

# The Development of Monk's Food Bowl Production on Occupational Health Safety and Environment at Work for the Strength of Rattanakosin Local Wisdom

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**Abstract**—This study analyzed and developed a model for monk's food bowl production on occupational health safety and environment at work for the encouragement of Rattanakosin local wisdom at Banbart Community. The process of blowpipe welding was necessary to produce the bowl which was very dangerous or 93.59% risk. After the employment of new sitting posture, the work risk was lower 48.41% or moderate risk. When considering in details, it was found that: 1) the traditional sitting posture could create work risk at 88.89% while the new sitting posture could create the work risk at 58.86%. 2) About the environmental pollution, with the traditional sitting posture, workers exposed to the polluted fume from welding at 61.11% while with the new sitting posture workers exposed to the polluted fume from welding at 40.47%. 3) On accidental risk, with the traditional sitting posture, workers exposed to the accident from welding at 94.44% while with the new sitting posture workers exposed to the accident from welding at 62.54%.

**Keywords**—Occupational health safety, environment at work, Monk's food bowl.

## I. INTRODUCTION

At the present condition, metal handicraft work is lack of Occupational health safety and environment at work which can be seen from the high number of accidents and illness from work. Most of them are from small and medium size local industry. Reference [1] mentioning that 79.5% of workers in local SME had experienced problems on illness and accidents from work and 14.9% reported work injuries. References [2], [3] stating that loud noise, inappropriate working posture, heat, and too much lighting affected health such as headache, muscle ache, and injuries. This also affected work results. Working environment also affected local people such as water contamination, soil contamination, air pollution, and released heat. The workers also lacked knowledge in work safety to protect themselves. Local people know best and the role of Rajabhat Universities is to develop local people. With this reason, the researcher applied management technology and the transferred technology to add with local wisdom to global. This study focused on the development of monk's food bowl production on occupational health safety and environment at work for the strength of Rattanakosin local

wisdom by analyzing and developing safety model. This also can create sustainability of local wisdom and local environment.

## II. OBJECTIVES

1. This study focused on the development of monk's food bowl production on occupational health safety and environment at work for the strength of Rattanakosin local wisdom by analyzing and developing safety model.
2. This also can create sustainability of local wisdom and local environment.

## III. METHODOLOGY

Samples in this study included 18 bowl producers from 5 communities in Banbart Sub-district, PomprabSattrupai District. The research tools were interview, the developed model, observation, and the measurement of working environment as well as job safety analysis (JSA).

## IV. RESULTS AND DISCUSSION

This study analyzed and developed a model for monk's food bowl production on occupational health safety and environment at work for the encouragement of Rattanakosin local wisdom at Banbart Community. The process of blowpipe welding was necessary to produce the bowl which was very dangerous or 93.59% risk which was very high risk that could create working hazard. After the employment of new sitting posture, the work risk was lower 48.41% or moderate risk. To reduce the risk some factors for consideration included budget, duration, and high damage. Sometime, moderate risk could create serious damage. So, this case there should be an accurate calculation on damage probability. This figure can be used as accurate criteria in choosing the suitable measure.

The researcher employed TISI 18001 to consider the type and the seriousness of damage which could be divided into 5 levels. With the application on 18 samples, the result showed that the risk could be reduced at 33.78%. Apart from this application, there should be training and consultancy. Reference [4] they found that most workers did not join the consultancy because of high expense. So, it was necessary for tertiary institutes to pay attention and to support by sending scholars to join local industry management. Reference [5] reported that operation workers who never got safety training had no safety knowledge to protect themselves. Reference [6] stated that young workers with less experience and no safety

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training tended to get accident from work. Reference [7] studied that there were less workers in the field of Rattanakosin metal handicraft. If there was no preservation, there was a tendency to extinct.

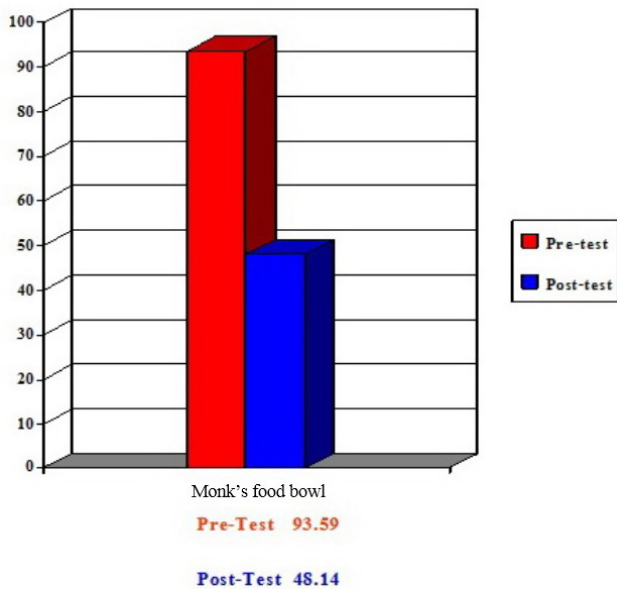


Fig. 1 Comparison of Work Risk Before and After Applying TISI 18001

On the study of working environment, it was found that there were working problems on lighting, noise, dust, and heat which affected the work results. The finding was that there was a problem in work environment in household industry. The problem included work repetition, working posture, fatigue muscles, etc. Factors resulting in work illness are:

1. Dust- dust when blowing the stove, dust from burning scattered in the working area resulted in eye irritation and respiratory problems Workers should wear goggles and masks during working. The factory should install ventilation fans. Reference [8] stated that dust could damage respiratory system especially the micro particles (0.01-1.00 micron) and fume could get into blood, lungs, and other internal parts of the body.
2. Heat- Heat from welding resulted in high temperature causing bad temper. There should be heat ventilation or stove relocation to good ventilation area [9], [10] stated that unsafe area was the highest cause of accidents.

#### V.CONCLUSION

From the application of new sitting posture and the analysis of JSA TISI 18001, the results showed in the Table I.

TABLE I  
 THE APPLICATION OF NEW SITTING POSTURE AND THE ANALYSIS OF JSA TISI 18001

Types of problems	Study aspects	Pre (application)%	Post (application) %
1.Working illnesses	1.1Health problems	33.33	22.08
	1.2Appropriateness of desk	29.17	19.32
	1.3Working seat	43.75	28.98
	1.4Sitting posture causing injuries	72.91	48.29
	1.5Precautions from working injuries	47.91	31.73
	1.6 Bending upward-downward leading to fatigue	70.83	46.31
2.Pollution at work	2.1Noise pollution	33.33	22.08
	2.2Air pollution	6.25	4.14
	2.3Working temperature (heat)	52.09	34.50
3.Accidents, injuries	3.1Working accident	52.09	34.50
	3.2Working injuries	31.25	20.70
	3.3Unsafe work conditions	50.00	33.11
	3.4Accident protection from work	47.91	31.73
	3.5Injury protection from work	50.00	33.11

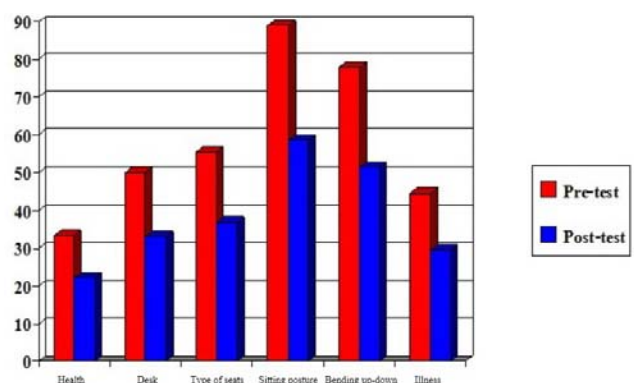


Fig. 2 Group A-Work Illnesses

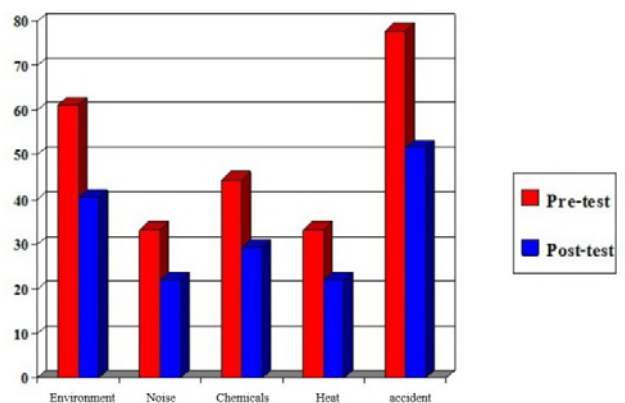


Fig. 3 Group B-Working Pollution

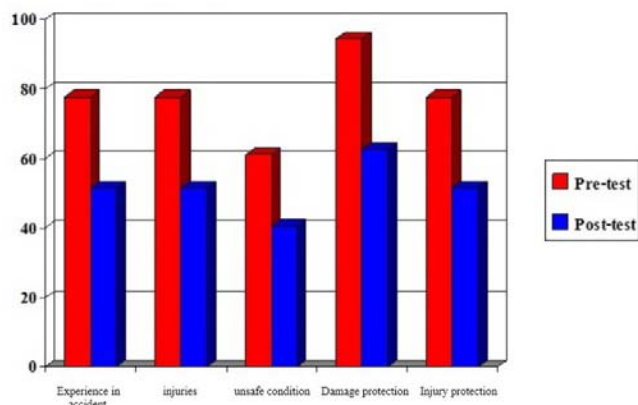


Fig. 4 Group C- Accident and Injuries from Work

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#### REFERENCES

- [1] Ganjana Nathapindhu and others, *Safety and development of model for learning and problem solving in occupational health and safety in home-made industries in northeast region*, Bangkok: Thai Franchise Center, 2002.
- [2] Plernpit Viyatasn, *Selfcare behavior promotion to individuals and family members for occupational health problems of housewives in Lapidary villages*, Khonkaen: Khonkaen University, 1995.
- [3] Somchai Petch-umpai and others, *Occupational Health and safety in Community, Nongkham sub-district, Prompiram district, Phitsanulok province*, Bangkok: Department of Health, 2002.
- [4] Sirirat Suwanichchareon, *A study of consultation and services needs on occupational health, safety, and environment of industry in Bangkok and metropolitan area*, Bangkok: Sukhothai Thammathirat Open University, 2004.
- [5] Saowaluck Jirakiat, *Safety management at work in Bangkok PVC group*, Bangkok: Suan Dusit Rajabhat Institute, 2003.
- [6] Somtawin Meungpra, *Study health behavior among workers in work-related accident prevention in case machine, equipment and metal product industry, Bangprakong district, Chachoengsao province. Bangkok*. Thammasat University, 1994.
- [7] Prompong Paireeron, *Technician Community in Rattanakosin*, Bangkok: Wanchana, 2004.
- [8] Pornpimol Kongtip, *Industrial Hygiene*, Bangkok: Nam Aksorn Printing, 2002.
- [9] Kitja Krachumkrachauy, *Accidental factors on electrical appliance and electronic plants in industrial park*, Bangkok: King Mongkut's Institute of Technology Ladkrabang, 2003.
- [10] Jutaratana Naksawat, *A study on the provision of plant safety in plastic industry in Thailand*, Bangkok: Chulalongkorn University, 1995.