

The Effect of “The Big Five Model” Personality on Employee’s Performance at Aviation Manufacturing

¹Eddy Soeryanto Soegoto, ²Dian Indiyati and ²Sayyidah Abdah Marhaliyyah
¹Indonesia Computer University, Bandung, Indonesia
²Federal Achmad Yani University, Jawa, Barat, Indonesia

Abstract: Relying on the role and function of an aerospace due to progress in science and engineering which also affects the lives of the world that raises fundamental changes in order the relationship between nations and cooperation to be improved. Defense companies that need financial subsidies from the government and properties manufacturing who relies on global supply chain has changed aerospace turned into an aerostucture in century 21st. Moreover, the size of potential business of aerostucture manufacturing in the global market proves certainly to relate with human resources that gives performance optimally in order to be able to produce qualified products and can compete in the global market. A good performance can be affected by personality in human resources. This research goals are to test and analyze the effect of “the big five model” personality on employee’s performance at flight manufacturing. This research is verificative causal relationship research. The population are taken from the employees of aviation, in which the respondents are employees of the flight machining manufacture department as much as 190 people. Data collection method uses interview, observation and questionnaires that are already valid and reliable. Data analysis uses the method of path analysis. The results show that there is significant effect of personality on employee’s performance in Indonesia flight manufacture either simultaneously or partially. It also proves that personality of employee’s conscientiousness has the dominant effect in improving their performance.

Key words: Personality, performance, manufacture, results, flight

INTRODUCTION

As we know that advances in science and technology in the current era of globalization has led to dependence on the role and function of aerospace industry. The results of these technologies have affected the lives of people of the world generating a fundamental change in the structure of the balance of relations between nations and cooperation. In order to be able to encounter globalization, Indonesia is required to be able to play an active role in the international sphere, one of which can be realized through the efforts of the aerospace development.

Within the last 20 year the global aircraft industry experienced several developments that led to major changes in the competition of aircraft production. This was due to very large financial needs for the aircraft industry that leads to aircraft firms bankruptcy and merging such as done by McDonnell Douglas Aircraft with Aircraft Company. The next phenomenon is the only company that can survive with financial assistance from the government in various forms of incentives and tax benefits as well as non-tax credits and research facilities. The cause of the latter is the nature of the 21st century

manufactures that rely on global supply chains to make some aircraft (aerospace) manufacturer into an aerostucture company or services firms. As a matter of fact, a potential aerostucture manufacturing business in the global market is huge in addition to the main business as aircraft manufacturing. The increasing tight competition in the aerospace industry requires the company to survive and have global competitiveness, causing the emergence of diversification in the field of aircraft and non-aircraft prior to the aircraft industry the world such as Airbus and Boeing. Therefore, companies need qualified human resources to be able to defend his company.

It proves that the quality of human resources will certainly be able to contribute to the company in order to survive and have high competitiveness and are intended to achieve high performance (Indarti *et al.*, 2014; Kajornkittiya *et al.*, 2016; Mahmud *et al.*, 2015; Rijal, 2016). Furthermore, performance is a potentiality that must be possessed by every employee in order to carry out any duties and responsibilities given by the company. With a good performance so any employee can resolve any burden or problem encountered by the company

effectively and efficiently. One of the factors that can affect the performance is personality (Indarti *et al.*, 2014).

PT. Dirgantara Indonesia is the first manufacturing industry and the only one in Southeast Asia engaged in the processing of aerospace in the design, development and fabrication of aircraft. In carrying out the function of the company and the achievement of its objectives, PT. Dirgantara Indonesia certainly requires human resources that have the ability and good quality and should be supported by a sophisticated infrastructure. The manufacturing industry is an industry with a lot of added value compared to other industries in the upstream sector. Moreover, the airline industry is one of the manufacturing industry that should be supported by the government for high-tech and it requires a lot of capital to run the company.

At the beginning, PT. Dirgantara Indonesia shows a positive development and brings hope for the future of the aerospace industry Indonesia in the international arena. Nevertheless because of the discontinuation of government fund aid after the wave of the financial crisis in 1997 PT. Dirgantara Indonesia must stand on its own feet so that the company losses from year to year continuously, even debt piled up nearly 7.25 trillion rupiah and delinquent debts totaling three trillion rupiah. In 2001, sales of PT. Dirgantara Indonesia again decreased due to the poor management replacement and even the company also suffered losses of up to 1.5 trillion rupiah. Furthermore in 2004 the circumstances worsened. In order to survive PT. Dirgantara Indonesia must conduct workforce termination up to 6651 people ([Http://gehanghofari.blogspot.co.id](http://gehanghofari.blogspot.co.id)). Such substitution of poor management can be reflected in the actual performance produced by the employee in accordance with the recapitulation of employee's performance in Machining Department PT. Dirgantara Indonesia in January-June 2015, in which the measurement is in terms of safety, quality, cost, delivery and people. Excellent performance pursuant to the standards have been done by the employees in the field of safety and quality, where employees are able to finish the job without making a mistake and free from work accidents and the quality of the work accomplished in accordance with the standards. As for the element of cost, delivery and people still find that in the completion of its work, the employees cannot produce output to exceed the standards and there are still some level of presence of employees which is less than a predetermined.

Due to the mentioned condition above, in carrying out their industrial activities, PT. Dirgantara Indonesia needs to consider the performance of its employees. This will affect the performance of the resulting output. In

interview with the Directorate General Managers and Human Resources as well as the observations of supervisors in Machining Department PT. Dirgantara Indonesia, it is said that employees at the Department of Machining has a different personality between one and another that outlines each employee can adjust to the demands of performance. Employees are required to be able to think independently and are open to a problem that happened to him and to obey the rules that apply in the workplace. Nevertheless, the facts on site show that there are still employees who depend on their leaders so that they cannot take a decision. Moreover they do not dare to tell or share when addressing the issue that will affect their performance. Besides that there are employees who have not been able to comply with the rules set forth for example, there some employees operate the phone during the work hours.

Based on the background described above, the goals of this study are to examine and to analyze the effect of "Big Five Model" personality traits to employee's performance both partially or simultaneously at Machining Department PT. Dirgantara Indonesia

Conceptual framework: It is known that human resources is one of the factors that determine the success of a company in achieving its goals. In order that the company's goals can be achieved then the employee is required to work effectively and efficiently in order to generate a good performance. To achieve good performance the company can provide support through the personality characteristics of employees. According to Robbins and Judge (2009) personality is the sum total and the ways an individual reacts and interacts with others. Next definition stated by Griffin and Moorhead personality is a set of psychological attributes of relative stability that distinguishes one person to another. Meaning it can be stated that the personality is a set of attributes relative stability that will distinguish one person to another in the interaction with its environment. The factors that affect the personality according to Robbins and Judge (2009) and Dyahrini (2008) consists of:

Heredity: It refers to an individual genetic factors. Physical height, face shape, gender, temperament and reflex muscle composition, energy levels and biological rhythms are broadly influenced by the parents completely or substantially. This approach argues that one's personality is the molecular structure of the gene contained on the chromosomes

Environmental factors: A place where we grew up, the norm in family, friends, social groups and other influences that we have experienced. These factors have a role in shaping the personality.

Situation: Influencing the effects of heredity and environment on personality. The personality of an individual, although, generally stable and consistent, it may change in different situations. Varying demand of different situations leads to different aspects of one's personality. Therefore, it should not be looked at the patterns of personality individually.

Over the past few years, a large amount of research supports five basic dimensions of personality that underlies respective most significant variations in the human personality. Many experts have identified thousands of traits and personality dimensions that distinguish one person from another but in recent years it emerges five fundamental characteristics that are relevant to the organization.

Robbins and Judge (2009) explains that characteristics explaining a person's behavior persist and are displayed in a large number of situations referred to the characteristics of personality. Meanwhile according to Indiyati *et al.* (2016) personality is a particular feature or superiority or uniqueness of an individual who can be seen from the pattern of behavior. Meaning that it can be stated that personality characteristics are special characteristics possessed by an individual and is often displayed in various situations so as to explain the behavior of the individual. Robbins and Judge (2015) stated that there are five major personality traits of individuals, namely:

- Extraversion: it displays the level of comfort in the relationship. Tend expressive, confident and able to socialize
- Hospitality: it refers to the tendency of an individual to understand others. People are friendly, cooperative, warm and trustworthy
- Prudence: a measure of reliability. People are very cautious is the person responsible, organized, reliable and persistent
- Stability of emotion: it is a person's ability to deal with stress. People with high emotional stability tend to be calm, confident and secure
- The openness to experience: it includes a range of interests and interest in innovation. People are very open, creative, curious, sensitive and artistic

Personality owned by each individual is one of the factors that may affect performance in which such performance is used to achieve the goals of an organization. The factors that affect performance by Gibson *et al.* (2016) are grouped into. Individual variable that consists of abilities and skills (mental and physical) background (family, social and payroll) and demographic

(age, origin and gender). Psychological variables consist of personality, perceptions, attitudes, motivation and learning. Organizational variables comprise of leadership, rewards, resources, structure and the work design.

According to Moeheriono (2014) performance is the result of work that can be achieved by a person or group of people in an organization both quantitatively and qualitatively pursuant to authority and the assignment of responsibilities of each, in order to achieve the objectives of the organization in question legally and which do not abuse applicable law and in accordance with moral and ethical. Wibowo (2014) also explains that performance is doing the work and results of the work. Performance is what is done and how is done. Therefore, it can be concluded that the performance is a result achieved by individuals in an organization and how to do it as an attempt to achieve the organizational goals.

The performance indicators, according to Mitchell (2000a, b) and Mitchell *et al.* (2013) include several aspects, namely: Quality of work, promptness. Initiative, capability, communication. While, Wirawan, (2014) classifies employee performance dimensions into three types, including the work result, personal nature behavior (that has to do with the work, namely personal qualities needed by an employee to do the job).

MATERIALS AND METHODS

This study is a verification-causal relationship research, whose population are operator employees at machining department at PT. Dirgantara Indonesia as many as 190 people. Data collection uses techniques of interview, observation and questionnaires that have been tested for validity and reliability. The method of data analysis in this study is path analysis.

RESULTS AND DISCUSSION

Based on the results of the processing of the questionnaire that have been distributed to the 30 respondents, it can be seen that all the items of questions are valid and reliable. As it is shown in the following table: according to the Table 1, it can be seen that the entire statement items for a personality characteristic variable are valid with a value of the r count is $>r$ table (0.3). According to the Table 2, it can be seen that the entire statement items for a personality characteristic variable are reliable with the Cronbach alpha value is >0.6 . Based on Table 3, it is known that all statement items for the performance variable are valid with the value of r count $>r$ table (0.3).

Based on Table 4 it is known that all statement items for the performance variable are reliable with the value of

Table 1: Validity testing for personality characteristics variable. Item-total statistics

Items	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
1	41.80	13.614	0.481	0.790
2	42.03	14.171	0.410	0.796
3	41.83	14.213	0.443	0.794
4	41.83	13.592	0.382	0.798
5	41.77	14.737	0.406	0.799
6	41.97	13.068	0.532	0.785
7	41.57	13.220	0.422	0.795
8	41.93	14.478	0.440	0.796
9	41.90	13.334	0.396	0.798
10	41.87	13.844	0.413	0.795
11	41.77	13.357	0.444	0.793
12	41.80	13.614	0.481	0.790
13	41.53	13.223	0.411	0.796
14	41.90	14.645	0.455	0.797
15	42.17	13.454	0.398	0.797

Data processing; 2016

Table 2: Reliability testing for personality characteristics variable

Cronbach's alpha	Criteria	Notes
0.806	0.6	Reliable because 0.806 > 0.6

Table 3: Validity testing for performance variable item-total statistics

Items	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
1	36.8667	15.844	0.480	0.857
2	36.8333	15.799	0.514	0.855
3	36.7000	16.493	0.437	0.859
4	36.8667	16.120	0.402	0.861
5	36.2333	15.564	0.399	0.863
6	36.5333	16.189	0.445	0.859
7	36.9000	13.817	0.665	0.846
8	37.0333	15.964	0.399	0.861
9	36.7667	14.599	0.698	0.844
10	36.6667	15.540	0.674	0.849
11	36.7000	16.079	0.452	0.858
12	36.7000	14.907	0.591	0.851
13	36.7667	15.151	0.651	0.848
14	36.8000	15.545	0.514	0.855

Table 4: Validity testing for performance variable

Cronbach's alpha	Criteria	Notes
0.864	0.6	Reliable because 0.806 > 0.6

Cronbach's alpha is >0.6. While in order to know the amount of effect of personality characteristics variable on the performance variable, we can see from the following (Fig. 1).

Based on the Fig. 1, it can be known the direct effect, indirect effect and total effect from exogenous variable to endogenous variable as follows: Based on Table 5, it can be seen that the effect of extraversion variable is as much as 40% on employee's performance. It means that the willingness of employees to get to know and understand their colleagues and willingness to open up every issue of employees at the supervisor will help ease the burden on the responsibility of the employees so that it will remind the work and the ability of employees as well as lower levels of the mistakes made by employees. Furthermore,

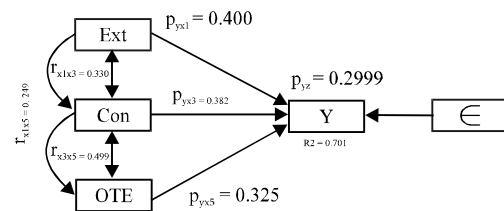


Fig. 1: Path analysis of personality characteristics on the employees' performance

conscientiousness variable effect is as much as 38.2% on employee's performance. This means that the employee's ability to perform their duties and obligations, manage time and use of existing resources in completing the task to the fullest and to obey the rules and norms and

Table 5: The amount of partial effect of the respective “Big five model” personality characteristics on the employee’s performance at PT. Dirgantara Indonesia for all significant variables

Variables	Direct effect (%)	Indirect effect			Total effect (%)
		EXT (%)	CON (%)	OPE (%)	
Extraversion	16.00	-	5.042	3.237	24.20
Conscientiousness	14.592	5.042%	-	6.195	25.80
Openness to experience	10.563	3.237%	6.195	-	20.00

Table 6: Result of partial hypothesis testing for all significant variables

Variables	Path coefficient	t-count	t-table	Sig.	Notes
Extraversion	0.400	5.582	1.66901	0.000	Significant
Conscientiousness	0.382	4.769	1.66901	0.000	Significant
Openness to experience	0.325	4.156	1.66901	0.000	Significant

Table 7: Result of simultaneous hypothesis testing for the significant variable

Variables	R ²	F-count	F-table	Sig.	Notes
Extraversion conscientiousness and openness to experience to employee’s performance	0.701	51.575	1.94	0.000	Significant

undertake actions voluntarily in the work will remind the work and the ability of by employee’s as well as lower levels of the mistakes made employees. Next, the openness variable to experience generates an effect of 32.5% on employee’s performance. This means that the ability of employees to think independently, placing themselves, accept others opinions and find out the details about the production process will improve the performance and capabilities of employees as well as lower levels of the mistakes made by employees. While the simultaneous effect on this study can be seen in the following Table 6.

According to Table 7 show, it is known that the calculation of the coefficient of determination (R²) shows a value of 0.701. These results illustrate 0.701 or 70.1% change in the employee’s performance variable can be explained by changes in extraversion, conscientiousness and openness to experience variables. That means that the employees in the extrovert personality form, careful and open to experience together have strong effect on employees performance at the Machining Department PT. Dirgantara Indonesia while the remaining of 20.9% is affected by other variables outside this research, namely the ability and the skills (mental and physical) background (family, social and payroll) demographic (age, origin and sex) perceptions, attitudes, motivation and learning, leadership, rewards, resources, structure and work design (Gibson *et al.*, 2016). The conscientiousness has the most impact in improving the performance of employees of PT. DI. The results are consistent with research conducted by Wahyuprihati (2011) which states that conscientiousness is the most significant predictor of the performance of employees at the center of mental coaching Indoensian army headquarters at Cilangkap East Jakarta which reflects the attitude of the employees who are persistent, full of plans, the careful nature, responsible and a hard worker

who is an important attribute to complete homework assignments. In addition, research from Indiyati *et al.* (2016) suggest that personality has a strong influence on the performance of lecturers in private universities.

CONCLUSION

From the discussion above, the present writer conclude that personality characteristics have a strong effect on employee’s performance at the Machining Department PT. Dirgantara Indonesia, one of which more dominant effect is conscientiousness. This is in accordance with the type of machining department job that requires caution to be able to complete any job that becomes their responsibility. Accordingly, employees of PT. Dirgantara Indonesia must always be focused and be careful of any task assigned to them. Because of maximum prudence will reduce mistakes made by employees that their performance will be in accordance with established standards and will also give a good contribution to the company.

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