THE STUDY OF STRESS AND WORK-LIFE BALANCE PROGRAM AT BI TECHNOLOGIES CORPORATION SDN BHD ON COGNITIVE ERGONOMICS FUNCTIONS TO IMPROVE WORK PERFORMANCE

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We hereby declare that we have checked this thesis and, in our opinion, this thesis is adequate in terms of scope and quality for the award of the degree of Doctor of Philosophy.



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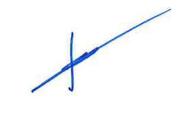
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I hereby declare that the work in this thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at Universiti Malaysia Pahang or any other institutions.



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ABSTRAK

Pengendalian tugasan menggunakan manusia sukar dihilangkan kerana terdapat pelbagai jenis tugas yang memerlukan manusia secara terus sebagai sumber utama untuk melaksanakannya Tenaga manusia diperlukan dalam industri hari ini, seperti fungsi kognitif manusia untuk beroperasi dalam bidang pengeluaran.. Kajian ini adalah untuk menangani masalah psikologi di kalangan para pekerja untuk menilai sama ada mereka mempunyai tekanan dan juga kajian tentang "Heart Rate Variability (HRV) coherence ratio", "Satisfaction With Life Scale (SWLS)" dan produktiviti pekerja. Tujuan utama kajian ini adalah untuk membina modul and melihat keberkesanan modul tersebut kepada hasil kerja pekerja dari sudut produktiviti. Modul merangkumi latihan "Heart Rate Variability (HRV)", pengurusan peribadi, pengurusan kerja dan peningkatan kerohanian. Pekerja dipilih berdasarkan "Depression Anxiety Stress Scale (DASS)" untuk sesi intervensi, 36 daripada keseluruhan 319 pekerja dengan stress skor tinggi dan rendah dibahagikan kepada "Treatment Group" dan "Control Group". Modul telah dibangunkan dalam kajian ini untuk memantau "physiological measures", "coherence ratio", "Satisfaction With Life Scale (SWLS)" dan produktiviti pekerja di bahagian pengeluaran. Modul tersebut adalah sebagai alat untuk program pengurusan "Work-Life Balance (WLB)" yang ditubuhkan untuk mengurangkan stres pekerja sambil menyediakan pengurusan tekanan yang mempunyai maklumat berkaitan untuk menggalakkan suasana "Work-Life Balance (WLB)". Pekerja yang terpilih diukur pada sebelum dan selepas pelaksanaan lapan "intervention session" dalam tempoh dua bulan. Setiap minggu mereka akan mengadakan sesi untuk melatih pekerja berkenaaan perlaksanaan modul. Hasilnya menunjukkan bahawa pekerja yang dipilih untuk sesi intervensi berjaya meningkatkan nilai purata skor coherence daripada 0.67 kepada 1.28, mengurangkan nilai purata tekanan dalam DASS daripada 45.9 kepada 29.1, meningkatkan nilai purata skor purata "Satisfaction With Life Scale (SWLB)" daripada 5.57 kepada 6.26 dan meningkatkan produktiviti pekerja dengan membandingkan keadaan sebelum dan selepas. Melalui kajian ini semua pekerja yang terpilih untuk sesi intervensi menunjukkan penambahbaikan dari sudut produktiviti pekerja secara purata sebanyak 10% bagi keseluruhan kilang terhadap tempat kerja mereka. Selepas pekerja memperbaiki fungsi kognitif ergonomic pasca sesi intervensi, bahagian tugasan pemeriksaan mekanikal visual menunjukkan peningkatan produktiviti paling banyak iaitu 13%. Ini membuktikan bahawa modul "Work-Life Balance (WLB)" berkesan untuk memperbaiki hasil kerja pekerja dari sudut produktiviti juga meningkatkan tahap kesejahteraan di antara pekerja kilang.

ABSTRACT

The judgement of human in industry is difficult to eliminate because there are various types of tasks that need human as a main source of performance. Cognitive functions of employees are positively related to stress level, body and mind condition to operate the production line. This study attempts to address the stress problem among operators also a study on Heart Rate Variability (HRV) coherence ratio performance, Work-Life Balance (WLB) and worker's productivity. The main objective of this study is to develop a Work-Life Balance (WLB) module and to study it effectiveness in employee's productivity performance. The Work-Life Balance (WLB) module developed comprises of Heart Rate Variability (HRV) training, personal management, work management, and spiritual enrichment checklist. A group of employees were selected based on the Depression Anxiety Stress Scale (DASS) score for intervention sessions, 36 from total 319 employees with high score and low score were divided into Treatment Group and Control Group. The Work-Life Balance (WLB) module was used to monitor the HRV score, Satisfaction With Life Scale (SWLS), and productivity of employees in production area. The Work-Life Balance (WLB) module was used for employees to reduce stress while providing information to promote a Work-Life Balance (WLB) environment. The selected employees' performances are measured after eight intervention sessions in a 2 month period. Every 2 weeks they will have a session to strengthen the Work-Life Balance (WLB) module implementation. The result shows that employees in the Treatment Group are able to increase HRV coherence ratio score from the mean value of 0.67 to 1.28, reducing stress level from the mean value of 45.9 to 29.1, improve Satisfaction With Life Scale(SWLB) score from the mean value of 5.57 to 6.26 and increase worker's productivity by comparing pre and post-condition. From this study, all employees that were selected for intervention session showed improvement in terms of employee productivity by an average of 10% in overall plant performance in production area. As employees improve their cognitive ergonomics function on post intervention sessions, visual mechanical inspection workstation showed the highest productivity improvement with an average of 13%. The results indicate that the Work-Life Balance (WLB) module can be used in an electronics industry company to improve work performance as well as increasing the wellness level among factory employees.

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LIST OF ABBREVIATIONS

HRV Heart Rate Variability

DASS Depression Anxiety Stress Scale

WLB Work-Life Balance (WLB)

SOP Standard Operating Procedure

EES Employee Engagement Survey

WMSDs Work-related Musculoskeletal Disorders

ULF Ultra-Low-Frequency

VLF Very-Low-Frequency

LF Low-Frequency

HF High-Frequency

FFT Fast Fourier Transformation

PNS Parasympathetic Nervous System

SNS Sympathetic Nervous System

BP Blood Pressure

HR Heart Rate

RSA Respiratory Sinus Arrhythmia

RF Respiratory Frequency

TG Treatment Group – High Stress Employee

CG Control Group – Low Stress Employee

CTRT Choice Theory Reality Therapy

ADDIE Analysis, Design, Development, Implementation, Evaluation

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