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**ARTICLE**

**Are the College Graduates Ready for Future Employment?**

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**Summary**

Most of the data processing and analytical tasks are becoming too complex for humans to process. 30% of the jobs are related to data processing and analysis which can be automated in future. Automation is no longer a differentiator but a necessity. It is moving beyond manufacturing shop floors and finding its way into functions like finance, order processing and human resources.

School and college based programs are supposed to prepare the young students for the corporate world however most courses fall short on this aspect. Young professionals entering the corporate world end up getting most of the experience on the job since companies have the vested interest to invest in the workforce of the future. However this situation is going to change in coming years when a lot of entry level jobs might get eliminated due to automation and young college graduates will find themselves in a tough spot. There is a need to overhaul the education system to make the next generation ready for the corporate world. We can no longer rely on the assumption that companies will continue to provide on the job training in future since most of the entry level jobs will get automated and will require someone with the right skills to manage and maintain the automated workflow.

**The Main Article**

The potential of artificial intelligence and advanced robotics to perform tasks once reserved for humans is no longer reserved for spectacular demonstrations by the likes of IBM's Watson, Rethink Robotics' Baxter, Deep Mind, or Google's driverless car. Just head to an airport: automated check-in kiosks now dominate many airlines' ticketing areas. Pilots actively steer aircraft for just three to seven minutes of many flights, with autopilot guiding the rest of the journey. Passport-control processes at some airports can place more emphasis on scanning document bar codes than on observing incoming passengers. The road ahead is less about automating individual jobs wholesale, than it is about

automating the activities within occupations and redefining roles and processes. Certain activities are more likely to be automated, requiring entire business processes to be transformed, and jobs performed by people to be redefined, much like the bank teller's job was redefined with the advent of ATMs. Although we often think of automation primarily affecting low-skill, low-wage roles, it has been discovered that even the highest-paid occupations in the economy, such as financial managers, physicians, and senior executives have a significant amount of activity that can be automated. Automation technology can already match, or even exceed, the median level of human performance required. For instance, Narrative Science's artificial-intelligence system, Quill, analyzes raw data and generates natural language, writing reports in seconds that readers would assume were written by a human author. Amazon's fleet of Kiva robots is equipped with automation technologies that plan, navigate, and coordinate among individual robots to fulfil warehouse orders roughly four times faster than the company's previous system. IBM's Watson can suggest available treatments for specific ailments, drawing on the body of medical research for those diseases.

Automation is likely to change the vast majority of occupations—at least to some degree—which will necessitate significant job redefinition and a transformation of business processes. Mortgage-loan officers, for instance, will spend much less time inspecting and processing rote paperwork and more time reviewing exceptions, which will allow them to process more loans and spend more time advising clients. Similarly, in a world where the diagnosis of many health issues could be effectively automated, an emergency room could combine triage and diagnosis and leave doctors to focus on the most acute or unusual cases while improving accuracy for the most common issues. Lawyers are already using text-mining techniques to read through the thousands of documents collected during discovery, and to identify the most relevant ones for deeper review by legal staff. Similarly, sales organizations could use automation to generate leads and identify more likely opportunities for cross-selling and upselling, increasing the time frontline salespeople have for interacting with customers and improving the quality of offers.

This leads to how the current education system has to change its direction towards providing and developing more relative skills to survive in the future.

### **The Future of Creativity and Meaning**

Capabilities such as creativity and sensing emotions are core to the human experience and also difficult to automate. The amount of time that workers spend on activities requiring these capabilities, though, appears to be surprisingly low. We can lament that this reflects the impoverished nature of our work lives, they also suggest the potential to generate a greater amount of meaningful work. This could occur as automation replaces more routine or repetitive tasks, allowing employees to focus more on tasks that utilize creativity and emotion. Financial advisors, for example, might spend less time analyzing clients' financial situations, and more time understanding their needs and explaining

creative options. Interior designers could spend less time taking measurements, developing illustrations, and ordering materials, and more time developing innovative design concepts based on clients' desires.

Although a strong background in traditional "hard" skills like writing, mathematics and science will always have its place in academic and career worlds, an increasing number of employers desire prospective employees with "soft" skills.

Soft skills include the ability to adapt to changing circumstances and the willingness to learn through experience, and are applicable across multiple disciplines and careers. It is important for students to develop soft skills as they prepare for college and as they graduate and enter the workforce. There are five important soft skills college-bound students require.

1. Collaboration: It is imperative for college-bound students to function efficiently and appropriately in groups, collaborate on projects and accept constructive criticism when working with others. People who succeed only when working alone will struggle in college and beyond, as the majority of careers require collaboration.

Students can develop the skills necessary to effectively work with others in numerous ways, including participating in athletics and extracurricular activities. They can also opt to complete team-based projects such as service activities during their later years in high school.

2. Communication and interpersonal skills: A common complaint among employers is that young people do not know how to effectively carry on a conversation and are unable to do things like ask questions, listen actively and maintain eye contact.

The current prevalence of electronic devices has connected young individuals to one another, but many argue it has also lessened their ability to communicate face-to-face or via telephone. These skills will again be important not only in college, where students must engage with professors to gain references and recommendations for future endeavours, but beyond as well.

An inability to employ these skills effectively translates poorly in college and job interviews, for instance. High school students can improve these traits by conversing with their teachers in one-to-one settings. This is also excellent training for speaking with college professors. Obtaining an internship in a professional setting is also a wonderful method to enhance communication and interpersonal skills.

3. Problem-solving: Students will be faced with a number of unexpected challenges in life and receive little or no aid in overcoming them. They must be able to solve problems in creative ways and to determine solutions to issues with no prescribed formula.

Students who are accustomed to learned processes, and who cannot occasionally veer off-course, will struggle to handle unanticipated setbacks. Students can improve problem-solving abilities by enrolling

in classes that use experiential learning rather than wrote memorization. Students should also try new pursuits that place them in unfamiliar and even uncomfortable situations, such as debate club or Science Olympiad.

4. Time management: Whatever structure students may have had in high school to organize their work and complete assignments in a timely manner will be largely absent in college. It is imperative that they be fully self-sufficient in managing their time and prioritizing actions.

The ability to track multiple projects in an organized and efficient manner, as well as intelligently prioritize tasks, is also extremely important for students long after graduation.

Students can improve this skill by assuming responsibility in multiple areas during high school – nothing develops an ability to prioritize faster than necessity – or gaining professional employment experience through internships, volunteer work or other opportunities.

5. Leadership: While it is important to be able to function in a group, it is also important to demonstrate leadership skills when necessary. Both in college and within the workforce, the ability to assume the lead when the situation calls for it is a necessity for anyone who hopes to draw upon their knowledge and "hard" skills in a position of influence.

Companies wish to hire leaders, not followers. The best way for students to develop this skill as they prepare for college is to search for leadership opportunities in high school. This could mean, among other things, acting as captain of an athletic team, becoming involved in student government or leading an extracurricular group.

### **Process Automation**

Today, almost all automation and control systems are designed, developed and built using data processors, microprocessors, DSPs or any other processing device, which execute instructions derived or compiled from a software program. To design and develop these software applications for a controller or automation device, special skills and a good understanding of the automation and control problem are required. Many designers and programmers are around, building web servers, information systems, business processes management systems, and many other important and valuable infrastructures based on computing platforms. But when it comes to industrial process controllers, the designer recognizes that a new design and programming paradigm is required. This is well accepted throughout the automation and control industry.

### **Real-time Processing**

The concept of real-time processing is the main paramount that any engineer must take into account when a new automation and control system is designed, developed and deployed. This is, in other words, what differentiates automation software designers from designers of any other application software. It's not better or worse, easier or harder; it's just different.

## Human Machine Interface

Engineering technology is living in the world of interconnectivity. The Internet of Things (IoT) is a dominating trend with industrial and consumer products being connected via the internet. To operate these devices, Human Machine Interfaces (HMIs) are becoming more sophisticated. HMI, in its simplest terms, includes any device or software that allows you to interact with a machine. This can be as simple and ubiquitous as the traditional single-touch display mounted on a machine or as technologically advanced as a multi-touch-enabled control panel or even connected mobile technology such as smartphones and smartwatches.

To conclude the universities and colleges need to consider the influence, impact of technology on automation and future employment and need to offer courses that can help the students develop the required skills for future success.

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