

Institution: University of Essex		
Unit of Assessment: 16		
Title of case study: Research on non-cognitive and socio-emotional skills in schoolchildren led to changes to the school curricula and the introduction of new financial literacy programmes in Turkey and to cultivate socio-emotional skills in students in North Macedonia.		
Period when the underpinning research was undertaken: 2013- 2019		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s):	Role(s) (e.g. job title):	Period(s) employed by submitting HEI:
Sule Alan	Professor	September 2013 – June 2019
Period when the claimed impact occurred: 2014-2020		
Is this case study continued from a case study submitted in 2014? N		
1. Summary of the impact		
<p>Essex research on a key set of non-cognitive and socio-emotional skills in schoolchildren led to changes to school curricula and the introduction of new financial literacy programmes in Turkey. Alan's research and rigorous evaluations of innovative educational programs implemented in under-privileged schools in Turkey, led the Ministry of National Education to launch a similar nationwide curriculum in primary and post-primary schools to improve non-cognitive skills through the Design-Skill Labs. Work with ING Bank Turkey led to the introduction of a financial literacy programme for schoolchildren while Alan's research was drawn upon by the World Bank to cultivate socio-emotional skills amongst students in North Macedonia.</p>		
2. Underpinning research		
<p>There has been widespread concern over poor school outcomes and widening achievement gaps in most countries where educational policy actions tend to face challenges in engaging families of low socioeconomic strata. A growing body of research shows that certain attitudes and personality traits, also referred to as "non-cognitive skills," are strongly associated with achievement in various economic and social domains.</p> <p>Since 2013, Alan's research [R1-R6] at Essex has evaluated channels through which economic outcomes of disadvantaged children (with a particular focus on girls) can be improved in the classroom environment. The aim of the research was to improve a key set of non-cognitive skills in children of different age groups in a classroom environment by their own teachers. This research brings together academics, the public sector (Turkish Ministry of National Education [MoNE]), the private sector and NGOs involved in education and issues regarding achievement gaps across gender and socio-economic strata.</p> <p>An initial study, a randomized evaluation of a unique educational intervention involving 2500 3rd and 4th grade elementary school students in Turkey, which was carried out in collaboration with ING Bank as part of a corporate social responsibility project, looked at patience in relation to student achievement outcomes [R1]. The intervention, designed by Alan, aimed to improve the ability to imagine future selves, and encourage forward-looking behaviour using a structured curriculum delivered by the children's own, trained teachers. It was shown that treated students become more patient in intertemporal decisions in incentivized experimental tasks and this effect persists for over a year after the initial intervention. This research also provides strong evidence that the specifically designed curriculum that aimed to foster forward-looking behaviour in children improves behaviour in classroom as assessed by behavioural grade.</p> <p>Further work carried out in collaboration with the Turkish Ministry of National Education evaluated</p>		

another of Alan's innovative educational interventions focused on "grit" [R2]. This research, involving over 3000 elementary school students, demonstrated that a program, which fosters grit and instils a growth mind-set in children, significantly improves test scores, and that this improvement can persist for as long as 3 years after the implementation of the program. The method used to evaluate grit in this study, known as the "Alan-Ertac Grit Measure" is now considered to be one of the most reliable inventories to elicit grit for a multitude of purposes and is used in several World Bank projects and by researchers in economics and psychology.

The research provides evidence that low-cost educational interventions directed at elementary school students designed to improve non-cognitive skills can have substantial impact on outcomes such as grades and behavioural conduct at school. Given the pivotal role of non-cognitive skills for academic achievement and labour market success, this evidence has important implications for policy.

3. References to the research

[R1] Alan, Sule. 'Fostering Patience in the Classroom: Results from A Randomized Educational Intervention' *Journal of Political Economy* (2018), 126(5) <https://doi.org/10.1086/699007>

[R2] Alan, Sule, T. Boneva, and S. Ertac. "Ever Failed, Try Again, Succeed Better: Lessons from a randomized educational intervention on grit" *Quarterly Journal of Economics*. (2019) <https://doi.org/10.1093/qje/qjz006>

[R3] Alan, Sule. and Ertac, S., "Patience, self-control and the demand for commitment: Evidence from a large-scale field experiment". *Journal of Economic Behavior & Organization*. (2015), 115 <http://doi.org/10.1016/j.jebo.2014.10.008>

[R4] Alan, Sule, S. Ertac, E. Kubilay, and G Loranth, "Understanding Gender Differences in Leadership", *Economic Journal* (2019) <https://doi.org/10.1093/ej/uez050>

[R5] Alan, Sule, S. Ertac and I. Mumcu. "Gender Stereotypes in the Classroom and Effects on Educational Outcomes" *Review of Economics and Statistics*, (2018), 100 (5) http://doi.org/10.1162/rest_a_00756

[R6] Alan, Sule and S. Ertac. "Mitigating the Gender Gap in the Willingness to Compete: Evidence from a Randomized Field Experiment", *Journal of the European Economic Association*, (2019), 17(4). <https://doi.org/10.1093/jeea/jvy036>

Grants:

[G1] Alan, S. Financial Education and Rational Economic Decision Making: A Childhood Intervention, The British Academy 2014-2017, £30,000.

[G2] Alan, S. Stimulating Curiosity in the Classroom: A Randomized Educational Intervention, Abdul Latif Jameel Poverty Action Lab (MIT) 2018-2019, £39,107.66.

4. Details of the impact

Professor Alan's research and expertise led to her involvement as a key academic advisor on the importance of socio-emotional skills and key non-cognitive skills for institutions, banks and policy makers in Turkey and Macedonia. Collaborating with ING Bank, the Turkish Ministry of National Education and the World Bank, Professor Alan developed training materials, implemented and evaluated unique and innovative educational interventions to foster key non-cognitive and socio-emotional skills as an indispensable element of children's academic success.

Changes to the National Curriculum in Turkey

Alan's research on the role of non-cognitive skills in success alongside the application of grit measurement methodology, the 'Alan-Ertac Grit measure' [R2] led to the implementation of a new

education policy to restructure primary and secondary education in Turkey to foster socio-emotional and non-cognitive skills such as patience and grit through a nationwide change to the curriculum.

The research, impact evaluations and RCTs, which involved designing and implementing unique curricula and teacher training practices to improve key socio-emotional skills in socioeconomically disadvantaged elementary school children, shows that programmes which foster grit and instil a growth mind-set in children, significantly improve student attainment and behaviour [R2] [S1]. The intervention was a low-cost way of fostering non-cognitive skills in the classroom and thus offers a solution for reducing achievement gaps where educational policy actions aiming to enhance family inputs face challenges in engaging families of low socioeconomic strata. This research directly influenced the design and subsequent delivery of a new element in the curricula for primary and secondary schools to teach non-cognitive skills and prompted the Turkish Ministry of National Education to amend their overarching curriculum with the introduction of 'Design-Skill Labs' [S2].

The Turkish MoNE sets out in its 2023 vision that the curriculum is restructured as a series of flexible and modular structures, linked with skill sets, in an integrated manner across all levels. Based on Alan's research and intervention [R2] a key part of this is the national rollout of the Design-Skill Labs, which form part of the teaching in classrooms and affect the built environment with schoolyards re-designed to transform them into spaces with real life experiences [S3]. The amendment to the curriculum is set to continue from primary into secondary education, Goal 2 of the 2023 Vision: Design-Skill Workshops will be established at schools so that the knowledge gained can be translated into living skills [S4].

Turkey's Education Vision 2023 published by the Ministry of National Education states:

'Design-Skills Labs will be established at all schools for the development of the interests, talents, and character of our children. The curriculum will emphasize production, doing, interaction and deepening instead of revolving around testing and lecturing. Design-Skill Labs will serve as the instrument of such a curriculum approach. The Design-Skill Labs began as a pilot during 2019-2020. They will help students experience a process of self-revelation in which they can take time to think, design, and produce.' [S4 p25]

Improved financial literacy through the ING Bank Orange Drops programme in Turkey

Essex research on fostering key non-cognitive skills such as patience and self-control [R3] led to Professor Alan's involvement with ING Bank's Orange Drop financial literacy programme for children aged 8 and 9. Alan led the development and implementation of this financial literacy programme, which educates Turkish schoolchildren about the importance of saving and aims to make positive change in communities [S5].

Alan's research [R5] identified and developed a number of key skills around 'patience' and 'grit' and she led an interdisciplinary team of experts who focused on each of these skills in isolation to develop a novel curriculum for each.

Following the initial Orange Drop intervention led by Professor Alan a change in behaviour was reported. The ING Annual Report of 2017 states:

- Students became 21% more patient after the program.
- Students learned to be future-oriented and to wait for bigger gains.
- While boys were less patient than girls at the beginning of the program, a stronger change in behaviour was observed in boys afterwards, and boys became 23% more patient.
- A positive relationship was established between patience in spending and academic success.
- The impact on relatively poorly achieving pupils in school was a more pronounced 36% [S6].

This programme is the first single financial literacy education and social responsibility project by ING for Turkey's elementary school students, and encourages positive behavioural changes

addressing low personal rates of saving and the lack of financial literacy. Since ING has been running Orange Drops, 1,213 teachers have taught the programme in 329 schools, benefiting 38,835 schoolchildren [S7, S8].

Cultivating non-cognitive skills in students in North Macedonia

Professor Alan was invited to be an academic advisor for the second phase of a World Bank funded project in North Macedonia (titled 'Learning By Doing') cultivating socio-emotional skills in 8th and 5th grade students. Building on existing research [R1, R3], as well as the successful interventions on grit and perseverance in Turkey, Professor Alan contributed to the design of a unique curriculum on socio-emotional skills which concentrated on expanding the existing program and introduced a unique mentorship component in the second phase [S9]. Alan generated intervention materials to be used in schools in North Macedonia that focused on socio-emotional skills developed to close gaps in education and labour markets [R4, R6]. Professor Alan designed and ran the evaluation, the measurement instruments and analysis of the intervention programme between February 2019 and May 2019. The objective of Learning By Doing was to implement a mind-set intervention as part of the current high school curricula to cultivate growth mind-sets and students ability to set goals and act on their intentions amongst 8th and 5th grade students in a subset of schools in North Macedonia.

The World Bank confirm: *'In light of her expertise and success implementing interventions at scale, Professor Alan was invited to collaborate with the World Bank team on the second phase of a socio-emotional skills program in North Macedonia...Initial results show significant and positive impacts of the intervention on deliberate practice beliefs, growth mindset, curiosity and frustration tolerance for the average student...Results led to the government to start a third phase of work (postponed due to Covid-19) focussing on teachers practices'* [S9].

5. Sources to corroborate the impact

[S1] Written testimonials from 43 teachers and survey results from 94 teachers in Turkey relating to the two RCTs

[S2] Ministry of National Education press release about Design Skills Workshops

[S3] Education News article detailing the introduction of Design Skills Workshops

[S4] Ministry of National Education 2023 Vision in Turkish and English (pages 25, 86, 88, 90, 97). Screenshot of website showing the introduction of Design Skills Workshops as a stated goal.

[S5] ING Sustainability Report 2013, published in March 2014 (pages 85, 86)

[S6] ING Annual Report 2017 (page 94)

[S7] Orange Drops Financial Literacy programme on ING [webpages](#) (screenshot)

[S8] Orange Drops financial literacy programme [webpages](#) (screenshot)

[S9] Testimonial from the World Bank (EMBED team)