

How important is career information and advice?

Students' decisions about their education can be, but are not always, improved by providing them with more information

Keywords: information interventions, randomized control trials, education decisions

ELEVATOR PITCH

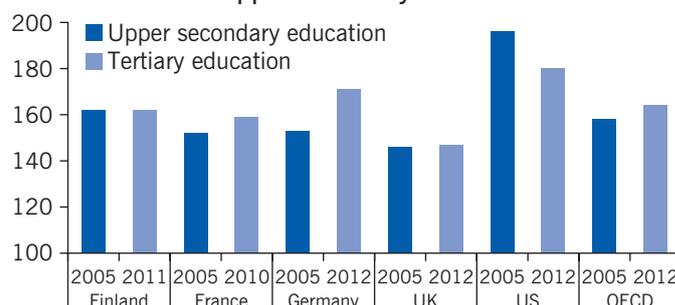
The quantity and quality of educational investment matter for labor market outcomes such as earnings and employment. Yet, not everyone knows this, and navigating the education system can be extremely complex both for students and their parents. A growing economic literature has begun to test whether interventions designed to improve information about the costs and benefits of education and application processes have an effect on students' behavior. So far, findings have been mixed, although the positive findings arising from some very carefully targeted interventions give cause for hope.

KEY FINDINGS

Pros

- ⊕ Information interventions can influence educational investment decisions if the information provided is pertinent to the target group and provided at the right time.
- ⊕ Well-designed information interventions can be low cost relative to other interventions such as tuition subsidies that are intended to increase educational participation.
- ⊕ Some information interventions have been shown to be effective if coupled with personal assistance or mentoring.

Earnings of those with tertiary education relative to those with upper secondary education



Notes: Males aged 25–64; 100 = equality.

Source: OECD. *Education at a Glance 2014: OECD Indicators*. Paris: OECD Publishing, 2014. Online at: <http://dx.doi.org/10.1787/eag-2014-en>

I Z A
World of Labor

Cons

- ⊖ Many information interventions have no effect on student behavior, even though they have been carefully targeted and well designed.
- ⊖ Information interventions are unsuccessful if students face significant other constraints, such as high competition for particular education programs, or if they are unable to adjust their aspirations to match what they can realistically achieve.
- ⊖ Providing information too late in the education process may not allow sufficient time for students to make the necessary prior investments.

AUTHOR'S MAIN MESSAGE

Evidence suggests that interventions designed to improve knowledge about the costs and benefits of educational investments, and how to navigate application processes, can influence students' knowledge, expectations, and behavior. However, for these to be effective in the short term, they must be carefully designed and targeted to groups for whom the demand for information is high and can be readily acted upon. A level of personalization is required in how the information package is designed and delivered. Policymakers should view successful information interventions as low cost, but not simple.

MOTIVATION

It is well established that the amount and type of educational investment has a strong causal relationship with labor market prospects (employment and earnings). Despite this, many young people drop out of education early on in their lives. Others appear to make suboptimal choices—for example, attending higher education institutions that have lower performance indicators and higher costs associated with them than other (more selective) institutions for which they would be qualified. While there are many possible contributory factors, one question is the extent to which lack of information is a constraining factor, especially for students from disadvantaged backgrounds. Now that big administrative data sets are becoming more accessible (e.g. in the US and the UK), it is (in principle) feasible to devise strategies based on information delivery that might improve the situation.

Furthermore, outside of the fixed cost of setting up these strategies, the ongoing costs are small relative to other potential policies. For example, programs involving tuition subsidies or one-to-one career guidance are much more expensive. But should one expect simple information interventions to have an effect on behavior? Under what circumstances do “information treatments” work or not work? These are some of the questions upon which the economic literature is beginning to shed light with a recent swathe of studies about the effects of information and/or personal guidance on post-compulsory enrollment decisions and other educational outcomes.

DISCUSSION OF PROS AND CONS

There are several recent studies that use randomized control trials (RCTs) to test whether the provision of information about higher education influences applications, enrollment, and other measures of educational attainment. In RCTs, people or institutions are randomly assigned to receive a given intervention. Interventions vary in terms of the content, target group, and institutional context. The content of the information intervention might be characterized in the following ways: (a) information about the relative labor market benefits of different educational options [1], [2], [3], [4]; (b) information about financial aid [5], [6], [7]; (c) information about labor market benefits and financial aid [8], [9]; (d) more specific semi-tailored information about admissions processes, and the relative merits of different institutions/programs in terms of inputs, future prospects, and costs [10], [11], [12]. The target groups vary from young people or their parents some time before they make post-compulsory decisions [1], [4], [7], [8], [9] to people right at the margin of making decisions [3], [10], [11], [12]. In addition, it is relevant to determine if the intervention aims to influence the decision to participate in post-compulsory education at all [2], [10] or the nature of that participation, such as what courses or institutions they should apply for [3], [11], [12].

The institutional context varies considerably across countries. For example, in the US, a central concern is the extremely complex process for applying to higher education and seeking financial aid. Here, the interventions’ aims are often to present relevant information in a simple way—which saves people from having to do extensive research themselves. In other countries, such as Finland and the Netherlands, the application process is very straightforward; thus, interventions are not designed to de-mystify a complex system, but rather to provide people with information that they may not already have. The same is true of studies in developing countries [2], [4], [7].

Because of all these differences between studies and the fact that they are mostly very recent (meaning researchers cannot yet say much about longer-term outcomes), it is difficult to come to general conclusions about the effects of information provision. However, it is still possible to make some useful observations by reviewing these papers.

Information on its own is not always sufficient to change behavior

Figure 1 shows a summary of recent studies that use RCTs to test whether information (on its own) influences educational investment behavior. In common with studies that look only at student knowledge and expectations as outcomes [8], [9], almost all show a positive impact on students' knowledge and beliefs. However, out of the ten RCT studies, only half show an impact on application/enrollment decisions and/or educational attainment—and three out of the five showing a positive impact are from developing countries.

It may be easier to influence educational decisions in developing countries through the provision of information; lack of information is a serious constraint for more people than in developed countries. Two studies that examine the link between educational achievement and future outcomes in developing countries investigate the Dominican Republic [2] and Madagascar [4]; they both find that people are very misinformed about this link. Furthermore, there is a huge amount of early drop-out of education in these countries. The studies find that when people are provided with information about the link between education and earnings, it has a positive effect on educational investment decisions. In Madagascar, providing information about the average earnings at each level of education as well as the implied gain led to both improved school attendance and higher average test scores [4]. In the Dominican Republic, providing information about the relationship between education and earnings reduced drop-out from school in subsequent years, although only amongst the “least poor” students [2].

By contrast, in developed countries, findings are less clear on whether low-income students know the link between educational achievement and future outcomes [1]. In these countries, simply providing information about the link between education and labor market outcomes has not yet been found to have much impact on actual behavior, even though it does change people's attitudes toward educational investment decisions. The studies that look at the behavioral impact of providing information on the relationship between education and earnings come from the US and Finland. In the US, the experiment involved sending regular text messages to sixth and seventh grade students about the relationship between human capital and earnings (e.g. about the relationship between years of education and earnings) [1]. This was found to increase students' knowledge about these issues and their self-reported effort at school, but it had no impact on educational attainment or attendance. In Finland, the experiment involved a 45 minute information session delivered by student guidance counselors where students in the final year of high school were given information on earnings distributions by education level and field of study (among other things) [3]. This was shown to effect students' beliefs, but had little impact on application behavior and no effect on enrollment.

Other studies (from the US [5], the Netherlands [6], and Chile [7]) have focused specifically on giving students information about financial aid opportunities. Of these, the US study gave the most customized information to families. The focus was on families with a low to

Figure 1. Studies using randomized controlled trials to assess information interventions

Ref	Country	Target group	Intervention	Outcome
[12]	US	High school seniors who are high-achieving and low income	Mail information package (semi-customised) + fee waiver for applications. Includes guide on application strategies, lists of where similar students applied, compares institutions based on graduation rates, resources, and costs.	Students apply to more institutions and are more likely to enter better-performing institutions.
[10]	US (New Hampshire)	High school seniors at the margin of not applying to college	Personalized letter of encouragement from one or more college admissions offices. Students receive a letter highlighting the benefits of attending college and providing the url for applications. Follow-up letter with email and school visits.	Evidence suggests small or negligible effect on probability of attending any college.
[1]	US (Oklahoma)	Sixth and seventh grade students	Students received cell phone and daily informational text messages about the relationship between human capital and outcomes (e.g. employment and earnings).	Effects on knowledge and self-reported effort. No effects on behavior or educational attainment.
[5]	US (Ohio and North Carolina)	Low-/middle-income families, with a member aged 17–30 without degree	Use participants' tax returns to calculate individualized financial aid eligibility to attend higher education institutions. Individuals are given a written description of their aid eligibility and a list of the tuitions of four nearby colleges.	No impact on financial aid applications or college enrollment.
[6]	The Netherlands	Students enrolled in higher education	Random sample of students who agreed to take part in an internet survey are provided with factual information about loan conditions.	Effects on knowledge about loan conditions but not loan take-up.
[3]	Finland	Students in final year of high school	45 minute information session delivered by student guidance counselors. Information on earnings distributions by education level, field of study; costs and funding of study; entry probabilities and completion time.	Effects on belief updating but little effect on application behavior and no effect on enrollment.
[11]	France (Paris)	Students in final year of middle school (age 15/16)	Students at most risk of dropping out are identified by the head teacher. A random sample of parents are invited to two (group) meetings and shown a DVD about students who succeed in vocational education. Information about system and making applications provided.	Reduction in grade repetition and drop-out rates. Increase in vocational applications and enrollment.
[2]	The Dominican Republic	Boys in last year of compulsory schooling (eighth grade)	Students at a randomly selected subset of schools are given information on earnings by education level.	Positive effect on enrollment in additional years of high school.
[4]	Madagascar	Parents of primary school children	"Statistics" intervention give information on the distribution of jobs and mean earnings by education level.	Positive effect on student test scores and attendance.
[7]	Chile	Eighth grade students in poor schools	Standardized information (short DVD) about financial aid opportunities for higher education.	Raises probability of enrolling in a college preparatory high school. Increases attendance but no effect on attainment.

Source: Author's own compilation.

moderate income with at least one member between the ages of 17 and 30 who did not have a university degree. Participants' tax returns were used to calculate individualized financial aid eligibility to attend higher education institutions. They were given a written description of their aid eligibility and a list of the tuitions of four nearby colleges. However, this was found to have no impact on financial aid applications or college enrollment. Only when individuals were also given assistance with the financial aid applications was there an impact on college enrollment—and the effect was substantial. This involved completing and submitting the application form for financial aid on behalf of the family.

The fact that providing assistance has such a large effect is probably a reflection of how complicated the financial aid system is in the US, which is not necessarily true of other countries. For example, the study in the Netherlands claims that the loan application process is simple [6]. Yet, take-up of loans is low, despite a generous system. The authors investigate whether those already enrolled in higher education might be influenced to take out student loans if they have better knowledge about loan conditions. While they find an effect on knowledge, they find no effect from providing information on the actual take-up of loans.

Two studies in developed countries that have found a positive impact of information interventions on educational investment are from the US [12] and France [11]. The US study uses administrative data to target high school seniors who are both very high-achieving and have low family income. Students were posted an information package that was “semi-customized” for their circumstances (e.g. regarding income and location) and included a fee waiver for making college applications. The information package also included a guide on application strategies, a list of where similar students applied, and a comparison of institutions based on graduation rates, resources, and costs. The findings from this study are that students receiving this information apply to more institutions and enroll in better-performing institutions (with a better match between their academic ability and the average intake of the institution). Yet, another US study, which has adopted a similar approach to students who are on the verge of not applying to any college at all, does not find any impact and interprets this as a reflection of its different target group (who are much lower-achieving) [10].

The French study focuses on students who are very low-achieving [11]. In contrast to the US study, it aims at making people more realistic about future plans. It focuses on decisions made at the end of middle school (where students are aged 15–16) and targets the parents of young people who the school head teacher has identified as the most low-achieving and at risk of dropping out. The background is that young people in this group often have unrealistically high expectations about where they can apply (in a competitive system). In addition, they have a high probability of repeating grades and eventually dropping out of education. The intervention aims to encourage the parents of these students to consider two-year vocational programs on their list of possibilities for the following year. The intervention consisted of two group meetings with the head teacher; it involved the preparation of guidelines by district experts explaining how to inform and counsel families about the complex tracking system and the application and allocation mechanism. Parents were shown a DVD of students explaining how they performed in vocational education, even though they had failed in middle school. The guidelines suggested that each family's expectations should be discussed in light of the student's actual performance and that families should be helped to adjust their expectations to match those performances. In

the end, this intervention increased the proportion of students who enrolled in two-year vocational programs (rather than repeating grades) and they remained there the following year (i.e. they did not drop out).

Whereas the US study focuses on changing the expectations of students that are too low [10], the French study does the opposite [11], targeting those whose expectations are unrealistically high, leading to ill-considered actions and premature drop-out from any further education. It is thus important to note that information experiments can be just as well applied to downgrading overly optimistic expectations as upgrading overly pessimistic expectations. What both studies have in common is that students make better educational choices as a result of the information interventions. In particular, the US study shows that students attend more selective colleges and perform just as well in terms of grades and persistence as they would have done in a less selective college (which is a positive outcome bearing in mind that they will have a more academically able peer group within more highly selective colleges) [10]. The French study shows lower drop-out rates one and two years after the intervention and that the change in behavior is between attending a two-year vocational program rather than repeating grades and/or dropping out [11].

Both of the above interventions manifestly led to the recipients making better choices because they were designed to carefully meet the needs of a well-defined target group. This is an important characteristic of successful information interventions. Providing information that is too general (or worse, inappropriate) for a target population would serve no useful purpose.

Why information experiments work in some contexts but not in others

The US [12] and French studies [11], which both find positive effects on behavior, are similar to each other in the sense that the treatment group is very well targeted; they are people who are on the verge of making a decision about educational choice and appear to have no other impediment to making that choice (i.e. they have made appropriate preparations for the choices being considered). The treatments deliver exactly what the target groups need and want at the right time. In some cases, where the information intervention has not influenced behavior, there have been other obstacles. For example, in the US study where young students received regular information by text message on the relationship between education and labor market outcomes, it was argued that the students did not know the relationship [1]. In other words, they wanted to improve their school work and self-reported effort did increase—but they simply did not know how to translate their higher ambitions into higher test scores. In the Finnish study, where high school students were given information about the earnings return to different courses of study, there was some change in application behavior (among those students who were surprised by the information) but no change in enrollment—potentially because the system is very competitive for high-return educational routes [3]. It may also be too late to influence effort (via information) the year before decisions need to be made. Another caveat is that both of these studies were looking at the short-term effects of providing information and not what the impact might be over many years.

Both the US [12] and French [11] studies finding positive effects on behavior had relatively high participation rates among the target group: about 40% in the US study and 50% in the French study. In contrast, the study that provided semi-customized information to US students on the verge of considering whether to apply to college at all attracted much less interest among the target population, with a participation rate of only 14% [10]. Low participation rates are a general problem. Low participation rates in an experiment mean that researchers have to be especially cautious about extrapolating effects beyond the group that was selected to be involved in the experiment. For instance, the literature on financial literacy emphasizes the time cost of investing in information processing (even if it is provided for free). Thus, one might expect non-participants to have higher discount rates (i.e. to be more “present-orientated”). It is therefore not clear whether information provision should be expected to have a smaller or larger impact on non-participants compared to participants.

As discussed above, the target group and institutional context will influence the effects of any information treatment. For example, in a developing country, where most people dramatically under-estimate returns to schooling [2], [4] and clearly under-invest in education, it might be easier to find a high marginal effect of providing information. In developed countries, on the other hand, many studies find that people do not underestimate returns to schooling [1] and that they invest in longer periods of education. While information interventions might motivate people in these countries to more closely consider the quality and type of their education investments, it might be hard to do this over the short term, because these decisions are made over time (often starting at fairly young ages) and students may need to compete for a fixed number of slots in popular programs, where entry is influenced by many years of effort and achievement.

Does personal assistance matter?

While some studies find that information on its own is not enough to influence behavior, they do find that if information is accompanied with assistance then it is sufficient to influence education investment decisions. The two most relevant studies are both from the US. One study, discussed above, shows that if financial aid applications are submitted on behalf of families, there is a big effect on college enrollment [5]. Information provision is inherent to this intervention but does not drive the impact on college enrollment per se (which is instead interpreted to reflect the role of simplification and assistance to families for making financial aid applications).

The other US study finds that customized information is not sufficient to influence would-be college students to apply to any college [10]. However, the researchers suggest that a “boots on the ground” intervention is very effective. The main part of this type of intervention is mentoring by university students, who guide participants through the whole college application process (including aid application), which takes three to four weeks. The authors find that this does have a significant impact on college enrollment. Although it is a more expensive intervention than those based on providing information only, the authors argue that this is still cost-effective and compares favorably to interventions that directly subsidize students to attend college. There are several other studies that support this view by showing that mentoring can be cost-effective for encouraging college entry.

LIMITATIONS AND GAPS

There are too few comparable studies about the effects of successful intervention strategies to inform about whether they might be successfully implemented elsewhere. Furthermore, interventions are generally short term (i.e. expected to influence outcomes within one or two years); thus, they do not answer the question as to whether information interventions might be effective if provided early enough and if they are sustained over time (e.g. as part of the regular school curriculum).

In addition, some information interventions might be effective only if they are combined with some other form of personal assistance, but the form and intensity of the assistance is likely to vary by context. This is not something that can be easily generalized and extrapolated across different institutional environments and target groups. All of this highlights the importance of testing interventions as well as proper piloting of approaches even before they are formally tested.

SUMMARY AND POLICY ADVICE

The provision of tailored information might help young people to make better-informed decisions about their educational investment and researchers and policymakers can benefit from the growing body of literature on this topic. Most of the relevant studies suggest that information on the costs and benefits of educational choices and the application process for attending university and/or applying for financial aid does impact knowledge and expectations for those participating in the studies.

There are, however, fewer studies that focus on the impact of these interventions on actual behavior (such as enrollment). While studies in developing countries did find impacts on behavior, most studies in developed countries have found no impact of information without some other form of assistance. On the other hand, there is evidence to show that when supplemented with mentoring or practical help, the provision of information can lead to a behavioral response in terms of educational investment. The form of practical help does not necessarily need to be very intense or expensive for the intervention to be effective. But often, some form of personal assistance is necessary. For example, in the French study, school leaders were actively involved in identifying appropriate groups of students and encouraging parents to attend meetings [11].

However, the US study shows that, in some contexts, “face-to-face” contact is not required at all and that information can be provided entirely based on administrative data (albeit in a very sophisticated way—to ensure that the right information package gets to the right target group at the right time) [12]. A big advantage is that this information can be delivered to students that are geographically dispersed and who attend schools that are not regularly the target of various forms of outreach activity by colleges.

Both the French and US studies are low cost relative to other interventions designed to encourage educational investment. Undoubtedly, they have a high ratio of benefits to cost. Both suggest that it is very important that information is provided by a trusted source. Although they are largely “information only” interventions (particularly the US example [12]), there is some degree of personalization in both approaches. Policymakers should take note that although information interventions are not costly (relative to many other policies), making them effective is not a simple matter.

Acknowledgments

The author wishes to thank an anonymous referee and the IZA World of Labor editors for many helpful suggestions on earlier drafts.

Competing interests

The IZA World of Labor project is committed to the *IZA Guiding Principles of Research Integrity*. The author declares to have observed these principles.

© Sandra McNally

REFERENCES

Further reading

Hoxby, C. M., and C. Avery. "The missing 'one-offs': The hidden supply of high-achieving, low-income students." *Brookings Papers on Economic Activity* 46:1 (2013): 1–65.

The Executive Office of the President. *Increasing College Opportunities for Low-income Students: Promising Models and a Call to Action*. January 2014.

Key references

- [1] Fryer, R. G. *Information and Student Achievement: Evidence from a Cellular Phone Experiment*. NBER Working Paper No. 19113, 2013.
- [2] Jensen, R. "The (perceived) returns to education and the demand for schooling." *Quarterly Journal of Economics* 125:2 (2010): 515–548.
- [3] Pekkala Kerr, S., T. Pekkarinen, M. Sarvimäki, and R. Uusitalo. *Post-secondary Education and Information on Labor Market Prospects: A Randomized Field Experiment*. IZA Discussion Paper No. 9372, 2015.
- [4] Nguyen, T. *Information, Role Models and Perceived Returns to Education: Experimental Evidence from Madagascar*. MIT Working Papers, 2008.
- [5] Bettinger, E., B. T. Long, P. Oreopoulos, and L. Sanbonmatsu. "The role of application assistance and information in college decisions: Results from the H&R Block Fafsa experiment." *Quarterly Journal of Economics* 127:3 (2012): 1205–1242.
- [6] Booij, A., E. Leuven, and H. Oosterbeek. "The role of information in the take-up of student loans." *Economics of Education Review* 31:1 (2012): 33–44.
- [7] Dinkleman, T., and C. Martínez A. "Investing in schooling in Chile: The role of information about financial aid for higher education." *Review of Economics and Statistics* 96:2 (2014): 244–257.
- [8] McGuigan, M., S. McNally, and G. Wyness. *Student Awareness of Costs and Benefits of Educational Decisions: Effects of an Information Campaign and Media Exposure*. IZA Discussion Paper No. 8596, 2014.
- [9] Oreopoulos, P., and R. Dunn. "Information and college access: Evidence from a randomized field experiment." *Scandinavian Journal of Economics* 115:1 (2013): 3–26.
- [10] Carrell, S. E., and B. Sacerdote. *Why Do College Going Interventions Work?* NBER Working Paper No. 19031, 2013.
- [11] Goux, D., M. Gurgand, and E. Maurin. *Adjusting Your Dreams? The Effect of Schools and Peers on Dropout Behaviour*. IZA Discussion Paper No. 7948, 2014.
- [12] Hoxby, C., and S. Turner. *Expanding College Opportunities for High-Achieving, Low Income Students*. SIEPR Discussion Paper No. 12-014, 2013.

Online extras

The **full reference list** for this article is available from:

<http://wol.iza.org/articles/how-important-is-career-information-and-advice>

View the **evidence map** for this article:

<http://wol.iza.org/articles/how-important-is-career-information-and-advice/map>