

HUMAN FACTORS AND ERGONOMICS AWARENESS SURVEY
ON MIDDLE MANAGEMENT PERSONNEL OF SELECTED
MANUFACTURING INDUSTRIES IN CAVITE

THESIS

MA. ANGELICA J. ALFONSO

ARTHUR SIMON B. CASTRO

College of Engineering and Information Technology

CAVITE STATE UNIVERSITY

Indang, Cavite

Cavite State University (Main Library)



T6530

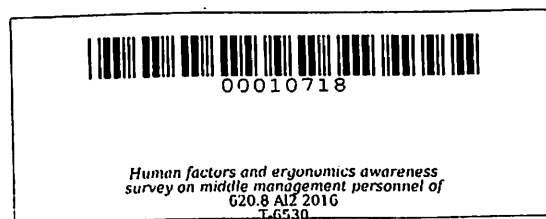
THESIS/SP 620.8 A12 2016

April 2016

**HUMAN FACTORS AND ERGONOMICS AWARENESS SURVEY
ON MIDDLE MANAGEMENT PERSONNEL OF SELECTED
MANUFACTURING INDUSTRIES IN CAVITE**

Undergraduate Thesis
Submitted to the faculty of the
College of Engineering and Information Technology
Cavite State University
Indang, Cavite

In partial fulfillment
of the requirements for the degree
Bachelor of Science in Industrial Engineering



**MA. ANGELICA J. ALFONSO
ARTHUR SIMON B. CASTRO**
April 2016

ABSTRACT

ALFONSO, MA. ANGELICA J. and CASTRO, ARTHUR SIMON B., Human Factors and Ergonomics Awareness Survey on Middle Management Level Personnel of Selected Manufacturing Industries In Cavite. Undergraduate Thesis. Bachelor of Science in Industrial Engineering. Cavite State University, Indang Cavite. April 2016. Adviser: Ms. Mary Joyce P. Alcazar.

The study determined the level of awareness of middle management personnel in selected manufacturing industries in the province of Cavite. Middle management personnel were chosen because they are the ones who are in charge in the production and in their co-workers' welfare. Human factors and ergonomics play a crucial role in business success especially in manufacturing industries. Unfortunately, some manufacturing industries suffer from occupational injuries and illnesses resulting from ergonomically poor designed systems.

The objective of this thesis was to measure the understanding about human factors and engineering of the manufacturing industries' middle management personnel. The study also aimed to relate the middle management's level of awareness into their demographic profile, productivity, product quality of the company, profitability, and employee engagement. The study shall provide additional information and recommendations in measuring the level of awareness of middle management personnel.

Fifty-four middle management personnel from the selected manufacturing industries in the province of Cavite participated through a survey questionnaire. The survey revealed that middle management personnel's demographic profile, particularly their position, educational attainment and years in service were some of the factors that affect middle management personnel's awareness and knowledge on human factors and

ergonomics. In general, more than half of middle managers are aware in human factors and ergonomics. In addition, awareness of middle management personnel in human factors and ergonomics is related to their satisfaction on the quality of the product made by the company.

TABLE OF CONTENTS

	Page
BIOGRAPHICAL DATA.....	ii
ACKNOWLEDGMENT.....	iv
ABSTRACT.....	vi
LIST OF TABLES.....	x
LIST OF APPENDIX TABLES.....	xii
INTRODUCTION	1
Statement of the Problem	3
Objectives of the Study.....	4
Nature and Importance of the Study.....	4
Scope and Limitation of the Study	5
Statement of Hypotheses	6
Definition of Terms	7
Conceptual Framework.....	8
REVIEW OF RELATED LITERATURE	10
METHODOLOGY	23
Research Design	23
Sources of Data.....	23
Sampling Frame.....	24
Sample Size Determination	24
Research Instrument	24
Data Gathering Procedure	25
Definition of Variables	25
Data Coding.....	27

Data Analysis.....	29
Statistical Treatment.....	30
RESULTS AND DISCUSSION.....	31
Demographic Profile.....	31
Level of Ergonomics Awareness of the Participants.....	35
Reliability Analysis	45
Ergonomics Awareness Associated to the Demographic Profile of the Participants and Reliability Analysis.....	50
SUMMARY, CONCLUSION AND RECOMMENDATION	65
Summary.....	65
Conclusion.....	66
Recommendations	67
REFERENCES	68
APPENDICES.....	74

LIST OF TABLES

Table	Page
1 Pearson's product moment of correlation	30
2 Age of the participants	31
3 Gender of the participants	32
4 Educational attainment of the participants	33
5 Middle management status of the participants.....	34
6 Years of service of the participants.....	34
7 Type of manufacturing industry	35
8 Overall ergonomics awareness.....	36
9 Overall ergonomics awareness of different manufacturing industries in Cavite	36
10 Awareness on physical ergonomics of different manufacturing industries in Cavite	37
11 Awareness on information ergonomics of different manufacturing industries in Cavite	38
12 Awareness on engineering anthropometry of different manufacturing industries in Cavite	39
13 Awareness on human machine system design of different manufacturing industries in Cavite.....	40
14 Awareness on work area design of different manufacturing industries in Cavite	41
15 Awareness on job design of different manufacturing industries in Cavite	42
16 Awareness on design of the work environment of different manufacturing industries in Cavite.....	43
17 Awareness on selection and design of displays and controls of different manufacturing industries in Cavite.....	44

18	Awareness on design of products and information aids of different manufacturing industries in Cavite	45
19	Overall productivity of the participants	46
20	Productivity of the participants in their superior's perspective	46
21	Productivity of the participants in their follower's perspective	46
22	Productivity of the participants in their own perspective.....	47
23	Employee engagement of the participants	48
24	Product quality of the selected manufacturing industries	48
25	Profitability of the selected manufacturing industries	49
26	Overall ergonomics awareness of the participants associated to their educational attainment	51
27	Overall ergonomics awareness of the participants associated to their middle management position	52
28	Overall ergonomics awareness of the participants associated to their years of service.....	53
29	Overall ergonomics awareness of the participants associated to product quality of the company	53
30	Participants' awareness on physical ergonomics associated to their middle management position	55
31	Participants' awareness on physical ergonomics associated to the type of manufacturing industry.....	56
32	Participants' awareness on physical ergonomics associated to the profitability of the company	57
33	Participants' awareness on information ergonomics associated to their middle management position	58
34	Participants' awareness on engineering anthropometry associated to the product quality of the selected manufacturing industries in Cavite	59

35	Participants' awareness on human machine system design associated to their middle management position	60
36	Participants' awareness on work area design associated to their middle management position.....	61
37	Participants' awareness on design of work environment associated to the profitability of the company	62
38	Participants' awareness on selection and design of displays and controls associated to their employee engagement.....	63
39	Participants' awareness on design of products and information aids associated to their middle management position	64

LIST OF APPENDICES

Appendix	Page
1 Sample Questionnaire.....	76
2 Sample Questionnaire for Measuring Productivity Using the Superior's Perception.....	84
3 Sample Questionnaire for Measuring Productivity Using the Follower's Perception	87

HUMAN FACTORS AND ERGONOMICS AWARENESS SURVEY ON MIDDLE MANAGEMENT LEVEL PERSONNEL OF SELECTED MANUFACTURING INDUSTRIES IN CAVITE

**Ma. Angelica J. Alfonso
Arthur Simon B. Castro**

An undergraduate thesis submitted to the faculty of the Department of Industrial Engineering and Technology, College of Engineering and Information Technology, Cavite State University, Indang, Cavite. In partial fulfilment of the requirements for the degree, Bachelor of Science in Industrial Engineering. Contribution No. CEIT-2015-16-2-063 Prepared under the supervision of Ms. Mary Joyce P. Alcazar.

INTRODUCTION

Ergonomics is from the Greek word "*ergon*" meaning work, and "*nomos*" meaning natural law, it is the science of refining the design of products to optimize them for human use. Human characteristics, such as height, weight, and proportions are considered, as well as information about human hearing, sight, temperature preferences, and so on. Ergonomics is sometimes known as human factors engineering (Rouse, 2007).

Today, however, the word is used to describe the science of "designing the job to fit the worker, not forcing the worker to fit the job." Ergonomics covers all aspects of a job, from the physical stresses it places on joints, muscles, nerves, tendons, bones and the like, to environmental factors which can affect hearing, vision, and general comfort and health (Oklahoma State University, 2005).