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Yann Algan,[a] Élise Huillery[b] and Corinne Prost[c]

Trust, Cooperation and Autonomy: Towards a 21st Century School

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While the educational results of young French students are close to the OECD average, France is characterized by a strong divide between an elite that excels on the one hand and students who cumulate difficulties on the other hand, with a strong social determinism. In addition, every year, 100,000 young students leave the school system without a diploma.

However, France's budgetary effort in favour of education does not seem to be at issue: France spends 5.3% of its GDP on education, against 4.9% on average in other European countries. Conversely, France's lesser investment in teaching methods should be linked to the French gap in behavioural skills such as confidence in one's own abilities, self-esteem, anxiety, and perseverance, and in social skills such as cooperation, respect or tolerance. French pupils are among the least self-confident, the most anxious, have a strong distrust of the school system in general and a low capacity to cooperate with each other compared to other OECD countries.

Recent economic research shows, meanwhile, that behavioral and social skills generate a double dividend: they play a central role in the ability to learn, improving academic success; they then promote professional success. While investing in behavioral and social skills is one of the *sine qua non* conditions for combating early school dropping-out and the risk of social exclusion for unemployed out-of-school young people, this investment is also essential for all French pupils. Behavioral and social skills have a decisive impact on overall economic and social performances. Reflecting the shortcomings of French students, international surveys show that French adults have less confidence in their own abilities and value safety more than innovation. Similarly, hierarchical relationships within companies are more vertical and conflicting than in other European countries, with deleterious effects on productivity, innovation, growth, and on the level of well-being in France.

Behavioral and social skills develop throughout children's schooling. International experiments show that it is possible to improve these skills, both at an early age and among young adults in difficulty. While schooling is not the only cause of France's gap in behavioral and social skills, it remains the most relevant mean of action in terms of cost-benefit. Adapting pedagogical methods to the development of behavioral and social skills (personalization of teaching, cooperative work, change in the grading system) and correcting the initial and in-service teacher training deficit on these methods are two levers to mobilize.

Mentoring and civic engagement in middle schools are also to be developed. Finally, new methods of support for unemployed young people based on autonomy and self-confidence have also proved their efficiency and must be generalized.

[a] School of Public Affairs of Sciences Po, Member of the CAE ; [b] University of Paris-Dauphine, Member of the CAE ;
[c] CREST, Member of the CAE.

The European Parliament and the European Council have defined eight key competencies as a reference framework for education and training professionals. The core competence is called "learning to learn"; this learning capacity is based on autonomy, self-discipline, the ability of an individual to overcome obstacles, a problem-solving oriented attitude, as well as the ability to work in a team. These skills will be referred to as behavioral and social skills in this *Note*. France is characterized by a significant gap in this field, which has consequences on learning, academic success and subsequently employment.

Behavioral and social skills[1] correspond to life skills that can evolve and be acquired. The range of these skills is wide and can be measured very accurately with detailed psychological questionnaires. In the remainder of this *Note*, behavioral competencies include senses of self-efficacy,[2] self-esteem,[3] perseverance, locus of control (i.e. the perception that events that affect us are the result of our actions or the result of external factors).[4] Social competencies affect interpersonal relationships and are composed of cooperation, respect and tolerance.

France severely lags behind

The OECD's PISA (Programme for International Student Assessment) surveys, which cover 15-year-old students, measure behavioral and social skills based on several specific questions. When France is compared to the OECD countries average and, in particular, to Germany, northern European countries and the United States, French students display systematic behavioral and social skills deficits. French students' level of anxiety is largely higher than the OECD average, while this level is lower than the OECD average in Germany, Scandinavia and the United States. The perception of one's own mathematical skills, which measures academic self-esteem, displays opposite trends. French students are the least persistent in the group of countries, they feel less effective in solving problems and think less often that their mathematics performances depend only on themselves (Figure 1).

The French education system also fails to develop a sense of collectiveness: French pupils' feeling of belonging is lower than in Germany and the northern countries (Graph 2). These cooperating difficulties are reflected in the collaborative problem-solving indicator: it is 6 points below the OECD average in France, while it is much higher in the other groups of countries (+ 16 points in the northern countries, + 20 points in the United States, + 25 points in Germany). More generally, the French school system is characterized by a climate of mistrust. More than a third of French students consider that their relations with teachers are not good, one of the highest conflict levels in the world. More than half of French students also consider that their teachers "never" or "rarely" give them "the opportunity to express their opinion" in class. Over one in three French students consider that their teachers treat them unfairly: once again, one of the highest proportions of all OECD countries.[5]

It should be noted that, similarly to academic skills, students from advantaged families have higher behavioral and social skills. However, the gap between advantaged and disadvantaged students is similar to the average of other OECD countries.[6] Therefore, the deficit described above concerns not only disadvantaged students but also advantaged students, without distinction. In addition, while girls perform better on average than boys in school, they have lower behavioral and social skills than boys in all countries. In France, the anxiety index for girls is almost ten times higher than that for boys.

The lack of behavioral and social skills among young French people can be observed among adults as well. According to the World Values survey on the evolution of values around the world, French adults are characterized by greater mistrust, less optimism, by the feeling that the events that happen to them do not depend on their actions (external locus of control) and, finally, by values that are more oriented towards security than innovation[7] (Figure 3). Considering available country level data, the adult locus of control is broadly correlated with the one of children: where adults have a strong sense of personal control, so do children. However, for some countries

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[1] The concept of social and behavioral skills includes specific, very precisely defined competencies, particularly in psychology, but the generic term is not harmonized, partly because of its use in several academic disciplines. The OECD uses the term socio-emotional skills; the DEPP uses the terminology of cognitive skills; and finally, the most common name is non-cognitive skills (sometimes even non-academic skills).

[2] Constitutes an individual's belief in his or her ability to perform a task.

[3] Judgment or evaluation made by an individual in relation to his or her own value.

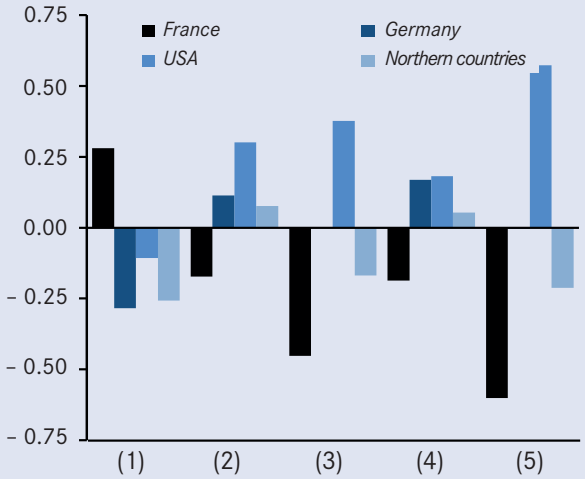
[4] More specifically, people who believe that their performance depends mainly on themselves have an internal locus of control; those who believe that they are primarily determined by external factors have an external locus of control.

[5] Dubet F. (1991): *Les lycéens*, Paris, Le Seuil and Merle P. (2005): *L'élève humilié. L'école : un espace de non-droit ?*, PUF.

[6] See Algan Y., J. Constantin, S. Delpeuch, É. Huillery and C. Prost (2018a): "Données sur les compétences socio-comportementales", *Focus du CAE*, no 025-2018, September.

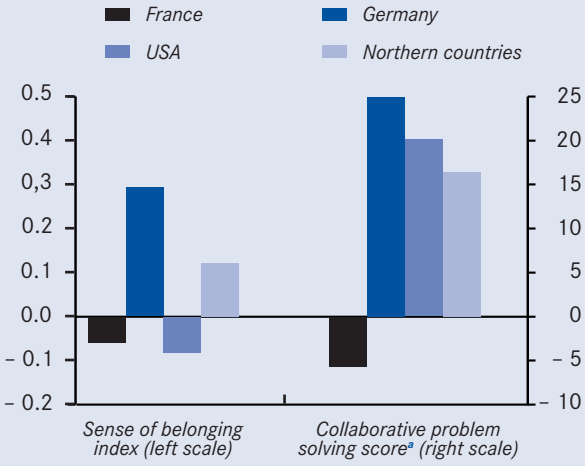
[7] The survey asks people about the importance they attach to imagining new ideas and being creative (innovation), living in a safe environment (safety) and behaving properly (not doing something that people would say is inappropriate).

1. Confidence, perseverance, locus of control of students, compared to the OECD average (0)



Reading: (1) School anxiety; (2) Perception of mathematical skills; (3) Perseverance; (4) Openness to problem solving; (5) Internal control locus in mathematics.
Source: OECD, PISA, 2012.

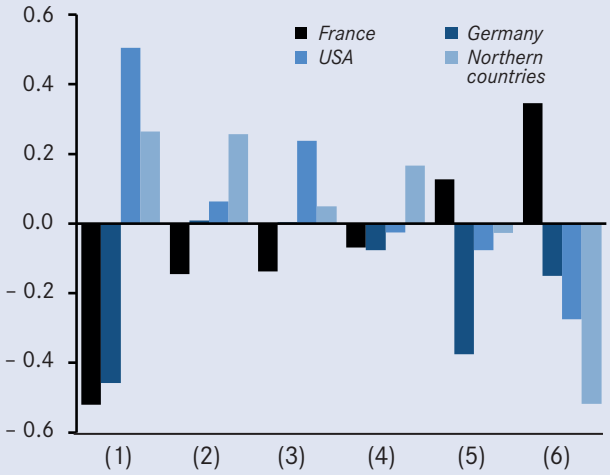
2. Social skills of students
in relation to the OECD average (0)



Note: [a] Deviation from the OECD average.
Source: OECD, PISA, 2015.

such as France, both adults and children consider they have little control over the events happening to them.

3. Confidence, locus of control, adult values
in relation to the OECD average (0)



Reading: (1) Internal control locus; (2) Generalized confidence; (3) Optimism; (4) Innovation (values); (5) Security (values); (6) Adequate competence (values).
Source: World Values Survey.

Behavioral and social skills' double dividend

Behavioral and social skills enhance academic performances

First of all, the lack of social and behavioral skills penalizes academic success and thus the acquisition of human capital. Recent research suggests that social and behavioral skills interact strongly with cognitive skills and academic outcomes: a deficit alters the development of other compentencies and, conversely, the strengthening of behavioral and social skills accelerates cognitive, linguistic and academic development.

Some skills such as conscientiousness and intellectual openness are strongly correlated with grades and education.[8] Conscientiousness includes perseverance, the ability to postpone immediate pleasures for higher future earnings, assiduity in work and self-discipline. It is, in fact, the most predictive factor of these academic success among indicators.[9]

These results are confirmed in the French case, as shown by the analysis of the panel of students who entered 6th grade in 2007 –set up by the Ministry of Education's Department of Evaluation, Prospective and Performance (DEPP).

[8] Borghans L., A. Lee Duckworth, J.J. Heckman and B. Weel (2008): "The Economics and Psychology of Personality Traits", *Journal of Human Resources*, University of Wisconsin Press, vol. 43, no 4.

[9] Heckman J. and T. Kautz. (2012): "Hard Evidence on Soft Skills", *NBER Working Paper*, no 18121; Almlund M., A. Duckworth, J.J. Heckman and T. Kautz (2011): "Personality Psychology and Economics" in *Handbook of the Economics of Education*, Hanushek, Machin and Wößmann (eds), vol. 4, pp. 1181.

In Grade 9, students' academic success is strongly influenced by their sense of academic effectiveness and self-regulation[10] as measured in Grade 6, regardless of their academic performances in Grade 6, as well as the students and schools' social characteristics.[11]

Lessons from foreign experiences

The research highlights both the possibility of changing social and behavioral skills on the one hand, and the impact of these changes on academic success on the other. Educational programmes to develop social and behavioral skills–have long term beneficial effects on school behavior and human capital acquisition, as measured by grades, for young children aged about 3 to 5, often coming from a disadvantaged background.[12] Evaluations of such programmes, mainly in North America, show a positive impact on performance of about 27 per cent of the standard deviation on average.[13] This overall impact results both from changes in social and behavioral skills and also from changes in purely cognitive skills. The main interest of this work is to demonstrate that social and behavioral skills are malleable for young children, and persistently so after the programmes' implementation .

In order to isolate the impact of each of the behavioral and social competencies, experiments have focused on interventions targeting one or two competencies specifically.[14] This type of programme, often inexpensive in terms of time and resources, offers very high performances with substantial school performance improvements.

First, in elementary school, several studies have shown the effectiveness of influencing social and behavioral skills only. Developing cooperation and self-regulation has enabled 7-year-old children in Montreal to achieve better academic success in the long term: the baccalaureate success rate is 51% for students who have benefited from the program compared to 32% for those who have not.[15] The proportion of young people with a criminal record also decreased to 22% among recipients compared to 33% among non-recipients. Similarly, developing tenacity in 8 to 9 years-old children can produce remarkable behavior changes and academic outcomes: beneficiary students persevere more after failing a cognitive task, their belief in the malleability of intelligence increases. About a year and a half after the intervention, they also score higher on standardized tests by 20% of the standard deviation.[16] In the same context, developing the ability to project into the future and adopt long-term-oriented behaviors by deferring immediate pleasures leads to an increase in patience that persists three years after the intervention. It also decreases the proportion of students who receive a poor behavior score in the year following the intervention by 10 points.[17]

Among teenagers , interventions aiming at improving social and behavioral skills are also very effective from a cost-benefit perspective. In a program focused on self-regulation and retention of high school students in the United States, students are encouraged to write series of essays on their personal values to encourage self-assertion and reduce the burden of social stereotypes. Not only do students change their perception of themselves, but their academic performances increase over time, especially among exceptional students and those from the African-American minority: after two years, their score on a standardized test is 29% higher than among non-recipients. Another very light intervention focusing on perseverance improves grades and scores on standardized tests, especially among the lowest performing students: the proportion validating core courses increases from 41% in the control group to 49% in the beneficiary group.[18] The randomized evaluation of a more intensive program, "Becoming a Man", for adolescents at risk

[10] Ability to control the onset and escalation of emotions, feelings or impulses in order to act according to objectives.

[11] See Algan, Constantin, Delpeuch, Huillery and Prost (2018a) *op. cit*.

[12] See, for example, Bierman K., D. Jones, J. Godwin, K. Dodge, J. Coie, M. Greenberg, J. Lochman, R. McMahon and E. Pinderhughes (2010): "Impact of the Fast Track Prevention Program on Health Services Use by ConductProblem Youth", *Pediatrics*, vol. 125, no 1; Barnett W., K. Jung, D. Yarosz, J. Thomas, A. Hornbeck, R. Stechuk and S. Burns (2008): "Educational Effects of the Tools of the Mind Curriculum: A Randomized Trial", *Early Childhood Research Quarterly*, vol. 23, no 3, pp. 219313; Bitler M., H. Hoynes and T. Domina (2014): "Experimental Evidence on Distributional Effects of Head Start", *NBER Working Paper*, no 20434; Heckman J., R. Pinto and P. Savelyev (2013): "Understanding the Mechanisms Through Which an Influential Early Childhood Program Boosted Adult Outcomes", *American Economic Review*, vol. 103, no 6, pp. 20522086.

[13] The standard deviation measures the dispersion of a variable. A performance improvement equivalent to 27% of the standard deviation means a gain of just over 1 decile in the distribution of scores. See a meta-analysis of 213 educational programs including a social and behavioural dimension in Durlak J.A., R. Weissberg, A. Dymnicki, R. Taylor and K. Schellinger (2011): "The Impact of Enhancing Students' Social and Smotional Learning: A Meta-Analysis of School-Based Universal Interventions", *Child Development*, vol. 82, no 1, pp. 405-435. The intensity of the programs studied in this meta-analysis is high, with an average of 41 intervention sessions per child.

[14] For a full review of programmes and associated evaluations, see Algan Y., J. Constantin, S. Delpeuch, É. Huillery and C. Prost (2018b): "Plusieurs expérimentations de programmes à visées éducatives", *Focus du CAE*, no 026-2018, September.

[15] Beasley E. (2013): "The LongTerm Impact of Social Skills Training at School Entry: A Randomized Controlled Trial", chapitre 3 in *Policies for Increasing Prosocial Behavior: Evidence from Three Experimental Studies*, Thesis at Sciences Po's Doctoral School

[16] Alan S., E. Duysak, E. Kubilay and I. Mumcu (2018): "Teacher Effects on the Formation of Trust", *Coordination and Networks*, forthcoming. This paper examines an intervention with teachers in sixteen public schools (eight treatments and eight controls) serving students from rather modest backgrounds. The teacher received a kit including instructions on how to change the students' state of mind (greater value of effort, constructive interpretation of failure, etc.).

[17] Alan S. and S. Ertac (2018): "Fostering Patience in the Classroom: Results from a Randomized Field Experiment", *Journal of Political Economy*, forthcoming.

[18] It consists of a 45-minute module administered online to high school students for one hour in the computer classroom, aimed at combating discouragement and making sense of their work, see Paunesku D., G. Walton, C. Romero, E. Smith, D. Yeager and C. Dweck (2015): "Mind-Set Intervention Are a Scalable Treatment for Academic Underachievement", *Association for Pyschological Science*, vol. 26, pp. 784-793.

of dropping out in disadvantaged neighborhoods of Chicago, consisting of regular therapeutic sessions in small groups followed by sports sessions, showed significant academic gains. The exam success rate increased from 7% in the control group to 22% in the beneficiary group.[19] The cost of the programme is relatively high, $1,200 per beneficiary, but the return is spectacular: for every $1 invested, the benefit is about $30, thanks to the associated reduction in crime.

In conclusion, the international literature shows that it is possible to change social and behavioral skills in both primary and secondary schools, which considerably broadens the scope of intervention. In addition, the strengthening of social and behavioral skills is a very high-performance tool to improve students' academic performances, especially those of disadvantaged backgrounds. This very high performance is explained by the central role that psychological well-being, motivation and behavior play in the student's ability to learn, beyond intellectual abilities.

Experiments in France

In the case of France, there is evidence that interventions aimed at developing social and behavioral skills would also achieve very high returns in terms of educational success and are an essential condition for fighting against school dropping out. Lack of academic self-esteem and excessive social fatalism are the main factors explaining the lack of academic ambition observed among students of modest origin compared to students with the same academic performances but with an advantaged social background.[20] This lack of academic ambition accentuates the already marked social inequalities, which in turn leads to a disinvestment in school work, a lower progression of grades and a more frequent professional orientation for pupils who would, nevertheless, have the academic abilities to pursue longer studies.

An experimental programme in 97 disadvantaged high schools in the academies of Amiens, Créteil, Lille, Lyon, Marseille, Paris and Versailles was developed by the NGO *Énergie jeunes* on the basis of work in social psychology. The aim was to develop a sense of efficacy, the locus of internal control, and to reduce social and academic fatalism, so as to limit school dropping out and increase the success of disadvantaged students. This programme reduces fatalism and the weight of stereotypes, makes students more optimistic about their chances of success, leads to an improvement in classroom attitudes, reduces school absenteeism, and finally increases girls' scores by 10% of the standard deviation,[21] a spectacular result given the very low intensity of the programme (9 euros per year per student).

Social and behavioral skills have an impact on career success

At the same level of performances, social and behavioral skills continue to be critical after initial education, in the labour market. They are associated with a higher employment rate, higher wages and, allow people to find employment more quickly.[22]

Wage analysis shows that people with similar age, education, experience and family characteristics earn wages which vary substantially. However, the share explained by the usual determinants (experience and level of education) is surprisingly low.[23] Social and behavioral skills explain at least as much wage differences as literacy and numeracy skills.[24]

There are several mechanisms for understanding the effects of social and behavioral skills on the labour market. Before and after recruitment, companies attach great importance on the perceived motivation and social skills of candidates.[25] The internal locus of control also has a positive effect on job search. Indeed, it partly conditions the way people project themselves into the future. Job seekers have a lower unemployment duration when their locus of control is internal: they look more intensively for job without lowering their level of demand for the job sought.

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[19] Heller S., A. Shah, A. Guryan, J. Ludwig, S. Mullainathan and H. Pollack (2015): "Thinking, Fast and Slow? Some Field Experiments to Reduce Crime and Dropout in Chicago", *NBER Working Paper*, no 21178.

[20] Guyon N. and E. Huillery (2016): "Biased Aspirations and Social Inequality at School: Evidence from French Teenagers", *LIEPP Working Paper*, no 44, December.

[21] Algan Y., A. Bougen, A. Charpentier, C. Chevallier, E. Huillery and A. Solnon (2016): *Évaluation de l'impact du programme Énergie Jeunes*, ENS Working Paper, University Paris-Dauphine, Sciences Po, J-Pal.

[22] Almlund, Duckworth, Heckman and Kautz (2011) *op. cit.* ; Brunello G. and M. Schlotter (2011): "Non-Cognitive Skills and Personality Traits: Labour Market Relevance and their Development in Education and Training Systems", *Institute of Labor Economics (IZA) Discussion Paper Series*, no 5743 ; Lleras C. (2008): "Do Skills and Behaviors in High School Matter? The Contribution of Non-Cognitive Factors in Explaining Differences in Educational Attainment and Earnings", *Social Science Research*, vol. 37, no 3, pp. 888902.

[23] Bowles S., H. Gintiset and M. Osborne (2001): "The Determinants of Earnings: A Behavioral Approach", *Journal of Economic Literature*, vol. 39, no 4, pp. 11371176.

[24] See Heckman J., J. Stixrud and S. Urzua (2006): "The Effects of Cognitive and Non-Cognitive Abilities on Labor Market Outcomes and Social Behavior", *Journal of Labor Economics*, vol. 24, no 3, July, pp. 411-482 and for an analysis on French data, Bensidoun I. and D. Trancart (2018): "Choix professionnels et écarts de salaires entre hommes et femmes : le rôle des différences de préférences et d'attitudes face au travail", *Population*, vol. 73, no 1, pp. 35-61.

[25] On recent recruitments, companies spontaneously declare selection criteria linked to know-hows but also to know-how-to-be (presentation, punctuality, dynamism, good behaviour) and motivation, see Bergeat M. and V. Rémy (2017): "Comment les employeurs recrutent-ils leurs salariés ?", *DARES Analyses*, no 64, October. For an overview of the control locus, see Cobb-Clark D. (2014): "Locus of Control and the Labor Market", *Melbourne Institute Working Paper Series*, no 25/14.

Moreover, in a digital economy with an increasing role of services, social skills are becoming more important. On the one hand, the digitalization of the economy is gradually replacing routine tasks, including those with a significant cognitive component. Jobs with a strong social skill component (management, innovation) are, on the other hand, complementary to the digital revolution. Moreover, service professions based on interpersonal relations value social skills much more than strictly technical ones. More generally, social skills reduce coordination costs in large companies,[26] making teamwork more effective. This increased role of social skills does not necessarily come at the expense of cognitive skills: in the United States, it is the combination of the two forms of skills that fostered a sharp increase in wage returns over recent decades, in parallel with a sharp decline in technical and motor skills' valuation.[27]

To show the causal impact of social and behavioral skills on the labour market, longitudinal experiments were able to follow beneficiaries from childhood to adulthood.[28] For example, a program conducted in Montreal in the early 1980s focused on the social skills of 7-year-olds. Beneficiaries, once adults, were more likely to be in full-time employment (11 percentage points) and earned wages 20% higher than the control group. Implemented in the 1960s, the Perry Preschool Project aimed at establishing cognitive support to improve language levels and non-cognitive support to improve group interaction skills and goal setting. This program has shown very positive results on non-cognitive abilities such as motivation and self-discipline. As a result of these skills, youth who participated in the programme were less likely to be unemployed and earned higher wages.[29]

New programmes show that it is still possible to change the social and behavioral skills of young adults and thus influence their integration into the labour market. For example, the integration programmes "groupements de créateurs" target young adults in difficulty and offer an original pedagogy based on the development of self-confidence and decision-making autonomy. A randomized evaluation of these programmes found that after two years, young people benefiting from this original support displayed a 7-point increase in their employment rate and a 29% increase in total income compared to young people benefiting from traditional integration programmes proposed by local public services.[30]

In addition, it is possible to establish a link between the lack of social and behavioral skills in France and the management style within French companies. Countries where the locus of control is internal are also those where the management quality index[31] is the highest. Conversely, France shows both an external locus of control and thus low management quality.

Finally, many recent studies show that social and behavioral skills are predictive factors in health status.[32] This is also true for crime prevention since social and behavioral skills enhance self-control skills and pro-social behaviors.[33] Social and behavior skills are at least as important as cognitive skills in defining individuals' professional, health and criminal future.

Take action at school

The recommendations presented here are lightweight interventions with extremely low costs compared to other more traditional interventions such as, for example, class size reduction. They highlight changes in teaching methods which optimize the impact of resources already mobilized. They focus mainly on pedagogical methods in the school context. Indeed, international surveys show that pedagogical methods in France are unique, leaving little room for personalized and cooperative work, and emphasizing on vertical teaching and individual work. This system is also combined with an anxiety-provoking evaluation system that perpetuates performance gaps.

Personalization of teaching

In France, teachers use much less than elsewhere personalized and differentiated teaching methods based on students' particular needs, with a gap of 29 percentage points to the OECD average in this area, according to the

[26] Deming D. (2018): "The Growing Importance of Social Skills in the Labor Market", *Quarterly Journal of Economics*, forthcoming.

[27] Bacolod M., B. Blum and W. Strange (2008): "Skills in the City", *Journal of Urban Economics*, vol. 65, no 2, pp. 136-153.

[28] See Algan, Constantin, Delpeuch, Huillery and Prost (2018b) *op. cit.*

[29] Heckman J., R. Pinto and P. Savelyev (2013): "Understanding the Mechanisms Through Which an Influential Early Childhood Program Boosted Adult Outcomes", *American Economic Review*, vol. 103, no 6, pp. 20522086.

[30] Algan Y., B. Crépon, W. Parienté and E. Huillery (2016) : *Les effets du dispositif Groupements de créateurs : résultats d'une expérience contrôlée*, Rapport d'évaluation pour le Fonds d'expérimentation pour la jeunesse, Ministère de l'Éducation nationale.

[31] World Value Survey and European survey on working conditions of Eurofound (European Foundation for the Improvement of Living and Working Conditions). In this survey, employees value their manager in the following ways: respect for the employee as a person, showing consideration when the work is well done or even succeeding in getting people to work together.

[32] OCDE (2010) : *Improving Health and Social Cohesion through Education*, OECD Publishing; Brent R., N. Kuncel, R. Shiner, A. Caspi and L. Goldberg, (2007): "The Power of Personality: The Comparative Validity of Personality Traits, Socioeconomic Status, and Cognitive Ability for Predicting Important Life Outcomes", *Perspectives on Psychological Science*, vol. 2, no 4, pp. 313345.

[33] Oliver J., A. Caspi, R. Robins and T. Moffitt (1994): "The 'Little Five': Exploring the Nomological Network of the Five-Factor Model of Personality in Adolescent Boys", *Child Development*, vol. 65, no 1, pp. 160178; Agnew R., T. Brezina, J.P. Wright and F. Cullen (2002): "Strain, Personality Traits, and Delinquency: Extending General Strain Theory", *Criminology*, vol. 40, no 1, pp. 4372; Algan *et al*. (2016) *op. cit*.; Heckman, Stixrud and Urzua (2006) *op. cit*.

PISA survey 2015.[34] On the other hand, the United States and the Northern Countries are well above the OECD average and are developing innovative practices.[35] French pupils also feel less supported by their teachers (16 percentage points below the OECD average). They also say they receive fewer feedback on their performances, their strengths or advices for improvement, with a gap of 14 points compared to the OECD average.

The exploitation of the PISA 2012 and 2015 databases shows a strong correlation between these pedagogical practices and social and behavioral skills. A one-to-one increase in teacher support and feedbacks is associated with a 10-percentage-point reduction in the student's anxiety level. Similarly, a one-to-one increase in the personalization of instruction is associated with a statistically significant increase in the student's sense of belonging, perseverance, and cooperative abilities. These correlations take into account the specific effects of each country, class characteristics (e. g. class size) and socio-demographic variables of the student as well as his or her cognitive skills.[36]

The importance of cooperative work

Teaching in France is also characterized by more vertical methods of knowledge transmission, with little emphasis on cooperative work and projects in groups. According to the TALIS 2013 teacher survey, 37% of French teachers report that their students work in small groups compared to an average of 47% in other countries, and nearly 60% in the United Kingdom or Northern countries. Moreover, only 24% of teachers in France report setting up collective projects lasting at least one week, compared with 37% in the average country.

The PIRLS (Progress in International Reading Literacy) and TIMSS (Trends in International Mathematics and Sciences Study) surveys, which directly survey students, both confirm France's specific vertical education:[37] more than one in two students report spending all of their time in class taking board notes and more than two in three students report never working in groups. While in all countries, students spend part of their time taking notes, France is the only country with such an imbalance in teaching practices. The Nordic and Anglo-Saxon countries, where pupils report spending at least half of their time working collectively, mix group work and lectures in the most balanced way. Mediterranean and continental European countries also differ from France, their education is also much less vertical.

Recent studies suggest a causal link between these teaching methods and social and behavioral skills.[38] Horizontal teaching is first of all associated with much stronger beliefs in the benefits of cooperation between students. Students accustomed to working in groups are much more likely to think that it can be useful to share everyone's ideas, that they learn faster by working together or that they can influence the decisions of their community. They tend to feel better in school and have a higher level of trust not only in others, but also in teachers, schools and institutions in general. They participate more actively in school or to extracurricular associations. *A contrario*, children confronted with vertical education believe less in cooperation between pupils and tend to be much more critical about the possibilities of cooperation with their teachers. They often report that they are not listened to by their teachers, that they are not valued and that they feel alienated. However, great attention must be paid to the implementation modalities: when teamwork is limited to an exchange of correct answers after individual work, the effects are limited and teachers complain of control and time losses. To really develop cooperation between students, teamwork must be fully integrated into learning and become a real tool:[39] this requires teachers to be trained in teamwork methods, the classroom configuration to be adapted, that the activity be well designed to induce discussion and debate, and that students receive teamwork methodology courses. This measure shall develop trust and respect between teammates, as well as organizational skills such as decision-making, time management and compromise.

Recommendation 1. Develop educational personalization and cooperative work.

[34] Similarly, 22% of French teachers report using personaliszd and differentiated methods, compared to an average of 44% in the TALIS 2013 survey countries.

[35] For example, a customized teaching program called "Navigate Maths" has been piloted in the United States, using computer tools and artificial intelligence to provide each student with a personalized experience at an appropriate pace. In the first year of the program in three California schools, the mathematics knowledge of the students concerned increased 2.8 times faster than the American average. The program also has a very strong impact on confidence and self-esteem, with a proportion of students feeling comfortable with math increasing from 32% to 56%, the *gooru.org* site is an example of how to facilitate learning. See Arnett T. (2016): "Connecting Ed and Tech: Partnering to Drive Students' Outcomes", *Christensen Institute for Disruptive Innovation*, July.

[36] Algan, Constantin, Delpeuch, Huillery and Prost (2018a) *op. cit.*

[37] Survey of 36 countries, with more than 5,000 students per country based on CIVED (Civic Education Study) and TIMSS, which identify teaching practices in the various countries among 3rd graders. Students are asked how often they "take board notes" or "work in groups on projects" during a class period.

[38] Algan Y., P. Cahuc and A. Shleifer (2013): "Teaching Practices and Social Capital", *American Economic Journal,* vol. 5, no 3, pp. 189-210.

[39] Baines E., P. Blatchford and A. Chowne (2007): "Improving the Effectiveness of Collaborative Work in Primary Schools: Effects on Science Attainment", *Educational Research Journal*, vol. 33, no 3, pp. 663-680.

Teachers lack pedagogical training in France

The French pedagogical exception seems to be linked to a lower level of teacher training compared to other OECD countries.

According to the TALIS 2013 survey, French teachers do not feel sufficiently prepared in terms of pedagogy at the end of their initial training. 60% of them feel pedagogically ready (compared to an OECD average of 89%) and 58% prepared for classroom practices (compared to an average of 89%).[40] In France, 40% of teachers say they are "not at all prepared" or "very unprepared" for the pedagogy applied to their subject compared to 11% on average in other countries, a gap of more than 30 points. On the other hand, teachers' education level and their feeling of being well prepared for the subject content (90%) are at the level of the international average. Teachers are therefore well prepared on content, but not on pedagogy. Practices in other countries could inspire us. For example, Finland, which has the highest academic and social and behavioral performances in Europe at PISA, pays particular attention to the initial training of its teachers. Future teachers follow courses in teaching science and carry out research work as well as pedagogical simulations starting from the first year of their studies. Thus, aspiring teachers are awarded actual educational science diplomas. Theoretical courses and practical internships (several months of immersion in a school) help future teachers developing their own teaching strategies and adapting to the needs of their students. Introductory programmes are also provided for beginning teachers, which enable them to acquire practical experience and a professional network.

The lifelong training of French teachers is similarly lacking. According to the TALIS survey, in France, teachers participate less to professional trainings than their foreign colleagues (76% *vs* 88% on average). But above all, training durations in France are systematically shorter, with an average of four days in France compared to eight days on average in other countries. According to teachers, it is mainly the lack of time and incentives that prevent them from participating in lifelong training. In the most successful PISA countries, teachers' pedagogical knowledge and practices are constantly updated through regular trainings. In Australia, Finland and Canada, participation in these courses every year is a condition for maintaining employment with annual minimums set by law (at least three days in Finland). The most effective trainings often take the form of workshops specific to the problems encountered in the school. Teachers can clearly define their priorities according to their needs and situation, within the school environment itself, rather than at standardized conferences held by external speakers.[41]

French teachers are also ill-prepared to work together. Collaborative practices between teachers (for example, observing the work of their colleagues and giving each other feedbacks, or intervening with the help of several teachers in a class) and alternative teaching methods are much less frequent than elsewhere: 78% of French teachers say they never observe the work of their colleagues in class, compared to an average of 45% in the TALIS survey. They are also 32% to report never attending any team meetings (third highest average with Chile and Slovakia), compared to 1-2% of teachers in most other OECD countries in both Northern and Southern Europe. The distribution of French teachers' work schedule confirms that it is a solitary profession. Most of their time is dedicated to lessons preparation and exams correction, they devote little time to the educational community (extracurricular activities, colleagues, parents, etc.) and they generally say they are very ill-prepared on teaching methods.

Our teachers' lack of initial and in-service pedagogical training is strongly correlated with the average low student perseverance index. However there is no correlation with teachers' preparation in terms of the content of the subject taught. In general, the PISA and TALIS surveys note that teachers who receive at least five in-service professional training and who work in collaboration with their colleagues report much better preparation and confidence in their pedagogical skills. There is room for real progress in France and a lever to act on this dimension. For example, the progressive addition of 3.5 days of in-service training for all primary and secondary school teachers (so as to reach the OECD average) would eventually cost €600-800 million per year, taking into account, the training costs and training allowances awarded to teacher amounting to half of their renumeration.

Recommendation 2. Develop initial training on pedagogical practices. Increase the duration and frequency of professional trainings on pedagogical practices, outside school hours.

[40] TALIS (2014): "TALIS 2013 : la formation professionnelle des enseignants est moins développée en France que dans les autres pays", *Note d'Information de la DEPP*, no 22. Composition of the TALIS team: Jean-François Chesné, ChiLan Do and Sylvaine Jego (DEPP B4), Pierrette Briant (DEPP A2), Florence Lefresne (MIREI) and Caroline Simonis-Sueur (MIPEREF).

[41] OECD (2018): *Effective Teacher Policies: Insights from PISA*, PISA, OECD Publishing Paris.

Towards formative assessment

Assessment practices can become more effective, relevant and motivating so as to encourage students' desire to learn, regardless of their grades and social environments. Similar to the United Kingdom, Finland and Quebec, we recommend a shift from "learning for assessments" to "assessments for learning".[42]

The assessment approach for learning is based on formative assessment, as opposed to the so-called summative assessment. Summative assessment uses a common metric –most often scores– to indicate student performance, which allows for comparison within the group. Conversely, formative assessment is based on the individual difficulties encountered by the student, the diagnosis and the means to overcome them. The comparison is no longer across students, but rather on a time axis, i.e. between the repeated performances of the student her/himself.

The assessment for learning approach relies on a number of criteria known for their virtuous effects on student motivation: clarifying the assessment criteria, giving greater importance to exchanges in a twofold logic, developing confidence and allowing mistakes as drivers for progress. Assessment for learning takes place as part of an overall teaching strategy. In France, the debate focused mainly on changing the scoring scale: numerical scoring *vs* scoring using other scales (letters, colours, smileys, scale 1 to 4, etc.).[43] This represents only a very marginal change in the assessment approach , which remains in all cases a summative approach: it is certainly harder to rank students, but it does not, if only slightly, affect grading's negative effects on motivation, cooperation and ultimately learning. The proposed formative assessment approach is more ambitious : its primary objective is to strengthen students' motivation, encourage her or his progress and thus help her or him to improve.[44]

In France, the use of numerical score is almost non-existent in kindergarten, remains low until the end of the cycle 2 and jumps sharply in the cycle 3: 71% of schools use the numerical score in 4th and 5th grade, aginst 17% in 1st, 2nd and 3rd grades.[45] Some teachers are attached to the numerical score because it would provide rigour and precision, it would also play a warning role thus preventing catastrophes, and finally would be a source of demand and motivation. Yet, whether quantified or in the form of a colour point, research in social psychology and cognitive sciences has clearly highlighted the harmful, and in some cases counterproductive, effects of summative assessment: sharpened competition among students reducing group cooperation and performance, heightened anxiety and stress with negative consequences on creativity and cognitive abilities and reduced sense of self-efficacy which is an important motivator.[46] It also fosters self-handicapping strategies: to protect their self-esteem, students who anticipate failure choose not to make any effort at all, allowing them to legitimize failure –failure, in turn, certainly happens.[47] Numerical grading also reduces intrinsic motivation: the student works towards a good grade and not towards a learning objective.[48]

We advocate a shift towards formative assessment, with the pedagogical function of improving learning by detecting the learner's difficulties (diagnosis) in order to help her or him (remediation). It brings about a radical change in the status of error and the way we look at it: learning starts with not knowing. Thus, formative assessment can take the form of a first provisional assessment , after which the student is invited to improve (with the help of indications provided individually by the teacher) before being evaluated a second time to reach a final grade: the correction is thus valued and the student strongly encouraged to progress. Formative assessment is all the more interesting because it relies heavily on self-assessment by the student, an approach that allows her or him to identify what she or he has learned and

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[42] Black P. and D. Wiliam (1998): *Inside the Black Box: Raising Standards Through Classroom Assessment*, London, King's College of Education.

[43] Between 2008 and 2012, the numerical scores lost a lot of weight in Cycle 2 (they already hardly existed in Cycle 1), replaced by evaluation by other grid systems (colour points, A-EA-NA, smileys, letters ABCD, etc.).

[44] A process of reflection on student assessment began in 2000 in France to correct the "repressive" and discouraging function of scoring. In 2013, guidelines were issued by the Directorate of School Education (DGESCO) to change the way students are scored, with the awareness that assessment is a central activity to change the profession. At the end of 2014, the report of the jury of the National Student Assessment Conference recommended more emphasis on formative assessment and a decrease in the importance of summative assessment.

[45] Charbonnier D., A. Houchot, C. Kerrero and F. Thollon (2013): "La notation et l'évaluation des élèves éclairées par des comparaisons internationals", *Rapport de l'Inspection générale de l'Éducation nationale*, no 201372.

[46] See, for example, Hayek A.S., C. Toma, S. Guidotti, D. Oberlé and F. Butera (2017): "Grades Degrade Group Coordination: Deteriorated Interactions and Performance in a Cooperative Motor Task", *European Journal of Psychology and Education*, vol. 32, no 97, pp. 97112; Crouzevialle M. and F. Butera. (2012): "Performance-Approach Goals Deplete Working Memory and Impair Cognitive Performance", *Journal of Experimental Psychology: General*, vol. 142, no 3, pp. 666-678; Meloth M.S. and P.D. Deering (1992): "Effects of Two Cooperative Conditions on Peer Group Discussions, Reading Comprehension, and Metacognition", *Contemporary Educational Psychology*, vol. 17, pp. 175-193; Genelot S. and N. Cartierre (2016): *Évaluer sans noter : quels effets sur le sentiment d'efficacité personnelle des collégiens ?*, Communication at the 28th Colloque ADMÉE-Europe, Lisbon, January and Charbonnier, Houchot, Kerrero and Thollon (2013) *op. cit.*

[47] Cartierre N., L. Finez and S. Genelot (2016): *L'auto-handicap comportemental dans des classes sans note : effet de médiation du sentiment d'efficacité personnelle des collégiens*, Communication at the 11th 'Congrès international de psychologie sociale en langue française' (CIPSLF, International Congress of Social Psychology in French Language), Geneva, June.

[48] Deci E.L., R. Koestner and R.M. Ryan (1999): "A Meta-Analytic Review of Experiments Examining the Effects of Extrinsic Rewards on Intrinsic Motivation", *Psychological Bulletin*, vol. 125, no 6, pp. 627-668; Deci E.L. and R.M. Ryan (1985): *Intrinsic Motivation and Self-Determination in Human Behavior*, Plenum, NY.

what remains to be acquired. This approach could strengthen the student's self-efficacy and active role. In France, only 17% of teachers allow students to self-assess frequently, while the average is 38% in the 33 countries participating in the TALIS survey and 69%, for example, in the United Kingdom. Canada, and particularly, Quebec, which display some of the highest PISA test scores, began a major reform of their assessment systems in the 1980s to support learning and recognize competencies. It is during lessons and exercises that teachers in Quebec evaluate the abilities and skills of each student: the points not acquired are then discussed from a pedagogical perspective, allowing the student to recognize her or his strengths and accurately identify the knowledge and behaviors to be improved during the next sessions. Self-assessment and discussions with teachers are privileged so that students understand their shortcomings, skills and the assessment's meaning. This type of assessment has been generalized in Quebec to all primary schools since 1997 and secondary schools since 2005. Nevertheless, more traditional exams, the *"Epreuves Uniques"*, are still organized in 4th,6th, 8th,10th and 11th grades which determine students' graduation.

A survey in the Académie of Poitiers in 2013 shows that among 53 teachers from four middle schools without numerical scores assessment, 74% of them believe that this new method has had positive effects. Students are calmer, less anxious, more civicly-minded and have better self-esteem.[49] The preliminary results of the work carried out by Cartierre, Finez and Genelot (2016) on eleven middle schools in the Académie of Dijon (six with numerical scores and five without) show that the absence of numerical scores increases students' sense of self-efficacy and reduces self-handicap strategies through which students give up progress.[50]

Sometimes criticized for loss of reference points or emulation among learners, formative assessment has nevertheless shown positive effects on students' progress and acquisition in other countries.[51] In France, formative assessment has not yet been developed, but an increasing number of middle schools are opting for an innovative assessment method called "evaluation by competences". For this *Note*, we carried out an impact evaluation of this competency-based assessment in 89 institutions from 20 academies in France. Competency-based assessment is based on attesting the level of acquisition of a very detailed set of skills and knowledge, rather than on an overall summary score. It is a mid-way assessment method between the summative and formative assessments. Our results show that students from middle-schools using competency-based assessment have the same results in the compulsory tests of the National Diploma as students from middle-schools using traditional grading, regardless of their social background. If competency-based assessment does not change student acquisition levels in the short term, a more frankly formative approach could be a lever to improve learning.

Recommendation 3. Favour formative assessment of students from 1st to 9th grade.

The social and behavioral skills challenge facing unemployed young people

Many international programmes show that it is more effective to develop social and behavioral skills than knowledge itself to support NEETs (Not in Employment, Education or Training) and unemployed young people. Indeed, social and behavioral skills can develop at any age: young adults' social and behavioral skills enjoy greater margins of progression than their cognitive skills. Moreover, these skills are at least as important as pure qualifications in helping unemployed young people and NEETs find a job. Being autonomous, setting goals, arriving on time for an appointment and avoiding procrastination, having social skills and knowing how to introduce oneself, having self-confidence, are all essential skills to reintegrate to labour market and society.

The vast majority of these programs have been piloted in the United States.[52] Their common features are their focus on a target population of young people aged 16 to 24 who are far from the labour market and without qualifications. They provide intensive training for 8 to 12 months and develop the social and behavioral skills associated with professional success (autonomy, efficiency, motivation, realism, optimism, self-esteem). These programmes are relatively expensive (for example, $25,000 per young Job Corps participant including residency training) but are characterized by high returns on investment (12% increase in income for Job Corps beneficiaries). The conditions for the success of these programs are linked to the high supervision level (about one adult for every three or four young people with daily and individualized interactions for some programmes) and partnerships with local stakeholders to adapt to local employers' needs, and convince them that the young trainees' potential is worthy of a job at the end of the programme.

[49] *Classes sans notes dans l'Académie de Poitiers. Résultats du questionnaire enseignants de septembre 2013*, see http://ww2.ac_teachers_bilan_complete.pdf

[50] Cartierre *et al.* (2016) *op. cit.*

[51] See Algan Y., J. Constantin, S. Delpeuch, É. Huillery and C. Prost (2018c): "Impact de l'évaluation par compétence", *Focus du CAE*, no 027-2018, September.

[52] For program descriptions and comparisons, see Algan, Constantin, Delpeuch, Huillery and Prost (2018b) *op. cit.*

In France, similar schemes exist such as "*Etablissements pour l'Insertion dans l'Emploi* (EPIDE) and second-chance schools, but they have not been rigorously evaluated. Randomized evaluation mechanisms should be generalized to measure the real benefits for young beneficiaries.

"*Les Groupements de Créateurs*", described above, are innovative devices that have been evaluated and have shown convincing results. They increase significantly the integration rate of young people in difficulty by promoting their autonomy and developing their self-confidence. This example suggests that the social and behavioral dimension should be taken more into account in the support of the unemployed.

Recommendation 4. Develop support for the unemployed and NEETs, including the strengthening of social and behavioral skills.

Engage peers and parents

Most of this *Note* provides recommendations on teaching methods in schools or local employment services. There are two main reasons for this: they have proven to be effective and have an immediate cost-benefit advantage without requiring additional infrastructure spending (e.g. boarding school) or additional networks in relation with parents. Nevertheless, numerous experiments show that a global approach that mobilizes mentoring and families is a powerful lever for developing students' social and behavioral skills.

Mentoring and citizen engagement

Mentoring aims at creating an interpersonal relationship of support, exchange and learning, in which an experienced person, the mentor, offers assistance and advice to foster the development of another person, the mentored. When mentoring aims at connecting young persons from disadvantaged backgrounds with an adult referent to improve their motivation, self-confidence and help them overcome their difficulties, it can have a positive impact on self-esteem and self-discipline (reduction in drug use), as well as academic performances. The Big Brothers Big Sisters Program resulted in a 6% increase in academic scores for female beneficiaries compared to non-recipient girls.[53] In the same way, a student mentoring program in Canada decreased the proportion of worst grades by 8%.[54]

However, the selection of mentors may prove to be critical and it is necessary to adapt the profile and training of mentors to the mentored audience, otherwise the effects could be absent or even backfired. The TalENS program connects a mentor from the *École normale supérieure* with mentored students from high schools in Paris and its region chosen for their high proportion of students from modest backgrounds. A randomized impact evaluation was conducted and shows that only the best students benefit from this mentoring, while, on the contrary, it has a destabilizing effect on less successful students (lower baccalaureate results, less access to preparatory classes than in the control group).[55] Mentoring by extremely bright students was likely to have a discouraging effect on students who were not themselves particularly academically comfortable. This demonstrates the need to think carefully about the selection and training of mentors.

Our recommendation is therefore to deploy mentoring for middle school and high school students belonging to the Priority Education Network, not systematically involving students from prestigious schools but a broader set of mentors carefully trained in the development of social and behavioral skills. The mentors' mission could be based on three main axes: the development of students' social and behavioral skills through the use of tools of the type used by the *Énergie jeunes* association mentioned above, support in structuring volunteer citizen projects by students and guidance in defining a school and career project. The recruitment and training of mentors could, for example, rely on the current Civic Service, in partnership with the Ministry of Education. An initial one-month training period would be provided, the mentors would then be integrated to schools with the students for one school year. Such a scheme, targeted at priority education middle schools, would cost around €7 million.

More generally, associative and civic engagement could be a powerful tool for developing students' self-esteem, cooperation and motivation. Today, there are opportunities for young people dropping out of the school system to participate and to engage in civil life through institutions such as the Civic Service Agency or the Engagement Institute, but these institutional opportunities are not available for secondary school students. Citizen engagement could be a powerful lever against school dropping out. We recommend that secondary schools encourage, support and value citizen engagement in the school curriculum: for example, regular participation in a public utility association or the creation of an original citizen project. A randomized impact assessment scheme is also recommended to rigorously establish the

[53] Grossman J. and J. Tierney (1998): "Does Mentoring Work? An Impact Study of the Big Brothers Big Sisters Program", *Evaluation Review*, vol. 22, no 3 and Algan, Constantin, Delpeuch, Huillery and Prost (2018b), *op. cit.*

[54] Oreopoulos P. and U. Petronijevic (2016): "Student Coaching: How Far Can Technology Go?", *NBER Working Paper,* no 22630.

[55] Ly S.T., E. Maurin and A. Riegert (2015): *Programme Talens. Rapport d'évaluation*, Fonds d'expérimentation pour la Jeunesse, Ministère des Sports, de la Jeunesse, de l'Éducation populaire et de la Vie associative.

contribution of student civic engagement to their social and behavioral skills and the impact on school dropping out.

Recommendation 5. Deploy mentoring for middle school and high school students in the Priority Education Network based on civic service and promote student civic engagement.

Support from families

In addition to school, the family is obviously central to the development of children's social and behavioral skills. The involvement of parents in their children's schooling can have an effect on all social and behavioral skills.[56] Experiments such as the "mallette des parents"[57] (parents' kit) scheme show that a few specific meetings between the school's principal and the parents of the weakest pupils are sufficient to reduce school dropping out and improve their attitude.[58]

This system is currently extended to all regions of France, which will make it possible, at a lower cost, to establish a stronger partnership between parents and the schools, leading to tangible results on absenteeism and grades. In its current form, the meetings focus on the organization of schooling and how parents can help their child. We recommend going even further, with a "parents' kit" focused on the driving factors of children motivation and how parents could nurture it. Indeed, many parents themselves react negatively to their child's academic results and contribute to anxiety and loss of self-esteem. This new kit would be carried out in the last year of kindergarten in preparation for primary school. Such a program, with three meetings per year, would cost around €8 million.

Recommendation 6. Develop a "parents' kit" focused on child's encouragement, motivation and self-esteem.

Confidence in oneself and others, cooperation and autonomy are key skills for "learning to learn". French schools must be given the tools to develop social, behavioral and academic skills altogether.

[56] Elkins R. and S. Schurer (2018): "Exploring the Role of Fathers in Non-Cognitive Skill Development Over the Lifecourse", *IZA Discussion Paper*, no 11451.

[57] Scheme of regular meetings and debates between parents and teachers within schools, targeting CP and 6th grade classes considered as pivotal. During each session, parents are invited to discover and discuss good educational practices to be adopted outside school: "Learning to read" or "Helping their child to be a pupil".

[58] Goux D., M. Gurgand and E. Maurin : (2014): "Aspirations scolaires et lutte contre le décrochage : accompagner les parents", *Retour d'expérience de l'Institut des politiques publiques (IPP),* no 2, November; Avvisati F., M. Gurgand, N. Guyon and E. Maurin (2010): *Quels effets attendre d'une politique d'implication des parents d'élèves dans les collèges : les enseignements d'une expérimentation contrôlée*, Rapport pour le Haut-Commissaire à la Jeunesse, École d'économie de Paris, January.

TSA 20727 75334 PARIS Cedex 07 (France) **Ph: +33(0)1 42 75 53 00** **Fax: +33(0)1 42 75 51 27** **@CAEinfo** **www.cae-eco.fr**