

# The Correlation Between Job Crafting and Work Engagement at Manufacturing Companies During COVID-19 Pandemic

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**Abstract:** The coronavirus disease pandemic of 2019 (COVID-19) has swept the globe. This study examined the relationship between job crafting and work engagement at manufacturing employees during the Covid-19 Pandemic. Participants were 187 employees working in two manufacturing companies in Indonesia. Job crafting was assessed using Job Crafting Scale (JCS) by Tims, Bakker, and Derks in 2012, and work engagement was assessed using the Utrecht Work Engagement Scale -9 (UWES-9) by Schaufeli, Bakker, and Salanova in 2006. Results indicate that there is a relationship between job crafting and work engagement in employees in the manufacturing industry with  $r$  correlation ( $r$ ) .40. Furthermore, the job crafting dimension increasing structural job resources, increasing social job resources, increasing challenging job demands had positively associated with work engagement. Decreasing hindering job demands had no significant relationship with work engagement.

**Keywords:** Job crafting, Work engagement, Manufacturing industry.

## 1. Introduction

The manufacturing industry in Indonesia contributes high profits to the economy of the country. Data from the Kementerian Perindustrian Republik Indonesia show that the manufacturing sector in Indonesia in 2019 accounted for 20% of Indonesia's gross domestic product (Kemenperin.com, 2019). Therefore, the development of the manufacturing industry needs more attention to further enhance the economic development of the state. This industry also has the characteristics of labor-intensive work or jobs that require a lot of labor, so it is expected that the employees of manufacturing companies can work effectively and efficiently.

To continue supporting the Indonesian economy, companies with manufacturing businesses need to increase their productivity. In addition, The COVID-19 epidemic has generated an atmosphere of fear among individuals, putting a considerable strain on their internal resources to deal with the issues that have resulted (Yuan, Ye, & Zhong, 2020). The coronavirus disease of 2019 (COVID-19) and the corresponding lockdown methods implemented by most countries are without a doubt the most momentous events of the

twenty-first century (Koekemoer et al, 2021). Employees may have difficulties keeping focused and engaged after returning to work after an extended period of disruption, volatility, and distress, which many people experienced during the epidemic. This might affect their work habits on job productivity (Ojo, fawehinmi & Yusliza, 2021). One way to increase company productivity is to improve the quality of human resources, in this case, employees, in manufacturing companies. Companies need employees who are energetic, dedicated, and engaged in their work because the performance of human resources in a company is very important for the success of the company (Lu, Lu, Du, and Bakker, 2014). The aspect of employee work engagement is closely related to company performance (Christian, Garza, and Slaughter, 2011). Employees who are engaged in their work will be more alert and more focused on their work assignments so that work engagement is positively related to employee job performance (Halbesleben, 2010; Christian, Garza, and Slaughter, 2011).

Surveys have found that the level of employee work engagement in Indonesia compared to that in other countries still tends to be low, especially in the manufacturing industry. Gallup Research (2013) released the result of a survey titled State of the Global Workplace that measures employee work engagement in more than 1000 companies with a minimum number of 100 employees in each company, in 60 industrial work fields, in more than 140 countries. The study showed that only 8% of Indonesian employees in the manufacturing industry fell into the high work engagement category. If employees in the manufacturing sector are capable of increasing the work engagement rate, then the company's performance will also get a good impact, which enables the company to give a more broad and even better contribution to the state revenue.

Several factors affect work engagement, one of which is job change or job crafting. Studies have found that employee work engagement, in general, can be improved by changing employee's jobs called job crafting initiated by the employee (Vogt et al, 2015; Tims, Bakker, & Derks, 2012; Petrou et al, 2012). According to Tims and Bakker (2010), job crafting is a

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change in job that employees make to balance job demands and job resources with personal abilities and needs. Furthermore, job crafting is a change in job that employees make to balance job demands and job resources with personal abilities and needs (Tims, Bakker, and Derks, 2012).

Tims, Bakker, and Derks (2012) divide job crafting into four dimensions which consist of Increasing structural job resources, decreasing hindering job demands, increasing social job resources, and having more challenging job demands (Tims, Bakker, & Derks, 2012). An example of job crafting daily in the working environment is when employees have a lot of workloads; then they reduce the scale and scope of work activities to avoid fatigue (Wrzesniewski and Dutton, 2001) researched job demands, job resources, work fatigue, and work engagement in a variety of industries and found that manufacturing industries have complicated bureaucracy and limited social support when compared to other industries, such as health and other services. Tims, Bakker, and Derks (2012) state that job crafting can also be done on rigid jobs as long as the changes in the jobs are carried out by company goals. Therefore, this research is to prove whether it is possible to do job crafting in manufacturing industries which have the characteristics of work with a bureaucracy that is not as easy as that in other industrial fields to do job crafting.

This effort of the employee defense mechanism has a positive impact as seen from the research of Hakanen, Seppälä, and Peeters (2017) that discovered that job crafting lessens the correlation between job demands and work engagement or the negative correlation that exists in job demands against work engagement that becomes weak, in the case of employees who can implement job crafting to their jobs. The action of formatting, creating, and reordering employees' jobs can bring about improvement in employee work engagement. Given the COVID-19 setting and the quick changes that must be evaluated and executed in order for the organization to survive, the positive impact of work engagement on performance cannot be overlooked (Koekemoer et al, 2021).

## 2. Research Objectives

Several studies have found the usefulness of job crafting behavior in employees, especially with work engagement. In the future, further research is needed particularly for employees of manufacturing industries in Indonesia. So far, there still has not been much research that has a focus on understanding the concept of work engagement and job crafting particularly in a developing country like Indonesia in the field of manufacturing industries. There are only fewer than 20 studies that can be found with Indonesian employee participants within the period of 2012-2020. Besides, Bakker, Munoz, and Vergel (2016) state that further research using the JD-R (Job Demand-Resource) model must be directed towards the clarification of the correlations between different elements of job crafting to provide more knowledge about the phenomenon of job crafting in employees.

This research also aims to see the correlation between job crafting variables and job crafting dimensions in work engagement with samples that are different from those in

previous studies, i.e. employees of manufacturing industries in Indonesia. In the end, it is expected that this research can more deeply examine the factors that can influence work engagement. This research uses the Utrecht Work Engagement Scale-9 (UWES-9) and Job Crafting Scale (JCS).

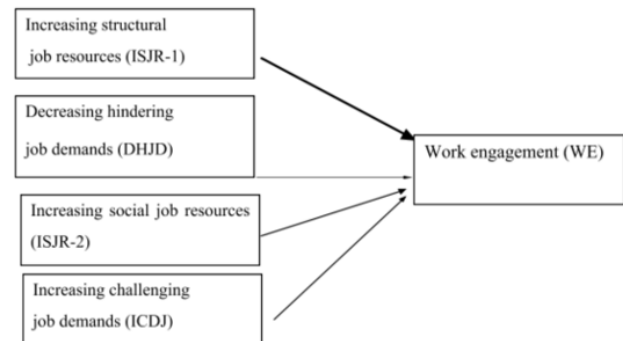


Fig. 1. Research framework

## 3. Theoretical Framework

### A. Work engagement

Schaufeli, Salanova, González-Romá, and Bakker (2002) describe work engagement as follows,

“Work engagement as a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication and absorption” (Schaufeli, Salanova, González-Romá, and Bakker, 2002, p.74).

Work engagement according to Schaufeli et al (2002) is a positive thing related to work that has the characteristics of vigor, dedication, and absorption. Someone who has high work engagement will have a sense of energy and an effective relationship with work activities and they see themselves as able to deal with the demands of work well (Schaufeli and Bakker 2003). Work engagement is the opposite of job burnout Schaufeli et al (2002). Job burnout is an extended response to stressors at work, both emotional and (Maslach, Schaufeli, Leiter, 2001). It's different with work engagement. Employees who have high work engagement in their work have an energetic feeling and an effective relationship with their work activities, and they see themselves as someone who is able to deal well with the demands of their work (Schaufeli, Bakker, and Salanova, 2006). One of the impacts of work engagement is work performance. Employees who have high work engagement in their work will be more alert and more focused on their work tasks so that work engagement is positively related to employee work performance (Christian et al, 2011).

### B. Job Crafting

Tims and Bakker (2010) put forward the definition of job crafting as follows,

“Job crafting is the changes that employees may make to balance their job demands and job resources with their personal abilities and needs” (Tims, Bakker, and Derks, 2012, p. 174).

According to Tims, Bakker, and Derks (2012) job crafting is a change that workers make to balance work demands and work resources with personal abilities and needs. In the concept of job crafting, employees are considered capable of being

responsible for the work they do (Tims and Bakker, 2010). Based on job crafting theory, employees can change the level of job demands and work resources in order to align work demands and work resources with personal abilities and preferences (Tims and Bakker, 2010). When faced with excessive work demands, workers will use strategies that compensate for this as maintenance of a stable level of work performance (Tims and Bakker, 2010). The impact of job crafting is that it can lead to job satisfaction for employees (Rudolph et al, 2017). This study also mentions that job crafting can improve work performance for employees (Rudolph et al, 2017). Moreover, during pandemics and associated lockdowns, little is known about employee performance (Koekemoer et al, 2021).

#### 4. Hypothesis Development

1. Hypothesis 1 (H1): There is a significant relationship between job change with work involved in manufacturing company employees.
2. Hypothesis 2 (H2): There is a significant relationship between the dimensions of job change to job involvement in manufacturing company employees.
  - a) Hypothesis 2a (H2a): There is a significant relationship between adding structural work resources with work involved in manufacturing company employees.
  - b) Hypothesis 2b (H2b): There is a significant relationship between reducing inhibiting work demands with work involvement on manufacturing company employees.
  - c) Hypothesis 2c (H2c): There is a significant relationship between increased social work resources with work involvement in employee manufacturing companies.
  - d) Hypothesis 2d (H2d): There is a significant relationship between add to the demands of challenging work with work involvement on manufacturing company employees.

#### 5. Research Methodology

##### A. Sample

The first criterion of employees that can become the participants in this research is that they are permanent employees at PT PS and PT HJC, which are both categorized as manufacturing industries. Moreover, the minimum level of education of the participants is a high school or equivalent. The next criterion is employees who have superiors because there are some items in the Job Crafting Scale (JCS) that ask about employees' attitudes towards their superiors.

##### B. Research Design

If it is seen based on the number of contacts with participants, this research is categorized as cross-sectional research. Then if it is viewed based on the nature of the study, this is non-experimental research.

##### C. Research Instruments

There are two research instruments used to measure job crafting and work engagement, i.e. self-report questionnaires

for both variables.

##### D. Job Crafting Measurement Tool

In this research, job crafting was measured using the JCS (Job crafting scale) developed by Tims, Bakker, and Derks (2012). This tool measures job crafting as a multidimensional construct consisting of four dimensions. In JCS (*Job Crafting Scale*), each dimension is represented by five to six items so that in total there are 21 items in the measurement tool. This measuring instrument has responses from 'never' that scores 1 to 'very often' that has a score of 5. In this instrument, there are also 21 favorable items.

Table 1  
Examples of job crafting items in the questionnaire

Dimension	Item Number	Item Example
Increasing structural job resources	1, 2, 3, 4, 5	I try to learn new things in the working environment.
Decreasing hindering job demands	6, 7, 8, 9, 10, 11	I reduce difficult decision-making.
Increasing social job resources	12, 13, 14, 15, 16	I ask my superior whether he/she is satisfied with the results of my work.
Increasing challenging job demands	17, 18, 19, 20, 21	When there is interesting work, I actively offer myself to do the job.

##### E. Work Engagement Measuring Tool

The measuring tool for work engagement used in this research was the Utrecht Work Engagement Scale-9 (UWES-9) which was developed by Schaufeli, Bakker, and Salanova (2006). This tool contains nine items which are all favorable items. There are three dimensions in this measurement tool, which are vigor, dedication, and Absorption. The following is the description of items in the measuring tool (UWES-9) from Schaufeli, Bakker, and Salanova (2006).

Table 2  
Work engagement item

Dimension	Item Number	Item Example
Vigor	1, 2, 5	When working, I feel strong and excited.
Dedication	3, 4, 7	I am proud of my work.
Absorption	6, 8, 9	I am absorbed in my work.

##### F. Research Procedures

The researcher sought for an appropriate tool to take measurements of the two constructs. The researcher decided to use the measurement tools of the Utrecht Work Engagement Scale-9 (UWES-9) developed by Schaufeli, Bakker, and Salanova (2006) and of JCS (Job crafting scale) developed by Tims, Bakker, and Derks (2012). After obtaining the tools which were going to be used to measure the two constructs in this research, the researcher examined the tools and made sure that the tools were reliable and valid so that they could measure the constructs in this research well. The Job crafting scale tool was adapted and tested for its reliability and validity in the previous research conducted by Andini (2016), and in the test, this measurement tool was proven to be good in both reliability and validity. The validity and reliability of the work engagement measuring tool were also tested by another

researcher in a study carried out by Wardhani (2015) and were proven to be reliable and valid.

Next, the researcher sought help from an expert in work engagement constructs to review or carry out the content validity of the measuring tools for job crafting and work engagement in order to see language suitability. Changes were made on some items in the job crafting questionnaire, which is in the dimension of decreasing hindering job demands. The statement "I organize my work so as to minimize contact with people whose expectations are unrealistic" that was previously translated into "*Saya mengorganisir pekerjaan saya, dengan meminimalisir kontak dengan individu yang memiliki target kerja atau harapan yang tidak realistis*" was then changed to "*Saya mengurangi berhubungan dengan orang lain yang harapannya tidak realistis terhadap saya*", and the statement "I try to ensure that I do not have to make many difficult decisions at work" that was previously translated into "*Saya mencoba memastikan bahwa saya tidak menemui banyak kesulitan dalam mengambil keputusan di tempat kerja*" was then changed to "*Saya mengurangi pengambilan keputusan yang sulit*".

Changes were also made on some items in the work engagement questionnaire in the dedication dimension. The statement "My job inspires me" that was previously translated into "*Pekerjaan saya menginspirasi saya*" was then changed to "*Pekerjaan saya membangkitkan kepercayaan diri saya*", and the statement "I am enthusiastic about my job" that was previously translated into "*Saya antusias dengan pekerjaan saya*" was then changed to "*Saya merasa gembira melakukan pekerjaan saya*". The researcher then conducted face validity to 10 participants to discover whether the measuring tool used can be understood by the participants. The result showed that JCS and WE were quite easily understood by the participants.

Furthermore, the researcher carried out a reliability test to the job crafting and work engagement measuring tools. This was done to reassure how effective the job crafting and work engagement measuring tools were after going through the stages of expert judgment review. The researcher distributed the questionnaires of job crafting and work engagement measuring tools that had been reviewed by expert judgment. The questionnaires were disseminated online and 30 participants filled in the questionnaires and met the required criteria of employees with minimum high school education. Based on the feedback from some participants, the researcher changed the scales of UWES-9 from 0-6 to 1-5 for the convenience of participants in choosing answers that suit them. After that, the researcher used the data taken from the 30 participants to see the reliability of the measuring tools. The reliability of the WE measuring tool was 0.859, while the reliability of the JCS measuring tool was 0.742. Kaplan and Sacuzzo (2009) state that a reliability index is considered good if it has reached 0.70.

## 6. Results

The total number of participants in this research was 193. However, the researcher sorted out the questionnaires collected again to meet the criteria, one of which is the questionnaires must be filled in full of data on both demography and items. Six

of the participants did not fill in the JCS and WE questionnaires so that their data were not included to be processed. In other words, the total number of data that were processed and analyzed in this research was 187.

Table 3  
Correlation between job crafting and work engagement

Variable	N	r	p	r <sup>2</sup>	Remark
Job crafting and work engagement	187	.402	.000	.162	Significant (2tailed)

The researcher used the Pearson Product Moment statistical technique to see the correlation between job crafting and work engagement in 187 participants. The following is the result of the Pearson Product Moment's calculation to see the correlation between the two variables in this research. The result of the correlation between the total scores of job crafting and the total scores of work engagement is as follows. The correlation value  $r = .402$ ,  $p < 0.05$ , and  $n=187$  indicate that there is a correlation between job crafting and work engagement. With the result, the alternative hypothesis of this research is accepted, and the null hypothesis in this research is rejected. The correlation value  $r^2=.162$  is categorized as moderately correlated. As much as 16.2% variation of work engagement score is explained by job crafting so that the remaining 83.8% of work engagement variation is affected by other factors.

Table 4  
Correlations between job crafting and work engagement dimensions

Dimension	N	r	p	r <sup>2</sup>	Remark
Increasing structural resources	187	.479	.000	.229	Significant (2 tailed)
Decreasing hindering job demands	187	-.021	.776	.000	Not significant (2 tailed)
Increasing social job resources	187	.262	.000	.069	Significant (2 tailed)
Increasing challenging job demand	187	.403	.000	.163	Significant (2 tailed)

The first dimension of job crafting that is increasing structural resources with a correlation value  $r = .479$ ,  $p < 0.05$  and  $n=187$  indicates that there is a correlation between increasing structural resources and work engagement. With the result, the alternative hypothesis in this research is accepted, and the null hypothesis is rejected. The correlation value  $r^2 = .229$ . can be categorized as moderately correlated. As much as 23% score variation of work engagement is explained by increasing structural resources so that there is a remaining 77% of work engagement variation that is caused by other factors.

The second dimension of job crafting that is decreasing hindering job demands with a correlation value  $r = -.021$ ,  $p < 0.05$ , and  $n=187$  indicates that there is no correlation between decreasing hindering job demands and work engagement. With the result, the alternative hypothesis in this research is rejected and the null hypothesis in this research is accepted.

With the result shown in the third dimension that is increasing social resources, the alternative hypothesis in this research is accepted and the null hypothesis in this research is rejected. The correlation value  $r^2 = .069$ . can be categorized as

moderately correlated. As much as 0.7% score variation of work engagement is explained by increasing social resources so that there is a remaining 92.3% of work engagement variation that is caused by other factors.

The fourth dimension that is increasingly challenging job demand with a correlation value  $r = .403$ ,  $p < 0.05$ , and  $n=187$  indicate that there is a correlation between increasing challenging job demand and work engagement. With the result, the alternative hypothesis in this research is accepted and the null hypothesis in this research is rejected. The correlation value  $r^2 = .163$ . can be categorized as moderately correlated. As much as 16% score variation of work engagement is explained by increasing challenging job demand so that there is still 84% of work engagement variation that is caused by other factors.

## 7. Discussion

The results of this research indicate that there is a significant correlation between job crafting and work engagement in manufacturing industries so that it can be concluded that the higher the job crafting done by employees, the higher the work engagement of the employees. This result supports the previous research conducted by Siddiqi (2015) that found that the higher the job crafting rate in employees, the higher the work engagement of the employees. Another research carried out by Lee, Shin, and Baek (2017) also found that job crafting has a positive correlation with employee's work engagement. The current study also helps to understand how employees' participation might be improved in times of psychological stress, such as the COVID-19 epidemic. Another important part to mention is, Because of the requirement to work from home during the COVID-19 epidemic, social support from family and friends is just as important a resource. This is in line with Yuan, Ye and Zhong (2020) research that found employees who believe their bosses, friends, and family are rooting for them and are more likely to grow, develop, and adapt better to adversity, such as the COVID-19 pandemic.

The average work engagement rate in this research is categorized as high. At first, the researcher thought this resulted from the fact that one of the companies whose samples were taken is a subsidiary of PT.HJC, a company in Japan, is a developed country; therefore, it was possible that the management of the company was quite good that the employees could have a higher work engagement rate. The researcher then compared the mean of the work engagement rate of PT.HJC with the mean of that of PT.PS, which is a company that originated from Indonesia, a developing country, and the result did not show any significant difference in the mean between PT.HJC and PT.PS. Therefore, it could be concluded that the average work engagement rates in both PT.PS and PT.HJC was high and above the average work engagement rates in companies in Indonesia.

There is a significant correlation between the dimensions of job crafting and work engagement in the employees of manufacturing companies, namely increasing structural work resources, increasing social job resources, and increasing challenging job demands. However, in this research, there is no significant difference between decreasing hindering job

demands and work engagement in the employees of manufacturing companies. This finding is in line with the research with similar samples from manufacturing companies carried out by De Beer, Tims, and Bakker (2016) who studied 260 employees at mining companies and 210 employees of manufacturing companies in the Netherlands, and they found that in manufacturing companies, decreasing hindering job demands was not significantly correlated with work engagement, whereas in different industries, namely construction and mining industries, the study even found a negative correlation between decreasing hindering job demands and work engagement (De Beer, Tims, and Bakker, 2016).

There is no significant difference between decreasing hindering work demands and work engagement in the employees of manufacturing companies. The research conducted by De Beer, Tims, Bakker, and Derks (2014) stated that this was possible because of the characteristics of the work environment in manufacturing companies that had many regulations that did not allow their employees to reduce job demands. Besides, Tims, Bakker, and Derks (2012) who stated that decreasing hindering job demands did not correlate with employee work engagement found that this dimension was more related to another construct that was work fatigue or burnout. Demerouti, Bakker, and Gevers (2015) asserted that if employees decreasing hindering job demands, they would also reduce the scope of their work which in turn would hamper their development and would probably limit their learning opportunities. He further stated that job demands had the characteristics that were given by the company; for instance, some targets must be completed each day, so it might be quite difficult for employees to decreasing hindering job demands because if manufacturing employees reduced the targets, it would affect the work of the team.

Although this research did not find a significant correlation between decreasing hindering job demands and work engagement in the employees of manufacturing companies, the study found that the dimension of increasing challenging job demands had a significant correlation with work engagement in the employees of manufacturing companies. This shows that not all job demands have a negative contribution to employees. Future research can focus on other aspects of job demands, such as production demands. The research conducted by Cheung et al. (2015) found that in manufacturing industries, production demands, such as time pressure and workload, are positively correlated with employees' wellbeing.

There are several supporting reasons why job crafting is related to work engagement. Inoue et al. (2013) studied the correlation between job resources and work engagement in 1095 white-collar employees at manufacturing companies in Japan and found that job resources such as flexibility in decision making could lead employees to have a high level of work engagement. When employees were given the freedom to make job decisions, they would see their work more enjoyable. Participating in decision-making in the work environment would increase employee work engagement and could increase their commitment to the organization (Inoue et al., 2013).

Moreover, other studies have also mentioned the supporting

reasons why job crafting is correlated with work engagement. Tims, Bakker, and Derks (2014) stated that when individuals knew how to create an optimal work environment, they could monitor the characteristics of the work they were participating in, and this could, in turn, be needed to prevent any negative results, such as demotivation or declining job performance. Therefore, job crafting could be an attractive strategy to use so that employees could be more engaged in their work and would feel more valuable for their work. Also, this study further pointed out, when employees voluntarily performed new tasks, such as changing work behavior, then it could balance the unpleasant aspects of the job with more meaningful tasks that could enhance work engagement along with positive experiences gained at work, such as learning experiences, and sensations of achievement and pleasure (Hakanen, Seppälä, & Peeters, 2017).

Even though the benefits of job crafting are good for employees, there are several characteristics of work that give limited opportunities to do job crafting. When work provides a very small opportunity for job crafting behavior, employees can look for alternative behaviors. A study found that employees could make alternative changes in behavior, such as making changes in leisure time called leisure crafting, instead of making changes at work (Petrou, Bakker, and Heuvel, 2017). Future research can further examine such a construct to enrich the understanding of the job crafting construct.

## 8. Conclusion and Recommendations

This research did not find a significant correlation between decreasing hindering work demands and work engagement in the employees of manufacturing companies. Another research found a negative significant correlation between decreasing hindering job demands and work engagement in participants from different industries, namely mining and construction industries (De Beer, Tims, and Bakker, 2016). Future studies can examine the correlation between decreasing hindering job demands and work engagement in participants with a variety of industrial backgrounds to clarify the role of such a dimension in work engagement.

Increasing structural job resources has been found correlated with work engagement in manufacturing employees. Therefore, employees need to be given freedom or job autonomy, considering that it gives a positive impact on the organization. Employees' working conditions, such as the ease with which they can complete their responsibilities, also will impact how soon they recover from a traumatic event, such as the COVID-19 pandemic, and thus become involved with their work (Yuan, Ye, & Zhong, 2020). There is also a correlation between increasing social resources and work engagement in the employees of manufactures. The dimension of increasing social resources includes manufacturing employees and their superiors. Therefore, superiors can provide positive feedback on the job crafting that employees have on their behavior. Manufacturing companies in carrying out a production process certainly require employees who can adapt to the evolving technology. To respond to this challenge, the employees of manufacturing companies can implement the dimension of

increasing challenging job demands to be able to adapt to the work situation.

Increasing structural job resources has been found correlated with work engagement in manufacturing employees. Therefore, employees need to be given freedom or job autonomy, considering that it gives a positive impact on the organization. Employees' working conditions, such as the ease with which they can complete their responsibilities, also will impact how soon they recover from a traumatic event, such as the COVID-19 pandemic, and thus become involved with their work (Yuan, Ye, & Zhong, 2020). There is also a correlation between increasing social resources and work engagement in the employees of manufactures. The dimension of increasing social resources includes manufacturing employees and their superiors. Therefore, superiors can provide positive feedback on the job crafting that employees have on their behavior. Manufacturing companies in carrying out a production process certainly require employees who can adapt to the evolving technology. To respond to this challenge, the employees of manufacturing companies can implement the dimension of increasing challenging job demands to be able to adapt to the work situation.

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