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Research Article

Influence of Workplace Technology on Job Skill in selected Food and Beverage Firms in Lagos, Nigeria

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Abstract

This study investigated the influence of workplace technology on job skills among employees of the food and beverage industry in Lagos, Nigeria, using the Labour Process Theory. Data were collected through questionnaire administered to 447 respondents who are working at two food and beverage companies in Lagos and in-depth interviews with 8 Units' Heads. Burawoy's classification of technological levels into low, medium, and high was adopted. Quantitative data were analyzed using descriptive statistics and One-way ANOVA, while qualitative data were analyzed with content analysis. The results indicated that workplace technology had different influence on job skills across the three technological level units and was statistically significant in Firm A. Technological transition led to decreased job skills, particularly when moving from low-speed line to high-speed line and Information and Technology-support equipment. The evolution of food and beverage analyzers from manual to semi-automation and full-automation also decreased job skills. Workplace technology had negative influence on job skills in both Firm A and Firm B. Therefore, capacity-building programs should be implemented by enterprise owners to help workers adapt to the emerging challenges posed by workplace technology shaping the activities of firms. Organisations' management should ensure adequate human capital development for employees to adapt to the emerging technological trend and ensure proper use of the equipment adopted by organizations. Overall, developing one's skills is a solution to prevent technology from causing a decline in skills because people possessing creativity, inventiveness, imagination, innovation, and ambidexterity are not affected by technological advancements in the post-Fordist era.

Keywords: Workplace technology, job skills, capacity-building programs, food and beverage industry, Lagos

JEL Codes: M11,M12,C12

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Araştırma Makalesi

Lagos, Nijerya'daki seçilmiş Yiyecek ve İçecek Firmalarında İşyeri Teknolojisinin İş Becerisi Üzerindeki Etkisi

Idowu Sulaimon Adeniyi [a]& Samuel Ayodeji Omolawal [b]

Öz

Bu çalışma, İşgücü Süreci Teorisini kullanarak Lagos, Nijerya'daki yiyecek ve içecek endüstrisindeki çalışanlar arasında işyeri teknolojisinin iş becerileri üzerindeki etkisini araştırmıştır. Çalışmanın verileri, Lagos'taki iki yiyecek ve içecek şirketinde çalışan 447 katılımcıya uygulanan anket ve 38 Birim Başkanı ile yapılan derinlemesine görüşmeler yoluyla toplanmıştır. Çalışmada, Burawoy'un teknolojik seviyeleri düşük, orta ve yüksek olarak sınıflandırma modeli benimsenmiştir. Nicel veriler tanımlayıcı istatistikler ve Tek Yönlü ANOVA kullanılarak, nitel veriler ise içerik analiziyle analiz edilmiştir. Sonuçlar, işyeri teknolojisinin, üç teknolojik seviye birimi genelinde iş becerileri üzerinde farklı etkiye sahip olduğunu ve Firma A'da istatistiksel olarak anlamlı olduğunu göstermiştir. Teknolojik geçiş, özellikle düşük hızlı hattan yüksek hızlı hatta ve Bilgi ve Teknoloji destek ekipmanına geçerken iş becerilerinin azalmasına yol açmıştır. Yiyecek ve içecek analizörlerinin manuelden yarı otomasyona ve tam otomasyona doğru evrimi de iş becerilerini azaltmıştır. İşyeri teknolojisinin hem Firma A'da hem de Firma B'de iş becerileri üzerinde olumsuz etkisi olduğu gözlemlenmiştir. Bu nedenle, çalışanların, firmaların faaliyetlerini şekillendiren işyeri teknolojisinin ortaya çıkardığı zorluklara uyum sağlamasına yardımcı olmak için işletme sahipleri tarafından kapasite geliştirme programları uygulanmalıdır. Firmaların yönetimi, çalışanların ortaya çıkan teknolojik eğilime uyum sağlamaları ve kuruluşlar tarafından benimsenen ekipmanı uygun şekilde kullanmaları için yeterli insan sermayesi gelişimini sağlamalıdır. Sonuç olarak, çalışanların becerilerini geliştirmek, teknolojinin becerilerde düşüşe neden olmasını önlemenin bir çözümüdür çünkü yaratıcılığa, yaratıcılığa, hayal gücüne, yenilikçiliğe ve ikincil becerisine sahip insanlar post-Fordist çağdaki teknolojik gelişmelerden etkilenmemektedir.

Anahtar Kelimeler::işyeri teknolojisi, iş becerisi, kapasite geliştirme programları, yiyecek ve içecek endüstrisi, Lagos

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Introduction

Workplace technology, which involves using technological innovations to carry out job functions and optimize productivity and efficiency, has transformed work processes and bolstered organizational productivity on a global scale. In Nigeria's food and beverage industry, technology has brought innovations that have implications for job skills. Technological innovation has been driven by the necessity to find solutions to emerging challenges caused by population explosion (Forster, Hergeth, Naujoks, Krems & Keinath, 2020). Technology and workforce are the most critical factors that give a firm its distinctive character (Brauner, 1964). It is a catalyst that drives the economic growth and development of nations (Ajao, Umar, Khan, & Ali, 2021). However, despite the advancement in technology, it remains a means to an end and a tool devised to execute job functions, and not an end in itself.

The Marxian conceptualization of advanced technology resulting in increased loss of handicraft skills is central to the investigation of the influence of technological advances on work (Oriola, 2017). The modes of production of the capitalists usually break down the multifarious work procedures into slighter, easier, and ever-unskilled labor being automated (Braverman, 1974). There are two opposite perspectives regarding skills on the future of capitalist societies, which are positive and destructive (Gallie, 1978; Vallas, 1988; Heisig, 2017). The two perspectives of the future of work are closely associated with a corresponding, but opposing, optimistic or deleterious picture of the past regarding skills.

The supporters of deskilling and work degradation, according to Heisig (2017), believe that division of labor and mechanization of work markedly destroy the skills of artisans, craftsmen, serfs, foremen, and journeymen. On the other hand, the proponents of the Enskilling School of thought conceive uneducated and unskilled rural workers as the genesis of skill development under the capitalist modes of manufacturing. Heisig (2017) posits that both deskilling and upskilling perspectives are quite legitimate and can make credence to supportive evidence. Despite the stance that one holds, it cannot be denied that literacy and the general educational level of the population of industrialized nations have exponentially risen, and that the growing proportion of the population has become fully integrated into the realm of employment (Heisig, 2017). The Deskilling School of Thought is a Marxist School of Thought championed by Marx, Braverman, and their adherents, who unanimously discountenance the Enskilling position by adducing that the dawn of automation creates class structure between the management and the workers, which results in skill decline.

The International Standard Organization's Law 2005 (ISO 22000; 2005) states that the food and beverage industry should move from low technology to semi-automated technology to full automation technology to reduce contamination caused by human intervention in the production process. This law is usually implemented in collaboration with the Standard Organization of Nigeria (SON) to stimulate the transition of the industry from low technology to medium and high technology. As a result, a study was conducted to investigate the influence of workplace technology on job skills in selected firms in Lagos, Nigeria. The rise of industrial capitalism had a significant consequence, which was the destruction of handicraft skills. This was associated with the introduction of machinery and assembly-line processes. In the pre-Fordist era, employees such as serfs, craftsmen, peasants, foremen, artisans, and journeymen enjoyed considerable efficiency, autonomy, expertise, dexterity, work challenges, and work intrigues in planning, monitoring, and wage determination of their jobs. However, with the advent of Fordism, and following the pitfalls of Taylorism, the human factor was not taken into account. As a result, in the post-Fordist epoch, technology does the bulk of the tasks meant to be executed by employees. As tasks are increasingly automated in the workplace, the proportion

of employees goes by the pace and rhythms of equipment utilized, particularly in the production process, as work requires little input from workers since robots, digital platforms, and artificial intelligence carry out the bulk of the tasks. This is due to the fact that automated technology possesses certain features which are equal to those of human beings. Promoting digital literacy and social equity in education is a critical endeavour in our increasingly digital world (Eden, Chisom & Adeniyi, 2024).

Technological advances such as virtual reality, drones, augmented reality, numerically controlled machinery (NCM), hybrid zoom, Skype, digital zoom, Facebook, Bluetooth, Xender, Play Store, Messenger, Instagram, Microsoft Team, Mixlx, robots, machine learning, artificial intelligence, electric cars, driverless trucks, flying cars, Bluetooth, Ethernet, block chain, and nano-technology, define and dominate the current digital revolution. Given these advances, 30% of workers usually work with machines whose rhythms and cycles shape and determine their specific tasks and work pace. In Nigeria, the post-Fordist era is significantly transforming the nature of work due to technological advances and changing work requirements. With tasks becoming increasingly automated, jobs and skills are being lost, and other consequences of technological advances are causing employees to become deskilled, enskilled, and multi-skilled in their jobs. As the workplace becomes more automated, it becomes less challenging, less intriguing, and less self-fulfilling.

In Lagos, Nigeria, Firm A and Firm B employees in the food and beverage industry use computer-integrated manufacturing systems, programmable logical controls, IT support equipment, and automated food and beverage analyzers to complete tasks. This is in contrast to when tasks were done manually with low-speed lines, and manual food and beverage analyzers. With the bulk of tasks being done by technology-driven processes such as band dryers, extra tigatten, turbo bonal conveyor, Kilone, domino, and mojourner, employees are required to press buttons to perform their duties. This tends to make employees less proficient, especially in the production process.

Most studies on the influence of technology on work have focused on various sectors, such as printing, textile, automobile, auto-component, construction, banking, chemical, oil-refining, agriculture, and aviation. However, little or no attention has been paid to the influence of workplace technology on job skill in the food and beverage industry during the post-Fordist era. Additionally, studies relating to the influence of technology on job alienation and job satisfaction have been conducted in Nigeria, while the influence of workplace technology on job skill seems to have been neglected.

To address this gap, this study was designed to investigate the influence of workplace technology on job skill in selected firms in Lagos, Nigeria, and to identify the dominant trends among the deskilling, enskilling, and skill divergent tendencies. The researcher investigated the influence of technology on job skill in the study area to achieve the research objective.

Literature Review

Technology

Technology has been an integral part of human history, and research on how it affects job skills is ongoing. It remains a critical element that sets companies apart from each other. James Watt's invention of the steam engine in the 17th century was a significant milestone in the discussion of technology and work. The period from the Paleolithic era to the 18th century marked a time of significant technological advancement. The Neolithic era, in particular, sheds light on how technology developed during the Stone Age when humans used stones to make

fire. The steam engine, also known as the Bolton and Watt steam engine, was invented in 1775 and played a crucial role in the Industrial Revolution of the 16th century. Notably, this revolution gave rise to the field of Sociology. The second industrial revolution began with the development of electric generators and power plants in 1870. This led to the creation of the first modern moving assembly meat industry in Cincinnati and Chicago. In 1913, Henry Ford invented the Belt Conveyor for the moving assembly in the vehicle industry, which led to the mass production of Model-T automobiles and a sharp decline in automobile prices. During this time, there was a division between cerebral and physical labor. Management was responsible for work planning, while shop floor employees were responsible for carrying out work execution. This led to the introduction of a hierarchical organizational structure, which increased productivity and effectiveness at work. Business owners also utilized robots to carry out job functions, further optimizing efficiency and effectiveness in the workplace.

Technology and Job Skill

To illustrate the importance of skill in studying the impact of workplace technology on work, it has been found that as workplaces become more automated, work becomes less challenging, less demanding, less intriguing, and less autonomous (Vallas, 1988). Skill is defined by Braverman (1974) as the ability of workers to conceive and complete complex tasks in a self-directed and autonomous manner. Edgell and Granter (2019) argue that expertise is achieved when a worker focuses on a small part of the production process, which leads to specialization of work and the development of skills. Smith (1776) defines dexterity as the ability to execute job functions independently, which is achieved by specializing in the production of one thing. However, despite the benefits of utilizing tools and technology, Smith (1776) argues that it ultimately leads to a dissatisfied workforce due to the mundane and routine work processes that can cause boredom and monotony. Marx (1844) believes that the division between skilled and unskilled workers is the basis for class structures, and the separation of hand and mental work leads to a decline in knowledge and intelligence. Marx argues that the fragmentation of the labor process reduces a worker's ability and pride in their work, as it leads to the loss of comprehensive and integrated knowledge about craftsmanship.

Marx argues that skill is the basis for class distinctions between the management and workers. This idea suggests that the capitalist system's class structure is a result of skill. Braverman's thesis builds on this idea by stating that the division of labour into less skilled workers leads to the elimination of handicraft talent. He argues that as work processes are divided and tasks are mechanized, skills are lost. Braverman points out that there is a significant difference between the conception of work and its execution.

Technology and Deskilling

Technological advancements have led to the deskilling of various working-class jobs (Thompson & Smith, 2009). The rise of industrial capitalism has resulted in the destruction of skill due to the adoption of machinery and assembly-line processes (Foster, 2010). Braverman's thesis on deskilling has ignited a labour process debate among scholars, leading to a prolonged bout of Bravermaniac interpretations of work as broken down and mechanised in capitalist societies, resulting in decreased worker skill levels (Edgell & Granter, 2019). Workplace technology engenders skill decline as technological advancements have been shown to change the required nature of work contents in workplaces (Thompson & Smith, 2009).

It is important to note that the belief that technology results in skill decline creates a class structure known as proletarianisation, which can be compared to occupational downgrading. This is regarded as techno-pessimism, which suggests that the dichotomy

between manual and mental tasks being mechanised ultimately destroys handcraft skills. Scholars have been grappling with how technology erodes workers' skill levels. Academic literature has established that Marx in 1844 was the historical antecedent of the influence of technology on workers. Marx describes the social relations that characterise the entrepreneurial system of the economy, which swallow the knowledge and intelligence of workers by breaking down the entire work into smaller, simpler tasks and mechanising them, thus preventing workers from imaginatively fabricating the products of their own hands. Marx particularly criticises the division of mental and hand tasks, which he describes as limiting the dexterity of workers. Burawoy (1985) argues that social relations in capitalist modes of production can be understood in terms of interactions between business owners and workers in the production process. Marx's main argument is that as work becomes more broken down and mechanised, the knowledge and intelligence of the workers diminish astronomically.

Technology and Enskilling

The principal relevance of the subject matter of enskilling to this paper lies primarily in the notion that there are two sides of a coin to any phenomenon. The whole concept of enskilling came about in reaction to the Marxian conceptualisation of advanced technology resulting in losses of knowledge and intelligence. The notion of enskilling is otherwise known as occupational upgrading which is at the same time regarded as techno-optimism and which essentially connotes a scenario whereby the upgrading of technology results in skill rise that removes the drudgeries of work which by extension results in a class structure known as professionalisation.

It is expedient to note that Robert Blauner is regarded as the most prominent proponent of the concept of enskilling. Blauner carried out an empirical study in four different industries; these are printing, textile, automobile and chemical industries. It is worth stating that his book essentially focuses on the attitudinal study of job dissatisfaction of employees. Blauner (1964) asserts that employees in printing and chemical industries enjoyed considerable autonomy by virtue of their skill in work exertion more than their counterparts in textile and automobile industries. He discloses that employees in printing and chemical industries did not switch allegiance from one firm to another given that they derived fulfilment in exerting their skills, whereby the management did not call the shots for them as it was really the case for their counterparts in assembly plants and textile industry.

Methodology

This study was conducted in Lagos State, Nigeria. Lagos State is the nucleus of industrial activities in Nigeria. It has the highest number of food and beverage firms in Nigeria (Ene-Obong & Sanusi, 2020). The basis for choosing the food and beverage industry is that it is viewed as the second to the largest industry in Nigeria and it is critical to expanding economic prospects (Babajide, 2010). Ethics Committee Permission obligation has been introduced in every interview techniques conducted after 2020. However, since this study was conducted before 2020, ethics committee approval was not obtained. The study was genuinely carried-out in 2018/2019. Firm A was selected because it is the biggest food and beverage company in the universe measured by revenue, diversity, value-adding and per capita income while Firm B was chosen because it is a biggest indigenous conglomerate when it comes to brewing alcoholic and non-alcoholic beverage in Nigeria. The two firms are manufacturing companies that deploy technologies to manufacture commodities; they recruit workers for the manufacturing of goods; they are well-known firms and they have numerous units which vary considerably in terms of job functions. Firm A signifies Societe Anonyme which indicates corporation being organised and it exists under the laws of Switzerland and having its registered office situated in Vevey,

Canton of Vaud, Switzerland and its permitted successors and assigns (Global Negotiator 2014). Firm B has a rich portfolio. Since the establishment of Firm B in 1946, it has become the nation's flagship brand and the Nation's number 1 Beer that was Star Lager Beer in 1949 which has exponentially expanded its Lager portfolio and introduced an unmatched range of Non-Alcoholic, Stout, and Spirit Drinks.

The study design is explanatory, both quantitative and qualitative techniques of study were adopted. Technology was classified into low, medium and high levels. Bowoy's (1985) model of classification of technological levels into low, medium and high was adopted. Data were elicited from a sample size of 447 employees involved in questionnaire administration. The study employed Taro Yamane's formula from 1967 to determine the sample size. The hypothesis was formulated in the null form, stating that there is no significant difference in job skill between the selected firms in relation to their workplace technology. The study involved 38 Unit Heads, one from each unit of both firms, who participated in qualitative research through in-depth interviews (IDIs). The study sample was selected from the lists of permanent staff obtained from each of the two firms covered.

The process of analyzing qualitative data obtained from study participants involved several steps. Firstly, a clear research question and objective were established to guide the analysis process. Next, sampling was done to determine the sample size and selection criteria for the data that was analyzed. The data was then gathered through in-depth interviews with unit heads across the selected firms. The data was prepared by organizing and transcribing the interviews. After this, the coding process began. A code scheme was developed, and different segments of data were systematically categorized and labelled according to themes, concepts, and patterns. Each piece of data was assigned relevant codes. The coded data was then analyzed to identify patterns, themes, and interconnectedness among variables. Techniques such as regular comparison, thematic analysis, and narrative analysis were used for this purpose.

The findings were then interpreted rigorously within the context of the research objectives, taking into account the implications and meanings of the identified patterns and themes. The findings were validated through techniques such as member checking, peer debriefing, or triangulation to ensure the validity, reliability, and credibility of the analysis. Finally, the results were disseminated through a written report. The presentation of the findings was done logically and coherently and serves as supporting evidence from the data analysis. This process ultimately leads to new insights emerging from the study.

A total of 18 In-depth interviews (IDIs) were conducted with the Unit Heads of Firm A whereas 20 IDIs were conducted with the Unit Heads of Firm B. The first stage: Nigeria was stratified into 10 industries thereby food and beverage industry was chosen. The rationale behind its selection is that the food and beverage industry is central to human health (Pfizer, 2007). It is unique in expanding economic opportunities and it is almost the largest sector in the Manufacturing Association of Nigeria (MAN) which includes primary sector and secondary sector (Babajide, 2010). The second stage: Nigeria was stratified into six geo-political zones and the South-west was purposively chosen. The rationale behind its selection is that the South-west has forty food and beverage firms out of the 79 firms in Nigeria (Jawando & Adenugba, 2014). From South-west, Lagos was purposively chosen owing that it is the industrial hub of Nigeria and it has the highest number of food and beverage firms in Nigeria (Ene-Obong & Sanusi, 2020). The third stage: Food and beverage industry in Nigeria was stratified into 79 firms thereby Firm A and Firm B were purposively chosen. The justifications for the selections of the two firms are based on the fact that the former is the largest Food and Beverage Company in the whole world (Sorvino, 2022) and the latter is the pioneer and the biggest indigenous

alcoholic and non-alcoholic company in Nigeria (Reutr, 2021). Finally, the fourth stage: The employees in the selected firms were selected through random sampling.

A total of 255 copies of questionnaire were retrieved from respondents in Firm A while 142 copies were collected from the respondents in Firm B. Out of the 397 questionnaires received, the copies that were retrieved indicated an 88.8% response rate. The data collected through a structured questionnaire were analyzed using the Statistical Package for Social Sciences (SPSS) (version 24) using tables, frequencies, and percentages. An analysis of variance (ANOVA) of independent measures was performed to investigate the impact of the independent variable on the dependent variable (job skill). The study made use of labor process theory, which offered theoretical justifications for how an employee is materialized in terms of planning, execution, control, skills, and wages for labor articulated in a capitalist economy (Marx, 1844) and objectified in terms of use value.

Responses that were generated through the questionnaire which were administered to the workers in the two firms were analysed with the aid of the Statistical Package for the Social Sciences (SPSS). For the avoidance of obscurity, this was done in three different levels which included Univariate analyses of the socio-demographic characteristics of the respondents and bivariate analysis of independent and dependent variables. This covered such areas as age, marital status, religion, educational backgrounds, take-home income, work experience, cadres, and ethnic backgrounds of respondents given the diverse heterogeneous nature of Lagos State where the research was carried out. In similar vein, at the bivariate analysis level, descriptive statistics, One-way ANOVA was used to show influence of the independent variable (technology) on dependent variable (job skill).

It is worthy of affirming that to test the influence of technology on average job skill Analysis of Variance (ANOVA) was carried out. Besides, comparisons of the differences in the means of job skill were done to establish the exact technological level across the units of the firms that accounted for the statistical significance. Both firms granted ethical approvals; Firm B gave a similar ethical approval with reference number H-Rewards/20223/003, while Firm A gave its permission with reference number HRD/SL/IE/AFF. The researcher worked assiduously to make sure that the rights to privacy and the ethical use of data were rigorously followed. This study was conducted in an open and unbiased manner.

Job Skills

The skill variable was measured using a Likert scale consisting of items such as autonomy, knowledge, dexterity, expertise, ability, competence, capability, coordinating capacity, ingenuity, understanding, confidence, prowess, acumen, work challenges, discretion, work intrigues, judgment, and clear idea. Each item was scored on a scale of 1 to 5, with 1 being "very low" and 5 being "very high". Section 1 of Appendix I contains the questions asked about job skill from respondents in both firms. A composite score was derived by adding up the total number of items used and dividing it by 2. The table containing the reliability measures of job skill can be found in the Appendix section of the manuscript.

Reliability Test of Job Skill

The items used in this study were obtained from the works of Gallie (1978), Lee (1981), Vallas (1988), and Spencer (1990). These items were subjected to a reliability test, and those that did not contribute much to the reliability of the scale were eliminated if their Cronbach's Alpha coefficient values were lower than .70. This is because .70 and .60 were considered reliable based on the principle of Cronbach's Alpha.

After summing up the composite scores of the variable items, the data were aggregated to the unit levels. The composite scores of the individuals' data were then aggregated to the unit level. The average percentage of job skill was also aggregated to unit levels rather than individual levels. The reason behind this data aggregation was that the technological levels were at the unit/departmental levels, and units were the focus of the study. Technology was rated as low, medium, or high, so it was essential to examine the variations of the average of job skill across the technological levels. The combination of these variable items gave rise to how the variable of skill was derived. In this respect, a one-way analysis of variance was used because it is a comparative test of the effect of an independent variable on dependent variables.

Results and Discussion

Brief Social and Demographic Characteristics of Respondents

Regarding the age of the respondents, it was found that in Firm A, the minimum age was 21 years old, and the maximum age was 57 years old. In contrast, it was found that in Firm B, the minimum age was 20 years old, and the maximum age was 48 years old. It was also discovered that respondents' average age in Firm A was 32.20, whereas respondents' average age in Firm B was 32.61. For respondents in Firm A, the age standard deviation was 5.689, but for respondents in Firm B, it was 5.028. The preponderance of the employees in both firms was relatively young. On the educational qualifications of respondents when they were being recruited were investigated and the findings indicated that the majority of the respondents (76.1%) and (73.8%) from Firm A and Firm B respectively had tertiary educational qualifications when they were recruited. From the same table, further educational attainments of the respondents after recruitments were investigated and the result depicted that the majority of the respondents in Firm A were (56.0%) and the respondents in Firm B, (56.0%) indicated that further educational attainment after recruitment did not apply to them while (29.3%) and (39.0%) had further educational attainments.

Note: 'N' indicates the total number of the units in each firm while 'n' depicts the number of units with low, medium and high technological levels in each firm.

Table 1

The Extent of Influence of Technology on Job Skill in Firm A and Firm B

	Firms					
	Firm A (1866) (n=18 units)			Firm B (1946) (n=20 units)		
	Tech levels			**Tech levels**		
	Low		Medium	High	Low	Medium	High
	Variables	(n=2)11.1%	(n=11)61.1%	(n=3)27.8%	(n=4)20.0%	(n=13)65.0%	(n=3)15.0%
	job skill	66.75	67.81	60.30	65.69	69.54	73.00
	f-ratio	3.96			1.31		
	Df	2/15			2/17		
	p-value	0.04					
	comparison test						
		1	**2**	**3**			
1	low tech	-					
2	medium tech	-1.056	-				
3	high tech	6.448	7.504*				

Note. Researcher's Computation

Table 1 above presents the extent of influence of technology on job skill in selected firms. In an attempt to examine the influence of technology on job skill across the three levels of technology, a one-way analysis of variance (ANOVA) was used to test influence of technology on job skill. It is essential to note that the units in the selected firms were more technologically-inclined than others. Having classified the units across both firms in terms of low, medium and high technological level units, influence of workplace technology on job skill was examined which was revealed that it varied considerably across the units of both firms. This was done by testing the mean values of job skill. The variations in the mean values of job skill across the three technological levels appositely signify that workplace technology differently influenced job skill. As depicted explicitly in the table 1, the mean values of job skills (66.75, 67.81 and 60.30) across the three levels of technology varied considerably in the two firms examined.

ANOVA is a statistical tool that is best suited to analyze the influence of technology on job skills, especially when technology is measured in terms of low, medium, and high. If there are variations in the three mean values, this indicates that there is an influence. On the other hand, if the mean values in the three technological levels are the same, we can confidently conclude that there is no influence. ANOVA is an inferential statistical technique that its Honest Significant Difference (HSD) indicates that the differences in the three mean values suggest that influence of technology on job skill can be inferred.

The mean values of job skill across the three technological levels varied considerably. The variations in the mean values of job skill across the three levels of technology indicated that technology truly influenced job skills. In the case of the uniformity of the mean values of job skill across the three levels of technology, it would be revealed that technology did not influence job skill. Hence, the differences in the mean values of job skill, (66.75, 67.81 and 60.30) were found to be statistically significant at p=0.04 and that implied that technology had influence on job skill. The result aptly mirrors the view of Edgell and Granter (2019) who

posited that one of the aftermaths of the rise of industrial capitalism was destruction of skills associated with the advent of machinery and the assembly-line process.

In contrast to statistical outcome, the qualitative result from Culinary Unit Manager revealed that:

> In Culinary plant, the transition of technological innovations from manual technology and very low speed line equipment to semi-automated equipment and to highly automated equipment, IT-support equipment, logical programmable control equipment and very high speed lines being utilised in pressing and wrapping operations (1,500 cubes of Maggi per minute) has exponentially paved ways for employees with requisite training in different fields of Engineering such as Electrical, Mechanical, Automation, Instrumentation, Chemical Engineering, Robotic Engineering, Mechatronics, Digital platforms and Artificial Intelligence, such that employees in the aforementioned unit enjoy considerable autonomy, particularly those who possessed professional certifications in such disciplines, enjoy exertion of considerable expertise. These innovations have resulted in massive competence requirements which have increased as more personnel are able to operate and maintain the equipment they utilise, to a large extent. **(IDI/Firm1/CM/May, 201**

The study revealed that average job skill in the medium level of technology had the highest mean value (67.81). This showed that in Firm A, employees in medium f technological level possessed higher job skills than their counterparts in low and high technological level units. This is because the job functions executed by the workers entailed both manual and mechanical procedures. The finding contradicts the stance of Blauner (1964), who affirmed that operatives in assembly plant did not enjoy autonomy like their counterparts in printing and oil-refining industries.

It was demonstrated that the mean work skill value (66.75) in the low technological units had a higher job skill mean value than their high level of technology units, in contrast to the mean job skill value (67.81) in the medium technological units. This suggests that although employees in high technical units had greater skills than those in low technological units, workers in low technological units were less autonomous than their counterparts in medium-level technological units. The mean job skill value (60.30) in the high technical units comes next. Considering the advances in technology that they employed, this suggests that the workers in high technological units were less skilled (60.30) than their counterparts in both low (66.75) and medium-level technical units (67.81). This is because the equipment deployed such as Band Dryer, extra Tigathen, Turbo Bonal Conveyor and Computer-integrated Manufacturing System were controlled through symbolic and digital processes in that the operators' efforts and energy were not immediately because virtually everything was automated. This subjected them to pressing buttons routinely in factory system. Considering that the high technological units had the lowest mean job skill (60.30), the employees in high technological units were most predisposed to influence of the technology they utilised.

In view of the result of analysis which signifies that the average job skill varied considerably across the three levels of technology, it became imperative to observe whether the variations in the mean values of average job skill across the three technological level units are statistically significant or not. In this wise, the result depicted that the variations in the mean values of average job skill across the three levels of technology in Firm A were found to be statistically significant at (F=3.96, df=2/15 and p=0.04). The differences in the mean values in three technological levels were discovered to be statistically significant. It could be inferred

from this result, that, the statistical significance of the variations in the mean values of average job skill across the three levels of technology, revealed that technology had undesirable influence on average job skill in Firm A, which in turn suggests that technology deskills workers. The cardinal factor responsible for the statistical significance of the extent of influence of technology on job skill in Firm A can be attributed to the lowest mean of job skill (60.30) found in high technological level units. The finding corresponds with the submission of Braverman (1974), who posits that technology progressively deskilled employees in capitalist modes of production. It echoes the view of Edgell and Granter (2019), who posit that one of the consequences of the rise of industrial capitalism was the destruction of skills that was ascribed to the adoption of machinery and assembly-line process.

To reinforce the statistical result, an IDI conducted with the Production Unit's Head reveals thus:

> When utilising Oven System, Tigathen and Belt Conveyor in this unit, the unit had a sizable number of employees saddled with tasks to execute. They enjoyed considerable skill exertion in discharging their duties. Nevertheless, migrating to Band Dryer, extra Tigathen, Turbo Bonal Conveyor and Computer Integrated Manufacturing System in producing Milo Tea and Nido, has drastically changed the significant nature of work, owing that about twenty employees who used to be allotted to the Production Unit have been radically reduced to five employees monitoring the smooth-running of automated machines. In the light of work automation, work in this unit exclusively belongs to the machine autonomous and programmers who call the shots on their jobs as they do the jobs which are not relevant for the rank and file in the unit. **(IDI/Firm1/PM/May, 2019).**

In the same vein, another Unit Head from the Quality Assurance Unit affirmed thus:

> When the employees in Quality Assurance Unit were using manual beverage analyser and manual food analyser to evaluate both raw materials and finished commodities, they enjoyed considerable autonomy in terms of exerting skills to get tasks executed. However, the revolution of technology from manual beverage analyser to semi-automated beverage analyser, and finally, to fully automated beverage analyser and the transition from manual food analyser to semi-automated food analyser and finally, to automated food analyser, has altered the ultimate landscape of the Unit, thereby the employees who are used to exertion of skills, currently press buttons monotonously in carrying out the job duties which immensely limits the amount of skill inputs on the part of employees, since the bulk of work is automated. **(IDI/Firm1/QA/May, 2019).**

The result lends credence to the standpoint of Braverman (1975), who contests that people's relationship with nature is not necessarily one of food-gathering or shelter-seeking in the crevices provided for them, ready-made by nature. Braverman (1975) further stresses that humanity takes the numerous materials bestowed by nature and alters them into various objects which are more beneficial to the mankind. Following the position of Braverman (1975), humanity works to live and to provide for itself the means and provisions of life. He postulates that if individuals often complain about work as a constraint being laid upon the species by nature, it is evident that work as a species' feature is natural to human life, as hunting and grazing are to other species.

In contrast, an In-depth interview which was conducted with an HR Manager revealed thus:

When the HR unit was using Automatic Data Processor for the database of employees, they lacked considerable autonomy in making some amendments in terms of misspelled names, residential addresses and account numbers, such that they needed to lodge numerous complaints directly to the HR Unit. When the unit migrated from Automatic Data Processor to Hire-to-Retire Module, they began to enjoy considerable autonomy in terms of effecting certain corrections when their names are misspelled, and particularly when they have issues with their bank accounts. (IDI/Firm1/HRM/May, 2019).

The result validates the stance of Meyer et al, (1999), who contends that in Ford Highland Automobile Plant, the production of Model T vehicles was initially concentrated in the hands of craft men and artisans. Even so, having got to see their efforts stiffening the pace of production, he resorted to adopting Belt Conveyor, which rendered such employees redundant? Against this backdrop, work degradation arose from the deployment of belt conveyor which rendered the craft men dispensable. The result is in accord with the view of Edwards (1979), who posits that on account of the capitalists adopting impersonal technology like a stopwatch, which determined the pace and rhythms of work such that there was no breathing space for employees. His work typically encapsulates the conflict which ensues between capital and labour in the workplace, the systems of control being designed by enterprise owners to contain it, particularly in America.

Another IDI which was conducted with a unit head from IT Unit goes thus:

Technology is an innovation that changes the ways people do things. As it evolves, people must adapt to it by developing new skills. Technology needs to evolve to cater the emerging populations of the world. Old skills may not be apt to man a new technology as it might have become outmoded. The best bet is to synchronise with technological trends. People who fail to align with technological advances inexorably miss the benefits and convenience in technology. (IDI/Firm1/ITM/May, 2019).

The insight substantiates the perspective of Bawalla (2020), who affirms that technology is exponentially reshaping the skills required for work, in that the demand for less advanced skills that can be replaced by technology is gradually reducing or has drastically declined. He stresses that although the demand for advanced cognitive skills, socio-behavioural skills and skill combinations associated with greater adaptability is fast rising at an exponential rate. The finding substantiates the submission of Omolawal (2018), who avows that the utilisation of technology is pertinent when it comes to the quality of staff recruitment in a given organisation owing that it was found to facilitate the recruitment of job applicants who were technology-savvy. He maintains that the employees who were recruited were already capable of multi-tasking and multi-skilling. According to Omolawal (2018), the utilisation of technology in staff recruitment eased the recruitment of employees who already possessed better exposure of global world which would immensely enhance their performance in workplace.

Sequel to Labour Process Theory, the emergence of technology, in actual sense, has eroded the skills of clerical personnel, assembly-line engineers, traditional drivers and drummers. Given the effect of technology on job skills, Belcher (2014), posits that the only two professions which are immune from technological advancement are teaching and administrative professions. Both parents and their off-springs usually have desktops, laptops, routers and internet facilities at their households, which students utilise in relating with their teachers and supervisors while seeking insights on their home-work. The finding supports the view of Burawoy (2000), who asserts that in the Shipyard of San Francisco, skilled workers were

deskilled to cut the costs of production and enhance productivity (Blum, 2000). Hence, skilled workers were replaced with unskilled workers.

Comparison Test of Job Skill across the Three Groups of Technology in Firm A

Having established that the differences in the mean values of job skill across the three levels of technology in the units of Firm A, were found to be statistically significant at p=0.04, it became imperative to investigate the exact mean value out of the three mean job skill across the technological level units. The finding showed that the mean job skills of both high and medium technological levels accounted for the statistical significance of the influence of technology on job skill which is the figure being asterisked herein (7.504*). This indicates that the mean values of job skills of high and medium technological levels contributed to the statistical significance of technology and job skill in Firm A.

The Extent of Influence of Technology on Job Skill in Firm B

Contrary to the finding which was gathered from Firm A, in the case of Firm B, the finding revealed that high technological units had the highest mean (73.00) of job skill across the three levels of technology. Deductively, this indicates that the workers in high technological level units (65.69, 69.54 and 73.00) were more dexterous than their counterparts working in both medium and low technological level units. This trend negates the position of Braverman and his followers who unanimously contend that advanced technology results in skill decline which results in a class structure called the proletariat. The argument unanimously advanced by the deskilling theorists is that, the more technology advances, the lesser the skills that workers possess. As far as the findings gathered from the study in Firm B. is concerned, it discountenances the position of the deskilling theorists who unanimously posit that the higher the level of technology, the lower the skill level of workers. It then suggests that although this is a fourth industrial revolution, workers possessed high skills at a high technological level, in spite of technological advancement. The implication of this is that workers in high technological level units enjoyed considerable autonomy and expertise in carrying out their tasks. What ultimately accounted for the variations in the mean job skill (65.69, 69.54 and 73.00) can be ascribed to the fact that the units across the firm were more technologically intensive than others which differently influenced job skills.

This indicates that given the equipment deployed in Firm B, the employees in high technological level units (65.69, 9.54 and 73.00) were more dexterous than their counterparts in both low and medium technological level units. It is vital to note that the finding revealed that the next mean value on the skill index in regards to Firm B. is concerned about the job skill in medium technological level units. This invariably indicates that workers in medium technological level units possessed lesser skill than their counterparts in high technological level units, but higher in skill level than their counterparts in low technological level units in carrying out their job functions. In this wise, it is worthy of observing that workers in medium technological level units were not as autonomous as those workers in high technology. This pattern of relationship between technology and job skill simply aligns with the perspective of Amber and Amber (1962), who assert that the removal of the initiative of operators is quite central to the medium technological level units. Equally, this trend falls short of the positions of (Blauner, 1964, Bell, 1973; Berg et al., 1987 and Hull et al., 1982), who unanimously contend that medium technological level industries affect the job skill most due to the fragmentation, standardisation, rationalisation and routinisation of factory settings that dictate the pace and the rhythms of the production processes.

In respect of the of mean of job skill in the low technological level units, the finding revealed that the low technological level units had the lowest mean value (65.69, 69.54 and 73.00) which symbolises that the workers in low technological level units possessed low job skill. The variations in the findings in the low technologically level units from both firms (Firm

A: 66.75, 67.81 and 60.30 while Firm B: 65.69, 69.54 and 73.00) can be justified by the variations in their modes of manufacturing of the end-products which differently influenced job skills**.** It is overwhelmingly lucid that when a technology is in its crudest form, it is natural that the operators would enjoy considerable dexterity in manning it. In other words, such workers would enjoy considerable proficiency in utilising such equipment owing that they are quite at liberty to manipulate them as they desire. Glaringly, this epitomises the oldest form of the equipment utilised in the craft and guild era when the farmers, craft men and artisans were carrying out their activities in terms of cultivation of the land with the aid of cutlasses and hoes as well as building canoes.

Contrary to the statistical significance of technology on average job skill across the three levels of technology in Firm A, the finding gathered from Firm B revealed that the differences in the mean job skill across the three levels of technology are not statistically significant at (F=1.31, df=2/17 and p=0.2). From the result, it can be deduced that technology did not influence job skill in Firm B. In other words, this indicates that technology had no influence on job skill in Firm B given that the variations across the three technological level units were not statistically significant at p=0.2 in Firm B. Inferentially; it technically indicates that technology did not deskill workers across the three technological level units as far as Firm B is concerned. The chief causal factor responsible for the statistical insignificance in Firm B can be ascribed to the highest mean job skill (73.00) discovered in high technological level units. The finding corroborates the view of Edgell and Granter (2019), that the central workers in the post-Fordist epoch are professionals who are rooted in education and training, to provide the type of skills that are increasingly demanded in the post-Fordist societies. The finding equally lends credence to the viewpoint of Zuboff (1988), who affirms that an operator of any particular equipment in the post-industrial society automatically becomes the operator if he knows his onions rather than the machine controlling him.

The finding aligns with the viewpoint of Bell (1973), who affirms that the centrality of knowledge and the growth of technical specialty will be the hallmarks of post-industrial society having transited from craftsmanship to the development of education. Post-industrial society is characterised by the possession of knowledge as opposed to the possession of the private property. He maintains that post-industrial society is dominated by the expansion of the non-profit sector; especially education, health and research. The finding buttresses the view of Heisig (2017), who maintains that there are two opposite perspectives on the future of capitalist societies, which are the constructive one and the harmful in regards to skills.

An in-depth interview which was conducted with a Production Unit Head in Firm B reveals thus:

> As far as the Production Unit is concerned, the transition from washer, filler, capper, labeler, packer and Pasteuriser to mojonner, domino, Crown Cork Hopper, cobrix, reflex, uncaser, Krones and carbon cooler has drastically reformed the essential nature of the production process, such that the expertise which employees used to exert declines astronomically consequently upon the lack of skill usage. Employees find themselves doing less of what used to be the tasks they carried out. On the other hand, the migration from manual machines to automated equipment enormously reduces the production costs following that it produces in large quantity. Technology places firms on a comparative and competitive edge. (IDI/Firm2/PM/May 2019).

The finding conforms with the view of Pen (1991), who maintains that in the spring of computerisation in the 1980s, there was intensive apprehension among managers and employees that the emergence of digital machines would eliminate them from the labour market. However, it eventually turned out to favour them in that they were opportune to acquire new skills bordering on digital operations of the digital machines without necessarily losing

their manual skills. In a similar vein, it corroborates the perception of Amobi (2018), who avers that when 31% of the current jobs get automated, the only thing that will stand some workers out is the amount of skill they possess. Hence, concerted efforts should be made to hone one's skill in order not to be relegated to the digital era. In other words, concerted efforts should be made to hone one's skill in order not to be relegated in the fourth industrial revolution.

The finding substantiates the standpoints of Okafor, Imhonopi and Urim (2011) who gather that the utilisation of internet services aided about 54.3% lecturers in private universities in South-Western Nigeria to publish their works. They further revealed that a total of 61.6% of the lecturers were able to attend conferences and about 74.2% of the lecturers were able to teach effectively with the aid of internet services. According to Okafor et al (2011), the preponderance of the respondents who were about 77.5% were observed to have been improved by the utilisation of internet services in improving the quality of teaching. Internet services were found to boost the research outputs of 79.1% of private university lecturers in South-Western Nigeria. The finding lends credence to the perspective of Schneider (1983), who contends that the digital workforce is one of the most significant ways in which technology has tremendously shaped the work. According to him, a digital worker is construed as the technology which is artificial intelligence, intelligent process automation, robotics, augmented reality and virtual reality. All these perform tasks, jobs, and activities previously accomplished by a human worker. According to Schneider (1983), digital workers are already being deployed by some business owners.

The finding is equally consistent with the view of Adler (1992), who avers that the work of the future will require a high level of skill to man the technology. The point being made is that possessing the new skills to man technology prevents workers from being affected by technological advancement. The finding similarly corroborates the position of Amobi (2018), who submits that the work of the future and the future of work will be so sophisticated that only those who possess digital skills will be able to compete comparatively in the fourth industrial revolution. Deducing from this assertion, those who fail to develop themselves digitally will be eliminated from the scheme of work as far as the digital era is concerned.

The finding lends credence to the position of Lima (2019), who contests that robots are not meant to replace human fire fighters; rather, they are invented as equipment to enable efficient fire-fighting as well as salvaging lives and properties. Lima (2019) stresses that, in an event of conflagration, or any other type of emergency, robots are quite apt in rescuing situations. Lima (2019) submits that workers recruited in Fire Service will never get rid of disaster. Regardless, robots, as well as future robots, can save lives and deal with catastrophes that should be invested in and researched. This finding is inconsistent with the claim of the deskilling proponents who assert that technology results in expropriation of skill by breaking work into smaller and simpler forms.

The finding is consistent with the viewpoint of Agbata (2018), who states that Silicon Valley welcomes entrepreneurs from all over the globe including other parts of the United States. He avows that it is one place where entrepreneurs vehemently believe that they can leverage various types of resources in order to take their businesses to an entirely new level. He stresses that the Silicon Valley model can as well work for a country like Nigeria. There are quite a number of lessons that the people of Africa can learn from Silicon Valley (Agbata, 2018). He affirms that Silicon Valley is a place where a number of the top global technology brands have come out of, except new ones such as Microsoft and Amazon which started elsewhere. One reality that stares one in the face is the fact that Silicon Valley is such a huge and complex environment.

An IDI which was carried-out in the Accounts Unit reveals thus:

> The advent of software has revolutionised the mode of doing work in the Accounts Unit, such that with the application of software, work is done within a timeline. These innovations greatly ease the stress of doing work. It is crystal evident that the planning aspect of accounting can never be taken over by technology. The Account Unit has transited from Excel to System Application in data processing. Despite the fact that software facilitates accounting records, finance reports, data analysis and tax returns, the cognitive skills of humans remain central. The employees in the Accounts Unit are saddled with the responsibility of sending financial reports to numerous customers which include the future trends and current financial status of the firm. All these tasks require human interventions before they can be done **(IDI, Firm2/AccM/May, 2019).**

The foregoing revealed enskilling tendency owing to the spring of accounting software has changed the complexities and technicalities of corporate accounting. These technicalities are assets of guidelines and regulations which businesses should stick to when submitting information. Information and Communication Technology accelerates the dissemination of information to numerous customers. Insight and analysis on the accounting, audit and tax issues impacting have been improved by the advent of accounting software. Getting work done with the aid of software packages simplifies the constraints encountered in the course of task execution in Account Unit such that tasks are done swiftly without experiencing much stress. In order to reinforce this finding, Wright and Schultz (2018), contends that technology is a tool to achieve one's goals and objectives. Thus, it is high time techno-pessimists began to explore and maximise technological advances. Otherwise, those who are technologically savvy will advantage of technology.

The finding corroborates the view of Fayehun, Omigbodun, and Owoaje, (2020), who maintain that mobile technology tends to catalyse access to healthcare in Nigeria, if well-regulated. In their view, inadequate infrastructure is considered as posing a barrier to mobile healthcare in Nigeria. Stefan Heunits and AFP through Getty Images. They maintain that mobile technology is key to a medical emergency, particularly with regards to the potential of increasing access to healthcare where resources are limited and where systems are under stress. The finding lends credence to the study done by Omolawal (2018) and Wang *et al.*, (2020), who contend that utilisation of information communication technology enhanced the practices of human resource management practitioners in Nigeria in terms of selection, recruitments and placements of employees. Regardless, Omolawal (2018) posits that the utilisation of information communication technology is low in Nigeria.

Influence of technology on job skill was discovered to be statistically significant in Firm A, whereas it was statistically insignificant in Firm B. This indicates that technology deskilled Workers in Firm A, whereas it enskilled workers in Firm B. The variations in both firms are explained in the fact that in Firm A, medium technology level unit employees were more autonomous than their counterparts in both low and high technology level units while employees in high level technology units in Firm B were more autonomous that their counterparts in both low and medium technology level units. The modes of production of both firms varied considerably as Firm A manufactured consumables while Firm B manufactured alcoholic and non-alcoholic drinks. Asides this, they did not utilise the same equipment in carrying out their job functions. These accounted for the discrepancy in the findings. Technology varies considerably from industry to industry and influences job skill differently which aptly echoes Blauner's industrial categorisation of 1964 with the position that technology in printing industry varies significantly from that of the automotive industry while that of

assembly plant differs considerably from that of the oil refining industry. Resultantly, employees in Firm B were found to possess dexterity owing to the equipment they utilised. These results are expected because both firms are not homogenous in terms of the deployment of equipment required in the discharge of duties and the end-products.

Theoretical Discussion of Findings

Labour Process Theory is quite suitable in providing a theoretical explanation for the paper in focus given that its theoretical underpinnings suitably capture the findings of the study which was gathered from Firm A owing that the differences in the mean job skill (66.75, 67.81 and 60.30) across the three levels of technology in Firm A were found to be statistically significant at p=0.04. The corollary of this is that technology deskilled workers which reflect the underlying tenets of Labour Process Theory. Bearing in mind that the finding revealed that technology deskilled workers in Firm A, it can be validly deduced that technology objectified and materialised workers in used value. By inference, the employees of Firm A were reduced to the status of a mere object as a result of utilising technology in carrying-out job functions. In a similar vein, the employees of Firm A were seen as raw materials which must bring value to the firm.

The finding equally mirrors the fundamental claims of the Labour Process Theory which centre on the workers lacking autonomy in terms of the planning of their jobs, determination of skills which should be exerted in the execution of tasks, monitoring of tasks and wage determination for the tasks that are executed particularly whether their wages are commensurate with the skills exerted in carrying-out job functions. The point being established in this context is that the employees of Firm A lacked autonomy about the planning of their jobs; skill exertion in the tasks being executed; monitoring of their job; and wage determination for the skills they exerted in discharging their duties. It then logically follows that the fundamental claims of Labour Process Theory ultimately border on the motive of the capitalists to separate the work into the conception and the execution thereby the management is saddled with the planning of the work while the shop-floor workers are being saddled with the doing of the work. In the light of this, work processes and technology rendered employees deskilled following that capitalists aim at reducing the costs of production by adopting technology in order to optimise productivity.

In contrast to the suitability of Labour Process Theory to the findings that were gathered from Firm B, Labour Process Theory did not capture the findings that were discovered from Firm B taking into knowledge that the employees of Firm B enjoyed considerable autonomy in planning, monitoring and wage determination of their jobs more than their counterparts in Firm A given that technology was found not to degrade the employees in Firm B following that the differences in the mean job skill across the three technological levels were found to be statistically insignificant at p=0.2. What this signifies is that technology did not deskill employees in Firm B which contradicts the fundamental claims of Labour Process Theory. What can be concluded from this finding is that the employees of Firm B were not objectified nor materialised in used value which indicates that such employees were not perceived as individuals who were meant to bring value to the firm. Similarly, the employees of Nigeria Plc. were not reduced to the status of a mere object. What accounted for this trend is that the employees in high technological units were found to possess high skill levels which shielded them from being deskilled by technologies which they utilised in carrying-out job functions.

Another crucial point that is worthy of confirming is that judging by the result gathered from Firm B, the employees of the said firm were autonomous when it comes to the exertion of

expertise in task execution. This refutes the stance of Labour Process Theory. The mixed finding can be justified by the variations in the modes of production of the two firms in perspective. Technically, bearing in mind that the two firms differed considerably in the modes of their production, it follows that the technology they both adopted varied which required different skills to man them. This is one of the flaws of Labour Process Theory as it did not take into account the fact that firms vary considerably in their modus operandi which suggests that the technology varies significantly from one firm to another which has various implications on the skill requirements depending on the context of the firms. This justifies the inability of Labour Process Theory to suitably explain influence of technology on work in Firm B This shows that no theory is entirely immune from criticisms as flaws are inevitable.

It is pertinent to establish that the crop of workers which the study focused on were the permanent staff of the selected firms who underwent training upon their recruitments, selections, placement, and probations. Having undergone series of training upon their recruitments and having stayed long on their jobs, they became professionals, especially in Firm B In this wise, they became skilled. Workers who studied courses such as Mechatronics, Engineering and Automation, Artificial Intelligence and Robotics were mostly recruited into the selected firms to man automated equipment owing to their expertise so much so that they were autonomous in their jobs. Given this, they enjoyed diversity, value-adding, and per capita income of Culinary Unit, Production Units and others, following that the selected firms were manufacturing companies that utilised advanced technologies for the manufacturing of commodities. Given the biases for the aforementioned courses, exceptionally-skilled employees were recruited to man the sophisticated equipment which enabled them considerable leverage to call the shots in their jobs without necessarily being at the mercy of the management. In strict consonance with the International Standard Organisation's Law which states that the food and beverage industry should migrate from manual technology to semi-automated technology and to highly automated technology in order to get rid of the contaminations that usually accompany the end-products, the selected firms in the food and beverage industry adopted sophisticated technologies which required professionals to operate them.

Explanation for the Theoretical Model

The theoretical model was developed for the paper, which typically explains influence of technology on job skill. The theoretical model essentially portrays influence of independent variable (technology) on the dependent variable (job skill) used in the study. It was discovered that technology significantly affected job skill depending on the sophistication of the equipment utilised. It is crucial to establish that the skill level possessed by an employee considerably determined the levels of autonomy. It is noteworthy that the level of dexterity of an employee considerably determined the level of autonomy.

In other words, the theoretical model centres on influence of technology on job skills. The technology which a worker utilises in discharging his tasks has a way of enhancing or declining his or her skill. A worker who was previously using a manual tool to carry out tasks can learn about the digital machine which adds to his or her existing skill. In this wise, such a worker has added to his or her existing scope of epistemology without necessarily having to lose the manual skill. Conversely, a worker who was previously operating manual food analyser and manual beverage analyser who eventually operated semi-automated food analyser and semi-automated beverage analyser and in the long run migrated to full automated food analyser and full automated beverage analyser would have lost the manual skills of operating this equipment, considering that he or she would have been subjected to routinely pressing buttons as opposed to using his or her manual knowledge and intelligence. This would considerably

limit his or her dexterity and expertise in imaginatively fabricating the products with his or her hands.

When a tool dictates the rhythms and pace of work, the person using it will be rendered deskilled given that he or she cannot utilise his or her expertise. To become an object rather than a subject in the workplace does not allow autonomy of a worker. Nonetheless, the utilisation of equipment greatly facilitates a collegial tie between a manager and a shop floor worker by conveying pieces of information to each other with the aid of information and communication technology. In this respect, the notion of alienation becomes illusory. In a scenario where a worker is apprehensive about the possibility of an employer bringing on board a technology that tends to take over his job or skill, he or she will not wholeheartedly discharge his or her duty. In other words, the thought of being replaced by a robot dampens the morale of a worker. Consequently, he or she will resort to labour turn-over which indicates the migration of an employee from one organisation to another due to numerous reasons which range from fringe benefits, lack of allowances, supervision, promotion, self-esteem, poor work conditions, poor salary packages and obsolete equipment. If a worker is not autonomous in the equipment he or she uses to carry-out tasks, there is a huge likelihood that he or she will not be loyal to the goals, objectives, mission and vision of the firm where he or she works. To this end, the equipment which a worker utilises in discharging his or her duty is germane to his or her level of autonomy.

Conclusion

With the advent of modern technology, there has been a significant transformation from low technology to medium and high technology. This advancement has influenced job skill as demonstrated by the different effects of Firm A and Firm B. There are two perspectives when it comes to the influence of technology on work. Technology is bi-directional in nature, meaning that it can lead to either deskilling or enskilling. In Firm A, deskilling trend was found to be dominant, while in Firm B, enskilling trend was dominant. This finding agrees with the standpoint of neo-Marxist scholars who argue that the influence of technology on work is bi-directional.

It is important to note that technology is a double-edged sword. While it has the potential to enskill employees, it also has the potential to deskill them. Skill polarisation should be given emphasis, rather than the contention of rival groups on whether technological advances deskill or enskill employees. It is, therefore, recommended that enterprise owners should invest in grooming their employees to combat the challenges occasioned by technological advances that shape the activities of firms. Organisations' management should ensure adequate capacity building for employees to adapt to the emerging technological trend and make proper use of the equipment adopted by organizations. In general, developing one's skills is a solution to prevent technology from causing a decline in skills. This is because people who possess creativity, inventiveness, imagination, innovation, and ambidexterity are not affected by technological advancements in the post-Fordist era. Therefore, organizations can conduct further research to identify other organizational factors that contribute to the loss, gain, or polarization of skills in modern industrial settings.

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Appendix

Appendix 1: Academic questionnaire

Department of Sociology

Faculty of the Social Sciences

University of Ibadan

Dear Respondent,

I am a postgraduate student of the Department of Sociology, Faculty of the Social Sciences, University of Ibadan. This questionnaire is designed to obtain information on **Influence of Workplace Technology on Job Skill in Firm A and Firm B, Lagos, Nigeria.** Your open and sincere responses will be treated with utmost respect and confidentiality. The information is required solely for research purposes. Kindly indicate your consent by ticking the appropriate box below before proceeding to supply the needed pieces of information in the questionnaire. Please, tick or answer under the response column as appropriate.

Thank you.

Idowu Sulaimom **ADENIYI**

I Consent I Decline

The Profile of the Organization

Name of the organisation:

Department:

Year of employment:

Section 1: To What Extent do you Agree or Disagree with the Truth in the Following statements?

SN	ITEMS	Strongly Agree	Agree	Not Sure	Strongly Disagree	Disagree
A	I have knowledge to do my work well.					
B	I have the knowledge to get my work done					
C	I have the ability to get my work done unsupervised.					
D	It takes me much time to finish a particular task.					
E	I am quite confident in doing my work.					

F	I have creativity to get problems in my job solved					
G	I always find my work very easy.					
H	I have deep understanding of my job.					
I	I have a clear idea of what I am supposed to do in my job.					
J	My job requires that I do things just the way I am told.					
K	My task is always assessed by those who are above me in my unit.					
L	I always come up with something new in my job.					
M	I have the ability to carry out complex tasks in my job.					
N	I am prepared to face difficult tasks in my job.					
O	I have coordinating capacity in doing my job in my unit.					
P	I have the capacity to do multiple tasks in my job in my unit.					
Q	I can do my work from the beginning to the end.					
R	I have the competence to do my job well.					

Reliability Measures of Average Job Skill

Items	**Firms' Cronbach's Alpha coefficient**	
	Firm A	**Firm B**
I have the knowledge to get my work done	.931	.837
I can get my tasks accomplished independently	.927	.830
I have the ability to get my job done unsupervised	**.**927	.834

It takes me much time to get a particular task finished	.926	.835
I am confident in my work	.929	.829
I have creativity to get problems in my job solved	.927	.829
I always find my work very easy	.927	.841
I have deep understanding of my work	.929	.834
I have a clear idea of what I am supposed to do in my job	.93	.836
I always come up with something new in my job	.9	.833
I have the ability to carry-out complex tasks	.927	.829
I am prepared to face difficult tasks in my job	.928	.831
I have coordinating capacity in my job	.927	.831
I have the capacity to do multiple tasks in my job	.929	.829
I can do my work from the beginning to the end	.930	.833
I have the competence to do my job	.932	.835

Information About the Article/Makale Hakkında Bilgiler

The Ethical Rules for Research and Publication / Araştırma ve Yayın Etiği

The authors declared that the ethical rules for research and publication followed while preparing the article.

Yazarlar makale hazırlanırken araştırma ve yayın etiğine uyulduğunu beyan etmiştir.

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