COMPARATIVE EVALUATION OF THE DRIVE TO DEFEND OF EMPLOYEES IN MECHANICAL ENGINEERING FIRMS BETWEEN RESPONDENTS

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ABSTRACT

Objective: The purpose of the study was to assess the motivation level of the employees in mechanical engineering firms in Hanoi, Vietnam, and conduct a comparative evaluation of how the employees perceived work motivation, which can contribute to improving work motivation in employee service leadership.

Method: To achieve the research objectives, a systematic research design is employed, utilizing survey methods as the primary data collection tool. A sample of 190 employees from mechanical engineering firms in Hanoi was selected for participation. The survey encompasses questions designed to gather information about the drive to defend employees. This quantitative approach allows for the collection of structured data that can be statistically analyzed to uncover trends.

Results: The study's results indicate that there is no difference in assessing the drive to defend of employees in mechanical engineering firms in Hanoi between different subjects in terms of gender, academic standards, job position, career seniority, and age.

Conclusions: The study is grounded in the theoretical framework of human resource management. Additionally, the study incorporates concepts related to human resources within the firm sector. Based on this result, the study proposes some recommendations for mechanical engineering firms in Hanoi to enhance human resource management for improved performance and innovation.

Keywords: the drive to defend (D), mechanical engineering firms, employees, human resources, work motivation, economics.

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RESUMO

Objetivo: O objetivo do estudo foi avaliar o nível de motivação dos funcionários em empresas de engenharia mecânica em Hanoi, Vietnã, e realizar uma avaliação comparativa de como os funcionários perceberam a motivação do trabalho, o que pode contribuir para melhorar a motivação do trabalho na liderança de serviço do funcionário.

Método: Para atingir os objetivos de pesquisa, um projeto de pesquisa sistemática é empregado, utilizando métodos de pesquisa como a principal ferramenta de coleta de dados. Uma amostra de 190 funcionários de empresas de engenharia mecânica em Hanoi foi selecionada para participar. A pesquisa engloba perguntas destinadas a coletar informações sobre o esforço de defesa dos funcionários. Essa abordagem quantitativa permite a coleta de dados estruturados que podem ser analisados estatisticamente para descobrir tendências.

Resultados: Os resultados do estudo indicam que não há diferença na avaliação da motivação para defender os funcionários em empresas de engenharia mecânica em Hanoi entre diferentes disciplinas em termos de gênero, padrões acadêmicos, posição no trabalho, antiguidade na carreira e idade.

Conclusões: O estudo se baseia no marco teórico da gestão de recursos humanos. Além disso, o estudo incorpora conceitos relacionados a recursos humanos no setor empresarial. Com base nesse resultado, o estudo propõe algumas recomendações para as empresas de engenharia mecânica de Hanoi para melhorar a gestão de recursos humanos para melhor desempenho e inovação.

Palavras-chave: o impulso para defender (D), empresas de engenharia mecânica, funcionários, recursos humanos, motivação do trabalho, economia.

1 INTRODUCTION

In Vietnam today, there are many documents of the state for employees, such as the labor code, occupational safety and hygiene law, social insurance law, employment law, trade union law, etc. Labor Code No. 45/2019/QH14 of the National Assembly (2019) regulates labor standards, the rights, obligations, and responsibilities of employees, employers, representative organizations of employees at grassroots, representative organizations of employers in labor relations, and other related relations directly related to labor relations; state management of labor. The Labor Code takes effect on January 1, 2021. In addition to complying with state documents for employees, mechanical engineering firms also have regulations for employees, policies, and plans to improve the quality of human resources.

The work motivation of individual employees in an enterprise plays an important role in improving productivity and work performance for individual employees and the
enterprise. Work motivation is one of the topics of great concern for the human resource management activities of all firms. Motivating employees plays an extremely important role in improving business performance. Improving the qualifications and commitment of employees is one of the goals that leaders and managers of firms are implementing.

The 4.0 industrial revolution allows the mechanical industry to integrate into a global environment with high competition opportunities when there are many high-tech mechanical products and a large source of potential customers due to free trade between many nations. But the opportunity is also a challenge when many Vietnamese businesses do not have a product quality inspection system according to international standards. The product has not yet established its brand, so its competition opportunities are affected.

Human resources at mechanical engineering firms are quick to pick up new skills and adjust to the rapidly evolving technology of the fourth industrial revolution; this helps to foster innovation inside the organization and enhance the quality of human resources. However, the human resource training provided by enterprises, colleges, and universities, as well as vocational institutions, is not coordinated, updated, or innovative enough to support workers and provide the labor force with fundamental skills. Acquire sufficient knowledge to grasp new operating procedures and technologies. Therefore, mechanical engineering organizations lack qualified human resources.

The quality of mechanical human resources, equipment manufacturing, and output machinery does not ensure professional qualifications to meet job needs. Mechanical engineering is an industry that requires high professionalism, precision, and meticulousness. The number of quality human resources is low, so when they tend to change jobs, it is difficult to find replacement workers. Therefore, mechanical enterprises, equipment manufacturers, and machinery manufacturers need to have policies to retain workers, and one of those policies is to improve the working motivation of workers, including their drive to defend themselves.

Therefore, the purpose of the study was to assess the motivation level of the employees in mechanical engineering firms in Hanoi, Vietnam, and conduct a comparative evaluation of how the employees perceived work motivation and drive to defend, which can contribute to improving work motivation in employee service leadership.

To conduct this research, the theoretical framework is based on previous studies. From the research gap, the paper presents the following research question:
RQ1: How are the assessments of different survey subjects in terms of genders, marital statuses, career seniority, areas of activity, and ages regarding the drive to defend the employees of engineering firms in Hanoi?

2 THEORETICAL FRAMEWORK

Motivation and job satisfaction were both significantly associated with turnover intention (Bonenberger et al., 2014). Low motivation has a negative impact on the performance of individual health workers, facilities, and the health system as a whole (Joint Learning Initiative, 2004; World Health Organization, 2003).

According to Lawrence & Nohria (2002), the drive to defend is fulfilled when there is greater transparency, fairness, and justice across all processes. To emphasize these characteristics, performance management and resource allocation processes are used. These processes make the assessment and decision process transparent, fair, and clear.

The need to defend comes from the instinctive need to protect one's possessions, achievements, relationships with family and friends, ideas, and beliefs from dangers from without (Nohria et al., 2008).

Health workers with higher levels of motivation and job satisfaction in Ghana were less likely to have intentions to leave their current health facilities (Bonenberger et al., 2014). A study on Ethiopian public health workers also evidenced that the overall performance of health workers is negatively impacted by low levels of health worker motivation and job satisfaction. Job satisfaction is important because of its hypothesized association with internal motivation and overall job performance (Hotchkiss et al., 2015).

According to Nguyen (2021), work motivation is the motivation that urges people to act to achieve personal and organizational goals. In particular, personal goals aim to satisfy the physical and spiritual needs of each individual.

The drive to defend is the need to protect oneself, which is the basis for action against external threats. It is one of the four components that serve as the basis for all-inclusive and thorough information regarding the motivation of employees at work.

3 METHODOLOGY

3.1 POPULATION OF THE STUDY

The population of this study is made up of all the staff of mechanical engineering firms in Hanoi (see table 1). Employees made up the sample population for the study.
Information on the data collected is shown in Table 1. It shows that among the respondents, 78.9% of the participants were male, and 21.1% of the participants were female. Among the respondents, 65.3% of the participants were married, and 34.7% of the participants were single. Among the respondents, 56.3% worked in the city and 43.7% worked in the countryside. Of these, 44 participants have a career seniority of less than 5 years, accounting for 23.2%; 89 participants have a career seniority of 5 to 10 years, accounting for 46.8%; and the remaining 57 have a career seniority of 10 years or older, accounting for 30.0%. Of these, 45 participants are from 22 to 29 years old, accounting for 23.7%; 47 participants are from 30 to 35 years old, accounting for 24.7%; 54 participants are from 36 to 40 years old, accounting for 28.4%; and the remaining respondents are 41 years old or older, accounting for 23.2%.

### 3.2 RESEARCH INSTRUMENT

The research uses a structured instrument. Section A gathered demographic data, whereas Section B asked study-related questions.

### 3.3 VALIDITY OF THE INSTRUMENT

The research instrument was given to validate in testing and measurement. The purpose was to ensure that items on the questionnaire were properly worded to meet the
respondents’ level of understanding and comprehensively covered the research objectives.

3.4 METHOD OF DATA ANALYSIS

The analysis was based on the obtained results. To analyze the data, Independent T-test and analysis of variance (ANOVA) were used, as there were two and three samples with paired instances, ensuring the validation of the conclusions.

4 RESULTS AND DISCUSSION

4.1 INDEPENDENT T-TEST: DIFFERENT GENDERS

A comparison of the results of the evaluation of the differences in the drive to defend of employees in mechanical engineering firms in Hanoi with participants of different genders (male and female) can be seen in Table 2. According to the results shown in Table 2, sig Levene's test is 0.214, which is more than 0.05. The variance between males and females is not different. Moreover, the sig value t-test is 0.877, which is more than 0.05, which means that there is no statistically significant difference in the drive to defend of employees in mechanical engineering firms between these different genders (Hoang & Chu, 2008; Hair et al., 2014, Hair et al., 2014).

Table 2. Differences in the drive to defend of employees in mechanical engineering firms with participants of different genders - Independent Test

<table>
<thead>
<tr>
<th>The drive to defend (D)</th>
<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig.</td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>1.557</td>
<td>0.214</td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>67.432</td>
<td>0.165</td>
</tr>
</tbody>
</table>

Source: Elaborated by the authors and SPSS software
4.2 INDEPENDENT T-TEST: MARITAL STATUSES

A comparison of the results of the evaluation of the differences in drive to defend of employees in mechanical engineering firms with participants of different marital statuses (not married or single and married) can be seen in Table 3. According to the results shown in Table 3, sig Levene's test is 0.514, which is more than 0.05. The variance between the respondents who were not married and those who were married is not different. Moreover, the sig value of the t-test is 0.566, which is more than 0.05, which means that there is a statistically significant difference in drive to defend of employees in mechanical engineering firms between these different marital statuses (Hoang & Chu, 2008; Hair et al., 2014, Hair et al., 2014).

<table>
<thead>
<tr>
<th>Table 3. Differences in the drive to defend of employees in mechanical engineering firms with participants from different marital statuses - Independent Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levene's Test for Equality of Variances</td>
</tr>
<tr>
<td>F</td>
</tr>
<tr>
<td><strong>Equal variances assumed</strong></td>
</tr>
<tr>
<td><strong>Equal variances not assumed</strong></td>
</tr>
</tbody>
</table>

Source: Elaborated by the authors and SPSS software

4.3 INDEPENDENT T-TEST: AREAS OF ACTIVITY

A comparison of the results of the evaluation of the differences in drive to defend of employees in mechanical engineering firms with participants from different areas of activity (city and countryside) can be seen in Table 4. According to the results shown in Table 4, sig Levene's test is 0.863 which is more than 0.05. The variance between the respondents in the city and the countryside is not different. Moreover, the sig value of the t-test is 0.764, which is more than 0.05, which means that there is not a statistically significant difference in drive to defend of employees in mechanical engineering firms in Hanoi between these different areas of activity (Hoang & Chu, 2008; Hair et al., 2014, Hair et al., 2014).
Table 4. Differences in drive to defend of employees in mechanical engineering firms in Hanoi with participants from different areas of activity - Independent Test

<table>
<thead>
<tr>
<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Sig.</td>
</tr>
<tr>
<td>---</td>
<td>------</td>
</tr>
<tr>
<td>D</td>
<td>Equal variances assumed</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Elaborated by the authors and SPSS software

4.4 ANOVA - CAREER SENIORITY

An ANOVA test was needed to make a comparison of the results of the evaluation of the differences in drive to defend of employees in mechanical engineering firms in Hanoi between the three subjects, including participants who have a career seniority of less than 5 years, participants who have a career seniority of 5 to 10 years and participants who have a career seniority of 10 years or older. Table 5 shows that the sig Levene statistic is 0.574, which is more than 0.05, which means that the hypothesis of homogeneity of variance among the variable value groups (different career seniority) has not been violated. Table 6 shows that sig. is 0.347, which is more than 0.05, which indicates that there is not a statistically significant difference in the drive to defend of employees in mechanical engineering firms in Hanoi between the mentioned three career seniority groups (Hoang & Chu, 2008; Hair et al., 2014, Hair et al., 2014).

Table 5. Test of Homogeneity of Variances

<table>
<thead>
<tr>
<th>Descriptions</th>
<th>Levene Statistic</th>
<th>df1</th>
<th>df2</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Based on Mean</td>
<td>0.557</td>
<td>2</td>
<td>187</td>
<td>0.574</td>
</tr>
<tr>
<td>Based on Median</td>
<td>0.084</td>
<td>2</td>
<td>187</td>
<td>0.919</td>
</tr>
<tr>
<td>Based on Median and with adjusted df</td>
<td>0.084</td>
<td>2</td>
<td>178.578</td>
<td>0.919</td>
</tr>
<tr>
<td>Based on trimmed mean</td>
<td>0.338</td>
<td>2</td>
<td>187</td>
<td>0.714</td>
</tr>
</tbody>
</table>

Source: Elaborated by the authors and SPSS software
Table 6. ANOVA

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>1.027</td>
<td>2</td>
<td>0.514</td>
<td>1.065</td>
<td>0.347</td>
</tr>
<tr>
<td>Within Groups</td>
<td>90.158</td>
<td>187</td>
<td>0.482</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>91.185</td>
<td>189</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Elaborated by the authors and SPSS software

4.5 ANOVA - AGES

An ANOVA test was needed to make a comparison of the results of the evaluation of the differences in drive to defend of employees in mechanical engineering firms in Hanoi between the four subjects, including participants who are from 22 to 29 years old, participants who are from 30 to 35 years old, participants who are from 36 to 40 years old, and participants who are 41 years or older. Table 7 shows that the sig Levene statistic is 0.054, which is more than 0.05, which means that the hypothesis of homogeneity of variance among the variable value groups (different ages) has not been violated. Table 8 shows that sig. is 0.087, which is more than 0.05, which indicates that there is not a statistically significant difference in the drive to defend of employees in mechanical engineering firms in Hanoi between the mentioned four age groups (Hoang & Chu, 2008; Hair et al., 2014, Hair et al., 2014).

Table 7. Test of Homogeneity of Variances

<table>
<thead>
<tr>
<th>Descriptions</th>
<th>Levene Statistic</th>
<th>df1</th>
<th>df2</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Based on Mean</td>
<td>2.594</td>
<td>3</td>
<td>186</td>
<td>0.054</td>
</tr>
<tr>
<td>Based on Median</td>
<td>2.053</td>
<td>3</td>
<td>186</td>
<td>0.108</td>
</tr>
<tr>
<td>Based on Median and with adjusted df</td>
<td>2.053</td>
<td>3</td>
<td>168.485</td>
<td>0.108</td>
</tr>
<tr>
<td>Based on trimmed mean</td>
<td>2.432</td>
<td>3</td>
<td>186</td>
<td>0.067</td>
</tr>
</tbody>
</table>

Source: Elaborated by the authors and SPSS software

Table 8. ANOVA

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>3.160</td>
<td>3</td>
<td>1.053</td>
<td>2.225</td>
<td>0.087</td>
</tr>
<tr>
<td>Within Groups</td>
<td>88.025</td>
<td>186</td>
<td>0.473</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>91.185</td>
<td>189</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Elaborated by the authors and SPSS software

4.6 THE RELATIONSHIP BETWEEN THE DRIVE TO DEFEND OF EMPLOYEES IN MECHANICAL ENGINEERING FIRMS IN HANOI - AGES

Next, the line graph shows the relationship between the drive to defend of employees in mechanical engineering firms in Hanoi and each respondent's age (Figure
1). Figure 1 shows that this line tends to go down when the respondents' age increases to 31 to 35 years old. But this line tends to slope up when the respondents' age is between 36 and 40 years, and this line tends to go down when the respondents' age is 41 or older. Showing that the drive to defend of employees in mechanical engineering firms in Hanoi is highly valued in 22- to 30-year-olds or 36 to 40-year-olds.

Figure 1: The line graph shows the relationship between the drive to defend of employees in mechanical engineering firms in Hanoi and each respondent's age

Source: Elaborated by the authors and SPSS software

4.7 THE RELATIONSHIP BETWEEN THE DRIVE TO DEFEND OF EMPLOYEES IN MECHANICAL ENGINEERING FIRMS IN HANOI – CAREER SENIORITY

Next, the line graph shows the relationship between the drive to defend of employees in mechanical engineering firms in Hanoi and each respondent's career seniority (Figure 2). Figure 2 shows that this line tends to go down when the respondents' career seniority increases from to 5 to 10 years. But this line tends to slope up when the respondents' seniority is 10 years or older.
Figure 1: The line graph shows the relationship between the drive to defend of employees in mechanical engineering firms in Hanoi and each respondent’s career seniority

Source: Elaborated by the authors and SPSS software

4.8 DISCUSSION

Introducing some characteristics of an innovation culture may be sufficient to provide meaning to fulfill the drive to comprehend, whereas adopting some characteristics of a bureaucratic culture may provide the appropriate level of fairness and transparency to fulfill the drive to defend.

Work-Life Balance (WLB) and Work-Family Enrichment (WFE) have emerged as strategies to help employees achieve equilibrium between their personal and professional lives (Sasikumar & Sujatha, 2023). Creating work motivation that includes the drive to defend for employees is one of the solutions to help employees work-life balance, thereby improving employee performance.

According to Padmavathi (2023), in the context of a challenging e-commerce business environment, retaining employees becomes a significant task. The cost of acquiring new employees is higher than cost retaining existing employees for any organization. So, mechanical engineering firms in Hanoi should focus on ways to retain employees by offering work motivation that includes the drive to defend employees.

For industry associations in the field of mechanical engineering, the role of industry associations is really important in closely linking and attracting the participation of member firms together. Currently, out of a total of more than 25 thousand enterprises
in the mechanical engineering industry, there are only more than 141 enterprises (in 2021) in the association, so this is an opportunity as well as a challenge for firms to unite and create strength, which is extremely huge in the current context.

Standardization of standards and techniques for industry products: The 4.0 industrial revolution helps globally connect information on standards, techniques, and technology for all the most developed countries in the field, helping Vietnam quickly access, learn, and be more creative. But this is also a challenge for domestic mechanical engineering enterprises because the development of industry standards and techniques has not been given due attention and is not synchronized with the support of state agencies’ activities according to registered standards and regulations.

Leaders of mechanical engineering enterprises should create conditions for workers to be trained and promoted at work. For technical workers, all favorable conditions should be created in terms of mechanisms and policies and to improve professional qualifications at work. At the same time, promote the sense of responsibility of employees in research and development activities; link work with research and development activities, from which to devise a research and development plan with professional work; and participate in contributing ideas to help technology transfer activities become more and more complete and developed.

Firm leaders should design appropriate jobs and assign tasks in accordance with employees’ abilities so that they will be motivated to work, such as clear job titles and handling work according to procedures and process regulations. There should be some specific goals to guide the workforce toward achieving those goals. In addition, business leaders should give employees the opportunity to express their creativity and contribute more to their expertise, such as through taking on large-scale orders and real projects; create conditions for employees to develop their expertise and career skills through knowledge-sharing activities initiated and organized in a departmental environment and throughout the enterprise.

5 CONCLUSIONS

Work motivation is one of the basic and direct factors that determine the quality, position, and brand of a firm. Improving the qualifications and commitment of employees is one of the goals that leaders and managers of firms need to focus on implementing. To
achieve that goal, positive working motivation for employees should be maintained and developed sustainably in firms.

The result is a quest to create institutions that promote equity and justice, that have clear goals and intentions, and that allow employees to express their ideas and opinions. Satisfying the drive to defend leads to employees feeling secure and confident. Without this drive, employees show strong negative emotions like fear and resentment.

The article has certain limitations. First of all, the survey data collected and used for analysis is 190 votes, showing that the proportion of mechanical engineering firms in Hanoi participating in the survey is not large. Therefore, future studies need to increase both the sample size and the proportion of enterprises participating in the survey and expand the scope of the survey to many different occupations to ensure reliable research results and better generalization to the population.
REFERENCES


