

Knowledge Work and Workers:
A Critical Literature Review

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Knowledge Work and Workers: A Critical Literature Review

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Abstract:

Due to the knowledge economy emergence, many terminologies were added to the management studies' literature such as knowledge work, knowledge workers, knowledge organizations and knowledge management. Most of these terms are still debatable in the literature and practice. This review will be critically discussing knowledge work and workers. Although many statistics and definitions supported the existence of knowledge work and thus the classification of knowledge workers as a distinctive working class, these terms haven't reached a consensus. Still a lot of scholars believe that knowledge workers are nothing but a reclassification of the existing working classes with no strong theoretical and empirical evidence to support such a claim. Knowledge work and workers is believed to be terms that indicate the changing working conditions that affect all working classes in different intensities. This can be represented by the occupational knowledge intensification caused by different factors such as the increase in utilizing technologies at the workplace and growing market demands for customization. The review concludes that knowledge work and workers are still weak concepts and if they are to survive their definition and differentiation should be narrowed and cleared. Alternatively, such terms could be excluded and substituted by categorizing different emerging working classes into new professions, following the professionalization process.

Keywords: knowledge work, knowledge workers

Introduction:

To many researchers and practitioners in the fields of economics, business, and management studies, the economical system has progressed from the industrial age to the knowledge one. Due to this phenomenon, new terminologies are used to indicate the changes and challenges of this era. In management studies, terms such as knowledge work, knowledge workers, knowledge organizations and knowledge management are nowadays widely popular. Whether these terminologies are managerial and academic fads or hold a theoretical and empirical relevance, is still debatable among scholars and practitioners. Labeling work and workers as knowledge ones indicate the knowledge intensiveness of the current working tasks and the required abilities, skills, qualifications and working conditions for employees to accomplish their work. The literature review aim is to present claimed facts, general theoretical assumption, available empirical findings and major critiques, concluding that such terminologies are still weak as compared to other identified working classes such as professions. A lot of theoretical work and supporting evidence is still needed to clarify distinctions; however, if such clarifications were proven to be infeasible then it could be argued that such concepts could be substituted by proceeding ones through narrowing the knowledge workers occupations into new identified professions.

First, some empirical evidence and claims will be stated as an indication of these phenomena relevance. Second, the definition of both knowledge work and workers will be stressed, highlighting what differentiate these terms from traditional work and workers. Third, the implications of knowledge work and workers on the labor relations and management studies will be briefly discussed. Fourth, different critiques of knowledge work and workers will be mentioned. Finally, recommendations for future research will be suggested.

Knowledge work and workers' supporting evidence:

Many researchers stated that work is currently more knowledge demanding than before. This claim is supported by the argument that knowledge workers are the most growing occupational concept in the advanced economies. Davenport (2002) stated that although knowledge workers are difficult to define and count, "they are undoubtedly a major component— perhaps a majority—of the U.S. and other advanced economies" (pp.3). Nevertheless, Drucker (2002) estimated that knowledge workers constitute two fifths of the US workforce. Moreover, Guthridge and Komm et al. (2008) claimed that "by one estimate 48 million of the 137 million workers in the United States alone can be classified in this group; a single company can employ upward of 100,000" (pp.52). They added that a single knowledge worker contributes three times more to the organizational profit than other workers.

In a report prepared for the Knowledge Economy Programme of the European Union, Rüdiger and McVerry (2007) suggested that knowledge workers could be classified as the top three occupational categories, assigned by the organizational hierarchy, or as university graduates. They added that the numbers will considerably differ based on the adopted definition, and they realized the limitations of these two categorizations, given that they ignored the economical activities and working tasks of each occupation specified. For example, according to the top three occupational categories, Rüdiger and McVerry (2007)

found that 37% of the European workers are knowledge workers, while 62% are non-knowledge ones. Not surprisingly, they have realized that the workers with higher level of education have a higher probability to occupy knowledge work occupations than others.

In conclusion, knowledge workers' distinction from other labour force classifications is vague due to the various definitions proposed by scholars, some even matching previous definitions such as experts and professionals. Accordingly, the numbers and the suggested increasing trend differ tremendously. Nevertheless, basing the claim that this category of work exists and providing statistical evidence lacks reason with no consensus on the definition and distinctions that identify such a group.

Knowledge work and workers:

During the beginning of the second half of the twentieth century, Peter F. Drucker is believed to be the pioneer who introduced the concepts of knowledge work and workers. Generally defined, knowledge work is dominated by cognitive effort to use, generate, and extract value from knowledge. Tom Davenport (2005) defined knowledge workers as employees with "high degrees of expertise, education or experience and the primary purpose of their jobs involves the creation, distribution, or application of knowledge" (From Kogan and Muller, 2006, pp.759). First, the knowledge work and workers will be defined. Then, knowledge work and workers will be identified through differentiating them from others.

Knowledge work tasks are usually dominated by intellectual demands, technical know-how, creativity, interaction, mobilization, networking, and innovation. For Winslow and Bramer (1994), knowledge work is about creating solutions for problems within organizations, through interpreting and applying information, and thus support and recommend them to the firm's management (From Noon and Blyton, 2007, pp.213). Moreover, Depres and Hiltrop (1995) highlighted the tasks as information manipulation and knowledge production which will eventually lead to new processes, devices, products or applications. On the other hand, Heerwagen and Kampschroer et al. (2004) identified knowledge work's tasks as "planning, analyzing, interpreting, developing, and creating products and services using information, data or ideas as the raw material" (pp.511).

Alternatively, Reich (1993) claimed that the value adding activity of the knowledge work is symbolic and not materialistic. It is "principles, psychological insights about how to persuade or to amuse, systems of induction or deduction, or any other set of techniques for doing conceptual puzzles" (From Ackroyd and Batt et al. 2005, pp.244-245). Additionally, Reich (1991) indicated that 'symbolic analytic' workers have special skills identified in three: problem solving; such as research, product design and fabrication; problem identification, such as marketing, advertising, and customer consulting; and brokerage, such as financing, searching and contracting (From Blackler, 1995, pp.1027). Nevertheless, Mosher (2006) indicated that knowledge workers are incapable of attaining all the knowledge they need to accomplish tasks. They should be supported by processes, workflows, identified tasks, learning systems and accessible; updated; and contextualized information and knowledge management systems.

It could be realized that labeling employees as knowledge workers doesn't indicate the fact that all their tasks are knowledge work. Their tasks may include non-knowledge work; however, they are mostly dominated by knowledge assignments. As an example, Drucker

(1999) introduced the “technologists” concept, who he classified as a special type of knowledge workers, where their occupation requires manual as well as knowledge work. In addition, Davenport (2002) classified knowledge workers under four types, two of which, transaction and integrated, are highly routinized occupations.

In their attempt to differentiate knowledge work from others, Despres and Hiltrop (1995) highlighted elements that make it different. First, the career formation of knowledge workers is dependent on socialization, education and interaction with external factors. Second, their loyalty is for the profession, peers, and network. This is due to the nature of work they perform, for they highly depend on networking and social structure to acquire, learn, coordinate, share, identify problems, help others, build awareness, produce, and verify their knowledge work. In this sense, knowledge workers are expected to effectively attain soft skills to maintain healthy relationships with their external and internal environment (see as an example Cross and Cummings, 2003), in addition to the professional ones. Third, knowledge work tasks are specialized, deep and often diffused with the external network. Fourth, the work is mostly produced at the group level, with a focus on customers, problems and issues. Fifth, a great attention should be given to obsolescence of skills, in order to add, remove or alter existing ones. As an example, Kinsey (2007) emphasized the dynamic nature of knowledge work, and eventually the pressure assigned for knowledge workers to cope with. Knowledge is claimed to have a shelf-life, implying that knowledge should be either acquired or produced and then utilized within a relevant time or else it will turn out to be useless, in other words it loses its value as a competitive edge. This indicates that knowledge workers should be in a continuous state of learning, sharing, unlearning, and relearning. Sixth, Despres and Hiltrop (1995) claim that knowledge workers’ feedback and activity systems are lengthily, relative to other occupations. Finally, they added that knowledge work performance is hard to measure based on objective criteria; moreover, its achievements are few yet strategic as compared to the traditional work.

In differentiating knowledge workers from professionals, Reed (1996) stated that in addition to tacit knowledge and its formal body, knowledge workers encompass the strategic power of marketization (From, Fincham, 2006, pp.19). Additionally, Frenkel and Tam et al. (1998) emphasized the uniqueness of knowledge workers in their ability to solve complex problems based on their multi-skills and acquaintance with different discipline and bodies of knowledge as compared with professionals. Alternatively, some researchers identified knowledge workers within experts and professionals and found no distinction beyond these traditional categories. However, they stressed the need for further interaction, networking and relationships to accomplish the tasks assigned to nowadays professionals and experts. As an example, Scarbrough (1999) claimed that knowledge workers “cut across existing occupational categories”, such as professionals, yet the concept indicates the changing and new roles required by these occupations. He added that “the emergence of knowledge workers is the product of four related developments; the relative decline of the professional model; the increasing importance of knowledge work in the experience of a range of occupational groups; the codification and commodification of knowledge through ICTs; and the emergence of new sectors of knowledge production within the economy” (pp.7).

Knowledge workers were differentiated based on the type of knowledge dominating their tasks. A lot claim that their uniqueness and competitiveness lies in their tacit knowledge as compared to the explicit one. Tacit knowledge is the knowledge which is hardly articulated and exists in the individual being and actions, while explicit knowledge is the knowledge which is articulated and explicated into records such as documents and databases (Lee and

Yang, 2000). Also, knowledge workers are claimed that they depend on their personal knowledge more than the organizational one. Where personal knowledge is defined as the knowledge existing within individuals and thus hardly imitated by others, while the organizational knowledge is the knowledge: information available for all organizational members whether formally, such as databases, or informally, such as culture. Other knowledge types were mentioned in the literature such as the mental knowledge domination in the knowledge workers tasks as compared to physical knowledge. As for the Blackler (1995), he identified two knowledge types that knowledge workers depend on: embrained and encultured. Building on Collins (1993) work, Blackler (1995) identified embrained and encultured knowledge as the knowledge dependable on conceptual skills and abilities and the knowledge produced through interaction, which formulates with time common understandings represented by the organizational culture, respectively.

Following the knowledge workers' knowledge uniqueness trend in the literature, Zeleny (2002) perceived that knowledge work is returning into the craftsman age. Workers were perceived at the craftsman level to be knowledgeable of all the tasks from receiving the input till delivering the output. Due to the evolution of the scientific school in management, work was seen as best performed through specialized workers that exert their effort on specific tasks. Thus the worker won't be knowledgeable of the overall activity; however, he or she is believed to achieve an outstanding performance. Zeleny (2002) referred to this phenomenon by the transformation of work into labour, where doing part of the task is labour and not work. Top management who encompasses the overall vision of work became vital in the division of work into tasks era. Subsequently, Zeleny (2002) claims that knowledge work is returning to the craftsmen age, in a sense that tasks are being regrouped and employees are expected to deliver the overall work with no division: thus, shifting the power back from the management to the workers who now control most production processes.

Sharing this vision, Noon and Blyton (2007) suggest a model based on the range of work and discretion in work which resulted in four work classifications. First, the Ante Fordism is a specialist work which demands high discretion and narrow range of work. Second, the Fordism is a specialized work which requires low discretion and narrow range of work. Third, the Neo Fordism is a generalized work which requires a low discretion and wide range of work. Fourth, the Post Fordism is a generalist work which requires high discretion and wide range of work. They claimed that as there was a shift from Ante Fordism to Fordism during the industrial revolution, in the knowledge economy there is a shift from Fordism to Neo and Post Fordism (Noon and Blyton, 2007, pp.174-176). In other words, knowledge work has reinforced knowledge workers through holding them responsible for the production of work as a whole. This suggests that knowledge workers should be more knowledgeable and multi-skilled to achieve the assigned work as compared to other employees. Their productivity mandates the success of organizations, for knowledge workers own the means of production which is knowledge itself, the most valuable asset for firms in the knowledge economy.

In summary, knowledge work and workers definitions are still vague and haven't reached a consensus. There is a high indication that knowledge work is mostly dominated by abstract production which requires a high dependency on tacit knowledge to ensure its uniqueness and therefore its high vitality to the organizations. A lot of work was conducted to differentiate knowledge workers from others including professionals and experts; nevertheless, a lot of overlapping between these concepts exist, which makes this differentiations unclear empirically, especially that some scholars admit the fact that knowledge workers do exert

non-knowledge tasks. Also, “traditional workers” as well execute some knowledge work within their occupational tasks, which weakens the knowledge workers’ class proposed emergence (example; Frenkel and Tam et al., 1998).

Knowledge work and workers implications on labor relations:

The evolution of knowledge work and knowledge workers concepts suggests certain implication on the labor relations and management studies. Drucker (1999) emphasized the importance of enabling the knowledge workers to identify the working tasks themselves, suggesting that they are the most knowledgeable about their jobs. This will allow the knowledge worker to distinct which are the knowledge work tasks that includes essentially knowledge creation and innovation, and consequently focus his or her effort on them, while delegating other tasks to less skilled workers. Accordingly, the organization will hold the knowledge worker responsible of the self assigned tasks and empower him or her fully to achieve them. Based on a multistage ethnographic study, Kogan and Muller (2006) suggested that knowledge workers create their own strategies, processes and techniques that can be distinguished from the organizational ones. The knowledge workers’ performance is suggested to be enforced by continuous learning, updating of the body of knowledge, and sharing and teaching what they know with others. Moreover, Drucker (1999) highlighted the importance of knowledge work quality rather than quantity, for this what makes the production unique and competitive. He added that knowledge workers should be treated differently, by perceiving them as business partners, for they own the needed knowledge and they are mobile. If not doing so, the organizations may endanger themselves of losing their competitive edge.

Debating the issue of knowledge workers’ productivity, some scholars and practitioners indicate the importance of extracting maximum productivity of the knowledge worker by minimizing his or her distraction time, while others find slackness in work as a necessity to foster collaboration and create a context for innovation and creation. Spira (2007) stated that each worker loses 2.1 hours per day of productivity due to different kinds of distractions. Distraction may be caused by the increasing technology and accessibility, interaction with colleagues, and the overload reasoned by many and various tasks where an individual may be unable to focus on a particular one as he or she should be. This may cause stress, problems in work-life balance, and overall decreasing productivity which eventually affects organizational profitability. On the other hand, Howe and Levin (2007) favored relevant slackness over no slack at all. People are suggested to be allowed to experiment, learn and take risks, and this needs an environment that encourages leniency and flexibility. They argue that 70 percent of workplace learning occurs informally. Also if knowledge workers are pressured for performance, they might focus on productivity and thus emphasizing their strengths which eventually prohibit employees from developing themselves through minimizing their weaknesses, creating new skills, and widening their knowledge body.

Additionally, Drucker (2002) explained that to attain knowledge workers’ loyalty, productivity and motivation, they need different compensation structures, management and leadership styles, and complementary organizational structure and processes. He suggested that compensation is best delivered through stressing on partnership as a concept which could be represented in rewarding knowledge workers with stock options or even common stocks (other example; Vicere, 2000). Other scholars emphasized intrinsic rewards to be more

effective in motivating knowledge workers while others suggested a well balanced combination of intrinsic and extrinsic ones (examples; Despres and Hiltrop, 1995; Lee and Ahn, 2005). Some highlighted the importance of group-level compensations to increase interaction, while others found a combination of individual, group and organizational rewards as best serving the motivation of knowledge workers (examples; Taylor, 2006; Quigley and Tesluk et al., 2007; Siemsen and Balasubramanian et al., 2007; Yahya and Goh, 2002; Laursen and Mahnke, 2001; Kase and Zupan, 2007). Also, long-term compensations as well as short-terms ones act as retention and performance motivation mechanisms respectively (examples; Brelade and Harman, 2001; Olomolaiye and Egbu, 2006). Most scholars agree that both financial and non-financial compensations act on motivating knowledge workers, although some emphasized the importance of non-financial rewards over financial ones (examples; Smith, 2004; Brelade and Harman, 2003).

As for the managerial and leadership styles, they are claimed to emphasize social networks, internal and external, in addition to promoting the social structure, self-management, and soft control rather than concentrating on work flows and tasks. Leaders are recommended to encourage self-learning, knowledge sharing, knowledge production, knowledge acquisition, knowledge creation, and self-development of employees. Freedom from the traditional authority is claimed to reinforce employees' creativity and mobility. Scarbrough (1999) viewed the management and leadership roles as quasi-resolution of conflicts, represented in three categories: institutional, organizational and personal.

As for structures, they are viewed as more effective if they offer more flexibility and less hierarchy (example; Maccoby, 1996). Organizational processes are recommended to continuously change, making the knowledge workers' work more productive and focused, in addition to minimizing their stress and increasing interaction. Occupations contain both knowledge work and routine operations. It is suggested that knowledge work should be emphasized while routine operation should be automated with less organizational processes or simpler and more flexible ones.

In addition, Davenport (2002) suggested that management should realize that if they want to enhance the productivity of their organization's knowledge workers then they should identify each group of them separately and accordingly specify the needed interventions. This is due to his realization that knowledge workers are not homogenous due to different levels of routinized tasks, interaction, judgment, and complexity of work.

Finally, knowledge work and workers are suggested to mandate various implications on the labor relations. It is claimed that they have different needs which should be addressed by management in terms of working conditions such as specially tailored compensation systems and managerial styles. However, because knowledge work and workers definition and thus differentiation haven't still reached a consensus, their implications are vague. Most of the propositions are theoretical and not empirical in nature. Moreover, nobody can claim that knowledge workers' workplace implications are exclusive to them. Nevertheless, rival explanations exist to justify the changing working conditions such as generational changes, legislations and the increasing employees' awareness and needs. Do these implications apply to what is claimed to be non-knowledge workers as well?

Knowledge work and workers Critique:

Knowledge workers' distinction as a unique working class is argued to be inaccurate and lacks empirical evidence. Collins (1997) refused this differentiation, for what is perceived as knowledge workers is not but a re-categorization of existing occupations, such as experts or professionals. He noticed that the intent to differentiate the knowledge worker from others through highlighting their knowledge diversity, social status, or responsibility is not accurate in differentiating their tasks from "traditional work" but it has to deal with adequate management styles in dealing with employees, reflecting how the writers wanted to be dealt with in their organizations. Additionally, Alvesson (1993) indicated that this classification is a product of wishes and state of self-reflection that certain job holders want to achieve. A lot of the current jobs that requires high years of experience and formal education don't fall under traditionally considered professions, which provide the job-holder with a superior occupation in the workforce.

So, knowledge workers seek recognition by classifying themselves as a distinct group, the same scenario executed by professionals through professionalization. "The myths of technocracy, certain knowledge, altruism, rationality, and neutrality are seen as ideologies for justificatory purposes" (Alvesson, 1993, pp.999). Moreover, Knights and Murray et al. (1993) stated that this claimed high qualifications accompanied with knowledge worker are a method of positioning professionals and managers in an elite group. This indicates a new classification of the workforce based on knowledgeable and non or weakly knowledgeable workers. By this classification, knowledge workers claim prestigious position over other workers. This prestige will accompany their position with power and task delegation for other non-knowledge workers. Consequently, organizations are endangered to focus on what they perceive as knowledge workers, identifying them as players "A", and thus Guthridge and Komm et al. (2008) expressed their concern that this may lead to short-sighted managerial practices, for "B" players are the majority of the workforce. They are steady performers who are capable and should be trained and developed as other classified working groups.

On the other hand, the importance of knowledge in performing occupational tasks is not a unique distinction among working classes, for all workers need knowledge to perform their jobs. Collins (1997) realized that all kinds of work, even the ones classified as unskilled, requires a minimum amount of knowledge, and there is no clear threshold to identify the intensity of knowledge in an occupation that qualifies as a knowledge work one. He added that maybe this hassle is caused due to the change in the workplace's environment such as automation, increasing complexity, and lesser physical effort required at work. Knights and Murray et al. (1993) added that this classification could be signaling the changes in work organization towards knowledge intensification and the ability created by information technologies to enable de-layering and employee acquisition of multi-skilling.

Additionally, the idea of retaining knowledge workers in their positions or area of expertise is causing several setbacks. Because knowledge workers are expected to be more satisfied with doing what they know how to do best, Guthridge and Komm et al. (2008) stressed the disadvantage of keeping knowledge workers within their occupational specialization and not promoting them to the middle level management, in addition this practice is encouraged by the popularity of delayering organizations. This will cause lack of talents for top management, for the middle-level management is considered as training and experience stage to gain the skills and prepare the employee for top management tasks. According to their

research, many companies are enforced to source and assign their top management from other firms, mainly smaller ones, to fill this talent gap.

Moreover, Collins (1997) stated that the claims attached with knowledge work are empirically weak. For example, suggesting that bureaucracy at work is declining is not always true. The declared liberation caused by technology may be looked at as a threat to invade privacy, and the extra emphasis on the knowledge usage at workplace exerts more pressure on employees to be more productive. These might cause deteriorating working conditions for employees such as more work stress, working hours, and tasks to accomplish than before. On the other hand, Ackroyd and Batt et al. (2005) claimed that the increasing power and self-esteem gained by knowledge workers is not always accurate. They are continuously losing autonomy, judged by their peers, and forced into a tension based on the knowledge management phenomena. "In organizations in which career paths remain dependent upon the individual's ability to demonstrate their distinctive expertise there is a clear tension with KM's drive to make all knowledge available to everyone" (Ackroyd and Batt et al. 2005, pp. 257). Moreover, work standardization and the pressure exerted by management for increasing productivity and tightening the time constraints for achieving tasks, are limiting the freedom and creativity of knowledge workers. Also, what is claimed to be soft control by management "can, however, be compromised and constrained by a variety of factors, such as shifts in management strategy or of organizational structure, particularly by trading of expertise between different divisions that results in the marketization of social relationships" (Ackroyd and Batt et al., 2005, pp. 245).

In addition, knowledge workers are not always required to act on abstract or codified knowledge. The tacit knowledge could be a routinized one and vital to the accomplishment of the working tasks. Knowledge creation and innovation is not always a condition. Ackroyd and Batt et al. (2005) argued that organizations intentionally ignored the existence and importance of "routine practices" which in many instances requires highly acquired and developed skills and tacit knowledge. Simply stated, what maybe considered as knowledge work may include various mechanistic, physical and routinized tasks.

Knowledge work can be looked at as the product of utilizing new structures rather than the product of a distinctive working class. As suggested by Knights and Murray et al. (1993), it can be the product of networks and teamwork. However, this doesn't mandate the existence of trust and negotiation among the employees, for the power domination and traditional structural influences may still exist within such a system. In addition, creating networks does not necessary contributes to a more stable and reduced complexity, for mostly they deal with uncertainty, contestation, and constraint situations.

Knowledge work mustn't be coherent, controlled and rational, and consequently it doesn't depend solely on formal body of knowledge. Alvesson (1993) emphasized that knowledge usage is not a distinction of knowledge workers, for attaining knowledge doesn't mandate utilizing it while performing tasks. In fact, a formal body of knowledge acts as a limiting factor for creativity, judgment, and skills in facing uncertainty and unpredictable situations, if it was the only base for accomplishing work. Experiences and knowledge gained through market mechanisms, social interaction and changes contribute to the judgment of employees, for complex problems need far more knowledge than what is assigned as a formal one. Thus, Alvesson (1993) claimed that tacit knowledge, represented in cultural, interpersonal, somatic and other forms, represent one pole while the formal knowledge constitutes the other, and eventually it depends on the employee selection to utilize any.

Nevertheless, Alvesson (1993) added that produced knowledge work lacks proper identification as the measures and expected results are mostly ambiguous. The main judgment on the quality of work is based on customer satisfaction, organizational beliefs, and customers' referral networks. Alvesson's (1993) claim suggests that workers are not selected due to the fact that they have the appropriate body of knowledge. For example, consultants are valued to their adaptability to deal with new issues rather than their knowledge about the task involved. In this sense, knowledge work is a product that lacks objective reliability, and knowledge workers are specialized in people skills rather than profession and know-how ones. This makes delivered knowledge work highly dependent on reputation, relationships, and the ability of persuasion.

Due to the distraction and ambiguity caused by the usage of knowledge work and workers terms, Blacker (1995) and Collins (1997), among others, suggested that it should be admitted that all work and workers are knowledgeable, and therefore assigning an elite and monopolistic status for some occupations based on knowledge is unfair, inaccurate, and unjustified.

In summary, the critiques concerning knowledge work and workers are many and various due to several reasons. First, the disagreement upon the definition diversifies the working groups assigned as knowledge workers, which accordingly make it more volatile for critique. Second, the vagueness of such a working class especially when it comes to differentiating knowledge work tasks from "traditional work". Third, the knowledge work and workers implications on labor relations lack empirical evidence. For most of the scholars mention what should be the working conditions and not what they are empirically. Also, there are a lot of rival explanations to why these implications occur. For example, what if these implications are the result of generation variations that affect all the working classes and not only what is indicated as knowledge workers.

Recommended future research:

It is suggested that further research should be conducted to progress the debate towards a consensus or abortion of knowledge work and workers concept, claiming that it was solely a managerial fad. As mentioned, knowledge work and thus knowledge workers claim is still theoretically and empirically weak due to the doubt that these terms provide something new to the management field. On one hand, knowledge workers can include everyone or, on the other hand, it can contain only minor high educated and experienced elite, such as professionals, organizational professionals, or even owners of marketable knowledge. Accordingly, if such claimed working class is wanted to survive then the differentiations supplied should be marketed and accepted by practitioners.

Another concern should be given to the rival explanations for the knowledge intensification and the changing working conditions. Such explanation may include generation differences, changing markets' and customers' needs and wants, variations among industries and firms, different firms' size, upskilling, technology utilization, communication abilities, changing needs and expectations of employees, work-life balance issues, labour and industry legislations ...etc. Eventually other questions may appear such as are knowledge tasks

intensified in certain industries or firms? Or empirically comparing knowledge workers to existing working classes within these rival explanations, do they differ?

Alternatively, is it better to dumb such a classification and evolve previous existing ones such as professionals? For example, the term professionalization indicated by Watson (1995) may evolve to include knowledge workers as a special kind of professionals. Another aspects which may occur when differentiating between knowledge workers and non- knowledge ones are fairness and legal issues. If we assume that knowledge workers have different needs and thus supply them with a beneficiary treatment, organizations maybe endangered to commit unethical, unfair and unequal practices. Thus, there are huge opportunities to study this new claimed working class's implications in the business ethics context.

Finally, even if knowledge work and workers' debates have evolved to declare them as managerial fads with no practical benefits, there is no doubt that such a discussion was and still is contributing to the management studies' body of knowledge. Most scholars admit that the working conditions and labour relations are changing due to the knowledge economy era and the workplace knowledge intensification claim. Yet, especially that the knowledge work and workers concepts are highly criticized and lack strong empirical evidence, more research is needed to declare these concepts as viable or not. Another theoretical contribution may be in redefining the concept and could result in renaming it, if such phenomena still hold as distinctive from other working classes.

Discussion and conclusion:

Due to weakly theoretical differentiation and empirical justification of knowledge work and workers and thus its implications on human resources management and labor relations, I believe that such concepts could be classified as a managerial fad. Their emergence is nothing but an attempt to explain the changing working conditions especially when it comes to the increasing knowledge intensification in the workplace. As presented, knowledge workers could not be classified into a single category. Thus, further dissection and explanation dimensions should be added in the literature to explain the previously mentioned phenomena. A lot of emerging professions were accepted in the management and work sociology literatures due to strong presented justifications, mostly following the professionalization model: process. This could be an acceptable and sounder representation of the emerging working classes than simply declaring them as knowledge workers.

In conclusion knowledge work and workers are claimed to emerge as relatively new concepts due to the knowledge economy. However, the definitions vary among scholars which cause vagueness in identifying such a working class. Moreover, certain implications evolve as a result of these concepts. These terms, whether agreed upon or not, has contributed to the literature of management studies and enriched our understanding of the labor and management implications of the knowledge economy. Trends in organizational restructuring, reengineering processes, innovative motivational systems, employees' loyalty and retention, new managerial and leadership styles, and other aspects of management studies were highly related in the literature to knowledge work and workers implications. However, it should be kept in mind that these indicated trends and changing needs shouldn't be solely a reaction of knowledge work and workers. As an example, the evolution of the employment market

enforces certain managerial trends, such as the difference in generations' behavior and increasing social demands and pressures.

A lot of critiques have arisen due to the claimed weaknesses accompanied by the knowledge work and workers definitions and implications. These are suggested to be addressed if such terms are to survive in the future. Accordingly, a lot of research gaps in defining, differentiating and mandated labor relations changes should be addressed. Issues such as fairness, ethics, and legality arise as a consequence from the suggested practices in the literature.

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