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The Growing Value of Emotional Labor in the E-Commerce Workplace

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Abstract

The growing value of emotional labor in a technology-infused e-commerce workplace is described using an extensive review of literature from scholarly journals, trade literature, business oriented books and news reports. Technology can profitably automate the math-logic intensive aspects of the workforce engaged in e-commerce operations. Humans are more capable of providing emotional labor which meets the experience needs of the new economy, and our education system needs to develop the emotional capabilities of the workforce. Much of the focus on job losses from globalization and intelligent technologies such as robotics or IT based automation has been on either enhancing the technical skills of workers or on limitations to global trade. The perceived link between formal education and enhanced earning power needs to be modified to accommodate the growing value of emotional labor. Emotional skills need to be developed since many newly created jobs will involve emotional labor.

Keywords: Emotional Labor, Intelligent Systems, E-Commerce Technology, Automation, Jobs, Technological Unemployment

1. Introduction

In the pre-industrial era, most work involved labor converting calories to joules. While physical labor ranged from brute force manual labor to skilled artisans, most work involved little training, and most humans could be gainfully employed. The industrial economy of the nineteenth century destroyed the jobs of many skilled artisans, substituting their skilled and largely autonomous input, with standardized and synchronized work in large factories. While it replaced skilled artisans, the industrial economy created numerous new jobs requiring skilled cognitive labor, often with extensive math-logic skills. The service economy enhanced the requirement for cognitive labor, ranging from clerks performing arithmetic-logic operations to supervisors applying bureaucratic rules and managers making complex logical decisions. Many of the skills involved learning math-logic skills, storing the knowledge as procedures in the brain, and generating the required output on demand. This demand for intellectual labor continued to rise as the industrial economy switched gears to the service economy, and was further enhanced in the knowledge economy. Just as the division of labor changed the nature of work from skilled craft to routine tasks performed by less skilled labor, and scientific management in a mass production environment created a strictly paced, time pressured work environment, new computer technology changes the nature of the job.

As early as the 1960's, well before corporations began using computers widely in the office, Herbert Simon discussed the potential impact of computers on workplace and changes in the nature of the job(Hilton, 2008). He argued that there would be an increase in the number of jobs involving intense critical thinking and low-tech service jobs for this groups, and a drop in the number of structured high-paying jobs in manufacturing/services(Levy & Murnane, 2005). Shoshana Zuboff noted that computer mediated work blurred the boundary between learning and work, and recommended the development of an "informated" workplace in which workers were supported, rather than merely replaced by computer based automation(Zuboff, 1998).

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A 2007 study by the national research council shows that while employers and pundits have bemoaned the lack of skilled labor in the U.S., especially the shortfall in STEM skills, the economy has generated few jobs with mid-level skills and has created a two-tier job structure with many low-skill jobs and a few very high-skill jobs(Hilton, 2008).Much of the debate about changes to the educational system has centered on how to prepare students for jobs in the tech sector, which is one of few high-paying sectors of the economy with significant job growth. However, the temporary shortfall in the locally available labor pool for these high-skill jobs does not imply future growth in demand for this type of labor. Automation has made many sectors of the economy vastly more productive. Agriculture which used more than half the U.S. workforce at the beginning of the twentieth century, uses less than 2% of the workforce, while agricultural output has increased significantly. A similar trend has occurred globally(World Bank, 2016), with China's drop from over 40% to under 3% of the workforce being the most significant. Manufacturing, especially for basic goods in an industrial setting, also requires very little of the workforce. It is less than 10 per cent of the U.S. workforce, down from 30% in 1950(US. Bureau of Labor Statistics, 2016). While some manufacturing has shifted offshore, many more manufacturing jobs have been automated out of existence. At the same time, highly productive automated production lines have reduced the cost of manufactured goods, driving many labor intensive business models out of business (Charles, 2014).

The Second Machine Age(Brynjolfsson & McAfee, 2015) argues that there will be cheaper "stuff" and therefore material surpluses in the automated economy, accompanied by higher levels of inequality. The workforce of the future needs to be capable of extracting value in an economy permeated by intelligent technologies. Routine jobs will be automated, while non-routine jobs which are difficult to automate will be performed by human workers (Landry, et al., 2005). What exactly are the non-routine jobs ten years from now? Are they jobs with high math-logic skills or creative jobs? While creative jobs appear secure at the moment, there will be very few creative jobs in the marketplace. Learning about these technologies and understanding them is part of good citizenship in the technology infused future. However, human workers need to gain the skills to extract an income from this economy. One part of the economy that has so far proved intractable to automation based productivity gains is healthcare, where the job involves close interaction with the human customer. Since automation in the farm and factory reduces the cost of basic services required by the community, some sociologists and liberal economists have argued for providing these services to the entire community as part of a social guarantee (Boettke & Martin, 2012). However, providing these services does not create a meaningful job for the vast pool of available workers. This paper looks at the need for a job and the type of job available in a technology infused workplace.

2. Emotional labor

Emotional labor refers to the requirement that employees need to display preferred emotions to customers and co-workers during work (Hochschild, 1979). This may include the need to display authority in a tense setting such as policing (Daus & Brown, 2012), demonstrate friendliness to a customer in a restaurant, or express empathy to a patient in a healthcare setting. A major component of emotional labor is affective labor, work carried out to change other people's emotions. Work in a face-to-face setting is typically performed in close contact with the customer. Even when work is performed online, the worker and the customer are often in a synchronous conversation over a voice or text communications channel. Improvements in computer mediated communication (CMC) present a richer interaction between customers and workers performing the job. The emotional state of the worker and the emotional impact on the customer are a critical part of service jobs. A competent worker must display preferred emotional competence. The emotions of the worker are a reflection of personal responses conditioned by the training and reward/penalty structure of the business employing the worker (Voronov & Weber, 2016). Emotionally competent work requires extensive emotional and affective labor.

These preferred emotions need to be displayed to individuals who themselves may not behave appropriately, and at the end of a long work-day. This is labor. While it does not require brute-force of physical labor or intellectual skills and effort of math-logic work, emotional labor imposes a severe burden on the employee. Employee satisfaction and decisions to quit are often based on the burden imposed by emotional labor in the workplace (Fisher & Ashkanasy, 2000). This is not restricted to customer service in the front-office. A study of employees in the South African mining industry showed employees managing a wide range of emotions at work and the use of emotional work, emotional intelligence and emotional distancing to manage their emotional experience (Jonker & Botma, 2012). Human work has always had a collaborative component and an impact on culture as in the case of rice vs. wheat farming (Talheim, et al., 2014).

The need for close collaboration has increased in the economy due to social and technological changes. Tasks can be clearly structured and managed effectively with a clear command and control mechanism in a stable environment. However, it becomes necessary to have a highly responsive workforce in a dynamic environment, and the forces of globalization and technological advancement have enhanced the need for close collaboration. In addition, due to ongoing improvements in robotics and computer based decision-making, automation has eliminated routine human-performed tasks, and human employees are assigned more complex and raw scenarios. Many of these scenarios require expertise from multiple disciplines and a consequent need for team collaboration and of-course many meetings. The response by business to these changes, whether by re-organizing in a matrix structure to handle project based work, or by virtual global teams for problem-solving, has imposed a greater need for collaborative work, which imposes severe time constraints and increases workload pressure (Cross & Gray, 2013). Collaboration requires workers to related closely to other team members, and there is a large emotional and affective component to the labor involved in collaborative work. Many of the new occupations have increasing requirements for service-orientated work and assisting and caring for others. Social skills enable employees to negotiate more effectively. This reduces the co-ordination costs for highly specialized employees, and they can transact business more efficiently and effectively (Deming, 2015). Social skills are defined as skills in coordination, negotiation, persuasion and social perceptiveness.

3. The impact of intelligent systems on employment

This section considers jobs in four service industries, banking, retail, universities, and pharmacies. Intelligent technologies have impacted all these industries and will continue to impact these and other service industries, the primary job creators in the economy. Consider the job of a bank employee and the impact of information technology on the task structure. Banks are service economy organizations providing many jobs requiring strong math-logic skills. Whether with e-banking or the automated teller machine, banking has been on the forefront of adopting new information technologies. What has been the impact of IT based automation in the nature of the job in a bank?

3.1Bank Employment and Automation

Automated teller machines are a clearly visible part bank automation. In the US, the bank automated teller machine (ATM) was first introduced in 1969(Zetter, 2010). By 2014, tellers at one large US Bank, JPM Chase, still handled 42% of bank deposits in 2014, but this was a rapid decline from 90% of deposits in 2007(Abdel-Razzaq, 2015). Even with the widespread use of bank ATMs, the number of bank tellers in the US remained roughly static, for many decades, at around half a million employees. Of course, the population rose from 226 million to 320 million, a 41% increase, along with an increase in bank accounts, so the teller employment share in the labor market dropped. Why did teller employment not crash with the introduction of ATMs? There are a couple of reasons. The first is that banks make most of their revenue from a well-managed loan portfolio, and teller costs have a small impact on the bottom line. The second reason is that de-regulation in the banking industry led to intense competition between banks, with the opening of many new branches, and tellers were viewed as a cost of doing business. As a result, there was a small increase in the number of bank tellers, even while ATMs became more prevalent (Bessen, 2015).

The number of bank tellers appears to have peaked in 2013, and there is likely to be a decline in future (Bureau of Labor Statistics, 2016). Banks are currently implementing video interface ATMs to gain efficiencies through queuing advantages and telecommuting(Anon., 2016) or blending banking with other services, including coffee-shops (Rexrode & Sidel, 2015)! What will tellers do in the future? The un-automatable tasks become the primary task of the human employee. A more competent teller is required; one who can handle complex transactions and other related tasks such as notarization. There will be fewer, but more enriched jobs over the long run. This is a feature of societies which innovate rapidly. A macro-economic study of patents issued per capita has shown a decrease in employment with substantial increases in patents over the short term. While teller employment appears to have withstood the assault of technology for over five decades, the number of back-office jobs in banks has been drastically reduced over the time frame, especially when compared to the growth of the banking sector in the same period.

The rapid reduction in the need for manual check-clearing (Autor, et al., 2002), and preparing account statements eliminated many routine number crunching jobs, while the need for empathy in dealing with customer problems increased the need for manned teller counters; the human face of the bank. A bank with access to IT based automation requires a small cadre of employees with exceptional math-logic skills to run a highly automated bank office, while it needs a large number of customer focused employees capable of emotional labor. These employees complement their math-logic skills with computers, for example when using Excel to analyze data, or when adaptive robots work with human workers in factories (Ziemke, 2001),(Ivanov, 2014). The emotional component of the task, a feature not taught in either the high-school or the college classroom, becomes the most valuable aspect of the service provided by the employee.

3.2 Retail Employment and Automation

One of the most visible features of IT based automation in retail is the point of sale system which speeded up the sales transaction using bar code scanners, identified products and prepared receipts. What does new technology portend for retail employment and the nature of work in this sector? Automated cash registers are more common, but have not yet replaced the manned point of sale system. Stores have attempted to offload the task to the customer, offering self-service as a feature. Unlike bank ATMs which offered 24 by 7 accesses, and enhanced perceived service quality, PoS self-service in retail has not gained customer acceptance since it is viewed as a cumbersome technology by customers. Stores need staff to monitor check-out counters and control inventory shrinkage. RFID embedded grocery products which eliminate the need to scan each item separately may lead to greater acceptance of PoS self-service. Improvements in retail back office automation have rapidly reduced the number of employees processing invoices and payables (Nassauer, 2016), while robots with inventory screening and shelf stacking capabilities will push human employees toward more customer interaction and support.

3.3 Higher-Ed Employment and Automation

College lectures are delivered in a face to face format with small groups of students. While large classrooms with hundreds of students have been used in introductory classes, until recently, technology has not replaced the need for a lecturer in the classroom. Massively Open Online Courses (MMOCs) have provided the option for a single recorded lecture to reach a vast audience. The scalability of the service is supported by new approaches such as automated evaluation of subject mastery by online quizzes, peer based scoring of performance, and instruction format customized by learning style. While the traditional university classroom system is yet to be dis-intermediated by MOOCs, improvements in this technology present an existential threat to the traditional university system. Since any job which requires repetitive tasks can be automated easily by technology, the repetitive delivery of college lectures can be automated by digitization. The emotional labor of helping students facing problems understanding a complex line of reasoning, or chaperoning a heated debate on a controversial issue, requires human involvement. The mentoring and retention of students become more critical as institutions of higher education evolve to meet threats from new technology and cost pressures from budget cuts. A good mentoring relationship yields a closer identification between the mentor and protégé, and personal identification with the other partner is a requirement for successful performance (Humberd & Rouse, 2016). This emotional labor should be the focus of human effort in a technology infused college environment.

3.4 Pharmacy Employment and Automation

While pharmacy jobs in the US are highly paid and highly technical jobs, requiring years of training and state licensing, pharmacy robots have rapidly begun substituting the work of human pharmacists. A $15 million pharmacy robot at UCSF Medical Center has filled 6 million doses with one error, due to bad data input by a human operator. The error rate in a paper based system with doctors writing prescriptions to pharmacists was 2.8%. Robots deliver the medication to the patient's nursing station location with an ID system for withdrawal of drugs and deliver linen to rooms, eliminating the need for nurses to search for material(Bui, 2015).Early versions of pharmacy robots replaced the most common prescriptions filled in hospital pharmacies, often the most commonly used 100 to 400 drugs. Machines progressed from merely complementing humans, such as a bar code system on medication, to substituting humans by fully automating a task (Autor, et al., 2003). There is a potential negative impact to this type of automation when the system may turn over the process to a pharmacist only rarely (Carr, 2015).

Automation induced complacency makes it very difficult for the human to make the correct decisions in an emergency, when a robot controlled system surrenders control. In addition, the use of robots to conduct routine tasks leaves very few humans to take over in emergencies, and sparse staffing can lead to oversight(Watcher, 2015). Medical records for insurance covered patients are largely electronic, and mostly complete, and the pharmacy IT system will detect likely inter-drug interactions. Human pharmacists will always be required in very few, complex medication protocols. However, the vast majority of pharmacy tasks, especially those that require the issue of mass produced, manufactured pills will be likely automated in a few years. The pharmacist's job will evolve to things like monitoring inter-drug interactions for un-insured transient patients, and the emotional labor tasks of handing customer complaints and customers with difficulties in understanding the protocols for use of the medication.

3.5Technological Unemployment

New technology has been shown to substantially increase unemployment over three years, but with no long-term effect (Feldmann, 2013). This argues against long term technological unemployment, the job loss that occurs when new technology automates human performed work. This is not a new argument and has been made since the start of the industrial revolution (Woirol, 2006),(Standing, 1984).Technological breakthroughs will decrease employment in an occupation only when customers no longer view employees as necessary for good service. Hence, music store and book store employment dropped after e-commerce while teller counts are only decreasing now with mobile banking removing the branch from the equation.

4. Change in the Nature of Work in an E-Commerce Workplace

Hackman and Oldham described five dimensions of work quality(Hackman & Oldham, 1980). An employee will be happy when the task is not mind-numbing, its impact is clearly visible to the employee, and there is flexibility and freedom in accomplishing the task. It was believed that economic growth would lead to more enriched and satisfying jobs, with dull and boring repetitive jobs being automated out of existence. However, studies showed that job satisfaction actually decreased during the 1980s and 1990s while automation increased in the factory and the office (Speier & Venkatesh, 2002). Another approach for measuring job satisfaction used the dimensions of skill requirement, autonomy, work effort intensity, rewards (wages), and Job Insecurity (long term support)(Green, 2005). The introduction of work-effort intensity and job insecurity dimensions recognized a major change in the economy with fewer stable jobs and the need to work with the support of intelligent systems. Employees were negatively impacted by the increased intensity of work; the demands on their time and pressure to complete the job grew with increased automation. In addition, there were many layoffs and terminations due to economic factors such as global wage differences, rather than employee performance. This created a sense of helplessness and a greater focus on wages. Why did the intensity of work increase as automation increased? Explanations include the higher level of monitoring with digitized systems where the pace of work is managed by a computer (Walker, 1958), and the fact that intelligent systems automate the routine tasks, leaving only the problem chores for human employees. The routine tasks are "filler" tasks during the work-day with only few complex tasks for the employees. In the past, college counselors had only a few problem cases each day and most cases were routine tasks. Digital systems with automated advising capability took over the simple tasks such as routine counseling for college students, with only the problem cases handled by a much-reduced counseling department.

We have seen examples of the growing substitution of human physical and intellectual labor by IT infused equipment. Human effort becomes valuable in providing emotional and affective labor. While Moore's Law originally only applied to the density of devices packed in a computer processor (CPU) chip, a similar phenomenon of exponential growth has occurred in many other information technology related industries. Intelligent machine capability has improved over time. While there has not been the exponential growth seen in microchips, and the progress of intelligent systems has stalled many times over the past six decades (Halverstein, 2005), the technology is currently in a rapid improvement phase. Over time, intelligent machines always get better at what they do, while human ability changes at the glacial pace of evolution, and human capabilities may improve or even deteriorate with social changes. Hence many of the jobs humans have today will be substituted (not merely supplemented) by intelligent systems.

If the progress of underlying technologies, such as microchips, networks, and data storage continues and does not hit a barrier imposed by the laws of physics, and if new technologies such as quantum computing create vastly more capable devices, there is no question that these jobs will be substituted by intelligent systems. Truck drivers and accountants will be replaced by intelligent systems. What jobs will people have? Complexity is not a source of job protection since intelligent machines can handle mathematical complexity more easily than humans. At present, (some!) humans have the ability to perform emotional labor more effectively than machines. It may even be that humans are not actually better than intelligent machines at emotional labor but that we humans are biased toward humans in the performance of certain tasks.

4.1 The impact of intelligent automation on jobs

One line of reasoning holds that tasks which can be clearly defined are automated and the work assigned to humans becomes cognitively more complex. However, there are interesting issues that have been discussed in the literature, where our pre-conceptions about task complexity need to be re-evaluated. P. W Singer(Singer, 2009) points out that eliminating the pilot from the aircraft makes it more capable, while eliminating a cook from a kitchen makes it less capable. It is more economical to automate a pilot and keep the cook!

Customers prefer human touch-points in the service system. A hotel can automate its accountant before it can profitably automate its wait-staff. It has been argued that jobs involving social skills are less susceptible to automation due the challenges in getting an intelligent system to empathize with a customer (Frey & Osborne, 2013). Parts of a job can be easily automated using present-day technology, even if the entire job is too complex. Hence, a business may need fewer people doing non-automatable parts of a job and the job may evolve, as in the impact of e-coupons on the workload of a marketing manager(Chui, et al., 2015). While less than 5% of present-day jobs could be fully automated using current technology, nearly 45% of work could be automated (McKinsey Global Institute, 2014). Segments of knowledge work can be offloaded outside the organization, with prized experts focusing on the main issue (Dewhurst, et al., 2013). Team based work becomes more important because simple jobs which can be completed by a single person job can be automated and/or globally outsourced easily. In addition, in a world with Dr. Google on call, and cloud based intelligence provided by the likes of I.B.M.'s Dr. Watson, nobody can be a know-it-all, while everybody can claim to know-it-all with the crutch provided by intelligent systems and access to "big data".

Just as physical strength was economically valuable in a manual labor based economy, math-logic skills are valued in present day economy. As machines took over the physical aspect of the job and the workplace automated, physical strength has become an object of superstar value as in sporting events or physical attractiveness. In a similar vein, one can argue that the requirement for math-logic skills, popularized in the widespread drive to introduce more STEM skills in academics, has peaked. This does not mean the skills are not required; they are essential, and procedural thinking is a requirement for complex problem solving. However, business does not need vast armies of office workers with math-logic skills. Rather, a business needs a small core of very skilled and globally competitive employees, who are supported by leading edge technology, and a much larger group of employees (or part time "associates") with high emotional labor skills such as the ability to navigate in complex social situations and to perform under a high level of time pressure.

4.2The impact of e-commerce technologies on the job of managers

In scenarios where there is high task programmability, managers design the process to complete the job, and establish a reward structure for following directions with penalties for digressions. Managers monitor outcomes and use a payment system to encourage employees to maximize output when there is high outcome measurability. When tasks are not programmable or easily measurable, managers need to create and foster a sense of purpose among employees and direct them toward a common goal. A classic example of this type of job is a complex project, but it can also apply to a manufacturing job when there is extensive automation. Since programmable jobs are automated, most remaining jobs involve trouble-shooting and present cognitive challenges. Such jobs need motivated employees who can work both autonomously and in groups as needed, to solve the problem. Managers need to motivate employees and get them to modify their behavior over time (Steers, et al., 2004). Managers add value by being effective motivators for their employees. In an e-commerce workplace, their work involves far more emotional and affective labor than number crunching or application of standard logical procedures.

Managers typically function within a corporate hierarchy, and climb up the corporate ladder from supervisory to senior management roles. The total head-count in businesses has declined with increased automation and the need for very highly specialized skills when problems occur in this highly automated environment. When such problems occur, the organization needs to bring in specialists from outside the organization to troubleshoot and fix the problem. Managers, rather than managing staff reporting to them on an ongoing basis, need to work with specialists brought into the workplace on a short-term basis. In addition, rather than producing the work in-house, many organizations partner with global supply chains to deliver highly flexible and innovative services to customers. Trust in online groups is dependent on personal relationships and may fade over time in the absence of fact to face meetings (Nandhakumar & Baskerville, 2006). The traditional hierarchy has given way to a complex interlinked network, and the corporate structure resembles a lattice with vertical and lateral links (Benko, et al., 2011). Work is highly collaborative and managers need to lead multi-disciplinary teams, where team members are often more skilled in their discipline than the manager. Drucker discussed the approach as orchestration (Drucker, 1988), noting a similarity with an orchestra conductor who works with skilled musicians as partners in a production, rather than being a leader in the traditional command and control structure.

5. Human value-addition in the digital economy

College writing courses have focused on essays and term papers with a focus on good writing, but the definition of good writing has not kept up with the times. Grammar checking tools take the grunt work out of traditional clean writing, and improvements in machine writing will replace most of the writing work of middle managers. Business presentations were adapted to Power Point bullet points, while traditional writers bemoaned the loss of good writing skills, and college courses struggled to update coursework to reflect the new reality of the workplace. Twitter may end up as one of the many failed boom-bust e-commerce models, but tweeting has become a global phenomenon, impacting political campaigns across the world. This new approach to communication was not developed or taught in any traditional college course. A presenter with Power Point skills can earn a good living in the business marketplace, and a good tweeter with a loyal following can succeed in a political campaign. A job after all is a task which provides an income. How do we train people for the workforce of the future?

Quill, a product of Narrative Science takes data and writes a business narrative based on the data. The product started out as a project to generate a written report for baseball games, based on data recorded in the game chart (Podolny, 2015), and specializes in writing narrative reports from business data. Ittakes business financial statements or even data from Google's web site log file, and analyzes it to generate well-written reports. This is what business analysts do; they take data, summarize it, slice and dice it, analyze it, and turn in written reports to help managers make decisions. There has been a lot of commentary on jobs being "exported" in the global economy to low wage areas. While this is indeed true and jobs are exported to low wage islands, the wages are low since the "island" is not well integrated in the global economy. The first job movement starts a trend. After some time, wages rise, and the job gets exported again to yet another low wage island. In the long run, the job is fully automated, and the work returns to the source economy, but as an automated task done by a machine and not as a human performed job.

What are the jobs which "need" to be performed by humans? In a restaurant, patrons will be unaffected by whether the potatoes are peeled by a human or a robot, or if the dishes are cleaned by hand or by a machine. In many cases, they will prefer a machine to a human, since it is likely to do a better job. However, restaurant patrons prefer to be greeted and seated by a human. Friendly and attentive human interaction is the primary reason for preferring a dine-in restaurant over other, cheaper, food options. In Maslow's hierarchy of needs, human wants are placed on a pyramid starting with hygiene needs of food and shelter, and moving up the pyramid to higher level aspirations. Our economy has migrated up this ladder from hunting and agriculture providing food, to manufacturing providing goods to meet our needs for comfortable shelter (clothing, houses, heating/cooling), and services providing aspirational goals such as education and improved wellbeing. Further development in the economy leads to a desire for high quality experiences (Pine & Gilmore, 1999). This provides the value for human contact. While digitization has reduced the value for music albums, and near-zero reproduction costs for digital music have made it widely available, the value of a live-concert experience has increased(IBIS, 2016), and people pay to partake in these concerts, where the music quality is often much inferior to the same song played on a hi-fidelity device. Humans value the human touch in many settings such as in the healthcare and hospitality industries (Kronsberg, 2016).

They will pay for the human touch points. This line of reasoning shows that even as there is a rush to automating many jobs currently held by people, humans will find ways to extract an income from the marketplace, i.e. find a way to get other humans to support them.

5.1 Do we need jobs?

We have discussed how jobs will change with improvement in machine intelligence. Let us review the reason we need and hold jobs.

The full-time, nine-to-five, five day a week job at a defined place of work, with a long-term exclusive employment relationship between an employer and many employees is a post-industrial revolution phenomenon (Thompson, 2015). The job market is on a trajectory from a full-time workforce model which became commonplace after the industrial revolution, to the part-time and transient job model of the pre-industrial era. The division of labor, described by Adam Smith in an 18-step process to make nails (pins), allowed employees with limited skills to make a consistent product at high efficiency, enabling manufacturers to out produce individual craftsmen. This led to the growth of employment in centralized work places, and to the twentieth century "organization man"(Whyte, 1956). Ray Jacques(Jacques, 1996) points out that while "Adam Smith himself noted that it is the customer, and not the manager, who imposes discipline on the employee in the modern organization", organization theorists have focused on the structure and internal processors of the organization, "leaving the employee as merely the tool to deliver the (optimally designed) process". Economists and social commentators have valued employees being cogs in the economic engine, and merely tools to deliver the process, seeing a vast army of employees as the driving force for a healthy economy. Norbert Wiener, more than six decades ago, pointed out that in the face of intelligent automation, human employees will have miserable living conditions if they enter into direct competition with the "automatic machine"(Weiner, 1950). Rather than providing the same services provided by an intelligent system, human workers need to adapt to jobs that meet other needs of customers. We have seen the need for emotional and affective labor. This may not in many circumstances lead to traditional full-time employment. Rather, alternative forms of employment may become traditional.

5.2The freelancing alternative to jobs

Is it necessary for humans to hold "jobs" that tie them to an organization? Work can be classified based on the degree of control exercised by the worker, the length of the employer-employee relationship, and whether the employment is direct or through intermediaries (Cappelli & Keller, 2013). The full-time job, which is the focus of unemployment numbers and studied extensively studied in organization literature, forms a shrinking share of the workforce. Many employees work in part time employment, sometimes between gigs, sometimes as an ongoing part-time job. This of course includes poorly paid part-time instructors teaching most under-graduate university courses. There are many true free-lancers (Smith, 1997), ranging from Uber taxi drivers who may in the future be replaced by self-driven automobiles, to highly paid software developers focused on very specialized knowledge domains.

Whether completing a survey for Amazon's Mechanical Turk or as a crowd-sourced scientist working for Innocentive, a large group of free-lancers performs micro tasks that have to be coalesced into a final product. The manager of this type of enterprise will not have a “command-and-control” operation with an army of similarly skilled workers. The manager has to “coordinate-and-cultivate" the global pool of talent to achieve success. While some part-timers are poorly paid and unhappy with their jobs they do not all aspire to obtain a full-time job. The full-time job is a creation of the industrial economy. Virtual workers who get paid at a much better hourly rate than minimum wage have the benefit of making their own schedules. The part-timer's need for community and reputation can be met by shared workspaces for virtual co-workers (Johns & Gratton, 2013), and social media for reputation (Uber drivers and AirBnB hosts). Brogan and Smith(Brogan & Smith, 2010), in their book, Trust Agents, discuss the growth of individuals as trust centers in cyberspace, by contributing freely to on-line group knowledge and locating themselves as the "agent zero" on a communications node.

6. Summary and Topics for Research

One issue is the ability of many humans to perform emotional and affective labor. According to the BLS one of the fast-growing jobs during the next decade will be elder-care, with a projection of over 424,000 jobs as home health aides, and 580,000 personal care aids, and 312,000 nursing aids, adding over 1.8 million health care jobs by 2022. Most of these jobs have a strong emotional and affective labor component.

Managers need to promote the appropriate emotional climate for the job. Nursing requires intense emotional labor and a study of nurses in a UK hospital shows the link between emotional climate and employee experiences (Brown & Brooks, 2002).

Human employees who are not suited to emotional labor, will quickly become frustrated with the job, and their performance can deteriorate significantly. In such cases, automated care robots will be preferred to emotionally unsuitable humans. Consider the case of an unhappy factory worker who has to stamp out widget day after day, in a mind-numbing "scientifically designed" process, focused on maximizing production efficiency. Ford points out that the worst the frustrated factory worker could do was to swing a hammer at the widgets in the workplace (Ford, 2015). Now consider the case of an elder-care aide, unsuited to emotional labor needed for the job, employed to care for highly dependent retirees. Based on the funding for such care, it will likely be a state-supported entitlement, rather than a service paid for by a well-off clientele; or even a service purchased by young customers (college students) who can borrow against future income. The pay will likely be low. This is one of the high growth occupations in the next decade. The challenge is not to train a future employee in analytical or writing skills. It is to develop emotional and affective labor skills for the job of the future. Is it possible to change emotional skills and capabilities at the age when students are enrolled in post-secondary courses? Does it need to be introduced earlier in the curriculum? Robots with emotional capabilities are on the horizon (Welge & Hassenzahl, 2016). Can human emotional labor successfully compete with emotional robots to provide the level of employment the economy needs for traditional full employment?

A study at the University of Pennsylvania showed that students in the MBA program preferred human decision on college admission to an algorithm based computer decision, even when data on error rates of human decision makers were shown to be higher than that of the algorithm. The term "algorithm avoidance" refers to our knee-jerk reaction to preferring human to machine decisions (Frick, 2015). Does this mean humans will hold jobs merely because of human biases of man over machine? Robot emotions are poor at present but getting better. Snackbot, a non-anthropomorphic robot capable of delivering snacks to people in a building and carrying on a limited vocabulary conversation, exchanged comments with humans and sometimes made complementary comments. The robot aroused a range of human emotions in its subjects over a four-month period, including even jealousy when other employees received good comments (Lee, et al., 2012). Do we face a future with most people working part-time gigs, fulfilling temporary needs for "authentic “human contact? Further research and discussion on this topic is essential for educators and business managers developing long term strategies for their organizations. Many researchers have discussed the challenges of the "jobless future". While some have argued that technological unemployment is not a threat based on the experiences of the industrial and service economies, others have argued that a significant segment of the workforce will be superfluous in the technology infused future workplace. There is a growing need for emotional labor which is poorly met by present day higher education, with its fixation on math-logic and traditional writing skills. Managers and employees need to hone their emotional and affective labor skills to be successful in the marketplace.

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