

The impact of career development activities on student attitudes towards school utility: an analysis of data from the Organisation for Economic Co-operation and Development's Programme for International Student Assessment (PISA)

**By Elnaz T. Kashefpakdel, Anthony Mann
and Matteo Schleicher**

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For more information about this report, contact: Jordan.Rehill@educationandemployers.org

Education and Employers Taskforce, 19-21 Clerkenwell Close, London EC1R 0RR.

Summary

This paper tests the hypothesis that greater teenage engagement in career development activities organised by schools and including elements of direct exposure to the contemporary working world will be associated with more positive attitudes towards schooling. The hypothesis originated from a 2014 interview with the OECD's Director of Education and Skills, Andreas Schleicher, and makes use of a unique OECD dataset to test it. Within the 2012 Programme for International Student Assessment (PISA), a series of questions explore teenage participation in career development activities and attitudes towards schooling.

In the analysis, four activities are isolated (participation in Internships, Job Fairs, Job Shadowing and speaking with a Careers Advisor in school). Only a minority of countries taking part in PISA 2012 opted into these questions and of these six have been selected for analysis (Australia, Belgium, Canada, Denmark, Finland and Ireland). Analysis considered the responses of teenagers across these six countries to a series of four statements concerning the utility of schooling in general and, in three cases, specifically for adulthood, including later employment (e.g. *School is a waste of time* and *School helps to get a job*). Drawing on existing OECD analytical practice, a series of control variables were applied to the analysis enabling account to be taken of the typical social and demographic factors which can determine student engagement and success in education.

The analysis found a strong, statistically significant relationship between participation in career development activities and more positive attitudes towards the utility of schooling. The most consistent positive effects are found in relationship to speaking with a Careers Advisor in school and attending a Job fair. Relationships are particularly strong in Finland and Ireland. It is not known what is driving the difference in attitudes. Further analysis will explore the relationship between participation in career development activities and academic achievement.

Introduction

I do think we need to be honest with young people about how challenging the youth employment market has become. We need to be honest with them about how education to work transitions are now commonly complex and prolonged. Governments and educators need to recognise the consequence of these changes and take action to make transitions easier. As well as thinking anew about the curriculum and the preparations for modern working life that schooling provides, greater attention needs to be focused on improving signalling of the different pathways available to young people. This is why exposure to the workplace is so important within education. It not only provides excellent opportunities for experiential learning across the curriculum, but also underpins effective careers education and the decision-making of young people. Work experience and other forms of employer engagement demonstrate to young people the links between what they do in the classroom and how those skills ultimately will be used in the labour market. For young people, and for their teachers, that is a great motivator.

Andreas Schleicher cited in Mann and Huddleston 2015, 28.

Interviewed in 2014, the Director of Education and Skills at the Organisation for Economic Co-operation and Development (OECD), Andreas Schleicher made a passionate case for greater engagement of employers in education to support the progression of young people into an increasingly challenging labour market. The OECD has long argued that employer engagement has an important role to play within careers provision (OECD 2010). However, in this interview Schleicher argued that not only might positive impacts from employer-enriched provision be expected in the economic outcomes of young people as they transition into the labour market, but also be seen in the classroom: in increased student motivation following exposure to the realities of the working world. It is this suggestion, and an investigation of its consequences in terms of student attainment, that drives the analysis presented in this and following publications.

Over recent years, the evidence base surrounding the impact of careers-focused provision has improved considerably, offering validation to the OECD's confidence that school-mediated work-related engagements can be robustly associated with better employment outcomes. In July 2016, the UK government-funded Education Endowment Foundation published *Careers Education: international literature review* by Hughes et al. That publication considered literature from across the OECD countries published since 1996 which used randomised controlled trials or quasi-experimental approaches such as analyses of longitudinal databases, to review the impacts of "careers-focused school- or college-mediated provision designed to improve students' education, employment and/or social outcomes."¹

¹ Including such activities as mentoring and careers provision with employee volunteers, job shadowing and work experience placements, enterprise learning and Information, Advice and Guidance.

Identifying mainly UK and US material, the review found that 67% of 27 studies considered provided evidence of largely positive economic outcomes for young people with the remainder of papers offering no distinct patterns in terms of outcomes. The identified economic outcomes were often considerable in size. The review also found that 60% of 67 studies which considered the impact of careers-focused interventions on the academic attainment of young people found evidence of largely positive outcomes (Hughes et al 2016, 4-5) with the great majority of outstanding studies again showing no distinct patterns in terms of results. The review found however that while clear results were often identified by researchers, comparatively modest attention had been given to trying to understand what was driving results. Where undertaken, in broad terms, researchers agreed with the perspective of Andreas Schleicher.

The literature reviewed here has relatively little to say about why interventions related to careers-focused education have, on average, positive impacts on the attainment of young people. It does, however, broadly support the hypothesis that careers education helps young people to better understand the relationship between educational goals and occupational outcomes, increasing pupil motivation and application (Hughes et al 2016, 4).

This paper explores the questions addressed in the 2016 literature review and in the 2014 interview with the OECD's Director of Education and Skills, specifically investigating whether statistically significant relationships can be drawn between participation in selected career development activities and more positive engagement in education as witnessed in responses to four attitudinal questions. In doing so, the analysis makes use of a unique dataset collated and made publically available for analysis by the OECD. The data collected in the Programme for International Student Assessment or PISA study represents one of the world's most valuable resources for understanding how the academic abilities of young people (in terms of reading, mathematics and problem-solving skills) vary between and within countries and how variations in results can be linked to the different backgrounds and experiences of the students. Undertaken every three years, over 500,000 students from 65 countries and regions took part in the 2012 PISA surveys.² Collecting a rich set of data about the family and social backgrounds of the 15 year old survey participants and their schools, PISA allows analysts to control for the characteristics which commonly drive academic performance to isolate and analyse the impacts of distinctive interventions.

The 2012 PISA survey asked a number of questions about participation across a series of career development activities including a number commonly organised by schools, including some involving engagement with local employers (e.g., attendance at job fairs, job shadowing, internships). Only a minority of participating countries, however, opted into this series of questions. In the paper that follows, statistical analysis is initially presented exploring relationships between activity participation and evidence of student engagement with learning and academic motivation. In so doing, the study builds on the work of Sweet et al. (2014) which explored relationships between participation in career development

² For full details of PISA visit <https://www.oecd.org/pisa/aboutpisa/>

activities and self-assessed career-related competencies and of the OECD itself which in 2015 set out variation in participation levels in activities by gender.

Data

The OECD's Programme of International Student Assessment (PISA) is a unique study both in scale and that it develops tests for young people which are not directly linked to the school curriculum.³ The tests, rather, are designed to assess the extent to which students, as they reach the end of their period of compulsory education, are able to apply their knowledge to real-life situations in preparation for full entry to society as adults. Every three years, dozens of countries and regions from around the globe work with the OECD to randomly select students, aged 15, to take part in the tests which measure capability in reading, mathematics, science, problem-solving and financial literacy. In 2012, some 510,000 young people across 80 nations and regions took part in the tests.

The PISA test takes a young person about two hours to complete and involves students responding to open ended and multiple choice questions. In total, nearly 400 questions are asked and include explorations of the social background and family life of students. Participating schools also return data on the broader school system and learning environment and some parents are also asked to complete returns. The OECD makes considerable data surrounding the PISA study publically available: student questionnaires and results, school and parental data.⁴ Data is provided in excel and SPSS formats allowing for easy analysis by statisticians which focused on a series of specific data.

Careers development activities

The Educational Career Questionnaire within PISA 2012 asked student respondents: *Have you done any of the following to find out about future study or types of work?* Respondents were able to answer either 'yes' or 'no, never' to four questions which explored the extent to which young people had come into direct contact with workplaces or careers professionals through the agency of their school.⁵

I did an internship⁶

I attended job shadowing or work-site visits

I visited a job fair

³ For more information about PISA, visit <https://www.oecd.org/pisa/>

⁴ See: <https://www.oecd.org/pisa/pisaproducts/pisa2012database-downloadabledata.htm>

⁵ The survey also asked young people about whether they had spoken to a career advisor out of school, completed careers-focused questionnaires, researched the internet about careers and higher level educational programmes or visited an institution offering provision to young people at a higher level. Additionally, the OECD PISA study asks students for their perspectives about a series of competency based questions about skills related to careers provision – whether respondents *feel* they know how to search for employment, write a CV or prepare for an interview and find information on continuing education programme. Some analysis against these interesting self-assessments has been undertaken by Sweet et al (2014).

⁶ No definitions of 'Internship' were offered to respondents.

I spoke to a career advisor at my school

Participating countries

Only a minority of countries and regions undertaking PISA in 2012 chose to opt into these questions about careers development activities. Twenty-two countries arranged for young people to be asked three or more of the four questions about career development activities. Of these, due to limited resources results from six countries were considered within the current report: Australia, Belgium, Canada, Denmark, Finland and Ireland.

Measuring student motivation

Within the long list of questions asked of young people, four focused on pupils' perceptions of the utility of schooling to their own adult futures.

“Do you think that school..

...does little to prepare you for life?

...is a waste of time?

...is useful for jobs?

...helps you to get a job?”

The statements reflect the motivation of young people and their perceptions of the utility of their schooling in their own future economic outcomes. Students were given four choices in responding: Strongly Agree, Agree, Disagree, Strongly disagree.

Control variables

As is routine within statistical analysis of such a database within the social sciences, it is important for researchers to understand and control for key background characteristics which might distort findings. These control variables are used within analysis to determine whether any detected impacts related to career development activities as interventions are, in reality, a mask for some deeper variation in the experience of student participants. The control variables used in the analysis which follows drew on those applied within the OECD's own analyses of the performance of students in the problem-solving assessment:

1. Gender.⁷
2. Socio-economic status⁸ *Measured by the PISA Index of Economic, Social and Cultural Status – an index including parental occupation, parental education and home possessions.*

⁷ OECD, 2014, pp. 4, 99, 101.

⁸ OECD, 2014, p. 94.

3. School type. *The school type control variable includes details of school location, drop-out rates, class size, staff/student ratios and private/public status.*
4. Immigrant background.⁹ *The control variable includes immigrant status (native/first generation/second generation) and language spoken at home.*
5. Motivational factors.¹⁰ *Control variable includes truancy factors (missing whole school days and classes within a school day).*
6. Cognitive potential. *The variable includes responses to questions on whether respondents have been required to repeat a year of study.*

Student participation in career development activities

In the table which follows descriptive statistics are presented illustrating the variation in student participation across the four leading career development activities managed through schools and engaging local employers by country or region.

Table 1. Students reporting participation in four career development activities by country

	Internship	Job shadowing or work-site visit	Taken part in a Job Fair	Spoken to a Careers Adviser at my school
Australia	49%	30%	52%	66%
Belgium	11%	20%	15%	30%
Canada	9%	34%	40%	40%
Denmark	69%	52%	25%	94%
Finland	62%	43%	38%	84%
Ireland	7%	39%	11%	52%

Analysis

In the analysis which follows, statistical tools are used to assess whether participation in each of the four career development activities under consideration can be associated with more positive responses to the four statements reflecting student motivation after taking account of the control variables. Through binary logistic regression it is possible to measure whether participation in the career development activity can be associated with more positive attitudes towards schooling. The analysis compares young people with peers in their own countries. Results are expressed as an either positive or negative odds ratio which expresses the likelihood of a young person agreeing or disagreeing with the statement. By way of example, Australian students who take part in an internship are 14% less likely to agree with the statement “School does little to prepare you for life” than their comparable peers who missed out on the activity. Only relationships with statistical significance of 10% or better are included. This means that there can be a 90% or better

⁹ OECD, 2014, p. 94, 110.

¹⁰ OECD, 2014, p. 111.

confidence that the relationships observed are not coincidental or masks for a variation in social background detected by use of the control variables. When it comes to judging the strength of the relationship, the lower the level of statistical significance, the better.

Technical Annex

Full results of the analysis undertaken in the production of this paper are given in a separate paper also available at www.educationandemployers.org/research-main:

The impact of career development activities on student attitudes towards school utility: an analysis of data from the Organisation for Economic Co-operation and Development's Programme for International Student Assessment (PISA). Technical Annex.

Results

Table 2. Analysis: relationship between participation in career development activities and student disagreement/agreement with the statement:

“School does little to prepare you for life”

COUNTRY	ACTIVITY	ODDS RATIO
Australia	Job fair	-14%*
	Career advisor at school	-20%*
Belgium	Job shadowing	-30%*
	Career advisor at school	-10%**
Canada	Job shadowing	-7%**
	Career advisor at school	-23%*
Denmark	Career advisor at school	-33%*
Finland	Internship	-16%*
	Career advisor at school	-26%*
Ireland	Career advisor at school	-18%*

** Statistically significant at 5%*

*** Statistically significant at 10%*

Note. The negative sign means respondents are less likely to agree with the statement.

Table 2 shows the result of the logistic regression analysis for each country. In Australia, young people who spoke with a careers advisor in school are 20 percent less likely to agree that “school does little to prepare you for life” than their comparable peers and the relationship is statistically significant at 5 percent meaning there is a 95% or better chance that the relationship is not coincidental. The relationship between taking part in certain activities and more positive attitudes towards school is statistically significant in all 6 countries. The highest effect size is seen in Denmark and Belgium for people who received career advice at school.

Table 3. Analysis: relationship between participation in career development activities and student disagreement/agreement with the statement:

“School is a waste of time”

COUNTRY	ACTIVITY	ODDS RATIO
Australia	Job fair	-20%*
	Career advisor at school	- 12%*
Belgium		---
Canada	Job shadowing	-7%*
	Job fair	-6%*
	Career advisor at school	-18%
Denmark	Career advisor at school	-35%**
Finland	Internship	-24%*
	Job fair	-25%*
	Career advisor at school	-48%*
Ireland	Internship	-66%*
	Job shadowing	-16%*
	Job fair	-30%*
	Career advice at school	-41%

** Statistically significant at 5%*

*** Statistically significant at 10%*

Note. The negative sign means respondents are less likely to agree with the statement.

Similar patterns are found when analysing responses to the statement “School is a waste of time.” Statistically significant relationships are found between participation in career development activities and lower levels of agreement with the statement with the exception of results from Belgium. The higher levels of positive relationship are found in Ireland, Finland and Canada. Irish teenagers who took part in an internship are 66 per cent less likely to agree that school is a waste of time than their peers.

Table 4. Analysis: relationship between participation in career development activities and student disagreement/agreement with the statement:

“School is useful for jobs”

COUNTRY	ACTIVITY	ODDS RATIO
Australia	Job shadowing	16%*
	Job fair	6%*
	Career advisor at school	20%*
Belgium	Job shadowing	9%**
	Career advisor at school	11%*
Canada	Internship	13%*
	Job fair	16%*
	Career advisor at school	47%*
Denmark	Job shadowing	35%*
	Career advisor at school	2.53 x more likely*
Finland	Internship	80%*
	Job shadowing	35%*
	Job fair	30%*
	Career advisor at school	2.15 x more likely*
Ireland	Job shadowing	19%*
	Job fair	2.47 x more likely*
	Career advisor at school	39%*

** Statistically significant at 5%*

*** Statistically significant at 10%*

Note. Results show respondents being more likely to agree with the statement.

Table 4 illustrates strong relationships between taking part in the four career development activities and more positive responses to the statement “School is useful for jobs.” On a number of occasions, respondents taking part in activities are more than twice as likely to agree with the statement as their peers. For example, Irish teenagers who took part in Job fairs are nearly two and a half times more likely to agree that their schooling is useful for the working world than peers who missed out on the activity.

Table 5. Analysis: relationship between participation in career development activities and student agreement with the statement:

“School helps to get a job”

COUNTRY	ACTIVITY	ODDS RATIO
Australia	Job fair	28%*
Belgium		---
Canada	Job shadowing	6%*
	Job fair	11%*
	Career advisor at school	24%*
Denmark	Internship	17%*
	Job shadowing	2.08 x more likely*
	Career advisor at school	2.03 x more likely*
Finland	Internship	18%*
	Job shadowing	45%*
	Job fair	22%*
	Career advisor at school	63%*
Ireland	Job fair	2.21 x more likely*
	Career advisor at school	56%*

** Statistically significant at 5%*

Note. Results show respondents being more likely to agree with the statement.

In Table 5, positive relationships are found between participation in one or more of the four career development activities and a greater willingness to agree with the statement that “School helps to get a job” in all countries with the exception of Belgium. In Australia, for example, young people attending Job fairs are 28% more likely to agree than peers and in Ireland, they are more than twice as likely to agree with the statement.

Table 6. Summary of statistically significant positive responses to four attitudinal statements by career development activity and country

	Australia	Belgium	Canada	Denmark	Finland	Ireland
<i>School does little to prepare you for life</i>						
• Internship					X	
• Job shadowing		X	X			
• Job fair	X					
• Career advisor	X	X	X	X	X	X
<i>School is a waste of time</i>						
• Internship					X	X
• Job shadowing			X			X
• Job fair	X		X		X	X
• Career advisor	X		X	X	X	X
<i>School useful for jobs</i>						
• Internship			X		X	
• Job shadowing	X	X		X	X	X
• Job fair	X		X		X	X
• Career advisor	X	X	X	X	X	X
<i>School helps to get a job</i>						
• Internship				X	X	
• Job shadowing		X		X	X	
• Job fair	X	X			X	X
• Career advisor		X		X	X	X

Discussion

This paper has tested the hypothesis that greater teenage engagement in career development activities organised by schools and including elements of direct exposure to the contemporary working world will be associated with more positive attitudes towards schooling. The hypothesis originated from a 2014 interview with the OECD's Director of Education and Skills, Andreas Schleicher, and makes use of a unique OECD dataset to test it. Within the 2012 Programme for International Student Assessment (PISA), a series of questions explore teenage participation in career development activities and attitudes towards schooling. In this analysis, four activities have been isolated (participation in Internships, Job Fairs, Job Shadowing and speaking with a Careers Advisor in school). Only a minority of countries taking part in PISA 2012 opted into these questions and of these six have been selected for analysis (Australia, Belgium, Canada, Denmark, Finland and Ireland). Analysis considered the responses of teenagers across these six countries to a series of four statements concerning the utility of schooling in general and, in three cases, specifically for adulthood including later employment. Drawing on existing OECD analytical practice, a series of control variables were applied to the analysis enabling account to be taken of the typical social and demographic factors which can determine student engagement and success in education. Important within these variables was school type. In a number of countries, young people are channelled at age 14 or younger into either vocationally or academically focused educational institutions. Controlling for attendance at such institutions is particularly important as they can be indicators for very different school environments and curricula and very different types of student, particularly by attainment level. Put simply, in running analysis, there is confidence that it is not the type of school or college attended which drives the level of career development activities undertaken. That said, the analysis took no account of streaming within schools and, of course, other unknown variables related to the delivery of the activities which, if added to the analysis, might influence results.

The analysis finds high levels of association between participation in the career development activities and more positive attitudes towards the utility of schools in preparing teenagers for working life. Of the four activities, it is speaking with a careers advisor within school which is most consistently associated with more positive responses, followed participation in a Job fair, taking part in Job shadowing and then Internships. Of the six countries, it is teenagers in Finland and Ireland who demonstrate the greatest levels of responsiveness to participation in career activities.

This analysis cannot explain why such results have been found. Activities might be explicitly designed to channel students to make associations between their schooling and its utility within the adult workplace. Alternatively, simple exposure might challenge students to consider their educational experiences in a new light, making connecting themselves between what happens in the classroom and how it can relate to future workplaces which were previously harder to make. A possible implication of the relationships illustrated here between participation in school-mediated career development activities and positive attitudes towards the utility of schooling is that more motivated students will receive some

boost to their academic achievement through greater engagement in learning. As a next step within this analysis, similar approaches will be undertaken to explore relationships between participation in career activities and student performance on the PISA tests.

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