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PUBLISHER

Hampshire Press Ltd. © Southampton Solent University

VERSION

SMUR (Submitted Manuscript Under Review)

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Mat, Shafizal, Keith Case, and Yee M. Goh. 2019. "Motivational and Learning Behaviour Between Skilled and Un-skilled Workers: A Pilot Case Study". figshare. <https://hdl.handle.net/2134/15971>.

MOTIVATIONAL AND LEARNING BEHAVIOUR BETWEEN SKILLED AND UN-SKILLED WORKERS: A PILOT CASE STUDY

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ABSTRACT

This paper presents work that has the overall objective of understanding the relationships between motivational and learning behaviours in manufacturing/assembly operations among skilled and unskilled employees. The longer term aim is to use this knowledge to help with devising automation strategies. This paper has very much more limited objectives and is concerned with early pilot studies aimed at gaining an understanding of the perceptions of employees as a precursor to eventually attempting to measure motivation/learning relationships in objective ways. Two hypotheses relating skill level, task complexity, learning and motivation were tested in a pilot case study. A relationship was found between motivational and learning behaviours among immature and mature participants. Also it was found that most mature participants learned by doing complex tasks and this increased their work motivation. These findings will be used to develop an industrially based study conducted in local industries as well as industries in Malaysia.

Keywords: motivation, learning behaviours.

1 INTRODUCTION

The topic of employee motivation at the workplace is an important aspect of human resource management both practically and theoretically. It is vital to recognize the importance of people in the organization in order to achieve the goals of the organization. One way to achieve the goals is by keeping the employee motivated at all times. Atkinson (1964) defined motivation as “the contemporary (immediate) influence on direction, vigour, and persistence of action”. While Vroom (1964) defined it as “a process governing choices made by a person...among alternative forms of voluntary activity”. Managers see motivation as an integral part of the performance equation at all levels, while organizational researchers see it as a fundamental building block in the development of useful theories of effective management practice. Indeed, the topic of motivation permeates many of the subfields that compose the study of management, including leadership, teams, performance management, managerial ethics, decision making, and organizational change.

Many motivational theories have been developed by behavioural scientists, but it is not known to what extent the theories are relevant to current situations. This becomes the challenge of exploring theories that are relevant in any situation especially in manufacturing industries. In addition, although organizational learning theory and practice have been clarified by practitioners and scholars in recent years, there is much to be explored regarding the interactions between organizational learning culture and employee learning and the performance outcomes. This paper focuses more on the employee

motivational and learning behaviours that are important contributors to product variability and thus will affect job satisfaction and turnover in manufacturing industry.

This paper aims to understand the relationship between motivational and learning behaviours in manufacturing/assembly operations among skilled and unskilled employees. Two hypotheses have been identified as H1 - Learning by doing simple tasks by unskilled employees will increase their work motivation and H2 - Learning by doing complex tasks by skilled employees will increase their work motivation. In order to test these hypotheses, data has been collected from 72 students who participated in the pilot case study.

2 MOTIVATION AND LEARNING BEHAVIOUR

The topics of motivation and job satisfaction have been of interest to researchers in the past decade. Many researchers and practitioners have studied the driving factors to motivate staff in the workplace, but no specific finding showed the correlation between motivation and job performance. Problems of motivation and job satisfaction have continued to plague many developing countries like Malaysia. Although a number of research studies have been conducted on motivation and job satisfaction, primarily in developed countries such as USA and UK, very little study has been done on these issues either in the government or private sector in Malaysia. There is a need to study the motivation and job satisfaction among employees in Malaysia to examine their causes and correlation.

Many of the motivation theories and ideas emerging from the 1960s and 1970s have been extended and further developed to reflect expanded research findings and more sophisticated research methods. Indeed, the 1980s witnessed a series of refinements and extensions of existing theories. For example, researchers made great strides in conceptual development and empirical work focusing on social learning theory, as did new work focusing on goal-setting theory, job design, reward systems, punishment, procedural justice, innovation and creativity, and cross-cultural influences on work behaviour. However, by the 1990s, intellectual interest in work motivation theory seemed to decline. As evidence of this, few articles have been published in leading journals over the past decade. This becomes the biggest challenge to researchers in this competitive period where successful companies will compete globally in the future based principally on the quality of both their technologies and human resources. It is said that many of the ideas and theories of work motivation have been extended and developed in the 1980s. Researchers have worked on social learning theory, goal-setting theory, job design, reward systems, punishment, procedural justice, innovation and creativity and cross-cultural influences on work behaviour (Steers et al., 2004).

Learning behaviours or learning activities can be described as specific behaviours that result in a change of knowledge or behaviours. Several studies have formulated and categorized the learning activities of employees, and distinctions have been made between on-the-job and off-the-job learning, and implicit versus explicit learning (Doornbos et al., 2004). Bolhuis (2001) distinguished four learning activities: learning through experience, learning through social interaction, learning through theory, and learning through critical reflection. Berings et al. (2008) made a classification of learning activities within the nursing profession: learning by doing regular job, learning by applying something new in the job, learning by social interaction with colleagues, learning by theory or supervision, and learning by reflection. Based on the literature, there has been little work done on either relating the motivation theory to learning or the ultimate impact on product variability. There is a need to study the relationship between the employee motivational factors and learning behaviours in manufacturing assembly. Two types of learning activities are highlighted in this paper: learning by doing different tasks individually and learning by doing different tasks in a group. The conclusion is reached that, more research on human variability for specifying automation is required and new models and theories that relate employee motivation and learning behaviours should be developed and explored.

3 RESEARCH METHOD

After completing all the groundwork of the research, the first phase of the project involved a preliminary pilot study. Different tasks were designed and these tasks were assigned to students of Universiti Teknikal Malaysia Melaka (UTeM). Students from different levels of competency and knowledge were invited to participate in the study. The study was conducted at UTeM in November 2013. There were 26 diploma and 46 undergraduate Mechanical Engineering students participating in

the study. The diploma students were in year one with an average age of 18, and were categorized as fresh/immature participants while the undergraduate students were final year students with an average age of 24, and were categorized as senior/mature participants. This categorisation was intended to reflect in some small way the categorisation into skilled and unskilled employees that is envisaged in the planned later substantive studies. In this pilot study, the students were required to complete two different (simple and complex) tasks by building a LEGO robot using step-by-step instructions. These tasks had to be done individually and in groups of 4-5 students. After completing the task, students were required to complete a questionnaire within which most of the questions were related to the given tasks as well as their learning behaviour/activities. The questionnaire was divided into three parts. Part A concerned the respondents' backgrounds, Part B was about the given task and Part 3 was about the respondents' perception of their learning behaviours/activities.

Task A is a simple task. This strange-looking rover is designed to be a very simple way to produce a small vehicle that can drive around by wired remote control from the buttons on the hand-held NXT. The angular design and the pivoting castor wheel allow the vehicle to turn easily on all types of floors. The task is a very simple assembly as shown in Figure 1 and an average participant can complete the task within 10 minutes.



Figure 1: Task A - mini robot



Figure 2: Task B – dragster

Figure 2 shows task B that can be considered as a complex task. This dragster uses all three of the NXT motors to achieve maximum power. It will pop a wheelie at the start then run straight down the hall. An adjustable wheelie bar lets participants control how high the wheelie at the start will be and how long the dragster will hold the wheelie. Gears are used to speed up the NXT motors to achieve greater top speeds during the run. This task can be completed within 40 minutes.

4 RESULTS AND DISCUSSION

This pilot study was conducted to verify and predict an appropriate sample size as well as to improve the study design prior to performance of the method used in the real case studies. The target participants were students with different background and skills. The actual case studies will be developed and tested in selected local manufacturing industries as well as industries in Malaysia. Then, the data gathered will be analysed and some motivational and learning curves theories used in order to validate the findings. The findings are then expected to be useful for local authorities and industries for their future references.

4.1 The Given Tasks

In this study, participants were asked to give their perception of whether the simple and complex tasks increased their work motivation.

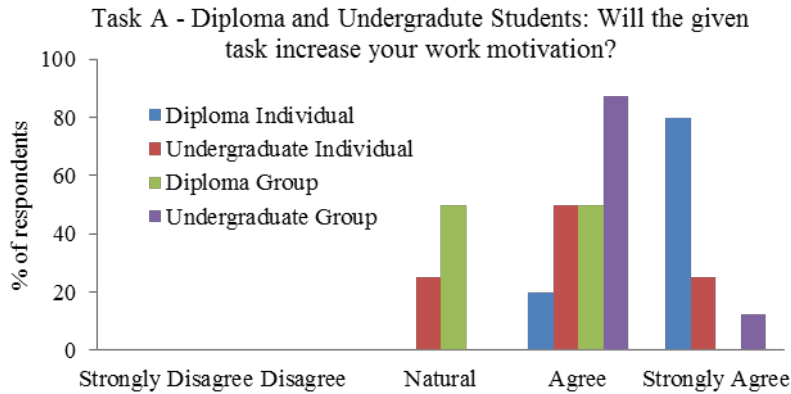


Figure 3: The percentage of respondent diploma and undergraduate students with regard to the simple task

Figure 3 shows the percentage of respondents who performed task A by diploma and undergraduate students. The task was done individually or in a group. It clearly showed that the task had impact on work motivation where most of the students, both diploma and undergraduate, agreed that the task will increase their motivation. Diploma students who performed the task individually and undergraduate students who performed the task in groups considered that it would increase their motivation. However, half of the diploma students who did the task in groups agreed on work motivation, but half were neutral. About 75% of the undergraduate students who performed the task individually agreed that it had increased their work motivation, and only few of them expressed a neutral view. More than 70% of the diploma students agreed that doing simple tasks would increase their work motivation. These findings show that both immature and mature participants found that the given task has increased their work motivation.

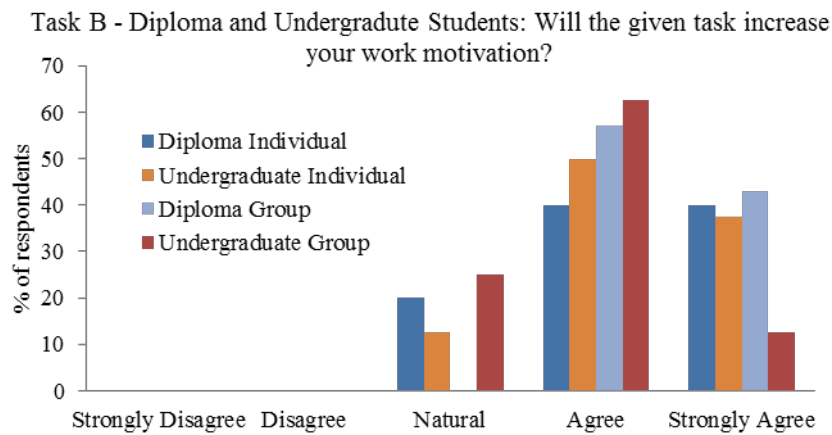


Figure 4: The percentage of respondent diploma and undergraduate students with regard to the given complex task

Figure 4 shows the perception of the diploma and undergraduate students on task B. Diploma students who performed the task individually or in groups agreed that the task increased their work motivation. However, a few of the undergraduate students were neutral on whether or not the task would increase their work motivation.

4.2 Learning Behaviour

The second part of this paper discusses the findings about learning behaviour between diploma and undergraduate students who performed tasks either individually or in groups. About 76% of the diploma students agreed that they learn by doing tasks in a group rather than doing tasks individually as shown in Figure 5. This shows that immature participants are less confident in performing tasks individually, possibly because they were inexperienced in these kinds of tasks and needed more

guidance and help from group members. However, 66% and 79% of the undergraduate students found that they learn by doing tasks individually or in group respectively. This clearly shows that mature participants are happy to do tasks either individually or in a group.

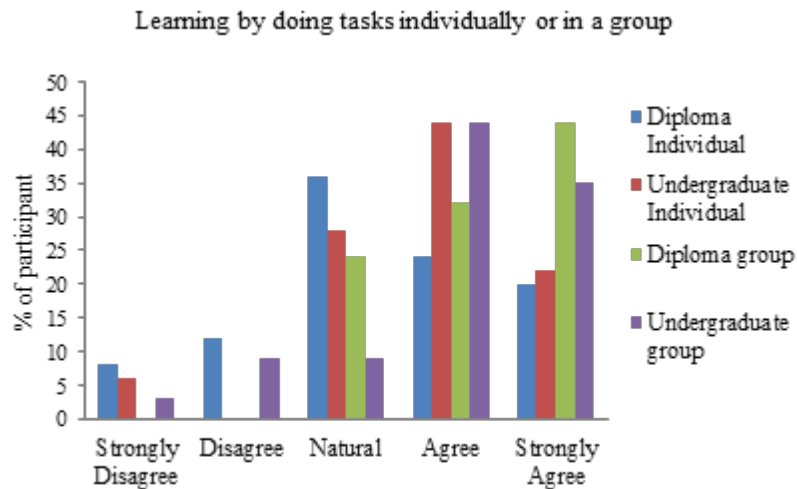


Figure 5: The percentage of participants regarding of their learning behaviour in doing the given task either individual or in a group

They may be well prepared for whatever task is given to them. As in Figure 6, about 75% of the diploma students agreed that they learn by doing simple and 65% of undergraduate students learn by doing complex tasks. Based on these findings, the hypotheses H1 and H2 have been shown to be true, where immature participants tend to learn by doing simple tasks and this will increase their work motivation and mature participants prefer learning by doing complex task and this will increase their motivation as well.

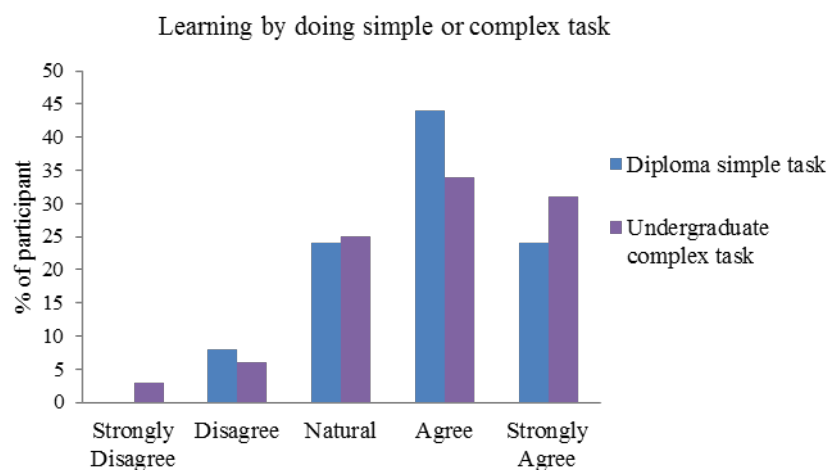


Figure 6: Percentage of participants regarding their learning either by doing simple or complex task

5 CONCLUSION AND FUTURE WORK

This study was an attempt to improve the understanding of how human operators contribute to variability in manufacturing industries with a focus on job performance and its relationship with motivation needs and some demographic factors. It also focused on employees' learning behaviours while performing certain tasks. Based on an initial search of relevant literature review, it was found that no serious attempt has been made to investigate the relationship between employee motivation

and learning behaviours particularly in manufacturing industries. This has raised the interest of the authors to further explore the issue, and the pilot case study has shown the relationship between motivational and learning behaviour of immature and mature students representing skilled and unskilled employees respectively.

Future work will involve employees from local industries and Malaysian Small and Medium Enterprises (SMEs) participating in a real industrial case study. The data gathered will be analysed using statistical analysis and the findings used for the development of methodological framework. This method could be useful for local industries to understand how humans interact with the process as well as the relationships of variability and the process outcome in designing and specifying more appropriate automation systems. It is also useful to relevant authorities in the United Kingdom and Malaysia to improve occupational safety and health especially in automotive and aerospace industries.

ACKNOWLEDGMENTS

The authors would like to thank the Ministry of Higher Education, Malaysia for funding the PhD study.

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