (DfE 2021a). The catalyst behind the focus on careers is the government’s white paper, which identifies “a skills gap” in the workforce, particularly in relation to “technicians, engineers” and “health and social care professionals” (DfE 2021b, p.3). The onus, therefore, is on schools to support students to understand the full range of education and training options open to them after schooling rather than simply providing information about universities – what they term the ‘Baker Clause’ (DfE 2021a, p.7). The ways in which schools should provide careers guidance to its pupils are, therefore, underpinned by an instrumentalist ideology to address the “skills gap” and provide a future workforce.

This instrumentalist underpinning is evident in the way in which the policy document (DfE 2021a) is structured around 8 benchmarks for “good career guidance” (Gatsby 2014, p.19). “Benchmark 4: Linking Curriculum Learning to Careers”, for example, is underpinned by classical humanism and reinforces the Ofsted focus upon the EBacc: “Schools should ensure that students study the core academic subjects at GCSE – English, maths, science, history or geography, and a language – the English Baccalaureate (EBacc). Schools should support students to understand that these are the subjects which provide a sound basis for a variety of careers beyond the age of 16 and can also enrich students’ studies and give them a broad general knowledge that will enable them to participate in and contribute to society” (DfE 2021a, p.26).

Gatsby benchmarks 5 and 6 focus on students having encounters with employers and experiences of workplaces. Benchmark 5 states that, “Every student should have multiple opportunities to learn from employers about work, employment and the skills that are valued in the workplace” (DfE 2021a, p.28). Rather than being experienced, the skills are to be learned, which implies a classical humanism underpinning and transmissive pedagogy. For Benchmark 6 where students undertake work placements, there is no articulation of the skills they might develop (DfE 2021a, p.31).

Taken alongside the Ofsted document (2021), the government’s focus on careers as part of personal development (DfE 2021a) reinforces an overall instrumentalist and classical humanist approach. As previously stated, this could minimise the progressivist and reconstructionist emphasis contained within the Citizenship subject curriculum (DfE 2014) and in turn minimise the potential for the development of young people’s intrapersonal and interpersonal competencies.

## **Policy summary**

Overall, England’s education policy documents have overt classical humanist and instrumentalist leanings and therefore demonstrate little emphasis upon the need for schools to develop children’s independent or collaborative learning skills. Indeed, rather than develop skills, the onus is firmly placed upon the transmission of knowledge. This aligns with the OECD’s (2020b) findings that the nature and range of pedagogical activities are restricted for students in the UK. Interestingly, where one policy does open the potential for schools to promote children’s independent learning, another policy runs counter to this. For example, whilst Ofsted (2021)

opens up the potential for independent learning through the idea of school leaders developing “curriculum intent”, the NC (DfE 2014) places almost no emphasis on independent learning outside of Citizenship. Whilst Citizenship subject content in the NC (DfE 2014) opens up the potential for independent learning, the way schools are judged in relation to children’s personal development from both character and employability perspectives (Ofsted 2021, DfE, 2021a) implies that schools should take a more classical humanist approach where children are the passive recipients of knowledge rather than active in the development of skills.

### **Singapore’s national curriculum**

The country which performs consistently higher than average in relation to the OECD reports that focus on student skills (2020b, 2017, 2014) is Singapore. Obviously, there are many cultural and educational reason for this, but one alluded to in relation to global competence is an interdisciplinary national curriculum that has been in place since 2004 and which is structured around “project work” (OECD 2020b). According to the Singapore Ministry of Education’s website, project work is an “interdisciplinary learning experience that provides primary and secondary school students with the opportunity to synthesise knowledge from various areas of learning and apply it to real-life situations” (MoE Singapore 2022).

In Singapore, the learning outcomes of project work are divided into four areas: “communication; collaboration; knowledge application; independent learning” (ibid). Originally, project work was for sixth form students only, but in 2021 all primary and secondary schools in Singapore were required to implement project work in each year of study. In line with this, the Desired Outcomes for Education (ibid) state that children schooled in Singapore should be: “confident persons; self-directed learners; active contributors; and concerned citizens”. These outcomes are corroborated by early research into project work, which found that project work developed students’ competencies in all three key domains (cognitive, intrapersonal, interpersonal), through a focus on “metacognition, communication skills, collaboration and problem-solving skills” (Wang, Woon Chia et al. 2011).

### **Project-based learning and ideological leanings**

One aspect of project work in Singapore that has come under scrutiny is the extent to which the projects undertaken are student centred. An early evaluation of project work (Gill 2007, p.9) found that the student outcomes tended to be “over-structured” as a result of heavy teacher scaffolding and, therefore, more classical humanist than progressive. This issue brings to the surface one important dimension of project work: the extent to which the projects are driven by the students or the teachers.

In England and other countries, project work is called project-based learning (PBL). In relation to this, the student vs teacher control dimension is developed and added to by a research project from Newcastle University (ND). The diagram below outlines these dimensions of learning so that schools and teachers can identify and reflect upon the extent to which learning is progressive (directed by the children) as well as the extent to which it takes place inside or outside of school (Newcastle University ND, p.15). It is worth noting that the diagram falls short of conceptualising the nature of the work undertaken outside of school and whether this could be considered transformative and reconstructionist in relation to the student and the

local community or not. Nevertheless, the diagram can be usefully applied to think about the nature and ideological leanings of PBL and how it is differently interpreted

| From              | Dimension                  | To                  |
|-------------------|----------------------------|---------------------|
| Teacher           | Control                    | Student             |
| High              | Scaffolding and/or Support | Low                 |
| Inside school     | Audience                   | Outside school      |
| Inside school     | Source of resources        | Outside school      |
| Short (<week)     | Duration                   | Long (whole term)   |
| Single subject    | Focus                      | Cross subject       |
| Subject focused   | Stimulus                   | Curiosity driven    |
| Individual        | Work mode                  | Collaborative       |
| Transfer critical | Metacognitive orientation  | Transfer incidental |
| Concrete          | Final product              | Abstract            |

and applied.

The EEF has undertaken a randomised controlled trial evaluation of PBL (Menzies et al., 2016). This focussed on literacy development with year 7 students and whilst the progress in literacy was seen to be slower for students taught by PBL, it should be noted that the results are insecure due to a high attrition rate. Equally, the way in which PBL was delivered tended to be classical humanist through subject focus and teacher control and whilst the final product was shared with a real audience, the resources tended to be within the school rather than the community thus restricting the reconstructionist potential of PBL.

### Project-based learning at school-level policy

Despite a lack of emphasis on 21<sup>st</sup> century skills at government policy level, schools can prioritise the development of these skills in their own policies. A good example is of this is School 21 (2022), a new 4-18 state funded school in east London, which organises elements of its curriculum around PBL. In year 10, every student undertakes a Real World Learning Project where they are “tasked with solving an authentic problem for a real organisation” (School 21 2022). This means that School 21 is actively partnered with a range of organisations. The foundations for this are put in place through the use of PBL pedagogy with each year group to produce “deep and authentic learning”. Built upon the principles of Patton and Robin’s PBL guide for school teachers (2012), this involves: developing an “enquiry question”; “planning the project and work time”; receiving feedback and redrafting; and sharing with an “authentic audience”. As with the delivery of the Singapore curriculum, the extent to which PBL is progressive is unclear and probably variable depending upon the context and individuals involved. However, the school policy does indicate that one of the aims of PBL is for children to work “as independently from the teacher as possible, and have some degree of *voice and choice*” (ibid).

In relation to alternative provision, Big Picture Learning (BPL), which has its origins in the US (see section ‘PBL: US’ below), utilises PBL to offer a personalised curriculum for learners who have been excluded from mainstream classrooms. The

aim is for “learners to become actively engaged in the wider community, drawing from community resources and contacts through their projects” (Big Picture Doncaster 2022). The provision is personalised into “individual learning programmes” which are often enacted outside of the classroom, meaning that “learners are introduced to real-world experiences and see a larger connection to their work” (ibid). Colin Goffin, the Principal, explained the way PBL is used in their setting with a gradual movement towards a progressive approach:

*“Because students are often disenfranchised by education, they undertake relational work first and foremost. An individual learning plan is then put in place which focuses on skills and behaviours to be developed through project work. The students then engage in project-based learning, which starts with higher levels of teacher control but switches gradually to higher levels of student control. We call this the “gradual release project” or “planning for freedom”. Students are assigned advisors and work on projects individually in a collaborative space. Projects are chosen based on students’ individual interests through a question formulation technique enacted by their advisors. Students develop a project proposal, reflect upon their learning and their progress against their learning plan. This means that metacognition is central and empowering as students see their progress and build their self-esteem. Most projects are community facing with real outcomes.”*

Support in implementing PBL in England is available through Learning3D (2022), a consultancy company which more broadly facilitates change management in schools. The focus here is upon the use of “flipped learning”, where instruction is provided online and where the teacher operates as a coach in learning areas. This approach is progressive in nature and is drawn the CEO’s, Chris McShane, 20-year experience as a head teacher. Whilst not necessarily being linked to social action, Chris explained the key dimensions to his interpretation of PBL:

*“We advocate 100-minute long lessons to allow for deep learning. Teachers act as coaches to help students develop enquiry questions and they emphasise the embracing of failure as a learning opportunity where students “fail forward”. Students develop metacognition through reflection upon their progress towards the development of pre-identified skills and attributes, with tightly framed deadlines. This is “learner focussed learning”, which impacts upon students’ attainment, resilience and self-directed learning skills.”*

For both Colin Goffin and Chris McShane, a progressive approach to PBL with the teacher as advisor or coach is always aligned with a focus upon the student reflecting upon their own learning through the development of metacognitive skills. Notably, this emphasis upon reflection is also apparent in the framework for “High Quality Project Based Learning” (HQPBL), published by the Buck Institute for Education, California, who have expertise in this pedagogy and whose framework is actively used by over 3000 schools in America. The HQPBL framework has 6 dimensions: “Intellectual challenge and accomplishment; Authenticity; Public Product; Collaboration; Project Management; Reflection” (BiE 2022). Research into the use of this framework in the form of a comparative evaluation (Hixson, Ravitz and Whisman 2012) found that teachers who had been trained using HQPBL were



far more likely to teach the full range of 21<sup>st</sup> century skills when compared with teachers using more traditional teaching methods.

### **Project-based learning for 16-19 year olds**

Where other schools and colleges do promote independent and collaborative learning is through the Extended Project Qualification (EPQ) and the International Baccalaureate Diploma (IBD) which are offered to 16-19 year olds. The EPQ has wider reach than the IBD, with 30,000 students taking the EPQ as a level 3 qualification alongside their A levels and in doing so gaining 28 UCAS for their university application. Students select their own project and are assessed against 4 outcomes: manage; use resources; develop and realise; review (UCAS 2022). According to one of the providers, the EPQ helps students “prepare for university or their future career” as they: “become more critical, reflective and independent learners; develop and apply decision-making and problem-solving skills; increase their planning, research, analysis, synthesis, evaluation and presentation skills; learn to apply technologies confidently, demonstrate creativity, initiative and enterprise” (AQA 2022).

The effectiveness of the EPQ is evidenced by three research projects. The first, a large scale quantitative evaluation of the EPQ in its pilot year (Daly and Pinot de Moira 2010), identified increases in student motivation regardless of prior achievement. This highlights the potential of the EPQ to engage students from disadvantaged backgrounds. The second, a small scale qualitative project based on teachers’ and students’ perspectives, reported an increase in students’ independent learning in the form of self-regulated learning skills (Stephenson and Isaacs 2019). Finally, a quantitative comparison of level 3 study as preparation for Higher Education in relation to degree outcomes found that students undertaking the EPQ were likely to perform better in their degrees in comparison to students just taking A-levels and AS-levels. This is because “the skills learnt in undertaking a project over a long period of time prepare students better for University” (Gill 2018).

The IBD, on the other hand, replaces the A-level award and is taken by 4,500 students each year (UCAS 2022). There is focus on both independent study, with writing an “extended essay ... based on their own research” and “interpersonal development” through “service in the community” (ibid). Perhaps due to the low numbers of students taking the IBD, research into the IBD’s effectiveness for preparing students for Higher Education indicated that taking the IBD was not as effective as taking the EPQ alongside A-levels (Gill 2018).

That being said, both the EPQ and IBD align with Ofsted’s view of independent learning as preparation for Higher Education. In light of Singapore’s more progressivist approach to curriculum as well as the way some schools in England have embraced PBL, it could be argued that the kind of work undertaken by students for the EPQ and IBD should be undertaken by students in mainstream secondary education.

### **Project-based learning: US**

As an aggregate, the US policy contexts are similar to the UK policy context. In US schools “independent thinking is not acceptable” and in higher education it is “not encouraged” (hooks 2009). hooks argues that educators should be developing

students' critical thinking through an approach she terms "engaged pedagogy" (ibid). Engaged pedagogy could encompass PBL and means that all students are fully engaged in their learning and that the role of the teacher changes as they are no longer the "sole" leader because "the classroom functions like a cooperative where everyone contributes" (ibid, p.22).

In contrast to this context and as mentioned above, the BPL network of schools was founded in the US in 1995 and now incorporates over 65 schools across all levels of schooling. The context of the schools are areas of urban disadvantage and in particular low-income students from ethnic minority backgrounds. There are 10 "Distinguishers" which capture the ethos and approach of BPL and these include the development of independent and collaborative learning skills through "personalisation" and the use of an "advisory structure" where students collaborate as part of a "learning community" (BPL 2022). Added to this, there is a focus on students learning from "real world experts" by spending 2 days a week outside of school (ibid).

Dr Scott Boldt undertakes consultancy and evaluation work for BPL in the US and Europe. In a personal communication, Scott outlined the key aspects of BPL pedagogy:

*"Secondary education is where there is most work to be done as this is where schooling can break down for students. BPL gives students their own curriculum and learning plan after the first year. This is "student driven learning" rather than "student centred learning" with teacher as advisor. It is "personal learning" rather than "personalised learning" as the agency is given to the students. All learning is "interest-based" and "relation-based" and takes place in a "real world context". Students learn through projects which they control. Examples include a student who built a "tiny house" that she could live in and a girl who advocated for an indigenous group in north America to receive free, clean water... The barriers include State policy, expectations of leaders, teachers, parents and students. Effectively BPL work involves the "unlearning" of staff and students."*

Scott's evaluation of 40 schools joining BPL demonstrated a consistency in the coaching and relationships across the schools which promoted students' flourishing. This also enabled communities of practice to develop within and across schools. In relation to developing the progressivist skill of independent learning, Scott claimed that "the worst way of teaching this skill is to teach it directly; the best way is for students to develop this skill through engagement in a project which they drive". Students reflecting upon the development of these skills has helped them develop further.

Similar to BPL, the New Tech Network is a non-profit organisation which works with almost 200 schools across all age groups in the US to help schools to develop "collaborative learning environments", specifically through the use of PBL (New Tech Network 2022). New Tech uses "Entry Events" to induct students into new projects and claims that their students become more engaged in: "investigations of real-world problems; civic behaviours and skills; communicating to external audiences; peer feedback and collaboration" (ibid). An internal report focussing on the impact of PBL on middle grade students using the Middle Grades Survey of Student Engagement found significant increases for middle grade students in:

cognitive engagement; social engagement; emotional engagement; and autonomy in learning. Whilst this report has not been peer reviewed, the findings point to a range of cognitive and non-cognitive outcomes of PBL.

BPL schools and schools which are part of the New Tech Network are also included in the American Institutes for Research's Deeper Learning project. Deeper Learning undertakes comparative analyses of ethnically diverse high schools in areas of social disadvantage which take more progressive and reconstructionist approaches to education through PBL with more traditional schools in similar demographic areas. Their first report (Zeiser 2014) indicates a range of higher educational outcomes for 14-18 year olds from disadvantaged backgrounds who have been taught in Deeper Learning schools including: higher test scores in "knowledge and problem solving"; greater likelihood of graduating from high school on time; increased post-high school enrolment for students starting high school with low grades. The students' relative success with graduating from high school was identified as being due to the intrapersonal and interpersonal competencies they developed, which led to engagement, motivation and self-efficacy. The second report (Rickles 2016) similarly found that students from Deeper Learning schools were more likely to graduate from high school due to high levels of self-efficacy and perseverance. However, the second report did not find that students from Deeper Learning schools were more likely to persevere and succeed in university. This points both to the need for further research into the effectiveness of Deeper Learning schools as well as the need for high quality in the ways in which PBL is developed.

## **Phase 1 Conclusion**

In light of the discussion of policy, 21<sup>st</sup> century skills and curriculum design and delivery above, the three key questions for Phase 1 of this report are directly responded to below.

1. What is the relative importance placed upon skill and competency development by global policy drivers, national policy makers and school level policy makers for students aged 11-19?

The skills and competencies required by 21<sup>st</sup> century employers are not prioritised in the English national curriculum (DfE, 2014), which is overtly classical humanist and knowledge based. Whilst there are more progressivist and reconstructionist trajectories in Citizenship education (DfE) and some aspects of the School Inspection Framework (Ofsted, 2021), these leanings are held in check by more instrumentalist and classical humanist leanings also found within these policy documents. To focus on independent learning skills, the development of this intrapersonal competency is seen as part of the 16-19 educational offer (Ofsted, 2021), supported by level 3 qualifications, notably the EPQ (Daly and Pinot de Moira 2010, Gill 2018, Stephenson and Isaacs 2019). However, the focus on the development of this skill with 11-16 year olds is more sporadic and dependent upon school-level policy.

2. Which pedagogical approaches are seen to be most effective by these policy drivers and makers in developing these skills and competencies?



Educational policy in England is more knowledge than skills based and, therefore, lends itself to more transmissive pedagogical approaches, which align with classical humanist and instrumentalist ideologies (DfE 2014, 2019, 2021a, Ofsted 2021). Singapore, which continually outperforms other countries in the PISA rankings, now mandates project work (PBL) with all ages in order to promote the development of 21<sup>st</sup> century skills and competencies. Research from America suggests that students from disadvantaged backgrounds can develop intrapersonal and interpersonal competencies through PBL pedagogical approaches (Zeiser 2014), which are both progressive (student-driven) and reconstructionist (community-based).

3. To what extent are these skills and competencies being developed by students aged 11-19 years in mainstream education? What are the barriers to and facilitators of this?

In England, PBL is either trialled with high levels of teacher control and low levels of community engagement (Menzies et al. 2016) or is found sporadically at school-policy level with more student-driven, community-based leanings where the focus is upon students' skills and competencies. To implement this pedagogy, a focus is placed a range of factors, including: teacher expertise; consistency of whole school approach; moving towards student driven learning; making meaningful links with learning and the community; encouraging students to reflect upon their learning (metacognition). The main barrier to this appears to be the wider policy framework as well as teacher expertise, which often determines whether or not PBL is successful (Rickles 2016). The fact that in the UK students from disadvantaged backgrounds are less likely experience different pedagogical approaches like PBL (OECD, 2020b), aligned with the relative gains of using a PBL approach with similar groups of students in the US (Zeiser 2014), indicates that PBL could significantly contribute to students from disadvantaged backgrounds developing 21<sup>st</sup> century skills and competencies. As it stands, however, the indication is that for most 11-19 students in mainstream education, regardless of background, the development of 21<sup>st</sup> century skills and competencies is largely neglected.



## Phase 2a: Analysis of existing literature reviews

### Phase 2a research questions

Phase 1 brought to the surface how the progressive and reconstructionist pedagogical approach of PBL could be used to develop young people's 21<sup>st</sup> century skills and competencies, particularly for young people from areas of social disadvantage. In Phase 2b of this report, the intersection between pedagogical approach and outcomes for young people is explored through a systematic literature review; in Phase 2a of this report, therefore, the foundations for Phase 2b are put in place by undertaking a review of a range of existing systematic reviews that focus on pedagogies as well as skill and competency development.

As discussed in Phase 1, Enactus's pedagogical approach is distinctive in so far as it is both progressive and reconstructionist. From a pedagogical approach, therefore, this can align with PBL, depending upon how it is delivered. When searching for existing literature reviews, other pedagogical approaches were also considered with a focus on the extent to which they were in line with Enactus's progressive and reconstructionist approach. For example, problem-based learning was considered but ultimately rejected as the problem tended to be almost always teacher and curriculum driven rather than student driven. The approach of Youth Participatory Action Research (YPAR), on the other hand, was included as it empowers students to research a project of their own choosing, which is usually related to their local community. Equally, existing literature reviews into citizenship education were also included as the approaches tended to be both progressive and reconstructionist.

As also discussed in Phase 1, Enactus UK focuses on skills and competency development, with a particular focus on the intrapersonal skill of independent learning and the interpersonal skill of collaborative learning. Accordingly, existing literature reviews relating to both of these skills are included here. In relation to independent learning, the related skills of metacognition and self-regulated learning (SRL) also featured heavily in the literature and were sometimes used synonymously with independent learning. For that reason they are included here alongside independent learning.

The discussion of these systematic reviews includes definitions of key terms and is focussed upon answering the research questions below. Due to the extra-curricular nature of Enactus's offer, any comparisons between extra-curricular and curricular learning activities were looked for in the existing systematic reviews. Also, due to the indication of the efficacy of PBL with disadvantaged students established in Phase 1, any comparison between student groups in terms of outcomes was also included in the research questions.

1. *What constitutes effective project-based learning (PBL), youth participatory action research (YPAR) and citizenship education?*
  - a. *What are the outcomes for student groups aged 11-19?*
  - b. *How do these outcomes relate to independent and collaborative learning?*
  - c. *Are these outcomes different depending upon whether these approaches take place inside or outside of school?*

2. *How is independent learning theorised and what are the key elements to consider in order to develop independent learning skills for 11-19 year olds?*
  - a. *How does the literature on independent learning relate to PBL, YPAR, citizenship education and extra-curricular activities?*
  - b. *What are the outcomes of independent learning for student groups aged 11-19?*
3. *How is collaborative learning theorised and what are the key elements to consider in order to develop collaborative learning skills for 11-19 year olds?*
  - a. *How does the literature on collaborative learning relate to PBL, YPAR, citizenship education and extra-curricular activities?*
  - b. *What are the outcomes of collaborative learning for student groups aged 11-19?*

## **Project-based learning**

There have been a number of literature reviews on PBL in mainstream compulsory schooling, but these reviews do not always build upon previous reviews. This means that the comprehensive nature of such reviews, e.g. Kokotsaki et al. (2016), is questionable. For this reason, the two main reviews discussed here are sequential with Condliffe et al. (2017) building upon the work of Thomas (2000) in systematically reviewing research into PBL. These reviews are structured in broadly similar ways and discuss: a definition of PBL as key design principles; implementation issues; student outcomes; and areas for future research. Two further recent reviews are also included here as they build upon the recommendations of Condliffe et al. (2017) to explore the relationship between PBL and attainment as well as PBL and motivation, particularly for socially disadvantaged groups of students (Chen and Yang 2019, Leggett and Harrington 2021).

In terms of defining PBL, both reviews (Thomas 2000, Condliffe et al. 2017) agree that there is a lack consensus about a unifying definition. Building on the work of Thomas (2000), Condliffe et al. (2017, p.5-7) identify some broad design principles that are common to most PBL projects that have been researched:

1. Establishing “driving questions”
2. Targeting “significant learning goals”
3. Using projects to “promote learning”
4. Cultivating “student engagement”
5. Using “scaffolds to guide student learning”.

Referring back to Newcastle University’s (ND) framework for PBL (see Phase 1), what is unclear here is who controls key aspects of these design principles and the extent to which the enacted PBL is progressive. For example, learning is seen as “central and not peripheral to the curriculum” (ibid, p.6), which indicates that the questions driving PBL may well be questions derived from the curriculum and posed by the teachers and not the students. In line with this, the learning goals could become more classical humanist than student driven. Having said this, the focus on student engagement and teacher scaffolding rather than direct teaching implies a more progressive approach.

Providing an overview of how PBL is implemented in schools, Condliffe et al. identify three key models: “externally developed PBL curricula”; “teacher-initiated PBL”;

“PBL as a whole school approach” (ibid, p.14). Again, the focus here could be more classical humanist, especially when PBL becomes teacher initiated and driven by the curriculum.

Condliffe et al. (2017, p.12) also define PBL in terms of assessment design principles, highlighting that due to a lack of consensus as to what PBL should look like, “it is difficult for teachers to assess the quality of their implementation and know how to improve their approach”. Having said this, they highlight the three following assessment principles as common to most PBL approaches (ibid, p.12):

1. Creating a “product that answers the driving question”
2. Providing “opportunities for student reflection and teacher feedback”
3. Presenting “products to authentic public audiences”.

Here the design principles indicate the potential for PBL to be more progressive and reconstructionist, with “student reflection” and “teacher feedback” linked to developing independent learning skills and presenting to “authentic public audiences” connecting students with their local communities. Whilst the idea of “authentic public audiences” offers the potential for community facing projects, this does not appear as a key design principle of PBL, meaning the reconstructionist potential of PBL could be underutilised.

Condliffe et al. (2017) highlight a number of barriers to implementation, relating largely to teacher development. These involve a move from more classical humanist ideologies to progressive ideologies to change teachers’ beliefs about their role from “director to facilitator” (ibid, p.25). The tension here is between the classical humanist demands of planning a “coherent curriculum” and employing more progressive approaches to use “scaffolds”, “technology” and “assessment” to allow students to drive their own learning (ibid, p.25). Overcoming this tension involves senior leaders buying into PBL as a whole school approach.

The other barriers to implementation relate to “classroom interaction”, which is seen as very different within a PBL classroom as opposed to a traditional classroom. The PBL classroom involves collaborative and individual work, with the teacher taking the role of facilitator. From the teachers’ perspectives, this has been shown to present classroom management issues; from the students’ perspectives, this can lead to uncertainty as to how to participate. The implication is that a PBL approach can take time to embed as a meaningful pedagogy and requires a culture shift within a school.

In relation to student outcomes, Condliffe et al. (2017) highlight a number of subject specific cognitive domains where attainment is improved through PBL. Primarily these involve science and mathematics, but there is also some evidence to suggest that attainment in social sciences, English and the arts can be improved through this approach. The impact of PBL on student attainment is explored further and with more focus in a recent systematic review (Chen and Yang 2019). Drawing upon 30 eligible journal articles published from 1998 to 2017, representing 12,585 students from 189 schools in nine countries, the results show that PBL has a medium to large positive effect on students’ academic achievement compared with traditional instruction. Students across all subjects were seen to increase attainment as a result of PBL and, in contrast to the findings reported by Condliffe et al. (2017), this was particularly marked in the social sciences. Performance was increased where PBL was practised for at least 2 hours a week and where technology was used by

students as a support. The fact that this review was more positive than the other two reviews discussed so far indicates that the quality of PBL provision is improving over time.

To return to Condliffe et al. and the relationship between PBL and attitudes to learning, there is significant evidence to suggest that PBL improves students' attitudes and motivation, including "positive attitudes towards what and how they learn and towards their peers" (2017, p.41). Linked to this, there is also evidence to suggest that PBL improves engagement and attendance at school.

Condliffe et al. (2017) also focus on the relative impact of PBL on specific groups of students. Where a whole school approach to PBL is taken, there is some evidence to suggest that PBL leads to higher attainment and higher graduation from high school rates with students from disadvantaged backgrounds. However, in general there is a lack of research into how PBL impacts upon specific learning skills and competencies. For example, Condliffe et al. (2017) note self-directed learning as an intrapersonal skill which could be developed by PBL but do not present any research which substantiates this. Accordingly, in their conclusions, Condliffe et al. (2017, p.54) identify the need for future research into the impacts of PBL to "develop reliable measures of intra- and interpersonal competencies" which focus on the implementation of PBL in specific local contexts, including "underserved student populations".

In line with this, a recent systematic review of 8 research articles (7 in the US and 1 in England) explores the impact of PBL upon attainment, motivation and engagement of disadvantaged students (Leggett and Harrington 2021). Overall the review concluded that there was some evidence for increased attainment, motivation and engagement of disadvantaged students, although more research would be needed to substantiate this. This research would also need to include longitudinal studies to capture both the development of skills and competencies over time as well as the long-term impact this may have in terms of higher education and employment prospects.

Overall, the gap in research relates to PBL's development of students' 21<sup>st</sup> century skills and competencies, meaning that as it stands research into PBL fails to capture the progressive and reconstructionist potential of the pedagogy. Added to this, the different ways in which PBL is understood and implemented, including classical humanist and progressive approaches as well as sometimes infrequent community links, means that the measurement of skill and competency development under the umbrella term of PBL may not prove to be particularly satisfying as the type of PBL undertaken needs to be made clear.

## **Youth Participatory Action Research**

Youth participatory action research (YPAR) is included here as an approach to working with students in secondary schools. Most of the research into YPAR is based in the United States and whilst the focus upon youth undertaking "research" is more formalised in terms of methodology when compared with projects undertaken by students working with Enactus, there are key similarities in practices. Most notably, YPAR often takes place outside of school and is community-facing and this means YPAR embodies some of the progressive and reconstructionist ideologies which a more curriculum driven interpretation of PBL does not always deliver.



Here the two most recent systematic reviews of YPAR are considered. Firstly, a review which looks at YPAR globally, in school and out of school contexts (Anyon, Bender et al. 2018); and secondly, a review which builds upon the first review and focusses on YPAR in secondary schools in the United States (Anderson 2020).

The principles of YPAR are outlined in the first review by Anyon, Bender et al. (2018, p.856) as follows:

1. Inquiry based: topics of investigation are grounded in youths' lived experiences and concerns;
2. Participatory: youth are collaborators in methodologies and pedagogies;
3. Transformative: youth actively intervene in order to change knowledge and practices to improve the lives of youth and their communities.

In comparison with PBL, therefore, YPAR can be more progressive by equalising the power relationship between adults and young people in promoting ownership of the project being undertaken. YPAR can also be more reconstructionist by insisting upon contextualising the project within a local community in order to bring about positive change to the lives of youth and their communities.

Both reviews illuminate how YPAR is likely to be more empowering for students when it takes place outside of the curriculum. Focussing on a range of settings, Anyon, Bender et al. (2018) identify how young people's "agency and leadership" are enhanced when undertaking work in a community rather than school setting and they speculate that this is due to relationships between adults and young people being more equal outside of school. Focussing on YPAR in school, Anderson (2020) sees students having "greater freedom" when their projects are undertaken either before or after compulsory lessons, as embedding YPAR within the curriculum can take ownership away from the students.

Anderson's (2022, p.250) research also highlights key project components as:

1. Relationship-building;
2. Capacity-building;
3. Dissemination through in-person presentations.

Although emphasised in PBL at school-policy level in some schools in England (see Phase 1), "relationship-building" between adults and youth as key to YPAR is missing from PBL design principles and underscores the progressive nature of YPAR. Capacity-building also indicates how YPAR acknowledges that specific research skills may need to be taught to youth by adult researchers depending upon their existing skill set. What is missing in YPAR key project components, however, are the details as to how these skills might be taught and the role of the adult as a facilitator or director of their learning. Key project components 2 and 3 also allude to the importance of involving local community stakeholders in YPAR, a dimension which is often missing in PBL. Partnerships with universities and "community-based organisations" are seen as key in terms of building students' capacity to undertake transformative research (ibid, 252).

In relation to student outcomes, Anyon, Bender et al. (2018) report that youth engagement in YPAR impacts on a range of skills and competencies. The most frequently reported impact was upon "agency and leadership" and this was closely followed by "social and interpersonal skills", "academic and career" outcomes as

well as “critical consciousness”, which links directly to Freire’s (1972) concept of praxis as students develop an understanding of the world in order to take action and change the world for the better. However, Anyon, Bender et al. (2018, p.874) are quick to point out that only 2 of the 61 studies included were longitudinal and none involved control groups, meaning that “it is not yet possible to make claims about the casual impact of this approach on participants’ outcomes.” Similar to PBL outcomes, it is clear that more research into students’ skills and competence based outcomes is needed, notably through longitudinal studies.

Having said this, Anderson (2020, p.251) does highlight how students in alternative provision settings as well as students from disadvantaged backgrounds seem to benefit from YPAR as “youth researchers who are systematically excluded can indeed produce knowledge and have their diverse needs met.”

As community facing, student-driven extra-curricular activities, the work of Enactus tends to sit within principles of YPAR. However, the detail around the role of the teacher and the importance of reflection and feedback highlighted in the design principles of PBL indicate that Enactus’ offer can also be shaped by PBL.

### **Citizenship education and service learning**

As discussed above, the curriculum area with the greatest progressive and reconstructionist leanings is Citizenship and there is scope, therefore, for Enactus to make meaningful curriculum links here. The most recent systematic reviews of citizenship education (EPPI 2004; EPPI 2005) in England predate the current national curriculum (DfE 2014).

The first review identifies the impact of citizenship education on schooling, with a focus on learning and teaching, the curriculum and external relations and community. In doing so key aspects of effective citizenship education are identified. They include: student “participation in decision-making and ownership and agency”; the “empowerment” of students to challenge “authority”; being “relevant” and linked to the “student-lived experience” (EPPI 2004, p.16). Pedagogically, an approach which promotes “dialogue and discourse” is identified as opposed to transmission teaching. This indicates that effective citizenship teaching should be progressive in nature. In relation to “external relations and community”, this is held up to be a key component, however only one of the studies looked at involved students undertaking action within their local community, indicating that the reconstructionist potential of this type of citizenship education is rarely realised.

The second review (EPPI 2005) outlines some key student outcomes of this progressive approach to citizenship education. These, however, are put forward tentatively as the reviewers acknowledge once again a lack of longitudinal empirical research. However, there is some evidence to suggest that this kind of citizenship education can improve students’: achievement; metacognition; cooperative learning; sense of empowerment; and self-confidence.

A more recent review of citizenship education focussed on US schools (Lin 2015). In this review studies were only included where students were seen to “develop civic engagement” (ibid, p.37). In the US, the civic engagement of students is often achieved through a specific type of volunteering, called service learning. Service learning is curriculum driven and involves curriculum leaders assigning “students to various service projects addressing community needs” (ibid, p.37). Overall,



engagement in service learning is shown to increase “community-level civic engagement” as well as “school commitment” (ibid, p.56). These impacts were greatest where service learning programmes included high levels of student engagement as this led to “greater understanding of how schools are connected with their communities” (ibid, p.57).

These studies included both service learning as a mandatory part of the school curriculum and service learning as voluntary, taking place outside of school. Perhaps unsurprisingly, the impacts were shown to be greater where students joined voluntarily, once again underscoring the value of extra-curricular projects like those offered by Enactus. As a whole, however, the review identifies that more research is needed in order to identify the long term outcomes of service learning on civic engagement.

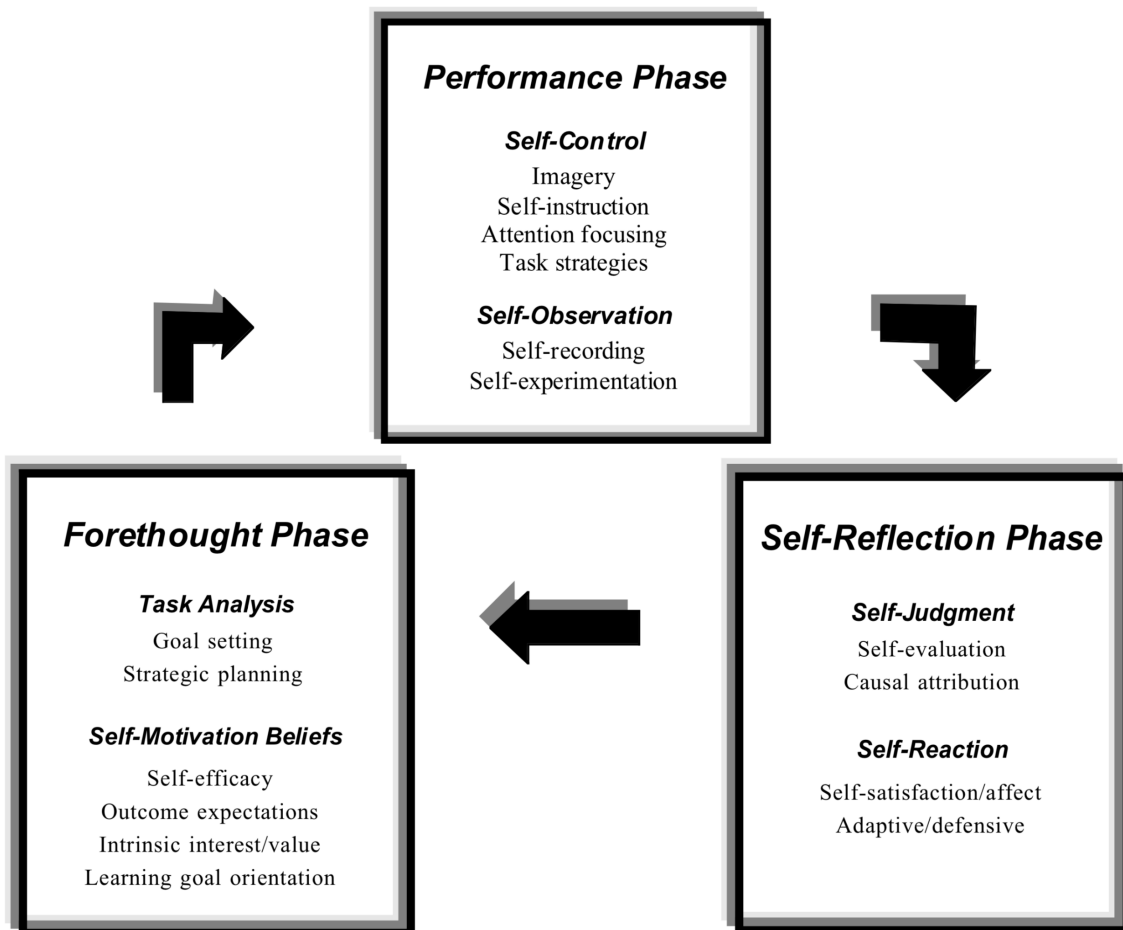
In summary, the reviews of citizenship education in England and the US highlight the importance of progressive and reconstructionist approaches. In terms of reconstructionist approaches, which involve civic engagement, this seems to occur more readily in the United States through service learning and is most effective when students volunteer and reflect upon their experiences. Aspects of Enactus’ offer, therefore, could be considered as service learning.

### **Independent learning, metacognition and self-regulated learning**

Research into PBL, YPAR and citizenship education is often vague and underdeveloped in relation to cognitive, intrapersonal and interpersonal skill outcomes and is notably tentative in discussing the development of independent learning skills (Condliffe et al. 2017; Anyon, Bender et al. 2018). However, despite a lack of research linking independent learning to these pedagogies and despite a lack of policy focus on skills and competencies, there has been and continues to be extensive research interest in England into developing students’ intrapersonal competencies and independent learning skills in schools. This started in 2008 with the government commissioning a review into independent learning (Meyer et al. 2008). More recently, independent learning has been researched using the terms metacognition and self-regulated learning (SRL). Metacognition has been systematically reviewed (Perry, Lundie et al. 2019) and metacognition and SRL have been systematically reviewed together by the Education Endowment Foundation (EEF) (Muijs and Bokhove 2020).

To start with the government commissioned systematic review (Meyer et al. 2008), a clear definition of independent learning is put forwards: “the shift of responsibility for the learning process from the teacher to the pupil.” Independent learning is, therefore, fundamentally a progressive view of learning. The review highlights, however, complexity in the ways in which independent learning is theorised, concluding that self-regulated learning (SRL) was, in 2008, the most commonly used term. SRL is defined as learning whereby students have “an understanding of their learning”, are “motivated to take responsibility for their learning”, and work “with teachers to structure their learning environment.”

The review posits that the model of SRL which either implicitly or explicitly underpins most of the research into SRL is Zimmerman’s (2002) model. The model is cyclical and has three phases as outlined in the diagram below (Zimmerman 2002).



Starting with the Forethought Phase, the self-regulating student will undertake a task analysis, which involves setting goals and strategic planning. This forethought phase is only successful where students are self-motivated. Zimmerman uses Bandura's concept of self-efficacy here to indicate that students need to believe in their own ability to accomplish a task in order to engage with self-regulated learning in the first place. This involves an understanding of what is expected, what the outcome will look like as well as intrinsic valuing of the task itself. The Performance Phase involves both the use of strategies from the Forethought Phase and self-observation of the use of these strategies in order to ensure their ultimate efficacy. The Self-Reflection Phase involves Self-Judgment in relation to self-evaluation, which includes establishing cause and effect. Crucially, it also includes an affective dimension where the student develops an understanding of their affective response to the task and their ability to complete the task or otherwise. Whilst the three Phases are delineated here as separate entities, they are cyclical and interactive. For example, self-evaluation will affect strategic planning and performance.

The problem with this model of SRL is that neglects to consider the context in which the student finds themselves. Meyer et al.'s review (2008), therefore, combines this internal model of SRL with external models, sometimes referred to as self-directed learning (SDL). Reviewing the literature, they summarise both the internal elements and the external elements that should be considered in the development of independent learning.

To start with the internal elements, this is broken down into three skill areas (Meyer et al. 2008):

1. Cognitive skills, namely memory, attention and problem-solving;
2. Metacognitive skills, which is developing students' understanding of how their learning occurs;
3. Affective skills, which is related to promoting motivation through the development of a values system where feelings and emotions are enacted and identified.

The external elements, typically associated with SDL, focus on the relationships within the classroom, the classroom itself and the whole school and include:

1. Strong relationships between teachers and students;
2. Teachers' understanding students' experiences, their families and local communities;
3. Creating an enabling classroom environment through the supply of resources and ICT;
4. Teachers developing process-orientated teaching methods through the use of scaffolding and providing opportunities for students to self-monitor;
5. Teachers taking on the role of coach, providing formative and summative feedback;
6. School leaders developing a whole school ethos and approach in relation to independent learning.

In terms of the role of the teacher, there are direct parallels here between PBL and independent learning, notably in the emphasis placed upon using scaffolds and acting as a coach. The importance of relationship building between the teacher and the students also means that the promotion of independent learning has much in common with the early stages of YPAR.

What is striking about the review is that in identifying both the internal and external elements central to developing independent learning, motivation is seen to permeate all elements and all phases. Promoting the affective skill of motivation is put forwards, therefore, as an a priori necessity for independent learning. The centrality of the non-cognitive skill of motivation to the development of the cognitive skill of independent learning also underlines the interdependent nature of cognitive and non-cognitive skills and how the development of both sets of skills should always be valued in tandem.

In terms of student outcomes, as with PBL, YPAR and citizenship education, the review points to a lack of robust research. However, they do indicate that there is some qualitative case study evidence which suggests that independent learning increases attainment as well as motivation and confidence. There was also some evidence to suggest that independent learning might be particularly effective with specific groups, including those who are socially excluded. This chimes with some of the findings of PBL and YPAR. It should be pointed out that none of the studies included in this review focussed on extra-curricular or activities. This once again chimes with the overall lack of research into the impact these kind of activities can have on students' cognitive skill development.

More recently, the term independent learning seems to have been side-lined in education research, with a preference for a more specific focus on the learner. As explained above, due to this the terms used in the literature are either SRL or a specific strand of SRL - metacognition. In 2019 a systematic review of metacognition was undertaken in order to explore the relationship between the promotion of metacognition in the classroom and outcomes for students (Perry, Lundie et al. 2019). In this study, metacognition is defined as a “higher-order thinking process which involves active control over cognitive processes” (ibid, p.485). Reviewing a wide range of predominantly quantitative studies, Perry, Lundie et al. (2019) find conclusive evidence that promoting metacognition improves attainment outcomes for students. One of the studies they include explores the development of metacognitive strategies at all levels of education, from primary school to higher education (Veenman et al. 2004). Here quantitative data analysis shows how metacognition can be taught to young people of all ages and that metacognition is a strong indicator of academic performance, thus dispelling the myth that metacognition should only be taught to older students.

The EEF’s Teaching and Learning Toolkit (2022) rates metacognition and SRL as high impact (4 out of 5 star rating) and low cost interventions for schools. This is based on their commissioned review into metacognition and SRL (Muijs and Bokhove 2020). Rather than synonymous terms, building upon Zimmerman’s model of SRL, Muijs and Bokhove see metacognition as one component of SRL, the others being cognition and motivation. Metacognition is then further broken down into knowledge of cognition and regulation of cognition as follows:

- Knowledge of cognition
  - Declarative knowledge of oneself as a learner
  - Procedural knowledge of strategies for learning
  - Conditional knowledge of why and when to use specific strategies
- Regulation of cognition
  - Planning
  - Monitoring
  - Evaluation

As a result of seeing metacognition as a component of SRL and of defining metacognition as including regulation of cognition, this review looks at evidence for both metacognition and SRL’s impact upon outcomes for students. The conclusions are broadly in line with those of Perry, Lundie et al. (2019) as “the evidence for a relation between SRL and metacognition and attainment is quite strong” (Muijs and Bokhove 2020, p.26). Having said this, the review highlights a limited number of longitudinal studies which support this statement. In relation to outcomes for specific student groups, whilst it is acknowledged that metacognition and SRL can improve outcomes for socially disadvantaged students, there is “no convincing evidence that pupils from disadvantaged backgrounds benefit more than those from more advantaged backgrounds.” (ibid, p18). This is in line with Perry, Lundie et al.’s (2019) call for more research into related pedagogies such as PBL and YPAR.

In terms of effective approaches, the review did highlight that direct teaching of cognitive and metacognitive strategies impacted positively upon the effectiveness of metacognition and SRL (Muijs and Bokhove 2020, p.26). The cognitive strategies consist of:

- Rehearsal strategies, aimed repeating material for memorisation;
- Elaboration strategies, which focus on building connections in long-term memory;
- Organisation strategies to help select information.

The metacognitive strategies consist of:

- Planning strategies
- Monitoring strategies
- Evaluation strategies

In both this review and the previous review (Perry, Lundie et al. 2019), the metacognitive strategies are seen to be supported by the teacher using Assessment for Learning (AfL) strategies. When used in tandem with metacognitive strategies, AfL strategies are seen to accelerate “learning in a virtuous spiral” (Perry, Lundie et al. 2019). These strategies are taken from Wiliam (2011) and include teachers:

- clarifying and understanding learning intentions and criteria for success;
- engineering effective classroom discussions, questions and tasks that elicit evidence of learning;
- providing feedback that moves learners forward;
- activating students as instructional resources for each other; and
- activating students as owners of their own learning.

These AfL strategies could be utilised by Enactus alongside their coaching model.

It should be pointed out once again that the studies into independent learning, SRL and metacognition were all classroom-based and curriculum focussed. This means that there appears to be little or no research into the development of these cognitive skills and related non-cognitive skills (e.g. motivation) in relation to extra-curricular activities or learning which is linked to the community.

Finally, it is worth drawing attention to a short narrative review which seeks to put forward a model for teachers to use when integrating PBL with SRL (English and Kitsantas 2013). Based on Zimmerman’s model, the role of the teacher and the student are illuminated through a three phase approach to PBL, which includes: the project launch; guided enquiry; and the project conclusion. Once again, promoting student motivation is seen as key and self-reflection against predetermined targets is maintained throughout. Although based on small range of mainly qualitative research projects, this research paper highlights the ways in which SRL can be optimised within a PBL approach.

### **Collaborative and cooperative learning**

Both of the reviews on metacognition indicate the potential role of group work in facilitating co-regulation through peer feedback. This interpersonal dimension of metacognition and SRL is, accordingly to Muijs and Bokhove, lacking in empirical evidence (2020, p.35). Having said this, the OECD’s (2017) focus on collaborative problem-solving skills alongside the general consensus of the importance of

collaboration in relation to interpersonal competencies and 21<sup>st</sup> century skills, brings into relevance systematic reviews on collaborative learning.

According to van Leeuwen and Janssen (2019), there is a common misconception relating to the ways in which researchers differentiate the terms cooperative learning and collaborative learning. With cooperative learning, they claim that reference is often made to a division of roles but that this does not necessarily need to be the case (ibid, p.71). Their systematic review, therefore, draws upon studies of both cooperative and collaborative learning and focuses specifically upon the role of the teacher. In terms of best practice, they conclude that in facilitating collaborative/cooperative work with students, the teacher should act as a guide and focus their attention on: “the content space at the meta level” (i.e. the strategies and planning used by the students); and the “relational space in general” (i.e. the interpersonal skills used by the students) (ibid, p.84). In doing so, the same kind of AfL practices found in metacognition and SRL are identified as best practice: “giving feedback, prompting and questioning students, and transferring control of the learning process to students” (ibid, p.84).

Using the term cooperative learning, another systematic review outlines the five dimensions as (Gillies 2016):

- structuring positive interdependence;
- promoting a willingness to interact;
- establishing individual accountability;
- developing social skills;
- and enabling group monitoring of progress.

When implemented successfully, cooperative learning is seen to have significant academic and social benefits. However, it should be pointed out that there is no evidence relating these benefits to specific student groups and that the research included in the review was all classroom based. Interestingly, the academic and social benefits were seen to be greatest when students were working in groups of 4 or less.

## **Phase 2a Conclusion**

In light of the discussion of existing systematic reviews into the pedagogies of PBL, YPAR and citizenship education as well as the skills of SRL and collaborative learning, Phase 2a research questions are answered below.

### *1. What constitutes effective project-based learning (PBL), youth participatory action research (YPAR) and citizenship education?*

Underpinning all three pedagogical approaches is the need for students to be motivated and engaged. Alongside this is a focus upon becoming independent learners through the use of reflection and metacognition. Aside from this, each pedagogy has a slightly different emphasis within broader progressive and reconstructionist leanings. For PBL, there is the potential to be progressive through teachers working with students for at least 2 hours a week to establish “driving questions” and employ related “assessment design principles”, which help teachers to provide formative feedback as students’ projects develop (Condliffe et al. 2017).



For YPAR, the initial emphasis is upon “relationship” building within the group as well as “capacity building” as students learn how to research (Anderson 2020). Both of these components empower students to embody the reconstructionist ideology and be transformative in the ways in which they interact with their local community. For citizenship education, it is equally about reconstructionism and promoting the civic engagement of students, although this tends to happen more in the US than in England (Lin 2015).

*a. What are the outcomes for student groups aged 11-19?*

There is some evidence that these pedagogical approaches directly impact attainment outcomes for students. This is especially the case for PBL, where more quantitative studies have been undertaken, and where PBL has a medium to large positive effect on all subjects, particularly in the social sciences (Chen and Yang 2019). In relation to closing the attainment gap for disadvantaged students, there is some evidence to suggest the efficacy of PBL (Leggett and Harrington 2021) and some evidence to suggest the efficacy of YPAR (Anderson 2020), although more research is required to substantiate this impact. There is also some evidence to suggest that YPAR can particularly benefit students in alternative provision, who have been excluded from mainstream schooling (ibid).

*b. How do these outcomes relate to independent and collaborative learning?*

There is some research to suggest that these pedagogical approaches impact upon the skill and competency development of students in the cognitive, intrapersonal and interpersonal domains. This is weakest in terms of research evidence with PBL (Condliffe et al. 2017) and strongest with YPAR. For all three pedagogies the affective skill of motivation is key to engagement. For YPAR, interpersonal skills, agency and leadership combine to develop students’ “critical consciousness” which enables them to understand and transform aspects of their local community (Anyon, Bender et al. 2018). For citizenship education, student agency is developed (EPPI 2004). Despite the focus upon self-reflection in all three pedagogies, there is a lack of research directly linking these pedagogies to SRL development.

*c. Are these outcomes different depending upon whether these approaches take place inside or outside of school?*

PBL and citizenship education tended to take place within school with direct links to the curriculum. YPAR and citizenship education, on the other hand, included community based learning and learning outside of compulsory lessons, both of which allowed for greater engagement from students when compared with similar projects taking place within school (Lin 2015, Anderson 2020).

*2. How is independent learning theorised and what are the key elements to consider in order to develop independent learning skills for 11-19 year olds?*

All models of independent learning preface the importance of student motivation. This is based on the model put forward by Zimmerman (2002), who also focussed on the importance of self-reflection in what is now widely known as SRL. According to Meyer et al. (2008), SRL focuses on internal skills including cognitive skills,

metacognitive skills and affective skills but should also focus on external factors like relationships, classroom roles and IT. Looking at SRL and metacognition, Muijs and Bokhove (2020) focus on the role of the teacher in the direct teaching of cognitive and metacognitive skills, whilst providing ongoing formative feedback through AfL strategies.

*a. How does the literature on independent learning relate to PBL, YPAR, citizenship education and extra-curricular activities?*

The literature on independent learning does not directly relate to these pedagogies. However, the importance of student motivation, metacognition and the role of the teacher as a facilitator in independent learning does map onto the progressive underpinnings and practices of PBL, YPAR and citizenship education. As a result, a mapping of PBL and SRL has been undertaken (English and Kitsantas 2013). This indicates that the development of SRL as an intrapersonal competency would go hand in hand with these pedagogies.

No literature on extra-curricular activities was found.

*b. What are the outcomes of independent learning for student groups aged 11-19?*

According to Muijs and Bokhove (2020), the link between attainment, SRL and metacognition is quite strong. Similarly, according to Meyer et al. (2008), the link between independent learning, attainment, motivation and confidence is also evident. There is also some evidence that SRL and metacognition can help close the gap with socially disadvantaged students, although there is a need for further research here (Meyer et al. 2008). Finally, there is evidence that metacognition can have an impact upon younger and older students, thus debunking myths that are perpetuated by policy about independent learning being for sixth form students only (Veenman et al. 2004).

*3. How is collaborative learning theorised and what are the key elements to consider in order to develop collaborative learning skills for 11-19 year olds?*

Leeuwen and Janssen (2019) focus on the role of the teacher as a guide, who helps students develop strategies for group work as well as interpersonal competencies. As with YPAR, relationship building is key. As with SRL and metacognition, the teacher should use AfL techniques. Group reflection to achieve interdependence is also highlighted as a key component of collaborative learning (Gillies 2016).

*a. How does the literature on collaborative learning relate to PBL, YPAR, citizenship education and extra-curricular activities?*

There is no direct link between the literature on collaborative learning and these pedagogies. However, the role of the teacher and the use of reflection to promote independence means there are clear parallels between this interpersonal competency and these pedagogies. This indicates that the development of collaborative learning as an interpersonal competency would go hand in hand with these pedagogies.



No literature on extra-curricular activities was found.

*b. What are the outcomes of collaborative learning for student groups aged 11-19?*

There is some evidence to suggest that the link between collaborative learning and academic and social outcomes is strong, especially when students are working in groups of 4 or less, however this evidence lacks detail (Gillies 2016). No literature on the relative benefits of collaborative learning for socially disadvantaged students was found.



## Phase 2b: Systematic review of literature

### Phase 2b Research questions

Phase 2a explored existing literature relating to the relevant pedagogies of PBL, YPAR and citizenship education as well as skill and competency development, with a key focus upon independent learning and collaborative learning. In Phase 2b, the intersection between these pedagogies and these skills and competencies is explored in greater detail through the analysis of peer reviewed journal articles. The questions below have been articulated to include the full range of relevant pedagogies and outcomes (attainment; cognitive, intrapersonal and interpersonal competencies). In line with some of the tentative findings of Phase 2a, specific questions have been articulated to look for outcomes in terms of: long-term impact; specific social groups; extra-curricular vs curricular activities; and the effects of teacher control. Given that Enactus tends to work with students of differing ages in secondary schools, a question has been added about the potential impacts of working with mixed age groups. Also, in light of the prevalence for motivation as a prerequisite affective skill for pedagogy engagement and skill development, a specific question relating to motivation has been included. Finally, other outcomes relating to Enactus' offer have also been addressed (creativity, curiosity and empathy).

1. *What are the outcomes of PBL, YPAR and related pedagogies for 11-19 year olds in terms of attainment and cognitive, intrapersonal and interpersonal competency development?*
  - a. *Are there any long-term outcomes for students identified in the literature in relation to University, employment, entrepreneurial skills, social action, philanthropy?*
  - b. *In terms of outcomes, which groups of students tend to benefit from these activities and why?*
  - c. *How do these outcomes compare when 11-19 years old are engaged in extra-curricular rather than curricular activities?*
  - d. *Is there any evidence to suggest that mixed age group activities impact upon these outcomes?*
  - e. *Is there any literature which explores the relationship between teacher/student control and outcomes for students?*
  - f. *What is the role of affective skills in these processes, including motivation?*
  - g. *Is there any literature relating to the development of creativity, curiosity and empathy through these activities?*
  - h. *What gaps are apparent in the research in relation to these pedagogies and outcomes?*

### Systematic review protocol

The review of existing systematic reviews in Phase 2a demonstrated some research which establishes a direct casual effect between progressive and reconstructionist pedagogies and skill and competency outcomes for students. Therefore, the starting point for answering the specific research questions for Phase 2b was to develop search terms which would allow this correlation to be further explored by including

both the relevant pedagogies and the relevant outcomes in the search terms. Initially, a CHIP protocol (Context, How, Issues, Population) was used to determine search terms within databases but the wide variety of contexts – age phase, curricular and extra-curricular - yielded too many results so a decision was made to focus on the Issues of pedagogies, outcomes and the Population.

This meant that the following terms were used for pedagogies:

*("Collaborative learning" OR "Cooperative learning") OR ("Project-based learning" OR "Project based learning" OR "PBL" OR "PjBL" OR "Enquiry based learning" OR "Inquiry based learning") OR ("Action learning" OR "Participatory learning and action" OR "Participatory Research" OR "Participatory Action Research" OR "PAR" OR "Youth participatory action research" OR "YPAR") OR ("Citizenship" OR "Character education" OR "PSHE" OR "Careers education" OR "Careers learning" OR "Service Learning" OR "Service-learning") OR ("Youth program\*" OR "Community-based program\*" OR "Volunteering" OR "Social action" OR "Civic engagement" OR "Local community" OR "Collective action" OR "Enterprise")*

For cognitive skills, the primary focus was independent and collaborative learning and the following search terms were used:

*("Independent learning" OR "Self-learning" OR "Self Learning" OR "Self-directed learning" OR "Self directed learning" OR "Self-regulated learning" OR "Self regulated learning" OR "Ownership of learning" OR "Autonomous learning" OR "Learner Autonomy" OR "Learning to learn" OR "Self-instruction" OR "Metacognition" OR "Metacognitive" OR "Agency" OR "Self efficacy" OR "Self-efficacy" OR "Independent study") OR ("Social" OR "Interpersonal" OR "Cooperation" OR "Collaboration" OR "Teamwork" OR "active listening")*

In relation to non-cognitive skill development, e.g., motivation, this was deduced by reading the relevant articles.

Finally, for the population, the focus on secondary schooling meant that the following search terms were used:

*("Learner\*" OR "Student\*" OR "Youth" OR "Adolescent\*" OR "14-19" OR "11-19" OR "Young people" OR "Teenager\*" OR "Teen\*" OR "Young adult\*" OR "Child\*" OR "Pupil\*")*

The search was run on the following relevant databases: Academic Search Complete, Cambridge Core Journals, ERIC, PSCHINFO, Sage Journals Online, Springer Link, Wiley Online Library. Eligibility criteria were set and research articles which had not been quality assured through a peer review process, were not available in English or were undertaken more than ten years ago were automatically excluded from the search. The decision to only include articles published in the last ten years was made in light of the work undertaken in Phase 2a of this study which focussed on existing literature reviews as well as the conclusion of the recent systematic review of PBL in relation to attainment which indicated an improved in the quality of PBL teaching over the last ten years (Chen and Yang 2019).

The wide variety of pedagogies and skills meant that 280 articles were extracted onto a data management system (Endnote) and duplicates were removed, leaving

212 articles which met the search criteria. The abstracts of the articles were read and articles were then sifted against exclusion criteria in two phases, as outlined below. It should be noted that whilst the methodology of the research, including scale, was captured as part of the review, articles were not excluded on a methodological basis. This was because it was felt that the findings of both small-scale and large-scale projects could offer insight into the relationship between the pedagogies and potential outcomes for students. Having said this, in analysing the articles selected for the Phase 2b systematic review, attention is drawn to the scale of the research project and research design. Claims made regarding outcomes for students are discussed in proportion to this. With this in mind, large-scale, longitudinal studies, some of which use randomised controlled trials, are differentiated from small-scale, qualitative studies.

Initial exclusion criteria were applied to remove articles which did not focus on the target population of 11-19 year olds. These articles included those focussing on primary/elementary school students and university/ higher education students. However, articles which focussed on a range of age phases that included 11-19 year olds, were included.

Subsequent exclusion criteria were then applied to remove articles whose pedagogies did not broadly align with the ideological underpinnings of progressivism and reconstructionism. This sifting was a more complex process, involving a close reading of the articles in relation to definitions of PBL, YPAR and citizenship education as mapped against the underpinning ideologies. It was decided that the articles needed to be aligned to both progressive and reconstructionist underpinnings. The criteria for this were decided upon using the key components of both PBL and YPAR as outlined in below.

|                                     | Progressive  | Reconstructionist  |
|-------------------------------------|--|--|
| PBL<br>(BiE, 2022)                  | Intellectual Challenge and Accomplishment<br>Collaborative<br>Project Management<br>Reflection | Authenticity<br>Public Project<br>Collaborative                                  |
| PBL<br>(Newcastle University, ND)   | Curiosity driven<br>Student control<br>Collaborative<br>Cross subject<br>Metacognition         | Audience and resources outside school<br>Concrete final product<br>Collaborative |
| YPAR<br>(Anyon, Bender et al. 2018) | Inquiry based<br>Participatory<br>Transformative   | Participatory<br>Transformative  |

In some articles, however, the distinct nature of the pedagogy was not always clear so as long as the articles clearly met one of the two ideologies – i.e. were either progressive or reconstructionist – and at least partially addressed the other ideology, these articles were included. In sifting the articles, all of those which were not underpinned by the progressive and reconstructionist ideologies above, including articles claiming to be PBL or YPAR, were excluded.

## **Phase 2b Systematic review**

25 articles were ultimately included for the Phase 2b systematic review. These articles are listed alphabetically in terms of authorship in the table below. The table gives information about the research project, the pedagogy used within the project and the outcomes for students. In total 14 of the articles are predominantly YPAR, 9 predominantly PBL and 2 predominantly service learning.

An analysis of these 25 articles is then undertaken in relation to each of the Phase 2b research questions articulated above and this analysis is synthesised with the analysis of existing literature reviews undertaken in Phase 2a. It is worth noting that for 23 out of the 25 articles, the research took place in the US (1 took place in Italy; 1 in South Africa). This is due to the fact that most pedagogies which are reconstructionist tend to come from the US. Whilst it is acknowledged that the US context is different from the context in the UK and England, there are sufficient cultural similarities to make the findings of these studies of relevance.

14 of the 25 articles were large-scale projects which were often longitudinal and sometimes utilised the randomised controlled trial methodology; 11 were small-scale, qualitative studies.

| Article                         | Project Overview   | Pedagogy  | Student Outcomes   |
|---------------------------------|--|---|--|
| (Albanesi, Prati et al. 2021)   | <p><i>Context</i></p> <p>Italy; high school; citizenship</p> <p><i>Participants</i></p> <p>15-17 year old students; n=87; 13% ethnic minority</p> <p><i>Methodology</i></p> <p>2-year study; randomised controlled trial; surveys and interviews</p>   | <p><i>Main Pedagogical Approach</i></p> <p>YPAR</p> <p><i>Notable Features</i></p> <p>Collaborative; community-based partnership; concrete product</p>  | <p><i>Cognitive Competency</i></p> <p>Critical reflection</p> <p>Critical consciousness</p> <p><i>Attitudes</i></p> <p>Engagement</p> <p><i>Intrapersonal Competency</i></p> <p>Autonomy</p> <p><i>Interpersonal Competency</i></p> <p>Participatory climate in school</p> |
| (Anderson, Baggett et al. 2021) | <p><i>Context</i></p> <p>US; alternative school; science elective</p> <p><i>Participants</i></p> <p>15-18 year old students; n=10; excluded from mainstream school; low socio economic status (SES); ethnic minority backgrounds</p> <p><i>Methodology</i></p> <p>Qualitative; mixed methods</p> | <p><i>Main Pedagogical Approach</i></p> <p>YPAR</p> <p><i>Notable Features</i></p> <p>Collaborative; community-university partnerships</p>  | <p><i>Cognitive Competency</i></p> <p>Critical consciousness</p> <p><i>Other</i></p> <p>Science knowledge</p>  |
| (Arnold 2020)                   | <p><i>Context</i></p> <p>US; Big Picture Learning high schools</p> <p><i>Participants</i></p> <p>17-18 year old students; n=1900; low SES; minority ethnic backgrounds</p> <p><i>Methodology</i></p> <p>6-year study; pre and post high school graduation data; surveys</p>                      | <p><i>Main Pedagogical Approach</i></p> <p>PBL</p> <p><i>Notable Features</i></p> <p>Individualised learning plan for each student; teacher as advisor; service learning; exhibition with public audience</p> | <p><i>Intrapersonal Competency</i></p> <p>Personal growth</p> <p>Independent learning</p> <p>Time management</p> <p>Organisation</p> <p><i>Interpersonal Competency</i></p> <p>Interpersonal growth</p>  |

|                              |  |  |  |
|------------------------------|--|--|--|
|                              |  |  | <p><i>Other</i></p> <p>Vocational growth</p> <p>Above average high school graduation rates (95% compared to 84%)</p> <p>Slightly lower college persistence rates</p>         |
| (Cabrera, Milem et al. 2014) | <p><i>Context</i></p> <p>US; Tuscan Unified School District; high schools</p> <p><i>Participants</i></p> <p>14-18 year old students; n=16917; low SES; Latinx</p> <p><i>Methodology</i></p> <p>6-year quantitative comparative study; attainment scores for MAS and non-MAS students</p> | <p><i>Main Pedagogical Approach</i></p> <p>Mexican American Studies (MAS) (similar to YPAR)</p> <p><i>Notable Features</i></p> <p>Community-based projects</p> | <p><i>Other</i></p> <p>Compared with non-MAS students, MAS students scored significantly lower when 14-16 years old but significantly higher when 16-18 years old</p>        |
| (Chung and McBride 2015)     | <p><i>Context</i></p> <p>US; urban high school; social science class using the Teen Outreach Programme (TOP)</p> <p><i>Participants</i></p> <p>All 12-13 year old students in school</p> <p><i>Methodology</i></p> <p>Case study; mixed methods; 9 months duration</p>                   | <p><i>Main Pedagogical Approach</i></p> <p>Service learning</p> <p><i>Notable Features</i></p> <p>Collaborative; addressing community needs</p>                | <p><i>Intrapersonal Competency</i></p> <p>Self management</p> <p>Self awareness</p> <p><i>Interpersonal Competency</i></p> <p>Social and emotional learning competencies</p> |
| (Coleman and Leider 2022)    | <p><i>Context</i></p> <p>US; high school</p> <p><i>Participants</i></p> <p>14-15 year old students in one science class</p> <p><i>Methodology</i></p>  | <p><i>Main Pedagogical Approach</i></p> <p>YPAR</p> <p><i>Notable Features</i></p> <p>Collaborative; reflection</p>  | <p><i>Cognitive Competency</i></p> <p>Critical agency</p> <p><i>Intrapersonal Competency</i></p> <p>Personal reflection</p>  |



|                                  | Case study  |  |   |
|----------------------------------|---|--|---|
| (Creggan and Adair-Creggan 2015) | <p><i>Context</i></p> <p>US; Texas; 2 high schools – 1 New Tech School, 1 traditional high school; low SES</p> <p><i>Participants</i></p> <p>Students in New Tech School n=330; students in traditional school n=1200</p> <p><i>Methodology</i></p> <p>3-year quantitative comparative study of student attendance data</p> | <p><i>Main Pedagogical Approach</i></p> <p>PBL (New Tech School)</p>   | <p><i>Other</i></p> <p>For each of the 3 years, economically disadvantaged students in the traditional school had statistically significant lower attendance rates when compared with New Tech School</p>   |
| (Escobar and Qazi 2020)          | <p><i>Context</i></p> <p>US; Southern states; voluntary summer school with STEM focus</p> <p><i>Participants</i></p> <p>14-17 year old students; n=107; 75% black African/American; low SES</p> <p><i>Methodology</i></p> <p>Self-perception surveys</p>  | <p><i>Main Pedagogical Approach</i></p> <p>PBL</p> <p><i>Notable Features</i></p> <p>Collaborative; using science to address problems in communities</p> | <p><i>Cognitive Competency</i></p> <p>Critical thinking</p> <p>Problem-solving</p> <p><i>Interpersonal Competency</i></p> <p>Teamwork</p> <p><i>Other</i></p> <p>Increased recognition of self as scientist</p> <p>Helpful for future study and employment</p>                    |
| (Friedlaender 2014)              | <p><i>Context</i></p> <p>US; California; 4 urban high schools; low SES</p> <p><i>Participants</i></p> <p>17-18 year olds; n=1800 students across 4 schools</p> <p><i>Methodology</i></p> <p>Quantitative; State assessment data</p>   | <p><i>Main Pedagogical Approach</i></p> <p>Linked Learning and Envision Education programmes (similar to PBL)</p>  | <p><i>Other</i></p> <p>Outperform peers in State assessments</p> <p>Value added greater for students from economically disadvantaged backgrounds and those whose parents did not attend college</p> <p>10-30% higher graduation rates</p> <p>Higher college persistence rates</p> |

|                             |  |  |  |
|-----------------------------|--|--|--|
| (Hansen, Moore et al. 2018) | <p><i>Context</i><br/>US; rural high school; extra-curricular Future Farmers of America programme</p> <p><i>Participants</i><br/>14-19 year olds; n=441</p> <p><i>Methodology</i><br/>1-year quantitative study; pre and post project questionnaires</p>                             | <p><i>Main Pedagogical Approach</i><br/>PBL</p> <p><i>Notable Features</i><br/>Students can work collaboratively or individually; autonomy support and directive assistance provided by adults</p> | <p><i>Other</i><br/>Agency of students increased as a result of adult autonomy support but not directive assistance</p>  |
| (Holmes and Hwang 2016)     | <p><i>Context</i><br/>US; 2 State high schools; maths</p> <p><i>Participants</i><br/>13-16 year old students; n=88 PBL school; n=444 traditional school</p> <p><i>Methodology</i><br/>2-year randomised controlled trial; maths tests, student surveys, interviews, observations</p> | <p><i>Main Pedagogical Approach</i><br/>PBL in maths</p> <p><i>Notable Features</i><br/>Curriculum driven</p>  | <p><i>Cognitive Competency</i><br/>PBL students showed significantly higher critical thinking skills</p> <p><i>Attitudes</i><br/>PBL students more intrinsically motivated<br/>PBL students appreciated peer learning</p> <p><i>Other</i><br/>Higher attainment in maths for at-risk and minority students using PBL</p> |
| (Koudelka 2021)             | <p><i>Context</i><br/>US; Midwestern school</p> <p><i>Participants</i><br/>13-14 year old students n=10; teacher n=1</p> <p><i>Methodology</i><br/>Mixed method 4-month case study; observations, interviews, pre and post surveys</p>   | <p><i>Main Pedagogical Approach</i><br/>YPAR</p> <p><i>Notable Features</i><br/>Critical literacy</p>  | <p><i>Other</i><br/>Increased agency</p>   |

|                                    |  |   |  |
|------------------------------------|--|---|--|
| (Morales, Bettencourt et al. 2017) | <p><i>Context</i><br/>US, north eastern; vocational high school; English language arts class</p> <p><i>Participants</i><br/>16-17 year olds n=15</p> <p><i>Methodology</i><br/>1 year ethnographic study</p>   | <p><i>Main Pedagogical Approach</i><br/>YPAR</p> <p><i>Notable Features</i><br/>Teachers external to school</p> | <p><i>Cognitive Competency</i><br/>Critical awareness<br/>Connecting local and national contexts</p>   |
| (Morales, Bang et al. 2013)        | <p><i>Context</i><br/>US; Midwestern high school; low SES; elective virtual reality class</p> <p><i>Participants</i><br/>15-18 year old students n=31</p> <p><i>Methodology</i><br/>1-year case study; interviews, focus groups, observations, surveys</p> | <p><i>Main Pedagogical Approach</i><br/>PBL</p>   | <p><i>Cognitive Competency</i><br/>Problem-solving</p> <p><i>Attitudes</i><br/>Motivation</p> <p><i>Intrapersonal Competency</i><br/>Independent learning</p> <p><i>Interpersonal Competency</i><br/>Peer mentored learning</p>                                    |
| (Moseki and Schulze 2019)          | <p><i>Context</i><br/>South Africa; high school; low SES</p> <p><i>Participants</i><br/>15-16 year olds; n=70</p> <p><i>Methodology</i><br/>10-week randomised controlled trial; YPAR experiment group</p>   | <p><i>Main Pedagogical Approach</i><br/>YPAR</p>  | <p><i>Attitudes</i><br/>Increased motivation for learning</p> <p><i>Intrapersonal Competency</i><br/>Increased self-regulated learning, relating to time management and cognitive strategies<br/>Additional support from teacher need to develop metacognition</p> |

|                              |   |   |   |
|------------------------------|---|---|---|
| (Nabors, Poteet et al. 2019) | <p><i>Context</i><br/>US; 2 summer schools; low SES</p> <p><i>Participants</i><br/>Students 13-17 years old who ran workshops n=45; students from elementary school who took part n=45</p> <p><i>Methodology</i><br/>Case study; interviews, reflective journals</p>  | <p><i>Main Pedagogical Approach</i><br/>Service learning</p> <p><i>Notable Features</i><br/>“Train the trainer” approach</p>  | <p><i>Interpersonal Competency</i><br/>Leadership skills</p> <p><i>Other</i><br/>Civic engagement<br/>Learning teaching skills<br/>Future engagement in service learning<br/>Learning about poverty</p>   |
| (Ozer and Douglas 2015)      | <p><i>Context</i><br/>US; California; 4 urban high schools; low SES; diverse ethnic backgrounds; curricular and extra-curricular classes</p> <p><i>Participants</i><br/>Teachers n=4; 14 cohorts; 4-19 year old students n=150</p> <p><i>Methodology</i><br/>2-year project; 14-weeks per cohort; observations of lessons to evaluate use of YPAR</p> | <p><i>Main Pedagogical Approach</i><br/>YPAR</p>  | <p><i>Cognitive Competency</i><br/>Strategic thinking</p> <p><i>Interpersonal Competency</i><br/>Group work<br/>Networking<br/>Power sharing over major decisions<br/>Power sharing over class structure<br/>Communication skills</p> <p><i>Other</i><br/>Research skills</p> |
| (Ozer and Douglas 2013)      | <p><i>Context</i><br/>US; California; 5 high schools; low SES; diverse ethnic backgrounds</p> <p><i>Participants</i><br/>High school students 16 years old; n=401</p> <p><i>Methodology</i><br/>Randomised controlled trial with YPAR treatment group and direct service youth development comparison</p>   | <p><i>Main Pedagogical Approach</i><br/>YPAR (treatment group)<br/>Training young people to serve as peer educators to their class (comparison group)</p> <p><i>Notable Features</i><br/>Treatment group had more control over nature of projects</p> | <p><i>Attitudes</i><br/>Improved motivation for YPAR group</p> <p><i>Intrapersonal Competency</i><br/>Improved psychological empowerment for YPAR group</p> <p><i>Interpersonal Competency</i><br/>Improved participation for YPAR group</p>                                  |

|                              |  |  |   |
|------------------------------|--|--|---|
|                              | group; surveys and observations; projects lasting between 1 term and 1 year  |  | <i>Other</i><br>Improved socio-political skills for YPAR group  |
| (Parker, Lo et al. 2013)     | <p><i>Context</i></p> <p>US; Pacific North West; 4 High Schools; government and politics Advanced Placement (AP) course</p> <p><i>Participants</i></p> <p>17-18 year old students<br/>n=289</p> <p><i>Methodology</i></p> <p>Quantitative comparison of test scores on AP course; randomised controlled trial with 2 schools offering PBL AP course and 2 offering traditional AP course</p> | <p><i>Main Pedagogical Approach</i></p> <p>PBL</p>   | <p><i>Other</i></p> <p>Statistically significant higher test scores in government and politics for PBL students</p>   |
| (Schwartz and Suyemoto 2013) | <p><i>Context</i></p> <p>US; Boston; collaborative community based project run by Youth Force; ethnically diverse backgrounds; low SES</p> <p><i>Participants</i></p> <p>12-19 years old students<br/>n=79</p> <p><i>Methodology</i></p> <p>1-year case study; pre and post project surveys; observations; interviews</p>  | <p><i>Main Pedagogical Approach</i></p> <p>Youth community organising programme (similar to YPAR)</p> <p><i>Notable Features</i></p> <p>Run by youth for youth</p> | <p><i>Attitudes</i></p> <p>Improved self-concept as agent of change</p> <p><i>Intrapersonal Competency</i></p> <p>Organisational skills</p> <p><i>Interpersonal Competency</i></p> <p>Relationship skills<br/>Speaking skills</p> <p><i>Other</i></p> <p>Civic action and putting skills into practice<br/>Transferral of skills and confidence to school context</p> |

|                                |   |  |   |
|--------------------------------|---|--|---|
| (Scott, Pyne et al. 2015)      | <p><i>Context</i><br/>US; Carolina; Elon University project; low SES; ethnically diverse backgrounds</p> <p><i>Participants</i><br/>14-18 year old students n=4</p> <p><i>Methodology</i><br/>3-year longitudinal study; observations, interviews</p>                   | <p><i>Main Pedagogical Approach</i><br/>YPAR</p> <p><i>Notable Features</i><br/>Outcomes published in a book</p>             | <p><i>Cognitive Competency</i><br/>Critical consciousness</p> <p><i>Attitudes</i><br/>Intrinsic motivation<br/>Self-concept as agent of change and researcher</p> <p><i>Intrapersonal Competency</i><br/>Self-reflection and praxis</p> |
| (Spires, Himes et al. 2021)    | <p><i>Context</i><br/>US, south eastern; high school; English classes; ethnically diverse backgrounds</p> <p><i>Participants</i><br/>16-17 year olds n=6</p> <p><i>Methodology</i><br/>2-month case study; interviews; artefacts</p>                                    | <p><i>Main Pedagogical Approach</i><br/>PBL</p> <p><i>Notable Features</i><br/>Collaborative<br/>Community action</p>        | <p><i>Cognitive Competency</i><br/>Critical consciousness<br/>Making links between the global and the local</p> <p><i>Interpersonal Competency</i><br/>Collaboration<br/>Collective praxis<br/>Feeling part of a community</p>          |
| (Tang Yan, McCune et al. 2022) | <p><i>Context</i><br/>US, north eastern; community arts organisation; ethnically diverse backgrounds</p> <p><i>Participants</i><br/>15-17 year old youth researchers n=10; adult researchers n=5</p> <p><i>Methodology</i><br/>Case study; observations, interviews</p> | <p><i>Main Pedagogical Approach</i><br/>YPAR</p> <p><i>Notable Features</i><br/>Use of creative arts-based methodologies</p> | <p><i>Cognitive Competency</i><br/>Critical consciousness</p> <p><i>Interpersonal Competency</i><br/>Leadership skills<br/>Collective action</p>  |

|                         |  |   |  |
|-------------------------|--|---|--|
| (Trott 2020)            | <p><i>Context</i></p> <p>US; Mountain Western; Boys and Girls out of school Clubs using the <i>Science, Camera, Action</i> programme</p> <p><i>Participants</i></p> <p>Young people 8-13 years old n=55</p> <p><i>Methodology</i></p> <p>Mixed methods; surveys, focus groups</p>  | <p><i>Main Pedagogical Approach</i></p> <p>YPAR</p> <p><i>Notable Features</i></p> <p>Collaborative science project leading to community action</p> | <p><i>Intrapersonal Competency</i></p> <p>Agency to take action</p> <p><i>Other</i></p> <p>Improved understanding of climate change</p>  |
| (Voight and Velez 2018) | <p><i>Context</i></p> <p>US; southern California; 6 high schools; low SES; Latinx</p> <p><i>Participants</i></p> <p>Students 14-18 years old; n =153 treatment group; n=6187 control group</p> <p><i>Methodology</i></p> <p>1-year randomised controlled trial; surveys, tests</p> | <p><i>Main Pedagogical Approach</i></p> <p>YPAR</p> <p><i>Notable Features</i></p> <p>Elective course</p>   | <p><i>Attitudes</i></p> <p>Engagement in school</p> <p><i>Other</i></p> <p>Improved reading scores</p> <p>Due to the link between engagement and achievement, there will be attainment gains from YPAR</p> |

## Phase 2b Conclusion

*What are the outcomes of PBL, YPAR and related pedagogies for 11-19 year olds in terms of attainment and cognitive, intrapersonal and interpersonal competency development?*

All 25 of the articles demonstrate positive outcomes for students who engage with PBL, YPAR and service learning in terms of either attainment, cognitive competency development, intrapersonal competency development, interpersonal competency development or a combination of these outcomes.

In relation to attainment, both PBL and YPAR pedagogies were shown through large scale, longitudinal studies to improve outcomes for students and were in line with the findings of the systematic review into PBL outcomes undertaken by Chen and Yang (2019). Arnold's (2020) 6-year study of student outcome data for the US BPL schools, for example, demonstrated how PBL increased timely high school graduation rates from 84% to 95%. Similarly, Friedlander's (2014) study of state assessment data in California demonstrated an increase of between 10% and 30%



in high school graduation rates for schools using PBL, with students from these schools also outperforming their peers in assessments. In terms of attainment in a government and politics course for 17-18 year olds, students taught through PBL scored more highly than those taught through more traditional methods (Parker, Lo et al. 2013). For YPAR, Voight and Velez's (2018) randomised controlled trial demonstrated increased achievement in reading scores for the treatment group. Cabrera's 6-year study of attainment data showed how students taught using the Mexican American Studies approach (similar to YPAR), who had started from lower attainment points than the control group, made much faster progress and ended scoring significantly higher than their peers towards the end of high school.

The large-scale projects also demonstrated increases in specific curriculum areas and related skills, for example research skills (Ozer 2015) and socio-political skills (Ozer 2013) as well as skills and knowledge which made students feel better prepared for future employment (Arnold 2020, Escobar and Qazi 2020). These findings are echoed in small-scale studies relating to PBL, YPAR and service learning. A study of service learning demonstrates increased understanding of poverty (Nabors, Poteet et al. 2019) and a study of YPAR demonstrates increased understanding of climate change (Trott 2020).

In terms of cognitive competency development, a range of terms are used throughout the articles which makes aggregating the findings more difficult. However, in line with the systematic review into YPAR outcomes undertaken by Anyon, Bender et al. (2018), across the large scale and small scale projects critical thinking is demonstrated to be the key cognitive skill developed by PBL (Morales, Bang et al. 2013, Holmes and Hwang 2016, Escobar and Qazi 2020, Spires, Himes et al. 2021) and YPAR (Scott, Pyne et al. 2015, Morales, Bettencourt et al. 2017, Albanesi, Prati et al. 2021, Anderson, Baggett et al. 2021, Coleman and Leider 2022, Tang Yan, McCune et al. 2022). Because all of the studies selected for this systematic review involve social action, critical thinking is viewed in 6 out of these 10 studies as "critical consciousness" (Freire 1972), where students are able to develop an understanding of society in order to take action and transform society. This demonstrates the efficacy of these pedagogies in promoting social action and civic engagement for students. It should also be noted that in some of these studies, critical thinking is further broken down to problem-solving (Morales, Bang et al. 2013, Escobar and Qazi 2020) as well as the ability to make links between global and local contexts (Morales, Bettencourt et al. 2017, Spires, Himes et al. 2021). These aspects of critical thinking are featured in the literature around 21<sup>st</sup> century skills development (Voogt and Roblin 2012).

The lack of focus upon intrapersonal competency development established in a systematic review of PBL (Condliffe et al., 2017) is addressed by the findings of studies into all 3 pedagogical approaches in this review. Whilst there is still variation in the use of terminology, key components and strategies in relation to SRL and metacognition are demonstrated as outcomes in half of the large-scale and small-studies included here. 2 studies focus broadly on independent learning outcomes (Morales, Bang et al. 2013, Arnold 2020), 1 on SRL (Moseki and Schulze 2019), 3 on the SRL phase of reflection (Scott, Pyne et al. 2015, Albanesi, Prati et al. 2021, Coleman and Leider 2022), 2 on specific metacognitive strategies (Schwartz and Suyemoto 2013, Chung and McBride 2015) and 5 on the empowering and affective competency of agency (Ozer and Douglas 2013, Hansen, Moore et al. 2018, Trott 2020, Albanesi, Prati et al. 2021, Koudelka 2021). Overall, therefore, this constitutes



a wide range of evidence that demonstrates how these pedagogical approaches develop key aspects of independent learning. It should also be pointed out that the other half of the studies included in this review did not report on independent learning as it was not a focus of the research.

In terms of interpersonal competency development, in line with existing systematic reviews on YPAR (Anyon, Bender et al. 2018) and citizenship education (EPPI 2014), this was also seen as a key focus and outcome in half of the studies included in this review. The large scale and small studies across the 3 pedagogies demonstrated how working with peers had a number of benefits including: learning from others (Morales, Bang et al. 2013, Ozer and Douglas 2015, Holmes and Hwang 2016); participating and feeling part of a community (Ozer and Douglas 2013, Schwartz and Suyemoto 2013, Chung and McBride 2015, Ozer and Douglas 2015, Arnold 2020, Escobar and Qazi 2020, Albanesi, Prati et al. 2021, Spires, Himes et al. 2021); and, to a lesser extent, the development of group leadership skills (Nabors, Poteet et al. 2019, Tang Yan, McCune et al. 2022). Overall, therefore, there is a wide range of evidence which demonstrates how these pedagogies develop collaborative learning skills as well as interpersonal growth through feeling part of a team.

It should also be pointed out that in those studies which focussed upon both intra- and interpersonal competency development, key components of independent learning and collaborative learning appear to operate reciprocally and are mutually beneficial (Morales, Bang et al. 2013, Ozer and Douglas 2013, Schwartz and Suyemoto 2013, Chung and McBride 2015, Arnold 2020, Albanesi, Prati et al. 2021). This would seem to advocate a focus on both intrapersonal and interpersonal competencies when planning to use these pedagogies and when undertaking research into the outcomes of these pedagogies.

*Are there any long-term outcomes for students identified in the literature in relation to University, employment, entrepreneurial skills, social action, philanthropy?*

14 of the studies included in the review analyse data over a period of a year or more, with 2 running over a 3-year period (Creghan and Adair-Creghan 2015, Scott, Pyne et al. 2015) and 2 over a 6-year period. In line with the analysis above, these studies demonstrate that students taught through PBL and YPAR achieve: high attainment levels (Parker, Lo et al. 2013, Cabrera, Milem et al. 2014, Friedlaender 2014, Voight and Velez 2018, Arnold 2020); high engagement levels (Creghan and Adair-Creghan 2015, Voight and Velez 2018, Albanesi, Prati et al. 2021); high levels of motivation (Morales, Bang et al. 2013, Scott, Pyne et al. 2015, Holmes and Hwang 2016); improved cognitive competencies (Morales, Bang et al. 2013, Scott, Pyne et al. 2015, Holmes and Hwang 2016, Morales, Bettencourt et al. 2017); and improved intra- and interpersonal competencies (Morales, Bang et al. 2013, Schwartz and Suyemoto 2013, Ozer and Douglas 2015, Scott, Pyne et al. 2015). This demonstrates that over time these pedagogical approaches have positive impacts upon students' attainment, cognitive competencies and intra- and interpersonal competencies.

Furthermore, a number of these studies demonstrate positive outcomes in terms of students' civic engagement and social action (Schwartz and Suyemoto 2013, Cabrera, Milem et al. 2014, Scott, Pyne et al. 2015, Morales, Bettencourt et al. 2017, Albanesi, Prati et al. 2021).

Only 1 of these studies, however, tracked students beyond secondary schooling and this focussed on their transition into higher education (Arnold 2020) rather than employment. Whilst this study did demonstrate “vocational growth” for these students, who had both more employability skills and more a sense of their future vocation (ibid), none of the studies tracked students into employment or focussed on students’ entrepreneurial skills. This is because undertaking a longitudinal study which tracks participants from schooling into employment presents difficulties of data collection and involves the cooperation of a range of employers within a particular context.

*In terms of outcomes, which groups of students tend to benefit from these activities and why?*

Over half of the studies included in the review involved socially disadvantaged students with low socio economic status (SES). In contrast to the narrowing of learning activities experienced by socially disadvantaged young people in the UK (OECD 2020b), the focus on low SES is indicative of the ways in which these pedagogical approaches tend to be targeted at marginalised student populations in the US.

Having said this, only 3 of the large scale longitudinal studies included in the review (Friedlaender 2014, Creghan and Adair-Creghan 2015, Holmes and Hwang 2016) involved direct comparisons between socially disadvantaged students and more advantaged students. In each of these 3 studies, there is evidence that these pedagogies can be used effectively to help close the attainment gap between advantaged and disadvantaged student groups. As mentioned above, one study identifies increased engagement and attendance for disadvantaged students attending a PBL school as opposed to a traditional school (Creghan and Adair-Creghan 2015). Another study demonstrates how PBL students outperform their peers in mandatory assessments with progress greater for low SES students and those whose parents did not attend college (Friedlaender 2014). And another study highlights higher attainment in maths for at-risk and minority students taught through PBL (Holmes and Hwang 2016).

Whilst not a large scale comparative study, Anderson, Baggett et al.’s (2021) research also chimes with the systematic review of literature (Anderson 2020) to demonstrate how students in alternative provision who have been excluded from mainstream schooling developed critical thinking and science knowledge through YPAR.

Overall, the research into the efficacy of these pedagogies to close the gap for disadvantaged students presents some more evidence to that presented in existing literature reviews (Anderson 2020, Leggett and Harrington 2021), although it is clear that further longitudinal and comparative research is still needed here. Further research should also focus on the three dimensions of competency development and not just attainment.

*How do these outcomes compare when 11-19 years old are engaged in extra-curricular rather than curricular activities?*

7 of the studies explored the use of either PBL, YPAR or service learning with young people in either out of school or extra-curricular settings. In line with this, each of these studies looked at outcomes in terms of competencies and attitudes rather than attainment. In line with the studies overall, 3 of these studies evidenced

improved intrapersonal skills linked to independent learning (Schwartz and Suyemoto 2013, Scott, Pyne et al. 2015, Trott 2020) and 4 of the studies evidenced improved interpersonal skills linked to collaborative learning (Schwartz and Suyemoto 2013, Nabors, Poteet et al. 2019, Escobar and Qazi 2020, Tang Yan, McCune et al. 2022).

However, what is different about the studies into the use of these pedagogies in out of school and extra-curricular settings is the way in which participation seems to improve students' self-concept, giving them confidence and agency. This is evident in 6 of the 7 studies (Schwartz and Suyemoto 2013, Scott, Pyne et al. 2015, Hansen, Moore et al. 2018, Nabors, Poteet et al. 2019, Trott 2020, Tang Yan, McCune et al. 2022) and underlines the importance of such activities for young people outside of the school curriculum. This builds upon findings in the systematic reviews which suggests engagement in these pedagogies is greater when they take place outside of the school curriculum (Lin 2015, Anderson 2020).

One of the studies also presents evidence of skill transference between young people's engagement in a community based project and their work in school (Schwartz and Suyemoto 2013). This is seen as being symptomatic of a change in self-concept, which saw young people developing intrapersonal skills relating to SRL and interpersonal skills relating to collaborative learning. Clearly, more research into this kind of transference is needed, but there are implications here about the ways in which extra-curricular activities can impact positively upon school activities.

*Is there any evidence to suggest that mixed age group activities impact upon these outcomes?*

The 7 studies with out of school/ extra-curricular settings discussed above, alongside the study focussing on alternative provision, all involved young people working in mixed age groups. These groups varied in ages from 8-13 (Trott 2020), to 12-19 (Schwartz and Suyemoto 2013), to 13-17 (Nabors, Poteet et al. 2019), to 14-17 (Escobar and Qazi 2020), to 14-18 (Scott, Pyne et al. 2015), to 14-19 (Hansen, Moore et al. 2018), to 15-17 (Tang Yan, McCune et al. 2022), to 15-18 (Anderson, Baggett et al. 2021). In line with the discussion above, what these studies demonstrate is how mixed age grouping can impact on self-concept as well as the full range of competency development. It should be noted, however, that the impact of the mixed age groups upon participants was not directly researched in any of these studies. Future research which explores the impact of mixed age group PBL in out of school settings in relation to competency outcomes and self-concept is needed.

In line with the studies into metacognition (Veenman et al., 2004), implicit is the notion that intra- and interpersonal competencies can and should be developed with younger students, thus further debunking the myth perpetuated by Ofsted (2021) that independent learning is for older students only. It is worth mentioning here a quantitative randomised controlled trial of 200 elementary schools in the US which demonstrated the ways in which greater student autonomy afforded by PBL led to significantly higher attainment for students in social studies (63% higher) and reading (23% higher) (Duke, Strachan et al. 2021). This once again reinforces the point that using these pedagogies with younger children is highly beneficial. Further longitudinal research tracking students' competency development through primary to secondary school is needed.

*Is there any literature which explores the relationship between teacher/student control and outcomes for students?*

As outlined earlier, the extent to which these pedagogies are progressive or classical humanist, and the extent to which they are instrumentalist or reconstructionist, depends upon the approach and skill of the teacher or adult (Newcastle University, ND). It should be pointed out that in relation to this review, all of the studies selected had to meet the inclusion criteria of leaning towards progressivism and reconstructionism. As a result, this means that these studies naturally involve pedagogies with less teacher control.

Only two of the studies focussed on the role of the teacher or adult in assisting the students with their projects. In the context of a South African high school, Moseki and Schulze (2019) found that the use of YPAR increased students' SRL competency, but that additional support was required from teachers in order to develop the students' use of metacognitive strategies. In an extra-curricular US context, Hansen, Moore et al.'s (2018) study explored the students' independence in PBL in relation both to "autonomy support" and "directive assistance". As with Moseki and Schulze (2019), who noted the productive ways in which the teachers promoted metacognitive strategies, Hansen, Moore et al. (2018) found that "autonomy support" was more effective in terms of promoting independence than "directive assistance". The implication of these studies is that young people may require support in developing competencies and that adults working with young people need both an understanding of the competencies and their processes in order to provide that support.

*What is the role of affective skills in these processes, including motivation?*

The affective skill of motivation is demonstrated to be a key outcome of the pedagogical approaches in a number of the large scale research projects (Ozer and Douglas 2013, Creggan and Adair-Creggan 2015, Holmes and Hwang 2016, Voight and Velez 2018, Moseki and Schulze 2019, Arnold 2020). Creggan and Adair-Creggan's (2015) study in Texas, for example, compares 3 years of attendance data to demonstrate significantly higher levels of attendance and engagement in PBL compared with traditional schools for each of the 3 years. Voight and Velez's (2018) 1-year randomised controlled trial demonstrates significantly higher motivation and engagement levels in school for students taught using YPAR. These findings about increased student motivation are echoed in small-scale studies relating to PBL (Morales, Bang et al. 2013) and YPAR (Scott, Pyne et al. 2015).

The prevalence of the outcome of motivation is linked to the systematic reviews on both the pedagogies (Condliffe et al. 2017, Anderson 2020, Lin 2015), independent learning (Meyer et al. 2008) and collaborative learning (Leeuwen and Janssen 2019), which state the importance of a priori motivation. Clearly, student motivation is central to both the effective running of the pedagogies and competency development and should be nurtured by teachers and adults alike.

What is also clear from the above discussion of out of school and extra-curricular activities is how young people's voluntary engagement in activities is linked to motivation and the development of self-concept and self-confidence. In line with progressivism, the challenge within a school environment, therefore, is to find ways of allowing students to become motivated through greater control of their projects, which in turn will impact upon their self-concept.

It should also be added that the relational work undertaken in the earlier stages of YPAR (Anderson 2020) was not the explicit focus of research in these studies but remains an important component of working with young people in these ways.

*Is there any literature relating to the development of creativity, curiosity and empathy through these activities?*

None of the studies selected for this review directly focussed the development of creativity, curiosity or empathy. These skills and competencies are implicit in some of the other outcomes identified in the studies (e.g., problem solving is linked to creativity, as interdependence is linked to empathy) but further research focussing on these specific outcomes in relation to these pedagogies is needed.

*What gaps are apparent in the research in relation to these pedagogies and outcomes?*

As indicated above, further research is needed into:

- The impacts of these pedagogies upon socially disadvantaged groups of students in terms of attainment and competencies;
- The ways in which mixed age group working impacts upon students' competency outcomes and affective skills;
- How working in this way with younger age groups develops competencies over time;
- How students' participation in extracurricular and out of school activities might transfer to a school context in terms of competencies, skills and self-concept;
- How teachers and adults should support student autonomy during these activities;
- How other skills like creativity, curiosity and empathy are developed through these pedagogies;
- How the development of competencies and skills prepares students for employment;
- The impact that participating in these pedagogies has upon the experiences of individuals in their careers.





## Overall findings

The overall findings are broken down into three sections: Policy; Pedagogy; and Outcomes for Students.

### *Policy:*

- The skills and competencies required by 21<sup>st</sup> century employers are not prioritised in the English national curriculum (DfE 2014), which is overtly classical humanist and knowledge based.
- Whilst there are more progressivist and reconstructionist trajectories in Citizenship education (DfE 2014) and some aspects of the School Inspection Framework (Ofsted 2021), these leanings are held in check by more instrumentalist and classical humanist leanings also found within these policy documents.
- Independent learning is viewed in policy as part of the 16-19 educational offer (Ofsted 2021), supported by level 3 qualifications like the EPQ. However, it could be argued that this emphasis is too little too late for young people in terms of their skill development.
- Despite some schools prioritising 21<sup>st</sup> century skills at school-policy level, it is likely that in many schools in England young people will not develop the 21<sup>st</sup> century skills required by employers.
- Singapore outperforms other countries in the PISA rankings and mandates project work (PBL) with all ages in order to promote the development of 21<sup>st</sup> century skills and competencies.

### *Pedagogy:*

- PBL, YPAR and citizenship education are all pedagogical approaches which have most impact when they are student driven (progressivist) and involve students addressing issues in their local communities (reconstructivist).
- PBL, YPAR and citizenship education can be seen as effective ways of promoting 21<sup>st</sup> century skills in young people in both extra-curricular and curricular contexts.
- UK students from disadvantaged backgrounds are less likely experience different pedagogical approaches like PBL (OECD 2020b). This is worrying as research from the US suggests that students from disadvantaged backgrounds can develop intrapersonal and interpersonal competencies through PBL pedagogical approaches (Zeiser 2014).
- PBL, YPAR and citizenship education all require and promote student motivation and engagement.
- PBL, YPAR and citizenship education all require the adult to take on the role of a facilitator who uses AfL strategies to guide young people in their projects as they articulate and monitor their progress towards answering their driving questions.
- PBL, YPAR and citizenship education all involve the development of SRL and, more specifically, metacognition. The phases and strategies relating to these intrapersonal competencies should be mapped by teachers and adults when using these pedagogies.



- The teacher or adult should be prepared to provide “autonomy support” rather than “directive support” to students in order to promote SRL and metacognition (Hansen, Moore et al. 2018, Moseki and Schulze 2019). This requires the teacher or adult to have an understanding of the phases and components of SRL and collaborative learning.
- PBL, YPAR and citizenship education all involve the development of collaborative learning skills. The strategies relating to this interpersonal competency should be mapped by teachers and adults when using these pedagogies.
- PBL, YPAR and citizenship education should all involve civic engagement and social action.
- YPAR also involves capacity building as students learn about research methods and how to apply these to their projects.

#### *Outcomes for students:*

- Research into the use of PBL, YPAR and citizenship education with young people demonstrates a range of positive outcomes.
- A wide range of evidence demonstrates how student motivation is both a prerequisite for other positive outcomes related to PBL, YPAR and citizenship education as well as an outcome of these pedagogies in its own right.
- Attainment increases for secondary aged students using PBL. This is evidenced in a systematic review (Chen and Yang 2019) and three longitudinal studies (Parker, Lo et al. 2013, Friedlaender 2014, Arnold 2020).
- Attainment increases for secondary aged students using YPAR. This is evidenced in two longitudinal studies (Cabrera, Milem et al. 2014, Voight and Velez 2018).
- There is a wealth of evidence to demonstrate that the cognitive competency of critical thinking is developed by PBL and YPAR.
- There is now more evidence of how the intrapersonal competencies of SRL and metacognition are developed by PBL, YPAR and citizenship education.
- There is now more evidence of how the interpersonal competency of collaborative learning is developed by PBL, YPAR and citizenship education.
- Evidence suggests that the development of intra- and interpersonal competencies go hand in hand when they are developed through the pedagogies.
- When 21<sup>st</sup> century skills are defined as three competencies (cognitive, intrapersonal and interpersonal), it is clear that they can be developed for young people through PBL, YPAR and citizenship education.
- There is some evidence to suggest that engagement in PBL can lead to “vocational growth” (Arnold 2020), although further research is needed.
- There is some evidence to suggest that using PBL with socially disadvantaged students can help increase engagement and attendance (Creghan and Adair-Creghan 2015) as well as increase attainment (Friedlaender 2014, Holmes and Hwang 2016). However, more research into this is needed.

- Students who engage voluntarily with these pedagogies in either extra-curricular or out of school settings tend to experience personal growth and positive changes in self-concept (Schwartz and Suyemoto 2013, Scott, Pyne et al. 2015, Hansen, Moore et al. 2018, Nabors, Poteet et al. 2019, Trott 2020, Tang Yan, McCune et al. 2022).
- There is some evidence to suggest that the personal gains from out of school and extra-curricular activities can transfer to school for some students (Schwartz and Suyemoto 2013), although more research is needed.
- Young people working in mixed age groups may have a positive impact in terms of personal growth and self-concept.
- It is clear that 21<sup>st</sup> century skills can and should be taught to younger students and not just students who are preparing to go into higher education (Duke, Strachan et al. 2021).



## Overall recommendations

The overall recommendations are targeted at specific stakeholder groups: Enactus; Policy Makers; Secondary School Practitioners and Senior Leaders; Employers; and Researchers.

### *Enactus*

In their offer to schools, it is recommended that Enactus highlights:

- the positive outcomes of their pedagogy in line with the development of 21st century skills, including cognitive competency, intrapersonal competency and interpersonal competency development. Enactus should also highlight the transferable nature of these competencies and skills to students' school work.
- how their offer enriches Citizenship subject content by allowing 14-16-year olds to experience "the different ways in which a citizen can contribute to the improvement of his or her community" by participating "actively in community volunteering" (Ofsted 2021, p.84).
- how their offer helps schools to meet the 8 Gatsby Benchmarks in careers education. Rather than just learning from "employers about work, employment and the skills that are valued in the workplace" (DfE 2021a, p.28), PBL can give students the opportunity to develop these skills first-hand and contribute to and shape the future workforce.
- how competency development will strengthen curriculum leaders' regulatory need to articulate "curriculum intent" (Ofsted 2021), as schools can bring to the surface some of the skills and competencies underpinning their curriculum.
- how "personal development", including the development of motivation, of self-concept and critical consciousness, will be strengthened through their extra-curricular activities with mixed age groups (Ofsted 2021). This is especially important for students from disadvantaged backgrounds who have less access to these kinds of learning activities (OECD 2020b).
- the contribution they can make to the new levelling up agenda. There is growing evidence to suggest that this kind of pedagogy is effective with socially disadvantaged young people in terms of attainment and competency development.
- how students will also develop "vocational growth" (Arnold 2020), having both a clearer idea about their future careers whilst developing the skills and competencies to undertake these careers;
- how sixth form students can develop "independent learning skills" required by the inspection framework (Ofsted 2021, section 339);
- how independent learning, including metacognition, can and should also be developed with younger students. This involves myth-busting and promoting the idea that leaving independent learning until the 6th form is tokenistic and too little, too late – something that is evidenced in the skills gap as articulated by employers.

In reviewing their current programme, it is recommended that Enactus considers:

- mapping the phases of SRL (Zimmerman 2002) to their programme to ensure that SRL is effectively developed by students;
- mapping metacognitive strategies to their programme to ensure that metacognition is effectively developed by students;
- mapping collaborative learning components to their programme to ensure that collaborative learning occurs effectively;
- providing guidance for adults working on the programmes to enable them to provide “autonomy support” (Hansen, Moore et al. 2018) to students through AfL strategies in relation to the overall driving questions agreed with the students;
- capacity building with students in line with YPAR so that students develop research skills they can apply to real life contexts and issues;
- exploring ways of accrediting their offer with UCAS points. This would have a unique selling point as Enactus’s offer not only promotes SRL but also promotes collaborative learning and social action.

In seeking to externalise the findings of this report and showcase their offer, it is recommended that Enactus:

- publishes articles in Schools Week, TES and The Conversation;
- undertakes press releases;
- presents key findings and documentation to the All-Party Parliamentary Group;
- shares findings, particularly those relating to SRL and metacognition, with the Education Endowment Foundation;
- shares findings with business networks like The Entrepreneurs Network to further engage businesses in secondary education;
- attends local and national school and Multi Academy Trust meetings, including local curriculum leader meetings and the Headteachers’ Roundtable;
- shares findings through a range of platforms with relevant networks, including CollectivEd’s Alternative Provision network and the British Education Research Association’s Alternative Education Special Interest Group.

### *Policy Makers*

- Address the skills gap by reimagining the national curriculum to include cognitive, intra- and interpersonal competency development;
- In reimagining the national curriculum, focus on intra- and interpersonal competency development from the beginning of secondary school education;
- Actively encourage secondary schools to utilise alternative pedagogies like PBL and YPAR in line with the regulatory focus on “curriculum intent”, “personal development” and careers education (Ofsted 2021);
- Subsidise non-profit making organisations like Enactus who can help engage young people and provide them with 21<sup>st</sup> century skills;
- Actively encourage local employers to give their time and expertise to engaging in PBL with schools and organisations like Enactus.

## *Secondary school*

- Curriculum leaders could work with senior leaders to identify time and space within the curriculum for students of all ages to engage progressively with PBL and/or YPAR. This could be within Personal Social Health and Economics education but also other curriculum areas. Not only will this help satisfy the regulatory framework in terms of personal development and curriculum intent, it will also enable students to develop 21<sup>st</sup> century skills meaningfully from a younger age.
- Senior leaders could actively partner with local employers to enrich and develop PBL and/or YPAR opportunities (see School21 as an example).
- Senior leaders could work with organisations like Enactus, who can contribute to an extra-curricular offer which develops students' 21<sup>st</sup> century skills, motivation and employment prospects.
- Senior leaders could utilise resources (e.g. the BiE's HQPBL framework to promote "Intellectual challenge and accomplishment; Authenticity; Public Product; Collaboration; Project Management; Reflection") in order to provide professional development for teachers.

## *Employers*

- Understand the role employers can play in secondary education to develop key skills and attitudes for employability.
- Identify the key skills and competencies they require and then audit the extent to which these skills exist in school and university leavers. This could also involve undertaking research (see below), including the longitudinal tracking of students through to employment.
- Think about how they could actively engage with secondary schools to promote the skills they require.
- Partner with local secondary schools and organisations like Enactus, sharing time and expertise through PBL and/or YPAR.

## *Researchers*

Researchers should work with the full range of stakeholders to research into:

- The impacts of PBL, YPAR and citizenship education upon socially disadvantaged groups of students in terms attainment and competencies;
- The ways in which mixed age group working impacts upon students' competency outcomes and affective skills;
- How working in this way with younger age groups develops competencies over time;
- How students' participation in extra-curricular and out of school activities might transfer to a school context in terms of competencies, skills and self-concept;
- How teachers and adults should support student autonomy during these activities;
- How other skills like creativity, curiosity and empathy are developed through these pedagogies;

- How the development of competencies and skills prepares students for employment;
- The impact that participating in these pedagogies has upon the experiences of individuals in their careers.

Researchers should also undertake knowledge exchange activities with US partners to understand and implement aspects of YPAR.



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