

A Research Agenda For Understanding the Dynamics of Skill Formation in American Society

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In the past 30 years, American society has polarized. A greater percentage of children is attending and graduating college. At the same time, a greater percentage is dropping out of secondary school, producing a growing underclass, neither working nor going to school. 20% of the U.S. work force has such a low rate of literacy that it cannot understand the instructions on a vial of pills. The slowdown in the growth of the skills of the workforce is a drag on U.S. productivity.

These problems are usually discussed in a piecemeal fashion. Analysts blame the public schools, rising tuition costs, or the failure of a number of other social institutions. This has produced an array of competing proposals

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that lack coherence or a firm grounding in science and social science. This paper summarizes an emerging body of exciting research that articulates a coherent approach to addressing these problems that is rooted in the economics, psychology, and biology of human development. This research needs to be deepened and broadened in order to create effective policy.

Many major economic and social problems such as crime, teenage pregnancy, obesity, high school dropout rates, and adverse health conditions can be traced to low levels of skill and ability in society. In analyzing ability, society needs to recognize its multiple facets. Current public policy discussions focus on promoting and measuring cognitive ability through IQ and achievement tests. For example, in the U.S., the accountability standards in the No Child Left Behind Act concentrate attention on achievement test scores, not evaluating a range of other factors that promote success in school and life.

Cognitive abilities are important determinants of socioeconomic success. So are socioemotional abilities—“soft skills”—such as physical and mental health, perseverance, attention, motivation, and self confidence. They contribute to performance in society at large and even help determine scores on the very tests that are used to monitor cognitive achievement.

Ability gaps between the advantaged and disadvantaged open up early in the lives of children. Family environments of young children are major predictors of cognitive and socioemotional abilities, as well as crime, health and obesity, and more than genetics is at work.

The evidence that documents a powerful role of early family influence on adult outcomes is a source of concern because family environments in

the U.S. and many other countries around the world have deteriorated over the past 40 years. Experimental evidence on the effectiveness of early interventions in disadvantaged families is consistent with a large body of non-experimental evidence that adverse family environments, especially adverse parenting, substantially impair child outcomes. If society intervenes early enough in the lives of disadvantaged children, it can raise the cognitive, socioemotional abilities and the health of disadvantaged children.

Early interventions reduce inequality by promoting schooling, reducing crime, and reducing teenage pregnancy. They also foster workforce productivity. These interventions have high benefit-cost ratios and rates of return. Early interventions have much higher economic returns than later interventions such as reduced pupil-teacher ratios, public job training, convict rehabilitation programs, adult literacy programs, tuition subsidies or expenditure on police.

Life cycle skill formation is dynamic in nature. Skill begets skill; motivation begets motivation. If a child is not motivated and stimulated to learn and engage early on in life, the more likely it is that when the child becomes an adult, she/he will fail in social and economic life. The longer society waits to intervene in the life cycle of a disadvantaged child, the more costly it is to remediate disadvantage. Similar dynamics appear to be at work in creating child health and mental health.

A major refocus of research is required to understand the life cycle of skill and health formation and the importance of the early years in creating inequality and opportunity and in producing skills for the workforce. A fruitful direction for future research is to improve the core evidence on the

dynamics of skill formation.

In order to understand how to address these issues with effective policies, we need to establish a strong factual base. But we have to go beyond the facts summarized in empirical associations to understand the causes of the facts. Indeed we need to go beyond simple “treatment effects” of programs to understand the mechanisms that produce the effects of successful programs.

Even with this knowledge, we cannot rest content. For policy purposes we need to know which mechanisms can be profitably manipulated and which cannot. Relying solely on the treatment effects of particular policies is not sufficient for evaluating the full range of policies that might be, but have not yet been, implemented.

Understanding how families and other social institutions create skills is a grand challenge. Such understanding requires interdisciplinary research. For such research to be successful, it is necessary to draw on research in genetics, epigenetics, bioinformatics, anthropology, and psychology. The psychology needed goes beyond cognitive psychology to consider developmental and personality psychology.

It is a grand challenge to do interdisciplinary work at a high level. Economists have a lot to learn from other fields and a lot to contribute to them as well. The synthesis of fields and creative confrontations will spark new knowledge. We have already learned a lot, but we have much more to learn.

References

Heckman, James J. 2008. "Schools, Skills and Synapses." *Economic Inquiry*, 46(3): 289–324.