



Human factors engineering effect on the cost and productivity

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Human factors engineering conspicuous factor effects the reducing cost and increasing productivity in our daily lives everywhere whereas deals with appropriate measures workers human body and measures of the work environment. It has an affirmative effect on the organization's performance and its workers, besides reducing its workers susceptible to labor accidents which might affect reducing people's cost and increasing people's production. Thus, the paper aims to enclose the separate changeable Keyboards, body posture of, chair size, screens, disks, documents holders, lightning, pads, etc. Cost reduction and the increase of productivity count on to restrict the relationship between them. This research community consists of computer labs in different schools in the education media. The results of this paper studied the different parameters which affect the performance of students and their effect on outcomes and results. Results deal with two different school cases and comparable with each other. Methodology Used the correlation, Chi-Square Distribution, and ANOVA. Crucially results indicated that human factors engineering direct proportion with reducing the cost and increasing productivity in the education media.

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Introduction

This study is to apply the principles of human factors engineering in the field of education, classroom, or any related place in the school. in such a way to control Student's activities in an attempt to reduce the number of severities, psychological muscle, and neurological disorders, execution, and willingness thereby reducing students' compensation claims, push and motivate students to study further and, where possible, increase productivity, quality, and efficiency outcomes of learning. Increasing performance, work quality, reducing turnover, reducing absenteeism, and increasing morale. The present trend of occupational diseases and complaints, Ergonomics includes more 52.9%. Sedentary work, fewer distinct work types, less muscle usage, and more static than dynamic work [1].

MSDS and their associated costs represent significant problems in developing countries [2]. the HFE discipline and profession at large requires a long-lasting and joint effort of the entire HFE community [3]. the user-oriented approach in order to ensure that not only expected system functionality will be delivered, but also optimal usability and ergonomics [4]. Using a process simulation approaches the service model allowing a holistic analysis and assessment [5]. using a keyboard and mouse the user directly interacts with graphical objects displayed on the VDT, commonly referred to as a graphical user interface (GUI) [6]. HFE can contribute to improving healthcare quality by redesigning systems and processes [7].

Potential barriers to this increasing role of HFE exist, such as cultural differences between the core systems approach of HFE and values and beliefs in health care [8].

The main musculoskeletal strain that they experience, does not differ in time [9]. The "age" factor is highly task-dependent and might have bigger effects on the fine motor skill [10]. Technology can provide a means for controlling access to information and help the monitoring and detection of malicious activity, but it is the working environment and human factors that will provide the real foundations for success [11]. Conducted a study with distance learners using personal digital assistants (PDAs) to read class material [12]. Examples of how to mitigate side-effects on the human body caused by cell phones and mobile devices [13]. Social media influenced our lives, but with the availability and capability of smartphones, such effect is much more efficacious [14].

The proposed productivity model for knowledge-intensive services was validated accordingly [15]. Since these VEs will involve the interaction of people and machines, we need to apply human-factors principles of their design and use [16]. using human engineering tools such as task analysis, function allocation, workload analysis, and human reliability analysis [17]. It can be applied to other categories of services and improve them using the human factors

engineering rules [18]. The ability to use the smartphone easily is 55 % for the patient had chosen. In communication with the medical staff, the quality of service is 68 % for electronic records better than the paper record in terms of safety and speed reference [19].

1.1. Find research

Due to the increase of occupational diseases and complaints, whereas Ergonomics 52.9 the Nations focus on the importance of human factor engineering to reduce the losses in productivity, production cost, and quality. It was necessary for governments that this factor is sponsoring put into an account. However, in the field of education to miss the fact of this concept, most fields in general. Thus, the study that has done in several schools includes first, second, and third secondary years, and hence find a method to manipulate this problem. However, the education community does not aware of the importance of using the concept of Ergonomics and its procedural processes in that technique for making education media valuable to Increasing educational achievement and attention to the psychological, anthropometric state of the students.

1.2. Research Objectives:

Crucially the focus on research motivation was to research why the low level of students enrolled in the university in the level's computer science and programming. The application of human factors engineering through a questionnaire about the satisfaction with beneficiaries of services that provide for the study of the target areas. Society and the definition of this term with a direct impact on increasing the quality, solving many industrial, health, and educational problems. The research aims to spread the culture of the use and importance of science and human factors engineering in health, education, and industrial areas to increasing the performance and raising the educational outcomes.

1.3. Search boundaries

Because the members of the research community are deployed on multiple areas of a very large area, may find it difficult to apply this research to the entire community, so we decided to have a special research community.

2. Tool used

Initially, we developed three questionnaires for each of the target areas for the study. Measure how

students and teacher's satisfaction with the services provided to them and whether the sponsor of human factors engineering. Measure the degree of satisfaction of the auditors and students for services provided to them. Work describes the ratio of the area's most benefit from this term (Human Factors Engineering) from the areas mentioned above. Perform a variety of experiments within the target areas, based on the knowledge of these tests consider the impact of human factors engineering tolerates or not, through the development of bodyguards in the same field of work, but under different circumstances. The study included some items from the standpoint of human factors engineering in terms of the dimensions of the human body (anthropometry) and medical and biological engineering and physiology, psychology and the mental state of the target groups of the research in terms of perception, attention and memory status in the short term and long term, and influenced by the work environment in addition to the case of emotions and motivation in addition to thinking and the status of intelligence and that these sorts of elements for example in schools:

Case study I:

The study was conducted in one of the schools that affiliate to education administration (256) students from intermediate and high school, the sample was taken from year (1, 2, 3) in high school only, so our study include (180) student and the research sample consists of (36) student, so the sample will be (20%) from the research environment. Students are encouraged to take frequent rest, for example. (five minutes All hour Action Away About Computer), to reduce costs, fatigue, and increase student performance as well. The Correlation Coefficient of first year between dependent parameters (Keyboard, Observer, Location, Sit down, Desks, Document Carriers, Lighting, and Design Mission (Process)) and independent parameters (Reduce fatigue, Increased and Student Performance) are 0.62, 0.83, 0.89, 0.39, 0.84, 0.92, 0.45 and 0.49, 0.75, 0.83, 0.31, 0.74, 0.84, 0.59 respectively.

In Fig.1 shows, neutral opinions dominated on the observation location (The top of the screen is eye high. Is the field of view (eye - to - screen) 40-74 cm.? The observer shall be in front of the user while the computer is being used continuously). and desks (Horizontal knee area greatest of 43cm. The area of the horizontal toe is greater than 60 cm) to reduce Fatigue and Increase Student performance.

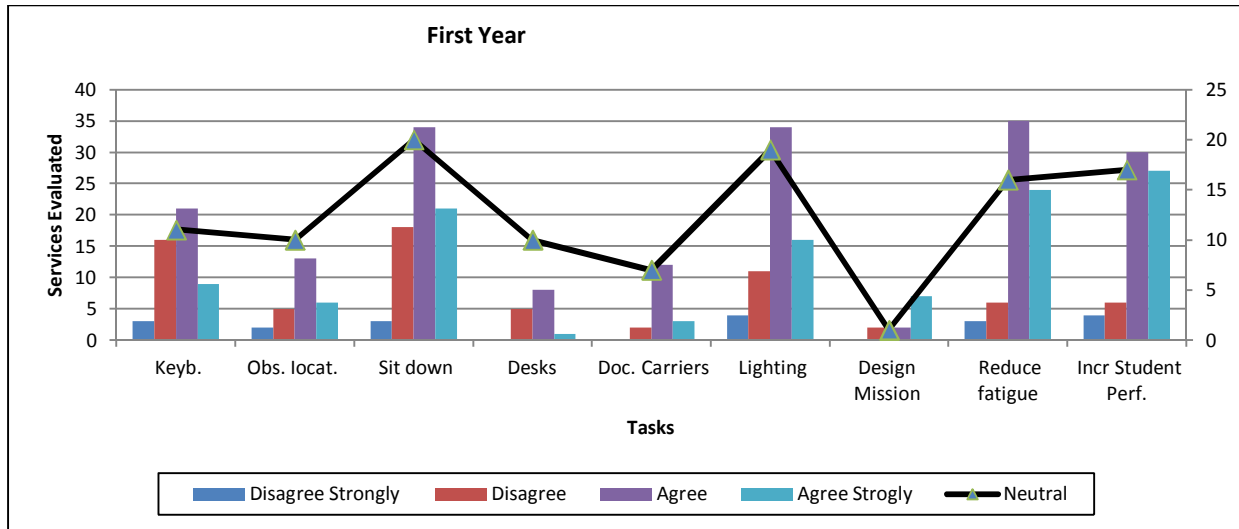


Fig. 1 Shows Relation between tasks vs Services Evaluated (First Year).

The parameters of investigation, H_0 the null hypothesis, H_A or H_1 the alternative hypothesis, O observed count, E expected count, χ^2 test critical chi-square test value and χ^2 table chi-square value from the table, as in Fig. 1 declares that nine different measurements, and here plotting the evaluated services on the vertical axis. so we can look at this and what we are ultimately trying to figure out is if the mean evaluated of one of the opinions are different from the others, so that run the Chi-Squared Test at the 0.05 significance level, to compare the test statistic for First Year with table statistic. The calculated test statistic χ^2 test > the critical value from tables χ^2 table, then the

null hypothesis is rejected, and the alternative hypothesis is favored. Otherwise, we conclude that there is “not enough evidence to reject H_0 ”. In First Year, test value of χ^2 is 48.16. This is greater than the table value of 43.77. Hence, we reject H_0 in favor of H_A , that is that all serviced evaluated and tasks are related.

In Fig. 2, the Correlation Coefficient of second year between dependent parameters and independent parameters are 0.82, 0.78, 0.72, 0.49, 0.04, 0.96, 0.66 and 0.93, 0.89, 0.87, 0.42, 0.23, 0.97, 0.56 respectively.

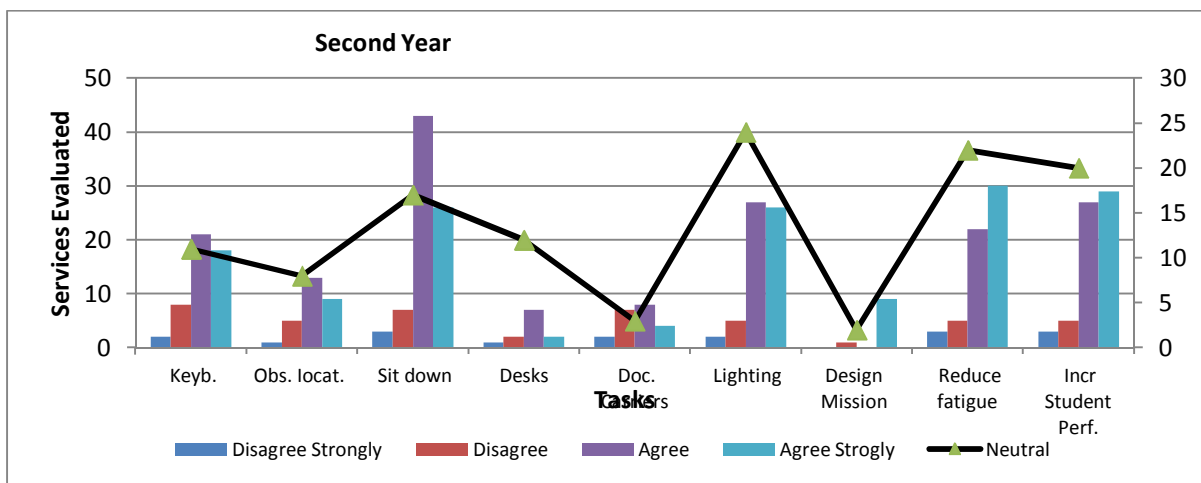


Fig. 2 Shows Relation between tasks vs Services Evaluated (Second Year).

Fig. 2 declares that nine different measurements, and here plotting the evaluated services on the vertical axis. so we can look at this and what we are ultimately trying to figure out is if the mean evaluated of one of the opinions are different from the others, so that run

the Chi-Squared Test, to compare the test statistic for Second Year with table statistic. the calculated test statistic χ^2 test > the critical value from tables χ^2 table, then the null hypothesis is rejected, and the alternative hypothesis is favored. Second Year, test value of is χ^2

= 55.43 and the table value of is 43.77. Hence, we reject H_0 in favor of H_A , that is that all serviced evaluated and tasks are related. So, since the test value (First and second Year) are greater than the table value, we can reject the null hypothesis in favor of the alternative.

In Fig. 3, The Correlation Coefficient of third year between dependent parameters and independent parameters are 0.96, 0.90, 0.99, 0.47, 0.94, 0.96, 0.94 and 0.96, 0.96, 0.97, 0.57, 0.89, 0.92, 0.95 respectively.

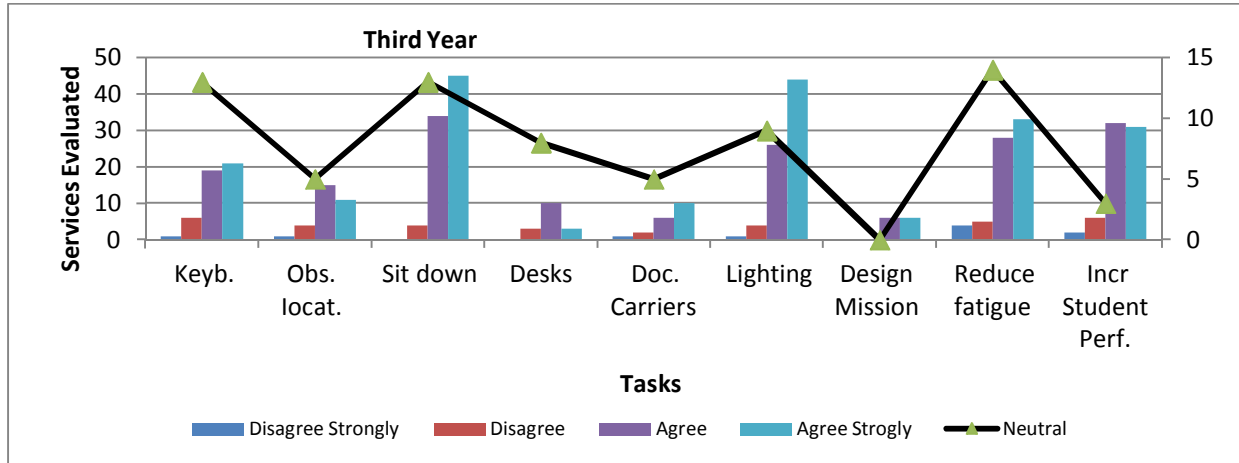


Fig. 3 Shows Relation between tasks vs Services Evaluated (Third Year).

Fig. 3 manifests that the third year, that nine different measurements, and here plotting the evaluated services on the vertical axis. so, we can look at this and what we are ultimately trying to figure out is if the mean evaluated of one of the opinions is different from the others, so that run the Chi-square analysis χ^2 from tables is 43.77. Since the χ^2 test value of 36.08 is less than the table value, there is not enough evidence to reject H_0 .

ANOVA analysis:

Two-way ANOVA without replication, use an alpha of 5 % and then you have the output range and this cell you specify, you can see the specific statistic that was used appears at the top and over to factor without replication and then we have a summary and then an ANOVA Table 1, below.

Table 1.

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Rows	1737.422	4	434.3556	14.54856718	0.00000071	2.668436943
Columns	1670.4	8	208.8	6.993673242	0.00002606	2.244396139
Error	955.3778	32	29.85556			
Total	4363.2	44				

So let's take a look at summary to the ANOVA table, it's important to note that this was a two ANOVA without replication so we can see an interaction effect here, so we would be able to determine the interaction between opinions and the focus of tasks so you can see ANOVA we have other than error we only have the rows and that was the opinions and the columns that was the focus of tasks interaction between them so to evaluate whether we had a statistically finding or not, we're going to move to the F value and we could see that for rows again the opinions it was 14.54856718, the critical value is 2.668436943 which means we would reject the null hypothesis and when we use the p-value and figure it

out from this value as well this is 0.00000071 or 0.000071% our alpha is at 5% so this less than the alpha value. So, we would not fail to reject the null hypothesis.

For columns, which had nine levels was looking at the focus of tasks, the F value is the F critical again is 2.244396139 which is lesser so again just as we had have, we have lesser F critical for rows we have a lesser F critical for columns. So of course, we know that p-value is going to be below point zero five and it's at 0.00002606 or 0.00261% again would not fail to reject the null hypothesis have. So, in evaluating these two p-values we have two statistically significant

results and with first year we can evaluate interaction effects.

ANOVA analysis for second year, we have a summary and then an ANOVA Table 2, below.

Table 2

ANOVA						
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Rows	1976.089	4	494.0222	12.04279523	0.0000044	2.668436943
Columns	1670.4	8	208.8	5.08992416	0.000387221	2.244396139
Error	1312.711	32	41.02222			
Total	4959.2	44				

So let's take a look at summary to the ANOVA Table, it's important to note that this was a two ANOVA without replication so we can see an interaction effect here, so we would be able to determine the interaction between opinions and the focus of tasks so you can see ANOVA we have other than error we only have the rows and that was the opinions and the columns that was the focus of tasks interaction between them so to evaluate whether we had a statistically finding or not, we're going to move to the F value and we could see that for rows again the opinions it was 12.04279523, the critical value is 2.668436943 which means we would reject the null hypothesis and when we use the p-value and figure it out from this value as well this is 0.0000044 or 0.00044% our alpha is at 5% so this less than the alpha

value. So, we would not fail to reject the null hypothesis.

For columns, which had nine levels was looking at the focus of tasks, the F value is the F critical again is 2.244396139 which is lesser so again just as we had have, we have lesser F critical for rows we have a lesser F critical for columns. So of course, we know that p-value is going to be below point zero five and it's at 0.000387221 or 0.0387% again would not fail to reject the null hypothesis have. So, in evaluating these two p-values we have two statistically significant results and with second year we can evaluate interaction effects.

ANOVA analysis for third year, we have a summary and then an ANOVA table 3, below.

Table 3

ANOVA						
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Rows	3271.644	4	817.9111	16.26514942	2.28467E-07	2.668436943
Columns	1670.4	8	208.8	4.15223996	0.001718281	2.244396139
Error	1609.156	32	50.28611			
Total	6551.2	44				

So let's take a look at summary to the ANOVA table, it's important to note that this was a two ANOVA without replication so we can see an interaction effect here, so we would be able to determine the interaction between opinions and the focus of tasks so you can see ANOVA we have other than error we only have the rows and that was the opinions and the columns that was the focus of tasks interaction between them so to evaluate whether we had a statistically finding or not, we're going to move to the F value and we could see that for rows again the opinions it was 16.26514942, the critical value is 2.668436943 which means we would reject the null hypothesis and when we use the p-value and figure it out from this value as well this is 0.00000228 or 0.000023% our alpha is at 5% so this less than the alpha value. So, we would not fail to reject the null hypothesis.

For columns, which had nine levels was looking at the focus of tasks, the F value is the F critical again is 2.244396139 which is lesser so again just as we had have, we have lesser F critical for rows we have a lesser F critical for columns. So of course, we know that p-value is going to be above point zero five and it's at 0.001718281 or 0.17% again would fail to reject the null hypothesis have. So, in evaluating these two p-values we have one statistically significant and other with columns is not significant results and with third year we cannot little a bit evaluates interaction effects.

3. Confidence interval between First, second and Third year proportions (Case I):

Estimate the real difference between the two evaluation percentages for first and second years - first and third years - and second and third years for each of the keyboards, Observer Location, Sit down, Desks, Document Carriers, Lighting and Design Mission with a 95% probability. Fig. 4 shows the real difference

between the two evaluation percentages for First, Second and Third year for dependent variables. Extreme variation between the three rows in terms of lack of training and lack of full awareness of the use of the number and equipment in the first, then second, and third rows, and this is done from drawings in the case of independent factors. Performance Appraisal of services (tasks) Between First P_1 , Second P_2 , and Third year P_3 : Whereas, the confidence field $P^{\wedge}_1 - P^{\wedge}_2$ for the first secondary class and the second secondary class can be calculated from the raster grading relationship

$$\pm (\text{reliability coefficient}) * (\text{standard error}), (P^{\wedge}_1 - P^{\wedge}_2) \pm 1.96(0.05) = - (P^{\wedge}_1 - P^{\wedge}_2) \leq (P_1 - P_2) \leq + (P^{\wedge}_1 - P^{\wedge}_2).$$

Managing students' performance is an ongoing procedure and a cloud-based performance management system helps teachers and school managers to get a clear view of students' goals, performance, and development needs. Skill and competency gaps can be identified and filled accordingly by allocating the most appropriate training interventions for the new students. Employees feel encouraged and valued when they are given opportunities to improve their skills and competencies.

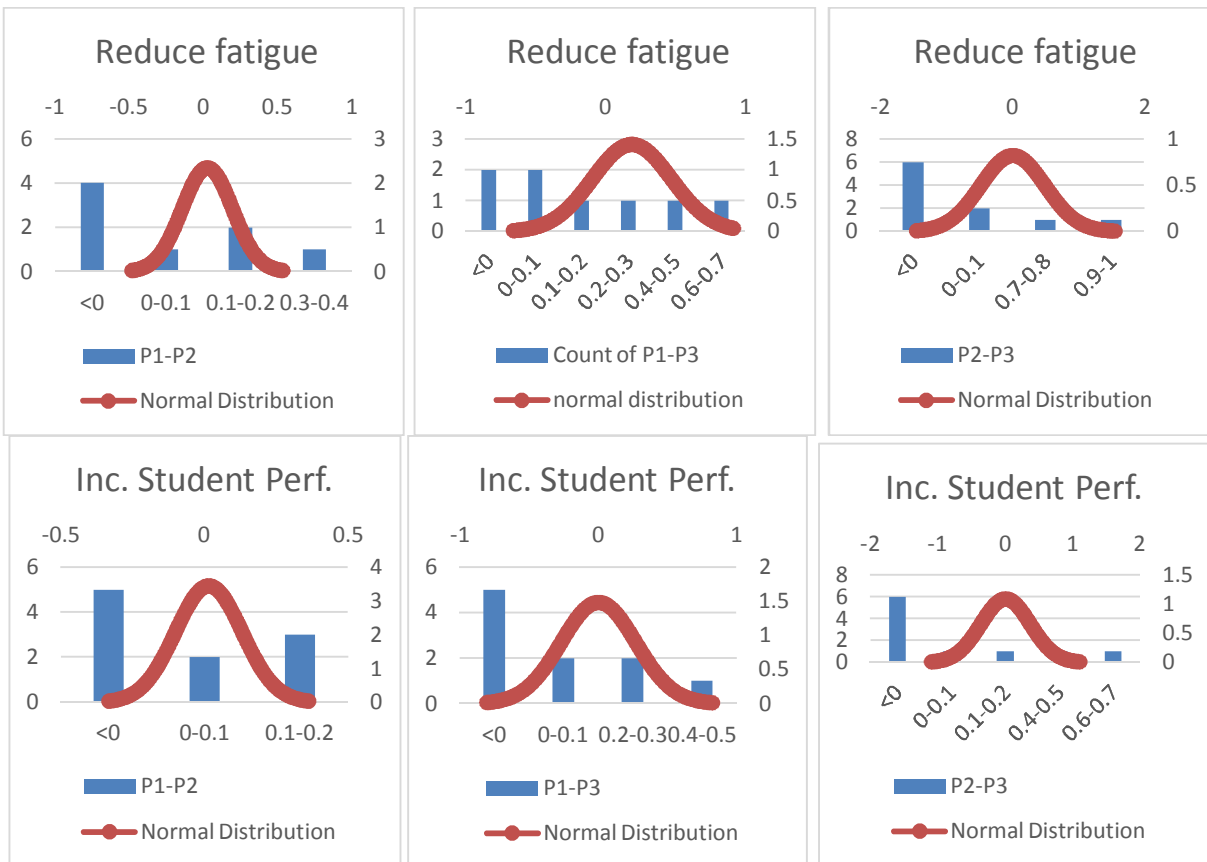


Fig. 4 Confidence between First vs Second vs Third Year for dependent parameters.

Taking care of student's interests increases student's engagement and retention. It leads to creation of best talent pipeline to have competitive edge over competitors.

4. Case study II:

The study was conducted in one of the schools that affiliate to education administration in where (277) students from Intermediate and high school the sample was taken from grade (1, 2, 3) in high school

only, so our study includes (180) student and the research sample consists of (36) student, so the sample will be (20%) from the research environment.

Fig. 5. Shows the Correlation Coefficient of the first-year students between dependent parameters and independent parameters are 0.95, 0.83, 0.92, 0.68, 0.92, 0.97, 0.75 and 0.92, 0.77, 0.91, 0.62, 0.88, 0.95, 0.81 respectively.

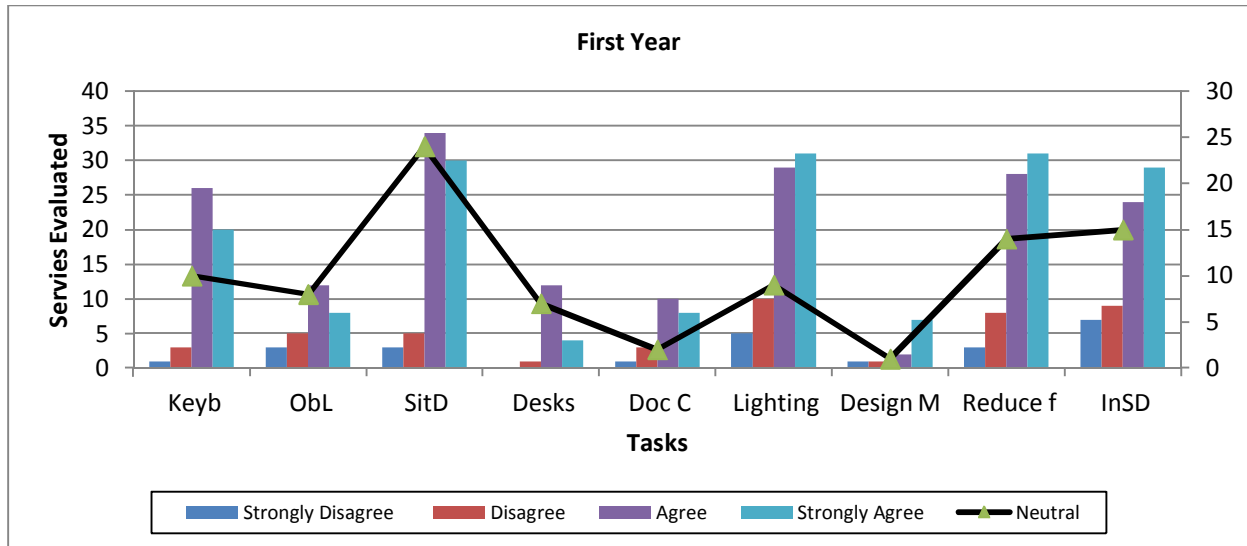


Fig. 5 Shows Relation between tasks vs Services Evaluated (First Year).

Fig. 5 declares, that the first year, is none sense and not significant, so that Chi-square analysis χ^2 from tables is 43.77. Since χ^2 test value of 33.43 is less than table value, there is not enough evidence to reject H_0 . Fig. 6, shows the Correlation Coefficient of the second

year between dependent parameters and independent parameters are 0.73, 0.30, 0.76, 0.82, -0.25, 0.41, -0.05 and 0.81, 0.41, 0.84, 0.72, -0.28, 0.49, 0.28 respectively.

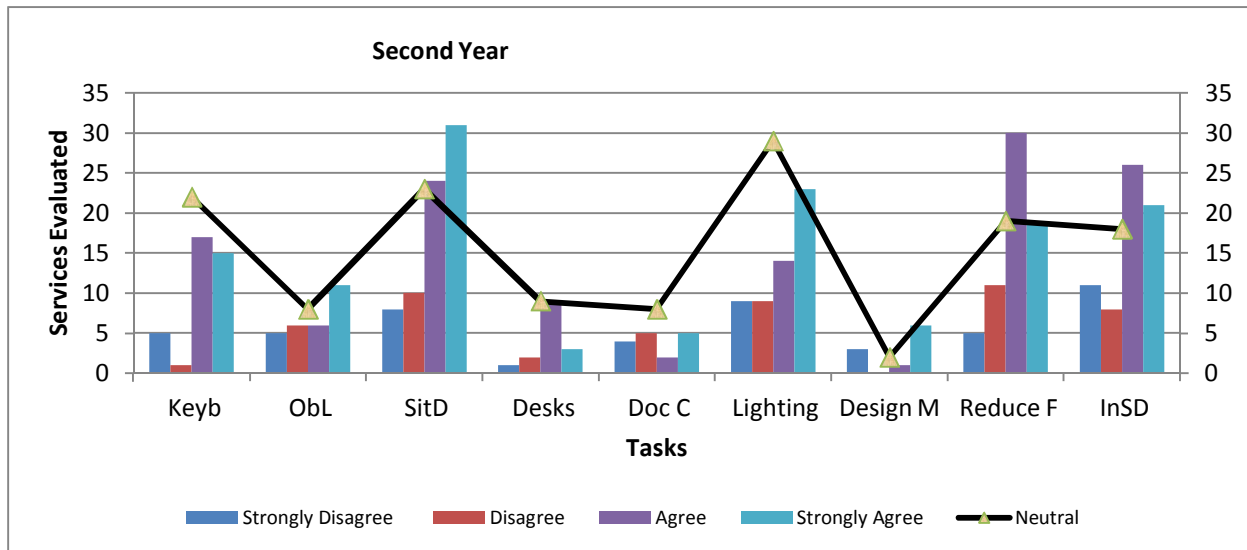


Fig. 6 Shows Relation between tasks vs Services Evaluated (Second Year).

Fig. 6 declares is none sense and not significant by using Chi-Squared Test, to compare the test statistic for Second Year with table statistic. the calculated test statistic χ^2 test > the critical value from tables χ^2 table, then the null hypothesis is rejected, and the alternative hypothesis is favored. Second Year, test value of is $\chi^2 = 46.104$ and the table value of is 43.77. Hence, we reject H_0 in favor of H_A , that is that all serviced evaluated and tasks are related. So, since the

test value (First and second Year) are greater than the table value, we can reject the null hypothesis in favor of the alternative.

Fig. 7, shows The Correlation Coefficient for third year between dependent parameters and independent parameters are 0.91, 0.91, 0.97, 0.85, 0.88, 0.94, 0.92 and 0.95, 0.95, 0.98, 0.90, 0.95, 0.98, 0.86 respectively.

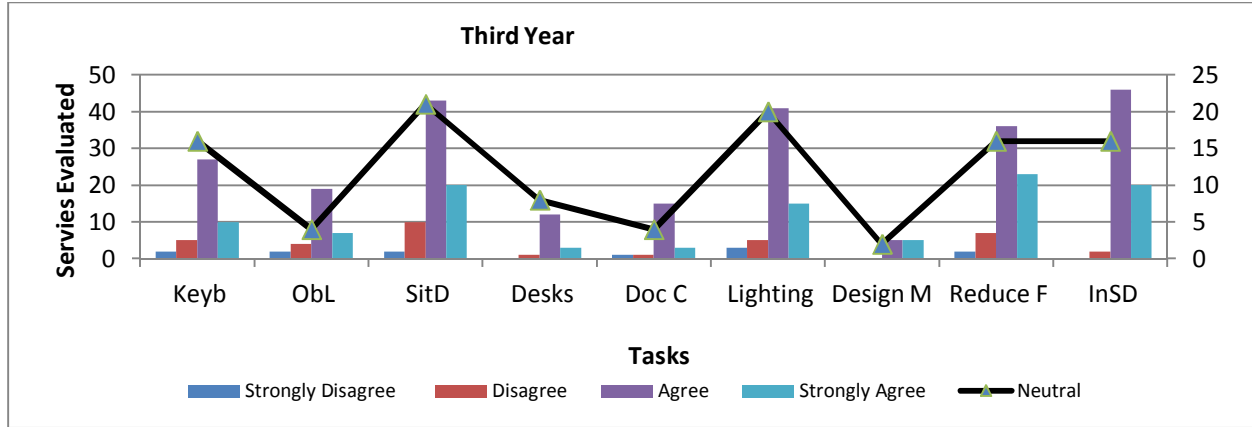


Fig. 7 Shows Relation between tasks and Services Evaluated (Third Year).

Fig. 7 shows that the third year, is none sense and not significant, For Chi-square analysis χ^2 from tables =43.77. Since χ^2 test value of 27.570 is less than table value, there is not enough evidence to reject H_0 .

ANOVA analysis (Case II):

Two-way ANOVA without replication, use an alpha of 5 % and then you have the output range and this cell you specify, you can see the specific statistic that was used appears at the top and over to factor without replication and then we have a summary and then an ANOVA table below.

Table 4.

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Rows	2161.2	4	540.3	18.80122	4.85E-08	2.668437
Columns	1670.4	8	208.8	7.265768	1.83E-05	2.244396
Error	919.6	32	28.7375			
Total	4751.2	44				

Table 4., shows the summary to the ANOVA table, it's important to note that this was a two ANOVA without replication so we can see an interaction effect here, so we would be able to determine the interaction between opinions and the focus of tasks so you can see ANOVA we have other than error we only have the rows and that was the opinions and the columns that was the focus of tasks interaction between them so to evaluate whether we had a statistically finding or not, we're going to move to the F value and we could see that for rows again the opinions it was 18.80122, the critical value is 2.668437 which means we would reject the null hypothesis and when we use the p-value and figure it out from this value as well this is 0.00000005 or 0.000005% our alpha is at 5% so this less than the

alpha value. So, we would not fail to reject the null hypothesis.

For columns, which had nine levels was looking at the focus of tasks, the F value is the F critical again is 2.244396 which is lesser so again just as we had have, we have lesser F critical for rows we have a lesser F critical for columns. So of course, we know that p-value is going to be below point zero five and it's at 0.000018 or 0.0018% again would not fail to reject the null hypothesis have. So, in evaluating these two p-values we have two statistically significant results and with first year we can evaluate interaction effects.

ANOVA analysis for second year, we have a summary and then an ANOVA table below.

Table 5.

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Rows	904.7556	4	226.1888889	9.069726	5.15E-05	2.668437
Columns	1670.4	8	208.8	8.372466	4.66E-06	2.244396
Error	798.0444	32	24.93888889			
Total	3373.2	44				

Table 5. illustrates the summary to the ANOVA table, it's important to note that this was a two ANOVA without replication so we can see an interaction effect here, so we would be able to determine the interaction between opinions and the focus of tasks so you can see ANOVA we have other than error we only have the rows and that was the opinions and the columns that was the focus of tasks interaction between them so to evaluate whether we had a statistically finding or not, we're going to move to the F value and we could see that for rows again the opinions it was 9.069726, the critical value is 2.668436943 which means we would reject the null hypothesis and when we use the p-value and figure it out from this value as well this is 0.0000515 or 0.00515% our alpha is at 5% so this less than the alpha

value. So, we would not fail to reject the null hypothesis.

For columns, which had nine levels was looking at the focus of tasks, the F value is the F critical again is 2.244396 which is lesser so again just as we had have, we have lesser F critical for rows we have a lesser F critical for columns. So of course, we know that p-value is going to be below point zero five and it's at 0.0000047 or 0.00047% again would not fail to reject the null hypothesis have. So, in evaluating these two p-values we have two statistically significant results and with second year we can evaluate interaction effects.

ANOVA analysis for third year, we have a summary and then an ANOVA table below.

Table 6.

ANOVA						
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Rows	3642.978	4	910.7444444	24.91304	1.95E-09	2.668437
Columns	1670.4	8	208.8	5.711637	0.000153	2.244396
Error	1169.822	32	36.55694444			
Total	6483.2	44				

Table 6. displays the summary to the ANOVA table, it's important to note that this was a two ANOVA without replication so we can see an interaction effect here, so we would be able to determine the interaction between opinions and the focus of tasks so you can see ANOVA we have other than error we only have the rows and that was the opinions and the columns that was the focus of tasks interaction between them so to evaluate whether we had a statistically finding or not, we're going to move to the F value and we could see that for rows again the opinions it was 24.91304, the critical value is 2.668437 which means we would reject the null hypothesis and when we use the p-value and figure it out from this value as well this is 0.000000002 or 0.0000002% our alpha is at 5% so this less than the alpha value. So, we would not fail to reject the null hypothesis.

For columns, which had nine levels was looking at the focus of tasks, the F value is the F critical again is 2.244396 which is lesser so again just as we had have, we have lesser F critical for rows we have a lesser F critical for columns. So of course, we know that p-value is going to be below point zero five and it's at 0.00015 or 0.015% again would not fail to reject the null hypothesis have. So, in evaluating these two p-values we have two statistically significant results and with third year we can evaluate interaction effects.

5. Confidence interval between First, second & Third year proportions (Case II):

Fig. 8 shows the real difference between the two evaluation percentages for First, Second and Third year for dependent variables.

Results and Conclusion

Providing work-financial circumstances, and the well- designing of workplace depending on human engineering principles help in reducing work risk, increasing productivity, lowering costs, and raising the level of health and safety to individuals.

Emphasizing on measuring the outcomes of human body organs' functions by observations to determine the heart rate, the amount of the Oxygen consumption as well as offering suitable conditions such as ventilation, temperature, humidity, and lighting.

Attention to the relationship between cost reduction and productivity increase through the integration of the relationship between them. Working to increase the integration between the independent variables and make them as one entity. Supporting and attributing the scientific level of individuals through obtaining a higher educational qualification and gaining experience and skill through specialized training courses. Paying attention to the design of the table and the chair in such a way that they conform to the requirements of human engineering and providing them. Comfortable sitting position for the individual. Paying attention to the lighting intensity and location of work for greater work accuracy and fewer workplace injuries. For case study I, to reduce injuries

and raise the performance of school students, should give (Design Mission, Desks) more improvement and Interest for the first year, should give (Design Mission, Document Carriers) more improvement and Interest for the Second Year. should give (Desks, Document Carriers) more improvement and Interest for Third Year. For case Study II to reduce injuries and raise the

performance of school students, should improve Design Mission, Desks, Document Carriers the Lightening, and Observer location for First Year. Improve Design Mission and Desks, Document Carriers for Second Year, and improve Design Mission, Desks, Keyboard, and Document Carriers for Third Year.

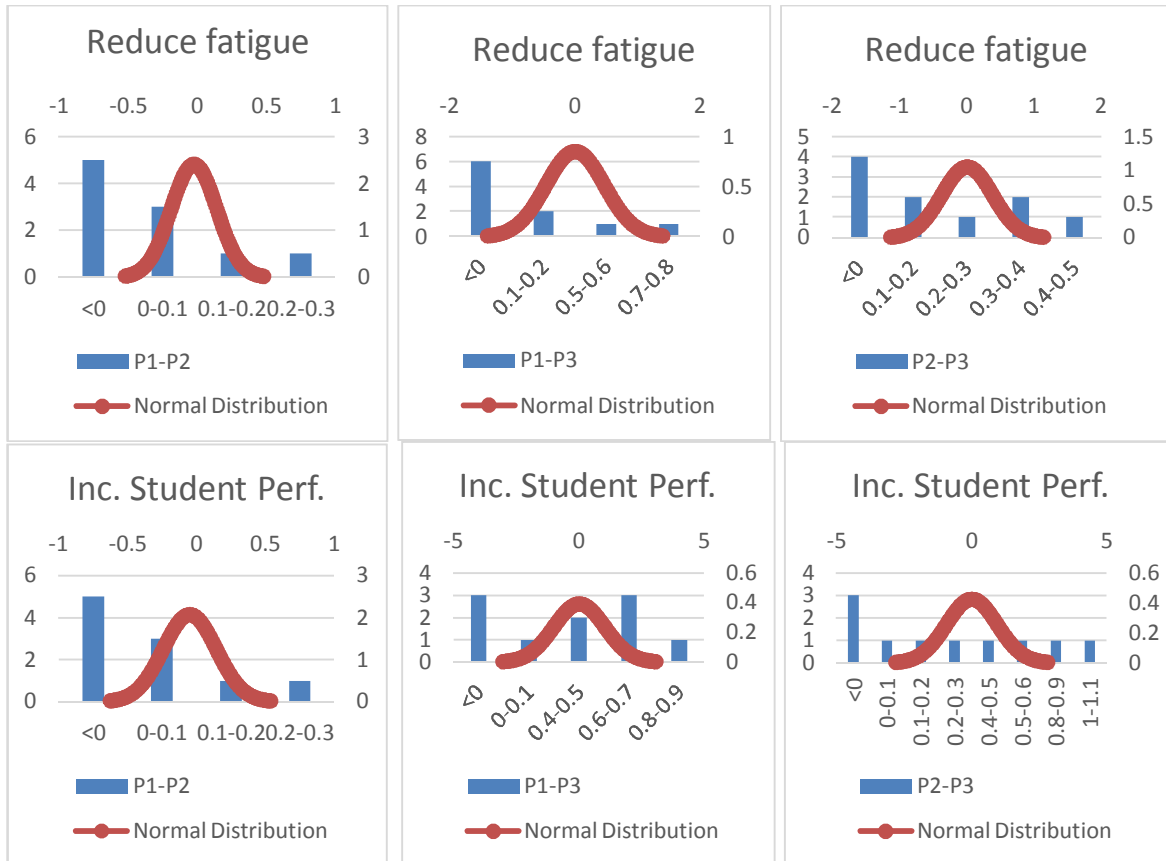


Fig. 9 Confidence between First vs Second vs Third Year for dependent parameters.

Results indicated in the First Year (case I and Case II) that the work and classroom environment does not have the attention enough and suffer from a lack of interest anthropometry of physically to the size of the human body, biomechanics, physiology, and psychology of perception, mental processes in terms of the sense and perception and attention and memory, emotions, motivation, thinking and intelligence.

The Second Year in two cases appeared that the ergonomics case arises either from the use of unsuitable business system designs Specifications and capabilities of individuals, physical, or intellectual, or as a result of wrong methods in carrying out work activities different.

In the Third Year, two cases results appeared that disease can be caused by both the previous two causes and human engineering diseases and its injuries are among the most common and least discoverable in

terms of diagnosis and rarely stopped or interrupted it accompanied it's from work in the early times, and she was the least mistake in agreeing to her treatment due to the lack of treatment. Specific and agreed upon due to the large differences in views on the diagnosis of cases, there is a number.

The development of human factors engineering programs: that which can be used as a template and flexible programs to assist in the development of rules and principles of conformity to human factors engineering. The study found that some services are lacking some of the requirements and asked about human factors engineering component of the service access to the receiver in a comfortable image in order to lead role assigned to it, for example, in the case of middle and high school students in the school before university in terms of the surrounding environment for the creation of engineering factors human factors

suitable in terms of providing the right place the existence of light and ventilate rooms and recreational means many different activities and according to the rules of human factors engineering. In addition, a series of services provided in the patient receiving the service, which did not graze in the style of human factors engineering in terms of anthropometry or physiology, psychology, and the work environment anthropometry.

The study concluded that some services are lacking some of the requirements that asked about human factors engineering component of the service access to the receiver in order to lead a comfortable image entrusted with the role of the student in terms of the surrounding environment for the creation of human factors engineering appropriate factors. In addition, a series of services provided in the patient receiving the service, which did not graze in the style of human factors engineering in terms of anthropometry or physiology, psychology and biomechanics, and the work environment. And found the search results to the work environment (human factors engineering) suffers from the lack of a lack of interest aspect of Gethsemane to the size and dimensions of the human body for the case of the seats, and so on, biomechanics, and physiology of the human being, and psychological terms for students and patients to recognize, and the lack of interest in what mental and mental processes which must take into account. Sense of service recipients, whether in classrooms and hospitals, case of perception, considering the interest and the desire for students to perform certain activities, memory and affected work or study, emotions and motivation, and thinking and intelligence. This study is introduced by deterministic solutions and stochastic solutions as well. In stochastic for simulation and analysis are presented the reasonable solutions and little differences between simulation and analytical solution for the random sample were taken to put the decision-makers in the field of hospitality and education in the right manner.

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