

An Exploratory Study on Skills Management of the Skilled Blue-Collar Workers in the Automotive Manufacturing Industry in Malaysia

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Abstract

Purpose: First-line managers (supervisors and team leaders) provide the linking pin between middle management and the skilled blue-collar workers, and they directly supervise non-managers. A skills management process to manage the skilled blue-collar workers by the first-line managers is developed.

Design/methodology/approach: The research applies exploratory study which is qualitative in nature to perform a case study investigation on an established automotive company in Malaysia to develop a skills management process which is reflected on the management process of the first-line management at the firm.

Findings: The skills management process adopted by the first-line management includes skills forecasting and planning, skills development, skills transfer, and skills retention. A skills management process is developed to manage the skilled blue-collar workers in a humanised manner.

Research limitations/implications: The study is conducted within automotive industry, in which further study can be extended to other similar high-technology manufacturing industries.

Practical implications: Skilled blue-collar workers are a group of workforces who possess certified skills which are difficult to be imitated without going through the process of learning and experience of skills. Therefore, it is essential to design a proper skills management process to manage this group of workforces.

Originality/value: The research is novelty work and original work.

Keywords: Skills Management, Skilled Blue-collar Workers, First-line Management, Automotive Industry, Management Process.

Introduction

The automotive industry hires more than 700,000 employees both in manufacturing and aftersales services (according to the Malaysia Automotive, Robotics and IoT Institute (MARii)). In addition, 59,010 new jobs were created in the automotive industry in Malaysia in 2018, with more than 5,000 employees trained through programmes undertaken by the agency, under the monitoring of MITI (MITI, 2019).

The government is working together with its agencies to create new talents for the automotive industry in Malaysia through the introduction of new programmes, including the industry-Led Professional Certificate, developed to address the emerging industry demands for Industry 4.0 capabilities (Asia, 2019).

The application and adoption of the advanced manufacturing in the automotive industry at present trigger the high demands for skilled workers in the automotive industry in Malaysia. During the era of Industry 4.0, the technologies adopted in the advanced manufacturing including the internet of things, artificial intelligence, robotics, integration of advanced analytics, cloud computing, sensor technologies, machine learning, block-chain, cyber-physical systems, and 3D printing. Apart from that, digital technologies are interacting with the existing technologies, including welding robots, which have been utilised in the vehicle manufacturing for decades (Griffin and Mary, 2020).

Background of the Study

The research studies the skills management from the perspective of technology, which can be defined as a set of skills and abilities to perform specific tasks (Gehani, 1998). There are three independent components in technology (hardware, software and brainware) (Zeleny, 1986). Brainware is "the purpose (objectives and goals), reason and justification to use or deploy the hardware or software in a specific way. This is known as know-what and know-why of technology. In other word, it means the determination of what to use or deploy, when where and why" (Zeleny, 2005, p.182).

There is a fourth component of the technology (know-how), which can be understood as the learned or acquired technical skill in relevant on how to do things well. Know-how can be a result of experience, transfer of skills or hands-on practice. Technical know-how can be acquired through formal or informal education or training or by working closely with an expert in a specific area, and it can be acquired through recognised method of technology transfer (Khalil, 2000).

The research studies on the skills management by focusing on the components of technology (brainware and know-how). Skills are fundamental to allow the skilled blue-collar workers to do their jobs. Skills include the competency of a worker to provide in exchange for remuneration at the workplace. Skills are concerned about know-how, speed, accuracy are some of its traits and characteristics and must be developed through training, practice and experience (Adeyemo, 2010).

First-line managers directly supervise non-managers. The first-line management does short-range operating plans concerning tasks to be done in the coming date, assign tasks to their workers, supervise the work that is done, and evaluate the performance of individual workers. They are the linking pin between upper management and the working level, representing the needs and goals of each to the other (Morse and Babcock, 2014).

First-line managers (supervisors and team leaders) play an essential role to become the immediate people between the middle management and the skilled blue-collar workers. They are the one who bridge the communication between the middle management and skilled blue-collar workers in the automotive industry. In addition, they are the one who directly supervise the skilled blue-collar workers in the automotive industry. Therefore, they are the one who are closely supervising and monitoring the skilled blue-collar workers in the automotive industry in Malaysia.

Problem Statement

The automotive industry in Malaysia essentially develops the skilled Malaysian workforce, to create a critical mass of knowledge workers and skilled labours when providing with the talent development space in the areas of science, engineering, technology, and relevant technical fields. The automotive value chain involves many job functions which trigger the flourish of high skilled jobs including automotive styling and design, engineering services, manufacturing processes and after sales services (Asia, 2019).

The automotive industry is in high demand for skilled workers because the industry is very much relying on the application of high technology at present. The automotive industry is evolving into an ecosystem of smart manufacturing, placing a premium on skills in automated processes, which include elements of robotics, automated guided vehicles, 3D printing etc. More job opportunities are created and demands for skilled workers with the maturation in the adoption of automation, robotics, and Industry 4.0 relevant technologies (MITI, 2019). There is a high demand for the skilled workers in the automotive industry in Malaysia at present. However, there is a lack of systematic way to manage and retain this group of workers within the automotive industry in Malaysia.

Research Question

How does the first-line management team of automotive manufacturer X (AMX) manage the skilled blue-collar workers working at the firm?

Research Objective

To investigate how does the first-line management team of automotive manufacturer X (AMX) managing the skilled blue-collar workers working at the firm.

Significance of Study

It is essential to have a systematic way to manage and retain the skilled workers looking at the high demand for them in the automotive industry in Malaysia. Apart from that, these skilled workers are experienced and well-trained. They accumulated their skills and working experience in the automotive industry. In addition, they are certified skilled workers, having undergone a series formal training course; are valuable assets to the manufacturers in the automotive industry.

First-line managers are the one who are closely supervising and monitoring the skilled blue-collar workers in the automotive industry in Malaysia. They will be the one who is able to communicate and supervise well the skilled blue-collar workers. The researchers further study about the significant roles of the first-line managers in managing the skilled blue-collar workers, looking at their significant relationships with the subordinates (skilled blue-collar workers). Therefore, the researchers developed a skills management process, to investigate on how the first-line management team in managing and retain this group of workers (using an established automotive manufacturer X (AMX) in Malaysia, as a single case study).

Literature Review

Differences between Blue-collar Workers and Skilled Blue-collar Workers

Blue collar workers do labour jobs and work with their hands (Hearst Newspapers, 2014). They do not have ladder of career development and usually considered to have jobs instead of careers. However, blue collar workers have meaningful work experiences and accumulated skills over time (Thomas, 1989). On the other hand, skilled blue-collar workers do have the opportunities for career development and advancement. They have both jobs and careers. They can be formally educated, skilled and highly paid presently (Hearst Newspapers, 2014). Skilled blue-collar workers in this context refer to blue collar workers who are highly skilled in the automotive industry and they accumulated skills after long term of working experience at the factory.

Derivation of Skills Management Process

The researchers do index searching from across the fields using the systematic literature review introduced by Transfield et al. (2003). After that, the researchers find that there are some similarities from a few disciplines to provide further insight in deriving the proposed skills management process. The synthesised findings from the systematic literature review provide the outcome to derive the skills management process.

Through the literature searches compilation, the researchers find that there are three major fields of study involved to derive the skills management process. These three major fields include human resource management, talent management and knowledge management.

Human Resource Management

Human resource management comprises of a set of distinctive, correlated activities, functions and processes which aim to attract, develop and maintain a company's human resources (Lin, Peng and Kao, 2008). The human resource system of an organisation is vibrant processes that enable an organisation to acquire, develop and deploy its resources to gain superior performance and competitive advantage (Lado and Wilson, 1994). Moreover, skills management process is derived from human resource planning, human resource development and human resource retention.

Knowledge Management

Knowledge is an intangible resource for a firm that could be as a strategic resource. The important source of sustainable competitive advantage involves the effective development, deployment, and exploitation of knowledge (Schiuma, 2009; Schiuma et al., 2008). Knowledge can be grouped into explicit knowledge and tacit knowledge (Nonaka and Takeuchi, 1995; Sveiby, 1997; Davenport and Prusak, 1998; Pan and Scarborough, 1999). Tacit knowledge refers to the subjective and experience-based knowledge which cannot be expressed in words. In contrast, explicit knowledge is concerned about the objective and rational knowledge which can be expressed in words.

Explicit knowledge can be transmitted to others when it is systematic and can be articulated, codified and stored in certain media (Pan and Scarborough, 1999). In contrast, tacit knowledge is difficult to express, formalise or transfer due to its characteristic created through learning by practicing (Sveiby, 1997). Tacit knowledge can be obtained from personal experiences, and it is found embedded in action, commitment, and involvement in a specific context. Tacit knowledge can be exchanged through human interaction, but explicit knowledge can be exchanged through documents (Nonaka et al., 2000).

Apart from that, organisational "know-how" or tacit knowledge is difficult to be replicated (Argote and Epple, 1990; Kogut and Zander, 1992; Nonaka, 1994). Tacit knowledge is rare and inimitable. Therefore, tacit knowledge cannot be codified and transmitted by ordinary methods (Hult et al., 2006).

Two in-depth case studies are conducted by Brien (2015) to reflect the major findings of an exploratory knowledge assessment in relevant to the areas of knowledge creation, knowledge acquisition, knowledge sharing and knowledge reuse. In addition, another group of researchers (O Brien, 2013; Minonne and Turner, 2009) highlight about the knowledge life cycle on the capability to create, acquire, share and reuse explicitly documented knowledge (Choi et al., 2008).

Talent Management

There are numerous of companies competing for skills and talents of their employees (Smith, 2007). Intellectual capital is concerned about knowledge and experience of every employee in a firm (Sommer, 2000). Talents can be understood as a core group of leaders, technical experts and key contributors who are able to drive the business of a firm forward (Society for Human Resource Management, 2007).

Talent management can be defined in numerous perspectives. Talent management forecasts and manages the flow of human manpower throughout a firm, based on factors such as workforce skills, supply and demand and growth and attrition. Talent management is relevant to human resource and workforce planning. Talent management highlights about sourcing, developing, rewarding employee talents (Lewis and Heckman, 2006). Talent management is fundamental to enable a firm to successfully acquire and retain key talents (Hughes and Rog, 2008).

There are numerous researchers propose about the talent management elements (Groves, 2007; Collings and Scullion, 2007; Iles, 2007 and Hartmann et al., 2010). These researchers propose that talent management comprises of the identification, development, appraisal, deployment, and retention of high-performing and high-potential staffs.

Skills

Skills refer to an individual's level of task-specific knowledge; or an individual's experience with a task (Mascha and Miller, 2010). Skills reflect ability to perform a task (Noe, 2008). A skill is concerned about the proficiency to be able to perform a task rather than just knowing how to do the task, which includes the capacities needed to perform a set of tasks. An individual's skills level is reflected by how well he or she can perform actions (Blanchard and Thacker, 2010).

Skills can be understood as the competency to do tasks accurately with ease. Skills include psychomotor activities which indicate the capability of individuals to effectively apply their knowledge to do physical tasks (Phillips and Gully, 2009). Skills can be defined as the application of knowledge with mental process render to action taken in a practical way to solve problem or to attain individual and organisation goals. It is beyond knowledge and could be classified under tacit knowledge, a hands-on capability for action taken which builds through experiences, learning curve and trial-and-errors (Chew, 2014).

Skills Management

Skills management is concerned about the capability of a firm to optimise the utilisation of its human manpower. Firms can optimise outcomes and to ensure the most effective, flexible, and cost-effective utilisation of workforce through skills management (Dubois and Singh, 2009). Skills management aims to allocate the skills appropriately to the right place, at the right time at optimal costs (Kreitmeier et al., 2000). An individual with knowledge does not guarantee that he or she has the ultimate skills required (Chew, 2014).

Skills Management Process Derivation

The skills management framework is derived from three major fields of concepts (human resource management, knowledge management and talent management).

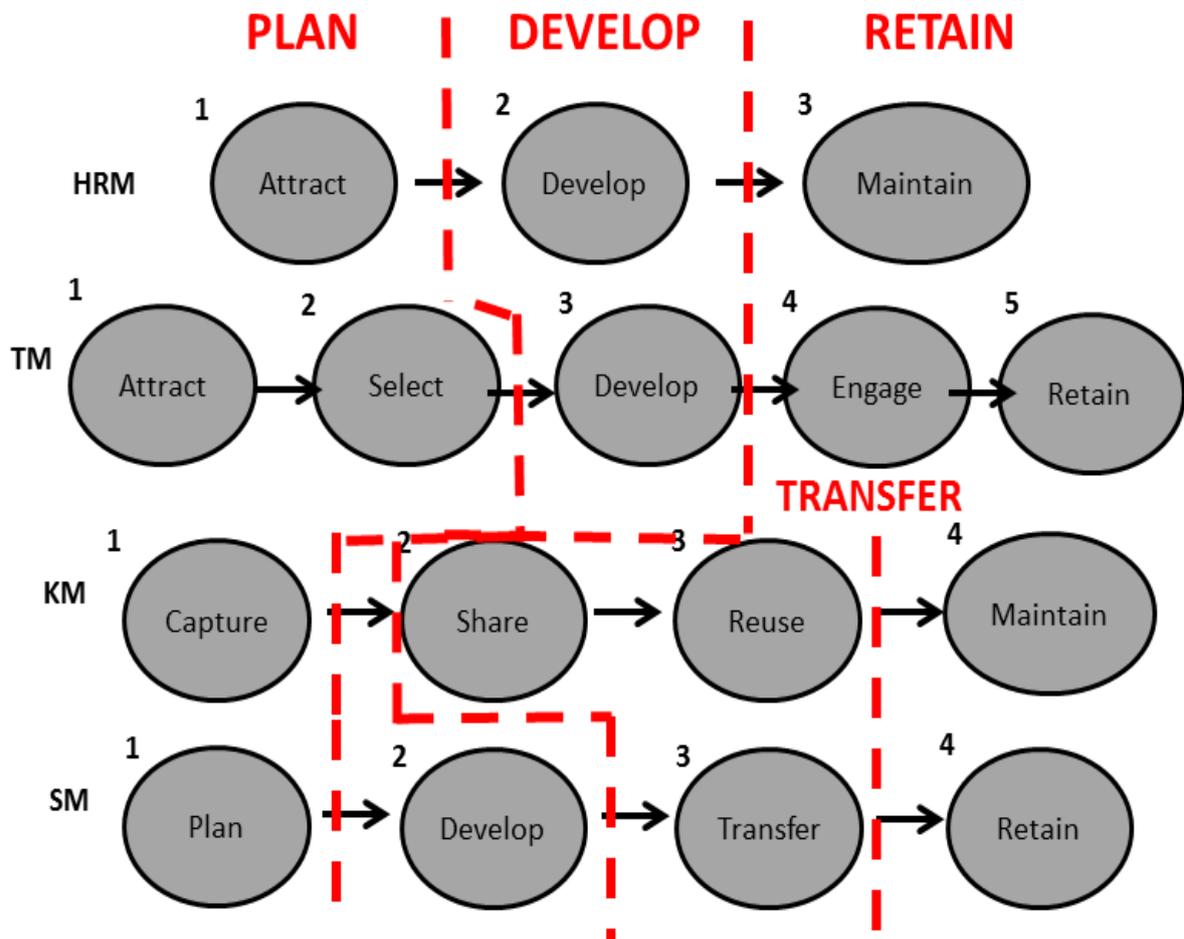


Figure 2.1 Mapping of the different frameworks to derive Skills Management Framework proposed by the researchers (Eng et al., 2020)

Figure 2.1 indicates the mapping of the different frameworks in human resource management, talent management and knowledge management to derive the skills management framework. The skills management framework comprises of four stages of activities: skills forecasting and planning, skills development, skills transfer, and skills retention, which can be defined as following:

- (a) Skills forecasting and planning: this process aims to forecast the short-term required competences by the employees (Taylor, 2013).
- (b) Skills development: Firm aims to employ manpower who are willing and able to learn the job and accept training (on-the-job training, workshops, and seminars) when they are not paid with the competitive remunerations (Phillips and Gully, 2009; Blanchard and Thacker, 2010).
- (c) Skills transfer: It is concerned about the process by which the skills developed by a creator is practiced and utilised by an applier (Khalil, 2000).
- (d) Skills retention: Retention of skilled workers contributes to produce a pool of loyal and committed workforce who has better understanding about the company's products, services and processes and decreased staffing costs (Phillips and Gully, 2009).

Skills Management Process

The skills management process indicated in the Figure 2.2, aims to manage the skilled blue-collar workers for continual improvement. It is designed based on the concept of Deming Cycle, in which it is a continuous cycle (Deming, 2016). The cycle begins with the skills forecasting and planning, in which the firm forecasts and plans on the needed skills among the skilled blue-collar workers in the manufacturing process. Then, the cycle continues with the skills development, in which the organisation develops the needed skills among the skilled blue-collar workers in the manufacturing process. Next, the cycle continues with the skills transfer, in which the senior workers teach and transfer skills to the junior workers in the firm. Lastly, the cycle closes with skills retention, in which the organisation retains the skills of the employees with the staffs’ retention within the firm. The four stages of activities are repeated endless for continual improvement. The cycle is in a loop in which the firm will forecast and plan for the needed skills among the new batch of blue-collar workers after retention of the senior skilled blue-collar workers.

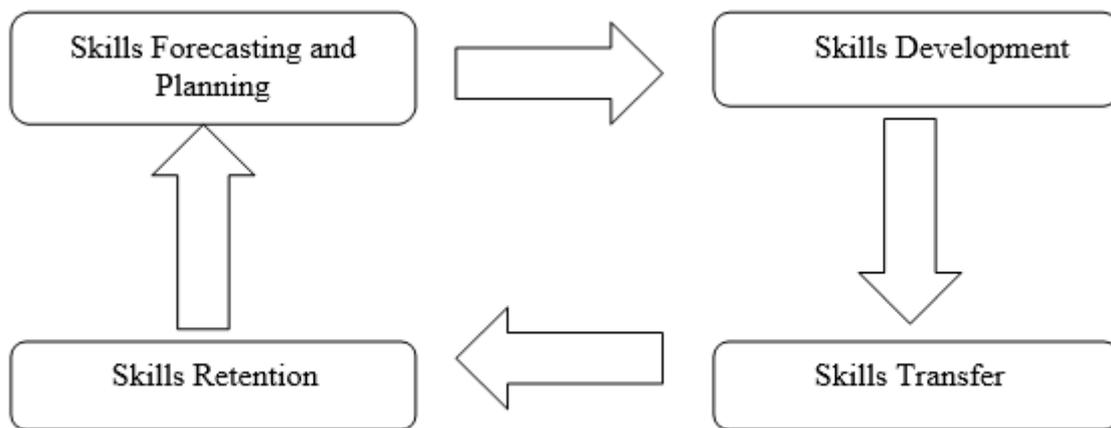


Figure 2.2 Conceptual framework of skills management process

Source: Developed by the researcher with reference to the (Deming, 2016; Eng et al., 2020)

Method

This chapter explains the research methods adopted for the research. Firstly, the secondary data is collected from the document review and the primary data is collected from the research interviews to achieve the research objective. The research adopts interpretivism which highlights the difference between conducting research among individuals rather than about objects, because the research aims to investigate on how to manage and retain the skilled blue-collar workers. In addition, the researchers need to understand about the differences between humans in the role as social actors (Saunders et al., 2012).

On the other hand, the research is adopting deductive approach, because the researchers seek to use existing theory to shape the approach that is adopted to the qualitative research process and to aspects of data analysis. The researchers start and provide with an initial analytical framework, when the research is begun from a theoretical perspective that will link the research into the existing body of knowledge in the subject area (skills management) (Saunders et al., 2012). Furthermore, the research starts by deriving a conceptual framework from the literature review (skills management framework), then the research verifies the practicability of the developed skills management framework by conducting semi-structured interviews and document analysis (deductive approach). The researchers use existing theory to formulate the

research question and research objective, and then they apply the theoretical propositions as a mean to devise a framework to help in organising and directing the data analysis (Yin, 2009). The research is an exploratory study in nature because it aims to discover the real facts and to study in depth about skills management. The skills management area is under studied, in which there is a lack of published research and knowledge about the skills management from the perspective of management science (Saunders et al., 2012). The researchers perform the exploratory study by conducting literature review and conducting individual interviews to explore both research question and research objective.

The researchers conduct the face-to-face interviews with the first-line management team at the AMX. The interviews are in the form of semi-structured. The researchers need to cover a series of key questions with a list of themes. The researchers may omit certain questions in particular interviews and the order of questions may be different depending on the flow of conversation (Saunders et al, 2012). The researchers adopt probing technique to trigger further responses from the participants who have more experience and knowledge in pertaining to their areas of expertise. The researchers need to conduct extensive interviews with several people to cope with the situations and to understand the phenomenon in deep (Saunders et al, 2012). In this research, the researchers do individual interviews at the AMX to verify the developed four-stages of skills management process to be implemented in the automotive industry in Malaysia. Qualitative research aims to achieve an in-depth understanding of a situation (Cooper and Schindler, 2011). The research is qualitative research because it aims to further discover about the skills management process to manage the skilled blue-collar workers at the AMX. This research has been designed in the qualitative approach, as most of the data in this research is qualitative in nature. This enables the researchers to interpret meaning, make sense of data, and eventually produce new ideas and concepts to establish a new and evolved concept towards theory building.

The research adopts a single case study approach to develop the skills management process to manage and retain the skilled blue-collar workers in the automotive industry in Malaysia. An established automotive manufacturer in Malaysia (AMX) has participated in the research to be the single case study for the researchers to perform primary data collection.

The research is adopting the explanation building for the data analysis of the research. This data analysis method links data to propositions and to interpret the findings in the research towards theory building. It is proven theoretically and empirically that the skills management process consists of four stages of activities: skills forecasting and planning, skills development, skills transfer and skills retention. The skilled blue-collar workers can increase their skills mastery after going through the four stages of skills management process.

Findings and Discussion

Skills Forecasting and Planning

The first-line management performs skills planning so that when the senior workers quit and when the new workers are recruited, the junior workers can teach the newly recruited workers. The management needs to hire new workers to replace the senior workers who left the company. That is why the company needs to have a skills management process to train the newly employed workers and to retain the experienced senior workers to achieve the purpose of skills retention. Monitoring is important to assure the employees to perform at satisfactory level when the turnover rate is high at the company. The superiors will arrange the newly recruited workers to learn the easier processes first follow by the difficult processes to facilitate the learning process of the workers. The jobs at the production floor will be distributed among the workers according to the level of job difficulty and the work experiences of the workers.

This is important to ensure that the right person is assigned to the right jobs so that the production process of the company can run smoothly.

Skills Development

The supervisor always observes to see whether the blue-collar workers have improved in their skills level. The team leader justifies skills requirements among the skilled blue-collar workers by identifying their weaknesses in skills. The team leaders will closely monitor their subordinates in terms of production achievement and performance to report to the supervisors. Then, the supervisors will report to the middle management about the production achievement and performance of the skilled blue-collar workers. The first-line management observes whether the workers finish work faster to determine the working speed of the workers. In other words, the working speed indicates the skills level of the workers.

One of the monitoring tools used at the production line is control chart, which indicates the quality of skills among the employees. If there are defects found at the production line, the workers on duty will be reassessed to determine they will be retained by training or replaced by new workers. The jobs at the production floor are distributed among the workers according to the level of job difficulty and the work experiences of the workers. The first-line management can determine what improvement is needed to achieve the necessary skills level for the workers through the skills assessment. The first-line management assesses the skills level of the workers by detecting their defects and mistakes to identify the skills needed to improve their work performance and proceed to achieve the required skills.

The first-line management develops skills among the skilled blue-collar workers through on-the-job training and off-the-job training. The first-line management train the new workers based on theory and practical (on-the-job training) to help them to gain work experience and learn the necessary skills needed for manufacturing processes. Job rotation is one of the effective methods for skills improvement among the skilled blue-collar workers because the workers are able to gain the different skills through job rotation at the different workstations. The supervisor must plan for how to acquire the skills, then when the skills are acquired, they do assessment on the skills and then they rectify on the identified problems.

Skills Transfer

The senior workers will guide the junior workers in the buddy system. The superiors will identify which skills that the worker needs to learn and train him with on-the-job training through the buddy system. The team leader is usually close with the skilled blue-collar workers because they are always at the production line to monitor the workers. The team leaders are in-charge to monitor the output, working processes, working methods and defects created by the workers. The first-line management switches the workers to other workstations to learn other skills so that the workers can learn multi-skills.

The first-line management will send the senior workers for job rotation when they have learnt all the skills at all the workstations, so that they are able to practice their skills and transfer their skills to other junior workers. Buddy system is implemented for skills transfer from the senior workers to the junior workers at the production floor. Job rotation plays a role in skills transfer to the workers because they can learn all the manufacturing process through job rotation. The team leaders play a significant role in the skills transfer process because they are the one who spend most of the time with the skilled blue-collar workers to teach them the new skills needed for work. The workers are very difficult to progress in skills to catch up with the latest development of the job if they do not be motivated to learn new skills.

Transfer intention is initiated due to win-win situation; the senior workers perform skills transfer to the junior workers to facilitate their daily work. The skilled blue-collar workers need to transfer whatever skills that they have learnt into the works that they are doing, to ensure that they are producing the right product and quality product for the consumers in the market. Transfer climate must be conducive to facilitate the process of internal skills transfer. The workers need to adapt to any changed situation or environment to achieve successful skills transfer. Competitive work environment is an obstacle towards positive skills transfer among the skilled blue-collar workers. The workers are more motivated to transfer skills when the training materials are like the work setting at the workplace. The identical elements facilitate the skills transfer because it is easier to apply whatever has been learnt in the training to the job.

Career path development plays an important role for motivation to transfer among the skilled blue-collar workers because the skills level of workers will be categorised as level four (coach - who are qualified to train other workers) if they are able to master a skill and are capable to teach others. In this way, they will be the first to be considered for promotion. In other words, the workers are motivated to transfer due to their desire for promotion at the workplace.

Skills Retention

The best solution for collective leadership is to get a balance in between concern for people and concern for production to ensure that workers' benefits are not neglected, and production deadline is met. The management plays the role to ensure that the people are treated well, and the production is always in control, meaning that the planned production volume equals to the actual production volume. Mentor plays essential role to guide and tutor the mentee so that the mentee can perform his or her daily job. The senior skilled blue-collar workers play the role as the mentors in guiding and teaching the junior blue-collar workers who play the role as mentees.

The reduced pay due to reduced overtime among the new workers contributes to the high turnover rate among the new workers. There is lack of opportunity for the senior workers to be promoted as the management team. Team leader is difficult to be promoted as the supervisor. Therefore, the slow promotion speed can lead to increased employee turnover. Team building plays an important role to achieve good work performance, the workers cannot do work alone, so they must work together in a team. Peer support can motivate and create healthy work environment.

Conclusion

The researchers derive the following theory: The skills management process conducted by the first-line management in an organisation will eventually contribute to organisational objectives. The research is an exploratory study performed using the qualitative approach to develop a skills management process for first-line management to manage and retain the skilled blue-collar workers at the automotive industry in Malaysia. The research contributes to body of knowledge in the field of skills management under the category human resource management, managing the human side of technology. For future recommendation of the study, other researchers who are keen about the research may opt to conduct other research to prove the generalisation of the skills management framework to other industry in Malaysia.

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