

CHAPTER VI

CLOSING

This chapter contains the conclusion of the research and the recommendation for the next research.

6.1 Conclusions

The conclusions of this research are as follows.

1. A tool for lifting and moving gallon has been designed based on the results of posture evaluation and using the EFD approach.
2. A prototype has been made to evaluate the final design resulting in fewer complaints from the users.
3. The posture assessment methods used are the Nordic Body Map (NBM) and the Workplace Ergonomic Risk Assessment (WERA). Comparison of the results of the NBM assessment of 16 body segments that feel pain and very painful with a Likert score of 71 - 89 became 5 body segments that feel pain with a Likert score of 41 - 60 after improvement using the tool. In addition, the comparison of the scores for the WERA assessment results before the improvement was 44. After the improvements were made to workers using tools, the WERA assessment score became 27. So that the risk of MSDs that will be perceived by workers can be minimized using this tool.
4. There are some shortcomings from the prototype application:
 - a. The pedal function is not too necessary for the tool in its application. Because the pedal only functions to raise the plate position as high as the refill station, sometimes with there is no load on the tool.
 - b. The wheels do not have a stopper that functions to lock the position of the tool so that it does not move during the process of moving gallons from the refill station to the tool, as well as moving gallons from the tool to the customers' vehicle.

- c. The tool can only be applied to the gallon refill depot with the same floor height and smooth surface, also the distance between the refill station to the customer's vehicle is 3 – 5 meters.

6.2 Recommendations

The recommendations for future research are as follows.

1. The gallon lifting tool's design can be modified by adding more features and can fix some shortcomings of existing features to further reduce the MSDs' risks.
2. The proposed design of the gallon lifting tool can be mass produced so that it can reduce the production price resulted in cheaper product and can help workers at the gallon refill depot who need it.
3. Future research can use other product development methods to get comparable and refined results.

