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RESEARCH

The Accelerated Value of Social Skills in Knowledge Work and the COVID-19 Pandemic

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The COVID-19 pandemic has brought with it a debate around which skills will be the most valuable in its aftermath. This study discusses the relevance of social skills in this debate and presents new evidence that shows its necessity. Specifically, we focus on knowledge workers and highlight that the importance of social skills was increasing pre-COVID-19 for these workers and that this importance has increased further during the pandemic, particularly for those in management roles. This study has also emphasised that we are at the beginning of the learning curve in understanding how social skills can be taught effectively to adults, and in particular knowledge workers. Establishing this evidence base is particularly important as governments around the world reconsider their skills agenda as a way to build up their economies post COVID-19.

Keywords: COVID-19; skills; social skills; knowledge workers; management

Introduction

The advent of the fourth industrial revolution[1] has brought with it a debate as to which skills will become redundant because of automation and which skills will remain in demand. The COVID-19 pandemic has increased the importance of this debate, with the UK government emphasising the necessity of providing skills that are valued by employers as a response to the COVID-19 pandemic. This study discusses the relevance of social skills in this debate. Specifically, we focus on knowledge workers and highlight that the importance of social skills was increasing pre-COVID-19 for these workers and that this importance has increased further during the pandemic, particularly for those in management roles.

Specifically, we

1) discuss the seminal work that highlights that those with social skills have better labour market outcomes pre COVID-19, and that there is an additional protection from job loss to automation for those that are high in both cognitive and social skills;
2) provide an overview of the evidence of the value to businesses for embracing social skills as key skills for knowledge workers, particularly during a pandemic;
3) present evidence that highlights that social skills may have increased their premium during the pandemic, and discuss why we expect this increased premium to prevail; and
4) discuss the emerging evidence on whether social skills can be taught effectively to individuals.

Defining Social Skills

The term "non-cognitive skills" has been frequently used in economics to study human capital [2]. Non-cognitive skills are an individual's "patterns of thought, feelings and behaviours" [3] and encapsulate a range of characteristics about a person that are not easily observable or calculable. Examples include personality traits, time preferences, and motivation [4]. Within this broad category of non-cognitive skills are social skills (or people skills) a subset of which more narrowly defines skills centred around human interaction [5]. Social skills in particular encompass the "ability to work with others" [4, 5] and include leadership, communication, and interpersonal skills more generally [6].

[1] The fourth industrial revolution describes the economic, social and political transition brought about by automation and new technologies (e.g. Internet of Things) in the 21st Century [1].

Social skills as a durable skill for knowledge workers: pre-COVID-19 assessment

The third industrial revolution shaped labour markets in developed countries, including the UK, to further increase the importance of cognitive skills [7]. It is worth emphasising that there is evidence that social skills are also of value to the labour market both directly and indirectly, as owed to their effects on an individual's education or motivation, for example. Borghans et al. [3] provide solid evidence of this in an analysis of individual-level longitudinal data from the US, the UK and Germany. The authors find that individuals who score high in people skills sort into occupations high on people-related tasks and end up having higher earnings in the long-term. Cortes et al. [8] also demonstrate the growing demand for social skills by analysing a database of newspaper job advertisements from 1980–2000 in the US, alongside information on job tasks and wages, finding that the demand for social skills has increased over the study period. This in turn explains their finding that the probability of females working in cognitive/high wage occupations has increased as compared to males as females score higher in social skills.

There is therefore a growing consensus that social skills are independently valuable in the labour market. Of more interest, there is evidence that suggests that there is a complementary interactive effect between cognitive skills and social skills in terms of improved labour market outcomes [6, 9]. Specifically, Weinberger [6] links adolescent skills data from two longitudinal studies of high school students from the US from 1972–1992 to adult outcomes. She finds that the earnings premiums for both cognitive and social skills have increased substantially across the two cohorts. That is, while both cognitive and social skills positively affect earnings, their joint importance and complementarity has increased over time. She verifies this conclusion further in an analysis that maps census data to job task measures.

There are a few points to emphasise from our discussion thus far. First, the evidence suggests that social skills can be labelled as durable skills, meaning that there is an expectation that they will be valuable despite changes to the labour market. Second, the complementary interactive effect between cognitive and social skills demonstrates that there are gains to knowledge workers acquiring social skills.

These conclusions align well with studies demonstrating that the demand and rewards for social skills have been increasing over the past decades [10, 5] and that they will likely continue to do so [11]. To consider this increasing trend of the importance, Deming [5] establishes a model for team production, where social skills are treated as an input that reduces coordination costs and makes teamwork more efficient. Drawing on data from the US National Longitudinal Survey of Youth (NLSY) from 1979 and1997, his paper then tested the assumptions of the team production model and verifies that cognitive and social skills are complementary. He also finds that there are positive returns to social skills in the labour market in terms of full-time employment status and wages, which have increased across the two cohorts studied. In a separate analysis he also demonstrates that, between 1980–2012, there was an increase in occupations that required high levels of social interaction by nearly 12 percentage points as a share of the U.S. labour force. In another study evaluating social skills in the labour market, Borghans et al. [3] also start with establishing a model that assumes that individuals differ in their level of people skills and that occupations differ in their requirements for such skills. The authors utilise individual-level longitudinal data from the US, Germany and the UK to test their model's assumptions. Overall, youth sociability is positively correlated with adult wages and affects sorting into adult occupations for which people tasks are important. Finally, in order to comment on trends of the future, Bode et al. [11] use data from the German Socioeconomic Panel (SOEP) to empirically test the impact of personality traits on working in an occupation that is susceptible to digitisation. They link their data with research that establishes which occupations are most susceptible to automation, finding that jobs which are filled by individuals who are open, less neurotic and less agreeable will be less susceptible to automation in the future.

Lordan [12] illustrates the increasing value of social skills most clearly in a quantitative analysis that relates job attributes to the probability that an individual's occupation will be automatable over the next decade. The novelty of her analysis is that it draws on a measure of automatable work constructed by Lordan and Josten [13] which takes into account the seismic change on the horizon with respect to jobs that face the risk of future automation by analysing patents. Essentially, Lordan and Josten create a classification that captures jobs that will be automatable over the next decade [13].

Lordan [12] focuses on three variables that are constructed based on data that describe the skills required to do a job along with the actual activities of the job. These three variables reasonably and accurately proxy work that involves using social skills, cognitive skills and physicality.[2,3] The author then, drawing on the EU Labour Force Survey data from 2013–2016, relates the classification of a job being automatable[4] to whether work involves 'social skills', 'cognitive skills' and 'physicality' as measured by these three variables. The author also considers the interaction between these three variables, which allows her to predict the usefulness of social skills, cognitive ability and physicality independently in terms of future employability, in addition to predicting the value of their interactions (i.e., the value of social skills combined with cognitive skills). A negative estimate implies that jobs that are high on a particular attribute are relatively safe from automation. That is, the author is able to speak about whether jobs that are high on cognitive skills, for example, are relatively safe from automation.

[2] We note that, in her work, Lordan [12] refers to these variables as people, brains and brawn respectively.

[3] Each variable is constructed to have a mean of 0 and standard deviation of 1.

[4] as defined by Lordan and Josten [13].

Table 1: The impact of social skills, cognitive skills and physicality on automation.

	EU LFS	UK – EU LFS
Social Skills	0.009***	0.006***
	(0.000)	(0.001)
Cognitive Ability	–0.070***	–0.100***
	(0.000)	(0.001)
Physicality	0.032***	0.007***
	(0.000)	(0.001)
Social Skills * Cognitive Skills	–0.002***	–0.005***
	(0.000)	(0.001)
Social Skills * Physicality	0.003***	–0.001***
	(0.000)	(0.000)
Cognitive Skills * Physicality	0.000***	–0.003***
	(0.000)	(0.001)
N	2,698,151	59575
R-squared	14%	13%

Data: EU Labor Force survey data from 2013–2016.

Notes: The stars of significance *, **, *** denote significance at the 10%, 5% and 1% levels, respectively. The table shows regression results from regressing a dummy representing whether a job is automatable (as defined by Lordan and Josten [13]) on the 'social skills', 'cognitive skills' and 'physicality' variables and their interactions.

The results for the EU and UK analyses are re-produced in **Table 1**. These estimates point clearly to the value of cognitive skills, strongly implying that jobs which require high level thinking will be safe from the impending wave of automation. In addition, for both the EU and the UK, the interaction between the 'social skills' and 'cognitive ability' attributes is negative and statistically significant. This signals that knowledge workers that also have high levels of social skills are even further insulated from automation. This complementarity is more pronounced in the UK as compared to the EU as a whole. Notably, evidence of the protective effect of social skills is only consistently revealed once there is an interaction with cognitive skills across both the UK and EU, suggesting that for jobs that do not also require a high level of cognitive skill, their value is less pronounced, if it exists at all. For our purposes, this emphasises clearly that, pre-COVID-19, the expectation was that social skills would continue to grow in value for knowledge workers.

The Value of Social Skills to Firms

The growing demand for social skills is, without a doubt, linked to the added value people high in these skills bring to firms. Deming and Kahn [9] provide evidence of this by analysing online job vacancies for a variety of professional services occupations in the US between 2010–2015. The authors focus on the financial returns of firms requiring certain social and cognitive skills in job adverts. They find that job adverts for cognitive and social skills positively predict firm performance, even after controlling for education and experience requirements and occupation and industry codes. Their finding is most prominent for firms that demand both cognitive and social skills, which highlights the increasing value of social skills in knowledge work.

At the individual level, productivity in adulthood has also been credibly linked to social and emotional skills in childhood. Knudsen et al. [14] review evidence from economics, developmental psychology and neurobiology and highlight that early experiences during childhood have a strong effect on children's development of cognitive and social skills. Such skills in turn affect important life outcomes such as educational attainment and wages.

Kuhn and Weinberger [15] test the impact of adolescent leadership skills on adult outcomes, drawing on three surveys of high school students in the US from 1960, 1972 and 1982 containing information on student test scores and leadership positions (e.g., acting as a team captain) as well as their labour market performance up to ten years after finishing high school. They find that students that fulfilled leadership positions during high school had significantly higher wages than those that did not. Gertler et al. [16] test the impact of an early childhood intervention fostering cognitive and socio-emotional skills on adult outcomes. They ran a randomised controlled experiment in Jamaica between 1986–1987, in which toddlers from disadvantaged backgrounds were provided with treatments that fostered their cognitive and socio-emotional skills. They found that the children that received the treatment had higher earnings at age 22 and that the treatment reduced later-life inequality. Their findings are even larger than those of similar programmes conducted in the US, indicating potentially larger rewards for early interventions in developing countries.

Edin et al. [17] studied the changing rewards for non-cognitive skills in Sweden between 1992–2013 using administrative data from the compulsory military draft that required men aged 18 or 19 to undergo tests on cognitive and non-cognitive skills. They find that the return in wages to non-cognitive skills doubled between 1992–2013 (from 7 to 14 percent for a one standard deviation increase in non-cognitive skills), and this growth was much larger than the return to cognitive skills. In an earlier study, Lindqvist and Vestman [18] compare non-cognitive to cognitive skills of Swedish men in the military also using the enlistment data, but matched with a representative sample of the Swedish population (LINDA). They find that non-cognitive skills matter more for earnings at the low end of the earnings distribution and are a stronger predictor of labour force participation than cognitive skills. They argue that the reason for this is that individuals with very low non-cognitive skills are more likely to be unemployed and that non-cognitive skills are more prevalent in individuals that earn higher wages.

This evidence shows that there is an intrinsic value in social skills that helps individuals to thrive in the long-run.

The Value of Social Skills During and After the Pandemic

The current value of social skills is reinforced by the evidence above that highlights that social skills are becoming increasingly valued in the labour market and the evidence that social skills are linked to firm success. A related question is: Has the value of social skills for knowledge workers increased during the COVID-19 pandemic?

During the COVID-19 pandemic, collaboration became particularly relevant, with effective group decision-making becoming more crucial in order for businesses and organisations to respond to the pandemic [19]. Intuitively, we may expect groups to be naturally superior in making decisions to individuals, but that is not always the case.

The theory behind the increased value of group decision making relies on groups being comprised of individuals with diverse perspectives,[5] and on all voices being heard in deliberations. The reality is that this does not always transpire. Empirical evidence on group performance is mixed and highlights that key judgemental biases can occur in groups which reduce innovation and productivity, for example, anchoring [22],[6] or the tendency of groups to ignore outside information more than individuals [23].

While collaborative decision making became essential during the pandemic, past research has also shown that deliberations, where each person around the table participates fully with their unique insights, often fail due to groupthink. Groupthink is the tendency of cohesive in-group members to find a consensus without critically appraising alternatives, which tends to lead to adverse or less innovative outcomes [24]. Sunstein [25] highlights two main reasons for why group collaboration fails. First, key information often remains privately held by some group member(s). Second, social pressure prevents group members from disclosing their information.

One way of addressing groupthink at the organisational level is by increasing diversity and inclusion efforts, such as through removing obstacles that hinder individuals from fully participating and contributing in group settings, or through fostering an individual's uniqueness in and sense of belonging to the organisation [26]. Managers, and indeed team members, with good social skills are likely required to secure this dynamic. This same dynamic is also invaluable for group deliberations that go beyond decision making, where the outcome desired requires creativity, innovation and the assessment of risk.

Inclusion at both the group and individual level is crucial for this dynamic to emerge. For example, Nishii [27] studies inclusive climate in a sample of employees at a large biomedical company, with specific attention to gender diversity. She finds that teams with an inclusive climate (i.e., a climate that fosters the integration and active participation of diverse employees) had lower levels of conflict and that inclusive climates reduce the potential negative effects of gender diversity on team conflict.[7] Similarly, in a study of work teams in South Korea, Seong and Hong [29] find that cooperative group norms (i.e., the importance placed on shared interests, etc.) moderated any negative effects of gender diversity on a self-reported team commitment. In a randomised experiment, Weidmann and Deming [30] test whether individuals that they label 'team players' can contribute to a team's performance. They find that team players with distinct contributions increase the team's outcome in problem-solving tasks. In this study, team players were not significantly different to other team members with respect to IQ, age, gender, ethnicity or personality traits, allowing them to attribute the effects found entirely to being a team player.

Working Together Virtually

The value of social skills for the management of knowledge workers goes beyond the avoidance of groupthink and encompasses the value inclusive cultures provide. For the majority of knowledge workers -an estimated 62% in the UK[8]- the COVID-19 lockdown meant that they spent the majority of their time working from home. This posed two challenges for managers of knowledge workers. First, they had to figure out how to get teams to function cohesively

[5] Diversity has been shown to positively impact group outcomes and reduce group biases, see for example [20 and 21].

[6] Anchoring is the provision of initial information that then determines and can bias decision-making. For example, when participants of a study were asked to estimate the percentage of African countries in the United Nations, those that received a low anchor (i.e., 10%) estimated a lower percentage than those participants that received a high anchor (i.e., 65%) [22].

[7] In a review of the evidence on the impact of gender diversity on group outcomes, Azmat and Petrongolo [28] find mixed results. One study they cite, for example, finds that gender quotas in Norway reduced a company's operating profits and stock prices, a finding that is attributed to women being less experienced and women being also less willing to lay off staff.

[8] This estimate is derived using the COVID-19 waves from the Understanding Society restricted to knowledge workers (i.e., ISCO-88 three-digit codes of below 400) comparing individuals who indicate to always work from home or often as compared to those who indicate to only sometimes or never work from home.

while ensuring that members could work productively in a more individual environment. Second, they had to manage team members sensitively, taking into account the fact that some workers would be subject to more negative effects than others. For example, it has been highlighted that on average, working married women bore more of the mental health burden than their working male spouses [31, 32]. In line with this, evidence from the UK Household Longitudinal Survey (UKHLS) COVID-19 module shows that while mental health overall declined sharply during the lockdown, this reduction was twice as large for women than it was for men [33]. Further evidence by Adams-Prassl et al. [34] again supports the argument that women suffered greater mental health declines during the pandemic. Using real-time survey data from the US and exploiting the variation in timing of the stay-at-home orders in the US, Adams-Prassl et al. document that the large mental health burden caused by the pandemic is borne entirely by women [34]. However, the mechanisms through which the lockdown measures negatively affect women are unclear and cannot be explained solely by increased financial worries nor by increased childcare responsibilities.

To manage effectively during a pandemic, the managers of knowledge workers therefore need substantial social skills. Such a conclusion was also drawn from a qualitative piece of research that we conducted in order to better understand the actions that managers can take in order to create more inclusive cultures. There, we engaged 35 of London's most senior leaders in virtual listening interviews right after the UK government announced its first lockdown. These leaders came from 16 major companies and comprised of CEOs and other executive committee members (5), non-executive board (2), income generators at managing director level+ or equivalent (15), senior HR (5) and senior non-HR functions (first line of defence, technology, risk and audit) (8). The companies represented were: Aberdeen Standard Capital, Alliance Bernstein, Allianz Global Investors, Citi, CIBC, Goldman Sachs, HSBC, ING, J.P. Morgan, Mustard Seed, NatWest, Rathbones, Refinitiv, Standard Chartered, Starling Bank and UBS. The following two questions were sent to the leaders that participated in an email with an option to provide responses in writing (21 received) or via a 45 minute video conference (14 received):[9]

1. When thinking of inclusivity when all team members are working at home, can you identify one best practice that you will definitely be using to manage your team?
2. When thinking of inclusivity when all team members are working at home, can you identify the biggest challenge or obstacle you expect to face with respect to keeping your team engaged in their daily tasks?

Once the email responses were received and the virtual interviews completed, we conducted a thematic analysis. This is the ideal approach as we were essentially trying to identify the people's beliefs and knowledge from a set of interview data.[10] **Table 2** summarises the themes that emerged regarding the obstacles virtual inclusion faces, and also the themes that emerged around actions that can be taken to overcome them.[11] Notably, twenty of the thirty actions identified to respond to identified obstacles undoubtedly require managers with high levels of social skills to execute them effectively (we delineate these from other actions in **Table 2** with the italic font for ease of reference).

Table 2 illustrates the importance of managers with high social skills for the effective running of organisations during the COVID-19 pandemic. Of course, the context to **Table 2** concerns a state of the world where the majority of professional workers are working at home, (and this likely increased the need for managers with such social skills). The question to be answered is whether this will still be the case post-pandemic. Our expectation is that this "new" normal will leverage some of the positive changes to work that were introduced to allow workers to continue to work safely during the pandemic. For example, we expect one such change to be a move towards hybrid working for professional workers. In such a setting, some workers will work on site, others will work from home. In some instances, this will mean having a rotating attendance of employees on-site, while in others the nature of the job may mean that it is entirely off-site (or on-site). Either way, a move towards hybrid working, where some employees communicate face to face and others online, poses similar challenges for inclusivity to those posed in **Table 2**, imply in that managers with good social skills will maintain their importance post-pandemic.

Our conclusion that hybrid working will prevail post-COVID-19 is shared by Barrero et al. [36] who surveyed 15,000 working-age Americans between May and October 2020 in six waves, asking them whether they work from home and what their employers' attitudes are towards working from home. Overall, they find that employers estimate that employees will spend 22% of paid days at home as compared to 5% before the pandemic. Barrero et al. [36] also set out five reasons explaining why working from home will stick: First, there is reduced stigma with regard to productivity at the home office; second, the experience of the pandemic has shown employers and employees that working from home actually works; third, recent investment in work from home equipment has made working from home less costly; fourth, survey respondents think they will persistently fear proximity to others (e.g., on the subway), which indicates some demand for distanced working; and fifth, technical innovation is increasing and will make connecting remotely easier. This paper also estimates that employees will be 2.4% more productive in a post-pandemic world working from home based on self-assessed productivity estimates.

[9] We note that we did not find significant differences in the themes identified with the responses received via email or in a virtual meeting.

[10] The advantage of this approach is that it allows flexibility in approaching large interview data sets. The drawback is that we risk missed nuances as it is largely subjective. To overcome this two researchers worked independently on determining the themes, and came together ex post to discuss the findings.

[11] We note that a more complete overview of the obstacles identified and actions that can be taken can be found in Lordan [35].

Table 2: Obstacles to virtual inclusion and the actions to overcome them.

Virtual Inclusion: Obstacles and Actions	
Obstacles to Virtual Inclusion	**Actions to overcome obstacles**
1. Problem: Physical distance can lead to an employee's psychological distance from their firm	**1. Action:** Humanise interactions with colleagues. – *by leveraging video technology (e.g., virtual coffee breaks, socials, etc.) or having a buddy system that connects colleagues.* **2. Action:** *Actively seeking feedback.* – *makes colleagues realize they are being listened to despite physical distance.* **3. Action:** *Open the virtual door.* – *by keeping a video conference line open for the same time period each day for anyone to drop in.*
2. Problem: Presenteeism may be replaced by virtual presenteeism due to constant availability (e.g. instant messaging etc.)	**1. Action:** Rethink attitudes to working at home. – by creating a system that allows for individual differences in concentration style, while still maintaining some core hours for virtual team gatherings. **2. Action:** Have daily set times free of digital disruptions. **3. Action:** Opt-out of being green online – as that signals to team members that it is OK to a take time out from being virtually present.
3. Problem: Communication may be difficult due to information overload	**1. Action:** *Give certainty.* – *by having the CEO describing knock-on effects that COVID-19 is having on the business as that prevents employees seeking out information to deal with their uncertainty.* **2. Action:** *Make salient what is important.* – *managers should provide clarity to team members on what tasks are pressing, and identify tasks that can be dropped or put on ice.* **3. Action:** *Pay attention to messenger effects and framing.* – *To improve effective communication, firms can devote time to understanding how best to frame their desired message, and who the ideal messenger should be at any one occasion.*
4. Problem: In-groups increase the risk of tunnel vision	**1. Action:** *Make salient that diverse perspectives add value.* **2. Action:** *Identify weak ties to bridge information silos.* – *By ensuring that information diffuses effectively within organisations.* **3. Action:** Audit who gets what and why. – To make sure that no one is missing out on opportunities and to prevent favoritism
5. Problem: Virtual groupthink (i.e., the tendency to favour conformity as team)	**1. Action:** *Intervene to ensure that all voices are heard (also via chats).* **2. Action:** *Discourage an over-focus on shared information.* – *By separating brainstorming sessions from sessions where decisions are made.* **3. Action:** *Embrace dissent.* – *Instead of forcing consensus that encourages groupthink.*
6. Problem: Unfamiliar context and uncertainty regarding Covid-19	**1. Action:** *Fundamental attribution error.* – *whereby an outcome is viewed as a reflection of the person rather than simply the situation they are in.* **2. Action:** *Celebrate small wins.* **3. Action:** *Re-focus your attention.* – *Which serves to minimise the likelihood of the affect heuristic, a mental shortcut that causes decisions and reactions to happen quickly when emotional that are not necessarily in the firms or an individual's best interests.*
7. Problem: Work is now home	**1. Action:** A designated work space. **2. Action:** Maximise home work spaces. – Increase information on how to best work at home (e.g., by going for walks to increase productivity). **3. Action:** *Discuss what works with respect to work space.*

(Contd.)

Virtual Inclusion: Obstacles and Actions

Obstacles to Virtual Inclusion	Actions to overcome obstacles
8. Problem: Maintaining motivation when becoming de-motivated	**1. Action:** *Identify meaning at work.* – *As when a goal is identified as meaningful, individuals put much more effort into fulfilling it.* **2. Action:** *Link meaning to own skills and abilities.* – *By highlighting for team members, the specific skill the employee is brought out to the firm that is unique to them.* **3. Action:** *Use narrative or visuals to illustrate meaning.* – *By bringing the stakeholders of a firm's outputs closer to employees.*
9. Problem: Beware of illusory correlation	**1. Action:** Confidence is not competence or ability. **2. Action:** Quality over quantity. – Rather than focusing on virtual presenteeism as a correlation for ability, measure a person based on their output. **3. Action:** *Don't log every ball that gets dropped* – *By ensuring that an employee's future career success is not unforgivingly linked to performance during the COVID-19 response period.*
10. Problem: Re-start with inclusion	**1. Action:** *Stay connected to customers and clients.* **2. Action:** *Speak to a different type of shareholder, client and customer.* – *As being seen as a leader in the COVID-19 response, to the inclusion of all persons, puts the good values of the firm in the spotlight.* **3. Action:** Create post COVID-19 priorities.

Source: Lordan, G. (2020): Virtual Inclusion in The City, Report.

Bartik et al. [37] also document evidence that working from home is likely to increase post-pandemic, while emphasising that this mode of working will suit certain jobs and industries more than others. Their work surveys leaders of small businesses as well as business economists in the US. They find that the industries that can move to remote work more smoothly have a better educated and higher paid workforce, who are less affected by productivity losses resulting from switching to remote work. In another study, Bick et al. [38] similarly find that the characteristics of those working from home differed substantially across different socioeconomic groups and industries when analysing data from a large US survey. They found that those that switched to working from home during the pandemic were predominantly educated, white and high earners before the pandemic. These two papers underline our conjecture that knowledge workers are more likely to work from home post-pandemic, and, together with evidence presented earlier in this section emphasises the need for these workers, and particularly their managers, to have or to acquire high levels of social skills.

Can we teach social skills to adults?

As highlighted above, social skills are increasingly important for knowledge workers. This importance has been shaped and accelerated by the third and fourth industrial revolutions, and the COVID-19 pandemic. It is therefore increasingly important for knowledge workers to acquire social skills, and in turn, raises the question as to whether it is possible for knowledge workers to be taught such skills. It is worth emphasising that while teaching soft skills has been shown to be particularly effective at young ages [14], soft skills have also been shown to be malleable across the entire lifespan (and to be more malleable than cognitive skills) [2]. Here we focus on the evidence that relates to adults, but it is worth highlighting now the seminal papers that relate to the transfer of social skills to young children [16, 39] and adolescents [40]. This literature suggests that there is good evidence that we can change soft skills, including social skills for both children and adolescents. However, we know little about what the most effective curricula are, and indeed studies that follow participants over years (rather than months or days), such as Heckman and Kautz [39] and Lordan and McGuire [40] are too rare, meaning there is still a lot to learn about adaptation.

Turning to adults, we would summarise that this body of literature establishes a clear link between social skills programmes in some contexts, in addition to pointing to individual differences in the effects these programmes have on labour market outcomes. For example, in a randomised experiment in Colombia, Barrera-Osorio et al. [41] test the impact of teaching social skills as part of a vocational training on the participants' future job outcomes. The participants that are assigned to vocational training courses are randomly assigned to different trainings that vary in the technical and social skills taught. Social skills training was provided by social workers and included fostering self-esteem, work ethic, organisational skills, inter-personal skills and communication skills. The technical skills taught differed by course but included, for example, security and surveillance services, cashiers, or cooking assistant skills. Overall, the courses lasted between 4 and 10 weeks for 5 to 8 hours a day. The authors find that being allocated to a vocational training

programme has an overall positive effect on labour market outcomes. Initially, individuals allocated to a programme that was intense in technical skills performed better than those in programmes fostering social skills with regard to employment probability and wages. After 6 to 12 months, however, individuals from the social skills trainings caught up and were slightly more successful in maintaining their jobs.

In contrast, Groh et al. [42] find no significant employment effects of a soft skills programme provided to female community college graduates. In their study, female community college graduates were randomly allocated into soft skills training that lasted for 45 hours in total and the treatment and control groups were then interviewed again 6, 14 and 27 months after training to test the impact of the programme on employment outcomes. The training included training in communication, business writing, team building, team work skills, time management, positive thinking and how to use the learnt skills in business situations and career advice. The authors were surprised that they did not find statistically significant effects but believed that the relatively short length of the course could be insufficient to effectively impact soft skills (we are sceptical as it is more likely that people revert to old styles of thinking over time, implying that any effects found are likely to diminish. We expect the training was simply not effective).

Conversely, a study by Acevedo et al. [43] points to individual differences in labour market effects following soft skill training. The authors ran a randomised field experiment to test the impact of including soft skills into a vocational training course for youths in the Dominican Republic on skill development and labour market outcomes. They randomly assigned two interventions to participants. The first was vocational training with soft skills training and an internship. The second one was soft skills only training with an internship. Soft skills training included 75 hours of training in self-esteem, communication skills, conflict resolution, life planning, time management, teamwork, decision-making, hygiene and health, and coaching on risky behaviours. They find positive short-term effects of both training interventions for women, but not men.

These three studies illustrate neatly for both children and adolescents trends and deficiencies in the literature on transferring social skills to adults overall. First, the evidence is mixed on how different programmes impact labour market outcomes, and there is evidence of individual differences in impacts. Second, there is a paucity of evidence that considers the transfer of social skills to knowledge workers in a randomised framework that allows causal inference. This is a major deficiency given the gains to these workers to acquiring these skills, and the fact that employers of knowledge workers typically provide a variety of trainings in soft skills already. The latter suggests that employers are providing trainings with no idea of whether they are effective, despite having the opportunity to do so. Last, we are not yet at a place where we can cross compare studies and learn what is the best curriculum and approach for the transfer of social skills, as the majority of studies consider newly created programmes whose rationale for included content is often not clear. To move this agenda forward, it would be beneficial for studies of this kind to include detailed notes on the modules that are taught along with a mapping of the rationale for their inclusion.

Conclusions

Our work has emphasised that the value of social skills was increasing for knowledge workers pre-COVID-19. We have provided new evidence that illustrates that their premium has increased during the pandemic for these workers, and that this acceleration is unlikely to reverse when the pandemic response ends and we enter a new normal. The fact that COVID-19 has changed the labour market trajectory to speed up trends that were already occurring is unsurprising. This is a typical reaction to large macro-economic shocks. For example, following the Great Recession, there was a persistent shift in firms' demand away from low skills in routine-task occupations that lead to an overall upskilling of the workforce and a depreciation of low skills [44].

While the value of social skills is clear, particularly for knowledge workers, this study has also emphasised that we are at the beginning of the learning curve in understanding how social skills can be taught effectively to adults and, in particular, knowledge workers. As we move forward and the value of these skills continues to rise, we hope that programmes established to upskill workers in this regard will be assessed in a framework that is robust enough to establish causal inference, and detailed enough to allow cross curriculum comparisons. This is particularly important as governments around the world, including the UK, reconsider their skills agenda as a way to build their economies post COVID-19.

Competing Interests

The authors have no competing interests to declare.

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