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Empirical Research

The role of skills, competencies and behaviour in determining short and long term outcomes: A literature review

OECD EDUCATION 2030
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A research paper by Emma Garcia, Economic Policy Institute

Miho Taguma, Team Leader; Tel: +33 1 45 24 92 65; E-mail: miho.taguma@oecd.org
Katja Anger, Consultant; Tel: +33 1 71 37 42 37; E-mail: katja.anger@oecd.org

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English - Or. English

THE ROLES OF SKILLS, COMPETENCIES AND BEHAVIOR IN DETERMINING SHORT AND LONG TERM OUTCOMES: A REVIEW OF THE LITERATURE

Emma García
Economic Policy Institute & Georgetown University

Economic Policy Institute

GEORGETOWN UNIVERSITY McCourt School of Public Policy

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2

Why is research necessary to study NCS? In Education Policy?

- Debate about the importance of NCS for determining lifetime outcomes
  - School, labor market and social outcomes
  - Scholars, educators, policymakers, societies, teachers and parents recognize the intrinsic importance of (certain) NCS
  - Multiple disciplines at call

3

Why is research necessary to study NCS? In Education Policy?

- We know little about how they are nurtured (produced):
  - As CS, they are produced in school
  - As human capital constituents, incentives to invest in human-capital
- Challenges with: Identification, measurement, classification of relevant skills (within and across countries)
- Implications for education policy:
  - Need for a more comprehensive education policy reform strategy
  - Teacher training & PD, curriculum, standards, etc.

4

Goals and structure of the study

1. Provides a comprehensive framework for the study of empirical analysis of what education entails (**education constituents**)
   - Traditional cognitive skills and soft/SEL/noncognitive skills
2. Summarizes **empirical studies examining relationships** between education constituents and outcomes
   - School, labor market, society
3. Discusses how to **integrate** these skills **into education policy**
   - Identification and measurement ("*Valid for what purpose*", Duckworth et al, 2015)
   - How to promote them

1. Framework: Empirical literature

		OUTPUTS		
		School outcomes		*Adulthood outcomes*
		CS	*NCS*	*Y*
INPUTS	*CS*			
	NCS			
	X			

1. Framework: Empirical literature

		OUTPUTS		
		School outcomes		Adulthood outcomes
		CS	NCS	Y
INPUTS	CS	$CS = f(X)$	$NCS = f(X)$	$Y = f(CS, X)$
	NCS	$CS = f(NCS, X)$	$NCS = f(CS, X)$	$Y = f(NCS, X)$
	X			$Y = f(CS, NCS, X)$

7

1. Framework

- Multiple layers: **identification, operationalization and measurement** (Inputs and Outputs)
- Classification of inputs
  - Use the OECD **Education 2030 framework**
    - Aggregate (for example, years of education)
    - Knowledge (knowing, i.e., math)
    - "Skills" (doing, i.e., problem solving)
    - Character (behaving, i.e., persistence)
    - Metacognition (learning to learn, i.e., reflecting)

8

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    - Metacognition (learning to learn, i.e., reflecting) — NCS

1. Framework

- Classification of outputs
  - **School** outcomes: Test scores, school attainment, graduation or dropout rates, comprehension, reading speed, etc. (Hanushek, 1986)
  - Outcomes in adulthood:
    - **Job market**: employment/unemployment, earnings
    - **Social**: health, crime, family formation, subjective well-being, life satisfaction

1. Framework

- **Measurement and instruments**:
  - (Standardized) test scores
  - Factor analysis techniques that measure underlying or latent factors (Almlund et al., 2011).
    - Taxonomies of traits: "Big Five" constructs of personality (OCEAN): Openness to experience, Conscientiousness, Extraversion, Agreeableness, Neuroticism
  - Surveys: self-assessments, teacher assessments
- Others: **ages, countries**
- [*Specific to education policy: Education policy relevant noncognitive skills* (Economic Policy Institute, 2014)]

2. Literature review: Findings

- Overview: Personality characteristics "may **predict** both **academic and economic productivity**" (Levin 2012)
- **4 examples** of studies:
  - Looking at all the skills and most outcomes in the framework
  - Quantitative, meta-analysis, essay and cost-benefit study
  - Evidence mostly from the U.S.
  - Durlak (et al), Heckman (et al), and Levin (et al).

2. Findings-Example 1

- **Durlak et al (2011)**

- Multiple SEL skills: emotional awareness, self-control, conflict-resolution strategies, and interpersonal problem-solving skills
  - Improvements in academic skills. On average, participating students exhibited higher achievement, with an associated gain in performance of 1/3 of a SD, approximately constant across grades.
  - Improvements in behavior

2. Findings-Example 2

- **Heckman, Humphries, Urzua, and Veramendi (2011)**

- Cognitive ability, Noncognitive ability and SEL
  - SEL predict GPA and educational choices
  - High school and college attainment improve labor market outcomes, reduce the probability of being a daily smoker, improve physical health and mental health (depression, self-esteem), reduce the probability of being a heavy drinker and obese, increase trust, increase the probability of voting, decrease the probability of being divorced, and decrease the probability of being on welfare

14

2. Findings-Example 3 & 4

- **Levin (2015); Levin et al., (2015)**

- Adaptability:
  - Theoretical explanation of why adaptability is a goal: "more education is an investment not only in cognitive knowledge and trainability, but also in adaptability to a changing worker place" (Levin, 2015)
  - Cognitive, interpersonal and intrapersonal skills
- Returns to investments in SEL:
  - Benefit to cost ratios (of 6 interventions) are extremely large (Levin et al., 2015)

Conclusions

- Study **summarizes research evidence** around skills, competencies and behavior
  - Provides analytic framework to study **all skills**' importance
- It highlights importance of **measurement and identification** for improving our understanding around human capital constituents
- Results show that constituents play **different roles** in the education process and in adulthood
- Further **research and collaboration** is necessary
  - Integrate them in the education policy agenda
  - Understand links between inputs and outputs

Thanks

egarcia@epi.org