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EXTENDING INTO THE FUTURE

How extended project work can help prepare students for success at school, at university and in the careers of tomorrow

By Robin Drummond

THE BENEFITS OF EXTENDED PROJECT WORK

Robin Drummond, Chief Examiner for OxfordAQA's Independent Project Qualification, examines research into how extended projects can improve students' A-level results, motivation, performance at university and lifelong learning skills.

INTRODUCTION

Due to increasing competition for places at top global universities, the need for students to stand out from the crowd is greater than ever. Meanwhile, traditional didactic teaching methods have come under growing criticism from universities for failing to prepare students sufficiently for the self-regulated and independent nature of undergraduate study. What's more technological advances are fuelling a rapidly evolving job market – leading to speculation that many roles previously considered beyond the scope of automation in areas such as law and medicine may soon be transformed or replaced by Artificial Intelligence. Whatever the future holds, most educators agree that the need for transferable skills is more important than ever.

The imperative for schools is therefore to find innovative and versatile ways to develop curricula to meet these challenges:

- How can schools give each student a genuine opportunity to demonstrate their unique academic worth?
- How can schools develop students into successful, independent-learners, capable of making the transitions to A-level or IBDP and undergraduate study?
- How can schools ensure that students are developing the type of transferable skills that will best prepare them for the ever-changing world of work? Skills such as planning and managing complex tasks, solving difficult problems by making creative decisions, being a critical researcher, an effective communicator and a reflective practitioner?

EXTENDED PROJECT WORK

Extended project work is an excellent way to meet all aspects of this challenge. It involves a student, with the support of a supervisor and in the context of a 'taught skills' programme of study:

- choosing an area of personal interest
- drafting a title and aims for the project
- planning, researching and carrying out the project
- delivering a presentation on the process and findings.

Through this process, students produce a unique piece of work that they can discuss with a degree of expertise unmatched in their other studies – a valuable ability when writing a university application.

Students also develop the independent study skills that top universities are looking for, as well as other highly transferable skills valued by employers such as problem-solving, planning and communication skills. Whether a study into the ethics of predictive genetic testing, an exploration of the role of the hero in English Literature or an analysis of the anatomy of bats wings, extended project work can help prepare students for success at school, at university and in the careers of tomorrow.

This report outlines the findings of recent UK-based research that explores the relationship between the Extended Project Qualification and A-level performance, degree performance, self-regulated learning, motivation and participation barriers.

WHAT IS THE EXTENDED PROJECT QUALIFICATION?

The Extended Project Qualification (EPQ) is a stand-alone UK-based qualification for 16-19 year olds, usually taken alongside A-levels. It was originally conceived by the UK Department for Education and Skills (now known as the Department for Education) in 2005, as a way to assess a wider range of skills and stretch A-level students. The DfES defined it as 'a single piece of work, requiring a high degree of planning, preparation and autonomous working. The projects . . . differ by subjects, but require persistence over time and research skills to explore a subject independently and in real depth.' [1]

The EPQ was developed and trialled by AQA in 2006 and a fully-accredited EPQ was available nationally in 2008. The EPQ is now offered by several UK exam boards, though AQA is the market leader with approximately two-thirds of the market share. The table below[2] shows the rapid increase in number of entries for EPQ from 2007/08 to 2014/15.

Academic Year	Entries for EPQ	% of A level students
2007/08	1,946	0.7
2008/09	6,013	2.1
2009/10	18,704	6.3
2010/11	27,620	9.3
2011/12	33,197	11.2
2012/13	35,543	12.0
2013/14	38,131	13.3
2014/15	38,049	13.0

The Independent Project Qualification (IPQ) is the international version of AQA's qualification, developed by assessment experts at CERP (Centre for Education Research and Practice – the research arm of AQA), accredited by NARIC and offered by OxfordAQA to international schools in the Middle East, South East Asia and China.

An overview of four research studies into extended project work

1 A-LEVEL PERFORMANCE

KEY TAKEAWAY

Regardless of prior attainment, taking a project qualification enhances the odds of achieving an A*-B at A-level by 29%. For each grade increase in the project qualification, the chances of a higher grade at A-level increase by 7%.

As part of wider research into the effects of undertaking the Extended Project Qualification, CERP researcher Ben Jones[3] conducted a statistical analysis into the extent to which (if at all) taking the EPQ enhances performance in concurrent A-level studies. As Jones says, this is equivalent to asking 'are the skills required of the EPQ transferable to more curriculum-imbedded qualifications?'

The research consisted of two analyses. The first was conducted on a subject-level basis and involved dividing the entries for nine major AQA A-levels into those that had and those that had not also taken the EPQ. By applying (for each subject) the mean GCSE score of the EPQ group to the non-EPQ group, Jones was able to compare the performance of each group.

The table below shows the result of this analysis. It gives, for each subject: the total number of entries; how many of those entries also completed an EPQ; the same figure as a percentage; and then, as a percentage, how many more EPQ students achieved each grade. **It shows, with the exception of Mathematics, EPQ students performed better in A-level subjects than their non-EPQ peers with the same mean GCSE score**. For example, in Chemistry, 4.54% more EPQ students achieved a grade A (or better) than their non-EPQ peers, even after allowing for differences in prior attainment (i.e. mean GCSE score).

Actual – Predicted outcomes of EPQ students in nine of AQA's largest A-level specifications, Summer 2014

Specification	Total	EPQ Entry	EPQ entry as %	A*	A	B	C	D	E
Biology	19539	2019	10.3	3.15	5.62	4.24	2.78	1.53	0.54
Bus Stud	13931	694	5.0	2.09	2.46	3.17	4.10	0.65	0.32
Chemistry	13118	1407	10.7	3.95	4.54	3.30	1.72	0.72	-0.18
Eng Lang B	12534	817	6.5	1.41	5.67	7.08	3.83	1.17	0.17
Eng Lit B	12282	1044	8.5	0.59	3.87	4.17	2.19	0.49	0.13
Geography	13405	1088	8.1	3.81	4.04	3.53	1.61	0.67	-0.04
Mathematics	11643	941	8.1	0.34	-0.03	-0.53	-1.88	0.14	-0.59
Psychology A	26522	1956	7.4	1.78	1.64	1.98	2.79	2.02	0.78
Sociology	18144	997	5.5	0.76	1.86	2.83	0.56	0.26	0.46

The second analysis was based on grouping all 278,358 AQA A-level subject entries taken in 2014. As Jones writes, 'Those results indicate that, after controlling for other available explanatory variables – of which mean GCSE prior attainment score is the most critical – taking the EPQ enhances the odds of achieving a higher grade A level (A*-B) by 29 per cent. For each incremental grade achieved in the EPQ, the chances of being awarded a higher grade A-level increased by 7 per cent... However, the effects were not uniform across A level subject types. In most cases the impact was similar to the above figure, yet for mathematics and languages, there was no effect.'

So, it is clear that, with the exception of Mathematics and Languages, extended project work significantly increases the chance of higher A-level grades and greater success for students at school. In the case of Mathematics and Languages, it is most likely that the skills developed by completing a project qualification are not transferable to those subjects. Further, as Jones himself notes, these two cases appear to refute the claim that 'the apparent EPQ effect is merely a proxy for, say, greater general motivation demonstrated by EPQ centres and students. Were that to be the case, why are mathematics and languages exempt?'

2 DEGREE PERFORMANCE

KEY TAKEAWAY

Completing a project qualification alongside A-level study is associated with better degree performance than taking A-levels only.

Research conducted by Tim Gill[4] sought to explore the relationship between higher education performance and a range of post-16 qualifications, including IB, Pre-U, A-level and the Extended Project Qualification. Specifically, the aim was 'to infer which (if any) of these qualifications are the best in terms of preparing students for university study, by comparing degree outcomes of students taking different qualifications prior to entering university.'

Gill's method involved predicting the likelihood of an individual achieving a first-class degree, or at least an upper second, depending on which prior qualification(s) they undertook. A range of background variables were taken into account, including students' prior attainment, socio-economic status, school type and gender.

'The results showed only a few statistically significant differences in the performances of students taking different qualifications, with the Extended Project Qualification... and Applied A-levels seeming to provide particularly good preparation for university study. It is suggested that these qualifications may benefit students because of their focus on teaching skills such as planning, researching and problem-solving that will be required in degree level work.'

Specifically, Gill concluded that:

- '...taking EPQ alongside A-levels was associated with better degree performance than taking A-levels only... These findings were present for both main models (probability of a first and probability of at least an upper second)'
- 'one might expect [IB] students to also be better prepared for higher education, compared with those taking subject-based courses only. However, there was no evidence from the statistical models that this was the case.'

Gill suggests that the advantage EPQ students appear to have is due to the 'skills learnt in undertaking a significant project over a long period of time (e.g. planning, research, analysis)'. It appears that the development of these independent-learning skills enables students to be better prepared for success at undergraduate level than skills developed through subject-based courses only.

3 SELF-REGULATED LEARNING

KEY TAKEAWAY

Extended project work gives students 'sovereignty' over what and how they study and this helps to develop the independent study skills and self-regulated approach to learning that universities are looking for.

David Stoten[5] has explored the way in which extended project work can develop self-regulated learners in a context of A-level study that, as noted by universities, often fails to prepare students for undergraduate study. He claims that extended project work 'represents a significant developmental opportunity to diversify the core curriculum [and to] open up the prospect to take a step away from traditional teacher-led classes and move to a more student-centred educational provision.'

Self-regulated learners are those that set and manage the realisation of their own targets and evaluate the outcomes. For self-regulated learners, learning is a product of an 'iterative reflective cycle' in which they 'reflect on their progress over a range of tasks and modify their behaviours in light of their evaluation'. Further, central to the notion of a self-regulated learner is the idea of self-efficacy – one's belief in one's ability to succeed in a task.

Stoten notes that 'research identifies self-regulated learners as more likely to achieve highly, enjoy studying and develop life-long learning skills.' In a study conducted in two phases over two years at two different Sixth Form Colleges, the views of students and teachers on their experiences of the EPQ were gathered. The first phase involved a formal analysis of the views of a group of second year A-level students (as part of one college's quality assurance process). The second phase involved 'drilling down' further and exploring a number of key research issues relating to the EPQ that arose from the first phase. Stoten concludes that 'overall, these findings do infer that the EPQ could offer benefits in inculcating independent learning' and that 'teachers welcomed the EPQ as an innovative course that promotes independent learning, self-responsibility on behalf of students and developed many of the skills necessary for success at university level.'

Stoten claims that it is the 'changing role of students and teachers' – where the student has 'sovereignty' in determining the course and nature of study and the teacher acts as supervisor – that explains the ability of extended project work to develop self-regulated and independent learners... precisely the type of learners that top universities are interested in.

4 MOTIVATION AND PARTICIPATION BARRIERS

KEY TAKEAWAY

Even when taking into account previous academic results, a significant positive relationship was found between project qualification achievement and student motivation, as well as evidence that the project qualification can help to lower participation barriers.

Anthony Daly and Anne Pinot de Moira conducted a survey of students during the two-year UK Extended Project Qualification pilot, to explore the relationship between students' approaches to learning and their achievement in the EPQ[6]. The research was based on a questionnaire for students, divided into three sections. The first was designed to elicit students' views on various practical aspects of the qualification. The second was designed to understand the way in which students studied for the qualification. The third consisted of open-ended items relating to the way in which students planned to use their EPQ in the future, and asked for their overall views.

The research was based on the idea that 'assessment function and type can have a significant impact upon the motivation of learners, their choice of learning strategy when faced with an assessment task and their subsequent performance' – and that advocates of extended project work propose that it 'can increase interest and value for students, thereby maximising motivation, self-esteem, problem-solving skills, cognitive engagement and academic achievement'.

As the authors conclude, 'results showed that, notwithstanding the contribution of previous academic achievement, there was a significant positive relationship between students' achievement on the EPQ and their intrinsic motivation; clearly a desirable attribute for lifelong learning, but also an indication that this qualification encourages students to be innovative and creative about their learning. Furthermore, students' engagement with the project appeared independent of their prior achievement, a feature which has the potential to help lower the barriers to participation.'

They further unpack this:

'...there is evidence to show that, at the very least, learning that is project-based has the potential to increase levels of student engagement and motivation' and 'because engagement with the EPQ was found to be unrelated to prior achievement, it may be that the EPQ can provide a vehicle to increase post-16 participation.'

Thus, success at school through increase in motivation and overcoming barriers to participation can be seen as an explicit feature of extended project work.

CONCLUSION

The need for schools to prepare students for successful futures is greater than ever. The key message of this report is that the challenges of increasing competition for university places, the growing need for self-regulated and independent learners and a rapidly evolving job market, are best met by a curriculum imbued with a significant element of extended project work.

Such work turns the table on traditional didactic methods of study, giving the student 'sovereignty' to choose the course and destination of their learning, in a context of academic support and empowerment. As the research outlined in this report has shown, this alternative model of learning has a positive impact on both student motivation and participation barriers and leads to the development of self-regulated learners and the independent study skills that universities often find lacking in undergraduate students.

The research has also shown that extended project work impacts positively on outcomes, leading to a greater chance of higher A-level grades and a significant correlation with degree performance. These factors, combined with the development of highly transferable skills such as planning, creativity, problem-solving and communication, suggest that extended project work is not only an innovative and exciting way for students to learn, but also a necessary element for future success.

Further, there is no *a priori* reason why the general messages from this research would not apply equally at earlier key stages, for example, that appropriately-designed extended project work completed alongside GCSE study would increase GCSE performance and be correlated with better A-level results. In fact, there is a case for speculating that extended project work at GCSE level might have a greater positive effect on factors such as student motivation, given that students have less autonomy over what they study than at A-level, thus potentially amplifying the effect of work where the student determines what and how to learn. The key question would be how best to pitch and deliver extended project work to other key stages, in order to maximise such effects.

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About the author

- With a BA in Philosophy from Cambridge University and an MA in Theology from the University of London, Robin Drummond spent ten years teaching a range of subjects in schools and colleges, including Philosophy, Religious Studies and Critical Thinking. During this time, he also worked as a senior examiner for AQA and became interested in project-based learning, leading Extended Project Qualification (EPQ) programmes in several schools. In 2015, he moved into assessment full-time, working as a test developer and researcher for Testbase and Exampro, developing Key Stage 1 and 2 optional and progress tests, as well as contributing to various projects with the Centre for Education Research and Practice (CERP) and Oxford International AQA Examinations. In addition to project-based learning his interests include assessment theory, the design of mark schemes/question papers and improving marking reliability. Robin is currently Chief Examiner for the Independent Project Qualification.

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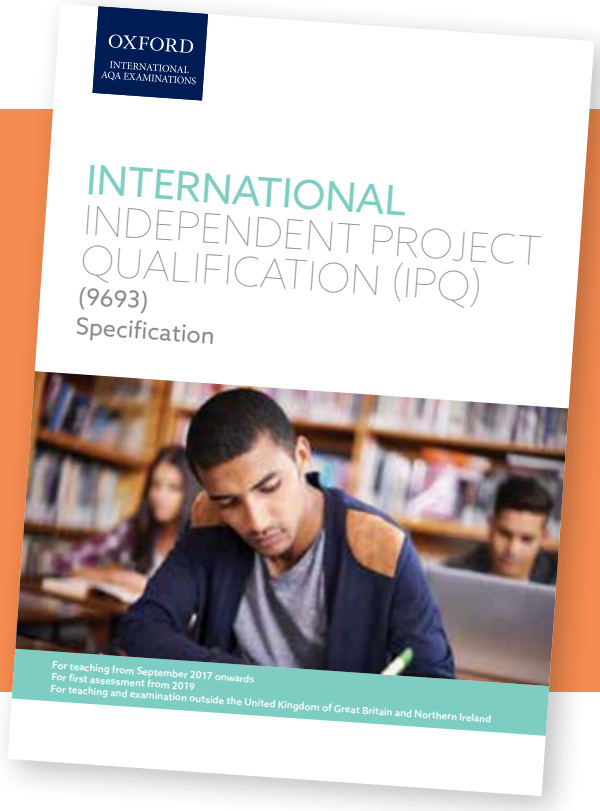

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