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# IMPROVING WORK ATTITUDES AND ASSISTIVE DEVICES CAN REDUCE SUBJECTIVE COMPLAINTS AND INCREASE THE PRODUCTIVITY OF WEAVERS

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**Abstract:** Gringsing weaving products is a part of handicraft or home industry. They are still confessed at present and produced by simple technology with hand in hand. This activity as a business of income from the most of women in Tenganan Pegringsingan Village of Manggis Sub District, Karangasem Regency. A work attitude with no planned well and they do not use a tool instruments for helping then working correctly, it is caused a subjective complaints of the workers so the production is not maximally and will cause the productivity of the workers come down. Woven products workers is required a carefulness and neatness of the workers, with long sitting posture on the flour covered by something material. It is not aware of this problem in to the anatomy and physiology of the workers and they will have a lot of complaint, sick, or pain on their next, hand, low back, anus, thigh, eyes. It is caused static work load frequently, so that they will be to come a decrease activity and low motivations, it'is activity and the work is not done efficient and effective. The variable that is measured in this study is decrease workload, subjective complaint, work efficiency (long work), and work productivity. The research has been studied to the sixteen weaving workers that were chosen without rules with treatment by subject program with cross over design, its analyses unit considering group variance. It has been intervened by work attitude with supporting tool for instant 'peliper, tingklik, por (supported by sponge), barble, and using eyes glasses and group workers. This study is analyzed by t-paired, and there is a significant work load reduction ($p<0.005$), which is the pulse of the workers come down from 89,62 beats per minutes to be 82,56 beats per minutes (±5,60) in the same of the light work load category. The subjective complaints of the work load come down showed significant value ($p<0.005$) that is from Nordic Body Map score 56,92 (16.14) to be 28.86 (7.32). By the efficient work 7 hours a day with support tools, it is to become the productivity increase (0,34%) and work productivity (7,9%) significantly ($p<0.005$).

**Keywords:** Woven supporting tools; subjective complaint; productivity; Gringsing weavings.

## INTRODUCTION

*Grinding* woven cloth is aaheritage home industry whthatombines art and simple technology fully produced by hand. To make *Gringsing* weavings is the job of some of womthe en in *Tenganan Pegringsingan*

village, in *Manggis* sub-district, *Karangasem* regency. Based on prethe liminary survey, the weaving process is done by women workers by themselves, starting from making the threads, coloring, and weaving. Weaving is a manual job using muscle power, the body locomive organs, by sitting on the floor, with simple mat, and straight to the front. Body's

An unwell-designed working condition could create subjective complaints, working loads, and works can be not efficient, which could caused decreasing in work quality [1], [2], [3]. Weaving job unconsciously could make a forced pose that is not according to natural pose of the worker, at the end will caused tiredness and or neck pain, shoulder, arms, waist, butt, hips, and legs. So the work cannot be done effective and efficiently[4],[5].

Based on preliminary survey, founded that average working artery pulse of the weavers is 84,62 per minutes, and subjective complaints as follows: wrist pain and pain on legs from the knee down average 46,03%, weaken in activities 68,4%, weaken in motivation 38,6%, physical tiredness (after working 3-4 hours) 78,2%, complains on eyes 42,5%, complains on fingers 72,4%.

Working attitude sitting on the floor with 90 degree angle between trunk and thigh, slowly will make the trunk stressed out which caused flexi on the lumbar-spinal1. With that attitude for a long period of time, will occurs tiredness and possibly caused the organ degradation [6]

[1] Robert Bridger, *Introduction to Ergonomics* (Crc Press, 2008).

[2] Jiraporn Tangkittipaporn and Worapun Jiangsathaporn, 'Musculoskeletal Pain and Mental Agony Reacting to Ergonomic Risks in the Thai Informal Working Environment', *Psychology*, 7.2 (2017), 73–88.

[3] Bernard Weerdmeester, *Ergonomics for Beginners: A Quick Reference Guide* (CRC Press, 2008).

[4] Maria Luiza Caires Comper and Rosimeire Simprini Padula, 'Ergonomic Risk Assessment in Textile Industry Workers by Two Instruments: Quick Exposure Check and Job Factors Questionnaire', *Fisioterapia e Pesquisa*, 20 (2013), 215–21.

[5] I Wayan Merta and others, 'Working Position Improvement by Adding Supporting Tool Reduced Subjective Complains and Increase Productivity of Weavers in Tenganan Village Karangasem Regency (Indian Journal)', *Indian Journal of Public Health Research & Development*, 9.8 (2018), 1500–1506.

[6] Zara Whysall, C Haslam, and R Haslam, 'Implementing Health and Safety Interventions in the Workplace: An Exploratory Study', *International Journal of Industrial Ergonomics*, 36.9 (2006), 809–18.

Figure 1. The Process of Weaving Old Work Attitudes (Without Improvement)[7]

Through a participatory approach to the workers and operator (*Kelian Banjar Tengah Tegeh Tenganan Pegringsingan*), there are some alternatives in order to reduce subjective complaints and the way to increase productivity, such as improving work attitudes by adding supporting equipment: 1). Using eyeglasses, 2). Using barbel on fingers during rest time, 3). Using *tingklik* short stool, 4). Adding *kapok* cushion on *por* and 5). Using *pelipir.* The attitude improvement alternative by adding supporting equipments was chosen because considered easy to do, also by their request, hence it could reduce subjective complaints and increase productivity.

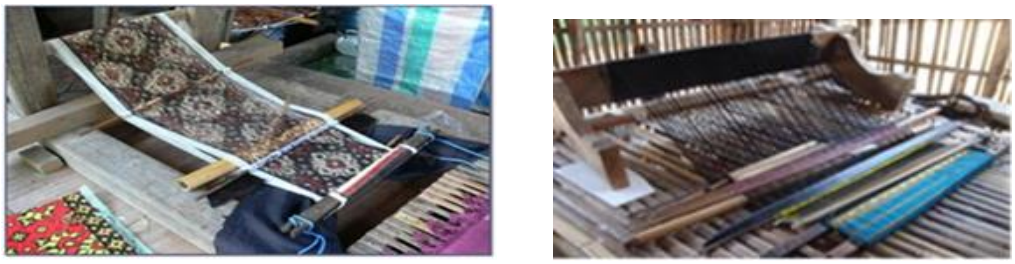

Figure 2. A set of looms with thread arrangements that have been haned[8]

**THEORETICAL BASIS**
**Organizational justice**

[7] Source: Documentation of Sudarmanto IG, 2023
[8] Source: Sudarmanto IG Documentation, 2023

Justice could be a universal norm and a person's right, as a result of the existence of each person in any scenario and context desires to be treated fairly by alternative parties, as well as in organizations. structure justice is that the results of somebody's subjective perception of the treatment he receives compared to others around him. In the organizational behavior literature, the concept of justice is divided into three, namely distributive justice, procedural justice, and interactional justice. According to[9] organizational justice is generally divided into three, namely distributive justice as justice for results, second procedural justice as justice for process or regulatory aspects, then third.

Interactional justice as justice for interactions given by superiors against subordinates. However, distributive justice is not entirely built by absolute results, but by the comparison of the proportion allocated to individuals relative to the proportion allocated to group members [10]. Distributive justice is a stronger predictor of job satisfaction than procedural. Distributive justice is an important predictor of employee personal behavior, such as job satisfaction. According to[11] the factors that affect organizational justice are: 1) Task characteristics, 2) Subordinate trust level, 3) Feedback frequency, 4) Managerial performance and 5) Organizational climate. According to [12] reward justice or distributive justice is an assessment that people make regarding the rewards they receive compared to the rewards received by other people who are their reference. With the existence of distributive justice, the assessments of employees or rewards are given to each employee in a group according to the level of employee performance shown. Distributive justices as an assessment of how fair the applicable regulations relating to the results are received by a person are. According to[13] indicators of organizational justice are task characteristics, organizational trust, and frequency of feedback, managerial performance and organizational culture.

[9] LEGALITAS BADAN USAHA, 'Bentuk-Bentuk Badan Usaha', *Kewirausahaan (E-Bisnis Dan E-Commerce)*, 2022, 263.

[10] T Hani Handoko, *Manajemen Personalia Dan Sumberdaya Manusia* (Bpfe, 2016).

[11] Gary Dessler, 'Manajemen Sumber Daya Manusia', *Jakarta: Salemba Empat*, 2015.

[12] Sri Lestari and Riani Nahriyati, 'Pengaruh Kompensasi Dan Disiplin Kerja Terhadap Kinerja Karyawan (Studi Kasus PT Lastana Express Cabang Raden Inten)', *Aliansi: Jurnal Manajemen Dan Bisnis*, 17.1 (2022), 95–106.

[13] Eric G Lambert, Nancy L Hogan, and Marie L Griffin, 'Being the Good Soldier: Organizational Citizenship Behavior and Commitment among Correctional Staff', *Criminal Justice and Behavior*, 35.1 (2008), 56–68.

Meanwhile, according to [14] indicators of organizational justice are fair promotion opportunities, recognition of hard work, fair performance appraisal procedures, fair supervisor attitudes, appropriate performance appraisals and rewards based on skills and education. According to [15] organizational justice is generally divided into three, namely distributive justice as justice for results, second procedural justice as justice for processor regulatory aspects, then third interactional justice as justice for interactions given by superiors to subordinates. Employee performance Performance is the success of the responsibility center or personnel in realizing the strategic goals that have been set with the expected behavior. Performance achievement in a government agency (including local government) is often measured from the perspective of each stakeholder, for example legislative institutions, government agencies, customers, suppliers, and the general public. Ideally, the performance measure mentis used by government agencies is compiled after obtaining input from constituent institutions, so that a consensus is obtained on what stakeholders expect of the organization. In order to achieve organizational goals and objectives, the organization is organized into smaller work units, with a clear division of labor, work systems and mechanisms [16]. Human resources are very important for an organization in managing and managing employees so that they can function productively to achieve organizational goals. To obtain optimal performance from the presence of employees in the organization, the organization needs to determine the right strategy, namely by thinking about how to manage employees in order to achieve the company's goals that have been set. According[17] they say that performance is a sign of the success or failure of a person or group in carrying out real work that has been set by an organization. According to[18] performance (work

[14] Handoko.

[15] Markum Singodimedjo, 'Manajemen Sumber Daya Manusia, SMMAS' (Surabaya, 2002).

[16] Biatna Dulbert Tampubolon, 'Analisis Faktor Gaya Kepemimpinan Dan Faktor Etos Kerja Terhadap Kinerja Pegawai Pada Organisasi Yang Telah Menerapkan SNI 19-9001-2001', *Jurnal Standardisasi*, 9.3 (2007), 106–15.

[17] Jufrizen Jufrizen and Khairani Nurul Rahmadhani, 'Pengaruh Budaya Organisasi Terhadap Kinerja Pegawai Dengan Lingkungan Kerja Sebagai Variabel Moderasi', *JMD: Jurnal Riset Manajemen & Bisnis Dewantara*, 3.1 (2020), 66–79.

[18] Anwar Prabu Mangkunegara and Anwar Prabu, 'Manajemen Sumber Daya Manusia', *Bandung: PT. Remaja Rosdakarya*, 2009.

achievement) is the result of work in quality and quantity achieved by an employee in carrying out his duties in accordance with the responsibilities given to him. In achieving high performance, several influencing factors become a reference for whether employee performance is high or low. Factors that affec temployee performance according to[19] are ability and motivation factors. The indicators that can improve employee performance according to [20] are: work skills, quality of work, responsibility, initiative. Meanwhile, according to [21] the work indicators are: 1) quality, 2) quantity, 3) timeliness, 4) effectiveness, 5) independence, 6) work commitment. Meanwhile, according to Mangkunegara, (2013), the performance indicators are: quality, quantity, reliability and attitude

## RESEARCH METHODS

This research is an experimental design with treatment by subject in the shape of cross over design and the analysis unit is considering group's variance not individual variance. Research held in Tenganan Pegringsingan village, in Manggis sub-district, Karangasem regency.

Women weaving workers resides in Tenganan Pegringsingan village on the list is 65 persons. From that number sample 18 persons that meet the inclusive criteria is chosen. In this case 16 persons was chosen randomly according to Pocock formula7.

Data is presented in table and textual form, then processed and analyzed using statistic analysis to test the normality of productivity and working load, between control and treated ones using Kolmogorov Smirnov (KS) test; evaluation of the working duration between control and treated ones using t-Paired test; ; evaluation of the working load between control and treated ones using t-Paired test

## RESULTS AND DISCUSSION

Subject's characteristic data after evaluated using KS test, shown that it's normally distributed ($p > 0.05$).

[19] Mangkunegara and Prabu.

[20] Wirawan Wirawan, 'Evaluasi Kinerja Sumber Daya Manusia', *Jakarta: Salemba Empat*, 2010.

[21] Dewi Kurniawati and Andriani Kusumawati Suharyono, *Pengaruh Citra Merek Dan Kualitas Produk Terhadap Kepuasan Dan Loyalitas Pelanggan (Studi Pada Pelanggan KFC Cabang Kawi Malang)* (Brawijaya University, 2014), I.

**Table 1. Tenganan Pegringsingan Weavers Characteristic**

| Variable | Average | Deviation Standard |
|---|---|---|
| 1. Age (years) | 34,81 | ± 5,10 |
| 2. Height (cm) | 158,31 | ± 7,32 |
| 3. Weight (kg) | 59,69 | ± 4,97 |
| 4. Blood Pressure: | 120,00 | ± 0,00 |
| -Systole (mmHg) | 70,00 | ± 7,32 |
| -Diastole (mmHg) | 15,50 | ± 7,82 |
| 5. Working Experience (years) | | |

Anthropometry data characteristic of research subjects with calculation of percentil 5, 50 and 95 can be seen in Table 2

**Table 2. Percentiles 5, 50, And 95 From Anthropometric Data**

| | Persentil | | |
|---|---|---|---|
| | 5th | 50th | 95th |
| Waist width (cm) | 32,56 | 34,14 | 37,30 |
| Butt width/length (cm) | 37,00 | 38,50 | 40,00 |
| Leg length from knee to sole (cm) | 49,62 | 52,81 | 56,00 |
| Feet range from butt to sole (cm) | 82,28 | 88,24 | 95,48 |
| Leg length from butt to knee (cm) | 46,14 | 50,84 | 54,02 |
| Length from knee to sole (cm) | 46,00 | 51,50 | 57,00 |

Working climate condition consists of Wet Temperature, Dry Temperature, and Relative Humidity, are still in normal range. Working climate condition during the research is shown in Table 3. From the Average data of working climate that consists Wet Temperature, Dry Temperature, and Relative Humidity after evaluated using K.S test, proofed that the data is in normal distribution ($p > 0.05$).

**Table 3. Average Working Climate**

| No | Variable | Average± Dev. Std |
|---|---|---|
| 1 | Wet Temp (°C) | 27,16 ± 0,81 |
| 2 | Dry Temp (°C) | 28,58 ± 1,21 |
| 3 | Relative Humidity (%) | 79,66 ± 1,21 |

The weaving cloth production using existing attitude (control) and new one using supporting equipments *peliper*, *por* with foam cushion,

using eyeglasses and massaging barbell during rest time (treated) in this research measured in the width of product ($cm^2$) of woven cloth produced in 7 hours in a group. The average of production in existing position (control) is 349,68 (±111,79) $cm^2$, while the average production with supporting equipments position (treated) is 352,12 (±112,27) $cm^2$. The average product of woven cloth (control and treated) after evaluated using paired t-test is significantly different (p >0,05).

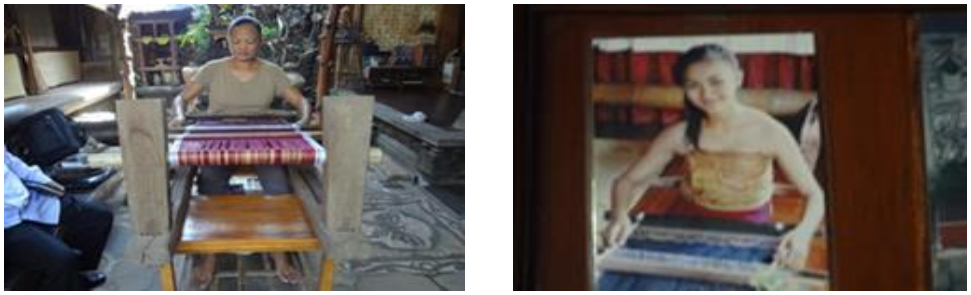

Figure 3. Weaving Process With Improved Work Attitudes and Ergonomic Aids[22]

Resting pulse per minute, Working pulse per minute, Recovery pulse per minute, and Work pulse per minute in control (weaving in existing old position) and treated (weaving with supporting equipments position *peliper, por* with foam cushion, using eyeglasses and massaging barbell during rest time) shown in Table 4.

**Table 4. Rest Pulse,Working Pulse, Recovery Pulse, And Work Pulse**

| Variable | Control (ppm) Average ± S.D | Treated (ppm) Average ± S.D | *P* |
|---|---|---|---|
| Resting pulse | 80.25 ± 2.68 | 80.50 ± 2.20 | 0,78 |
| Working pulse | 89.62 ± 3.96 | 82.56 ± 5.60 | 0,01 |
| Recovery pulse | 79.75 ± 4.64 | 75,31 ± 4.84 | 0,00 |
| Work pulse | 8.75 ± 4.55 | 2,06 ± 0,85 | 0,00 |

Productivity incline by changing the working attitude, from weaving in existing old attitude (control) in working attitude using

[22] Source: Sudarmanto IG Documentation, 2023

supporting equipments (treated), from above calculation founded that the average control productivity: 5,33 (±1,41) is lower than the treated one: 21,96 (±0,13). From both productivity value after evaluated using statistic test t-Paired shown significant different ($p < 0.05$)

**Table 5. Average Working Productivity Of Control And Treated**

| **Variable** | **Average (± Std. Dev)** | **Value *p*** |
|---|---|---|
| Working Productivity:<br>Control (old working position)<br>Treated (with support equipments) | <br>5,33 (± 1,41)<br>21,96(± 0,13) | <br><br>0.001 |

Subjective complaints data before and after work measured using Nordic Body Map. Average Data and Standard Deviation shown in Table 6. Subjective complaints Score of control: 56,92 (± 16,14) bigger than treated one: 28,86 (± 7,32) with t-Paired test founded p = 0,00 means significantly different (p < 0,05).

**Table 6. Average and Standard Deviation of Subjective Complaints Of Control (C) and Treated (T)**

| **Varible** | **Average ± S.D** | ***p*** |
|---|---|---|
| Subjective Complaints change:<br>Control (old working position)<br>Treated (with support equipments) | 56,92 ± 16,14 28,86 ± 7,32 | 0,00 |

From Subjects characteristic including body weight dan hight, founded that the average body weight 53,19 (± 2,07) in the range of 48 kg - 65 kg, average 53,19 (± 2,07) kg, while height is in the range of 148 cm - 170 cm, average 153,50 (± 2,00) cm. By observing the comparison of that body weight and height, shows that weavers in *Tenganan Pegringsingan* has a normal weight and height or ideal according to Broca index, while body weight is ideal when the value is smaller than the height deducted by 100 ± (the value than times 10%)[8,9].

Ambient Temperature in *Tenganan Pegringsingan* during research between 08.00 - 17.00 wita is; wet temperature is around 26° C – 28,50° C average 27,16 (± 2,50)°, dry temperature is around 27° C - 30° C average 28,58 ± 3,00°C. Topographic of *Tenganan Pegringsingan* is located in high plateau with lush trees, has a lower temperature

compared to other research location. Lowest Ambient dry temperature is 27° C considered comfortable. The lowest threshold is 21° C and the highest is 30° C. Relative Humidity is around 78 % - 81 %, average 79,66 (± 3,00) % is still in comfortable range with threshold of 70% - 80%[10].

Treatment given to the weavers, by giving working attitude on a supporting equipment called *peliper,* sit on *tingklik* small stool, *por* (with foam cushion) on the waist, using eyeglasses, and massaging barbel during resting time for 5 minutes each time. With those several treatments, the weavers has a chance to reduce their tiredness, because the weight of the body caused by sitting on the floor and the legs to the front rests on the feet in a long period of time, possibly caused cumulative tiredness, and feet organ degenerative [23] [24]

**Figure 4. Weaver Community of Tenganan Pegringsingan Traditional Village (Control Group and Treatment Group)** [25]

Weaving job need accuracy since the tools is operated by each women worker with high sight accuracy. So it needs eyeglasses to operate, beside to avoid the eyes tiredness it is also to avoid the thread dust get in into their eyes, hence the products become maximum result [26] [27]. For one unit of Control Group (C) weavers, founded that average production of cloth daily in existing old position is 349,68 (±111,79) cm2. This is different with the job using new working position, where one

[23] Bridger.

[24] Etienne Grandjean, *Fitting the Task to the Man: An Ergonomic Approach* (London: Taylor & Francis, 1980). p.

[25] Source: Sudarmanto IG Documentation, 2023

[26] Comper and Padula.

[27] (Authority 2019)

unit Treated Group (T) produced 352,12(±112,2) $cm^2$ of cloth. This is mean working with supporting equipments is more effiecient by producing 2.44 $cm^2$ of cloth daily or 0.34% compared to old position.

From the research we know the subject's resting pulse is not significantly different ($p > 0,05$) between old working attitude (control) and working attitude using supporting equipments (treatment). Old working attitude (control), average resting pulse is 80.25 (±2.68) pulse per minute, while with working position using supporting equipments (treatment) is 80.50 (±2.20) pulse per minute. It means that subject's resting pulse between both condition (control and treated) relatively the same, or we can say the starting condition (before working) is the same.

Average Work pulse before and after treatment declined by 7.06 pulse per minute (4.1%). With statistic test t-Paired founded $p = 0.01 < 0.05$. it means subject's working pulse between both condition (control and treated) significantly different, hence the end condition (after working with supporting equipments) is better than the old condition (when on existing working position). This situation shows that weaving job can be objectively seen from physiologic reaction such as working pulse increase, it is not only related to how hard the work is, but also related to accuracy and the frequency accuration [28]

Recovery pulse on subjects with old working attitude (control) shows decline from average 79.75 (±4.64) to (working attitude using supporting equipments) average 75,31 ±(4.84) pulse per minute. It shows that the working load is considered easy, because the lower the recovery pulse, means that the working load being done considered easy or the subject's condition is good, usually when condition is good and the work is easy, so within 5 minutes the recovery pulse is back to normal [29].

[28] Robert B Bechtel and Arza Churchman, *Handbook of Environmental Psychology* (John Wiley & Sons, 2003).

[29] Martin Helander, *A Guide to Human Factors and Ergonomics* (CRC press, 2005).

Figure 5. Gringsing Woven Cloth Displayed and Worn by Teenagers of Tenganan Pegringsingan Village for Traditional Ceremonies [30]

Working productivity on Treated (working attitude using supporting equipments) is 23.06 (± 14,32) and on Control (old working attitude) is 6.09 (± 3,24) shows significant difference (p=0.001<0.05). This is caused by the decrease of working pulse and also by the increase of product by using supporting equipments. Hence we can say that using the supporting equipments peliper, por (with foam cushion, tingklik, eyeglasses and massaging barbell (during resting time) in this research can boost productivity of weavers in *Tenganan Pegringsingan* up to 60.93%. The ergonomic changes in working attitude, could increase economic value related to performance, indirectly reduce operational cost that have to spent[16]. In other words, productivity boost means efficiency boost [31]

The working attitude with suppoting equipments (treated) can reduce subjective complaints of the weaving workers in *Tenganan Pegringsingan* significantly (p< 0,05). Before practicing working attitude with supporting equipments, subjective complaints shown by the value of nordic body map up to 56,92%. By practicing working attitude with supporting equipments, the value of nordic body map becomes 28,86 %, that means the subjects felt their working load become easier and the feeling of disturbance can be solved [32], [33], [34]

## CONCLUSION

The different of working and resting pulse also decreasing from 9.37 pulse per minute that shown light working load, becomes 2,29 pulse per minute which also indicating light working load. Subjective

[30] Source: Sudarmanto IG Documentation, 2023

[31] Helander.

[32] M St-Vincent and others, 'Assimilation and Use of Ergonomic Knowledge by Nonergonomists to Improve Jobs in Two Electrical Product Assembly Plants', *Human Factors and Ergonomics in Manufacturing & Service Industries*, 7.4 (1997), 337–50.

[33] Montbel Thibaud and others, 'Internet of Things (IoT) in High-Risk Environment, Health and Safety (EHS) Industries: A Comprehensive Review', *Decision Support Systems*, 108 (2018), 79–95.

[34] Muhammad Abdul Latif and others, 'Analisis Total Quality Management (Tqm) Pada Pendirian Tk Islam Terpadu Mutiara Plus Banguntapan', *AWLADY: Jurnal Pendidikan Anak*, 6.2 (2020), 301–12.

complaints of the weavers also declined. It shown from the score before using supporting equipments was 56,92%, then becomes 28,86%. Working duration or time needed to weave is still the same, 7 hours a day, before and after conditioning, hence the efficiency is remain the same.
With the decrease of working load, the same subjective complaints and working duration efficiency, the productivity is increasing 16.97%, because with the decline of working load then the ratio of products (output) compared to working load and working duration (input) becomes bigger.

## BIBLIOGRAPHY

Authority), EFSA (European Food Safety, 'EFSA Statement on the Review of the Risks Related to the Exposure to the Food Additive Titanium Dioxide (E 171) Performed by the French Agency for Food, Environmental and Occupational Health and Safety (ANSES)', *EFSA Journal*, 17.6 (2019), e05714

Bechtel, Robert B, and Arza Churchman, *Handbook of Environmental Psychology* (John Wiley & Sons, 2003)

Bridger, Robert, *Introduction to Ergonomics* (Crc Press, 2008)

Comper, Maria Luiza Caires, and Rosimeire Simprini Padula, 'Ergonomic Risk Assessment in Textile Industry Workers by Two Instruments: Quick Exposure Check and Job Factors Questionnaire', *Fisioterapia e Pesquisa*, 20 (2013), 215–21

Dessler, Gary, 'Manajemen Sumber Daya Manusia', *Jakarta: Salemba Empat*, 2015

Grandjean, Etienne, *Fitting the Task to the Man: An Ergonomic Approach* (London: Taylor & Francis, 1980)

Handoko, T Hani, *Manajemen Personalia Dan Sumberdaya Manusia* (Bpfe, 2016)

Helander, Martin, *A Guide to Human Factors and Ergonomics* (CRC press, 2005)

Jufrizen, Jufrizen, and Khairani Nurul Rahmadhani, 'Pengaruh Budaya Organisasi Terhadap Kinerja Pegawai Dengan Lingkungan Kerja Sebagai Variabel Moderasi', *JMD: Jurnal Riset Manajemen & Bisnis Dewantara*, 3.1 (2020), 66–79

Kurniawati, Dewi, and Andriani Kusumawati Suharyono, *Pengaruh Citra*

*Merek Dan Kualitas Produk Terhadap Kepuasan Dan Loyalitas Pelanggan (Studi Pada Pelanggan KFC Cabang Kawi Malang)* (Brawijaya University, 2014), I

Lambert, Eric G, Nancy L Hogan, and Marie L Griffin, 'Being the Good Soldier: Organizational Citizenship Behavior and Commitment among Correctional Staff', *Criminal Justice and Behavior*, 35.1 (2008), 56–68

Latif, Muhammad Abdul, Erni Munastiwi, Deska Puspita, and Adinda Putri Amanah, 'Analisis Total Quality Management (Tqm) Pada Pendirian Tk Islam Terpadu Mutiara Plus Banguntapan', *AWLADY: Jurnal Pendidikan Anak*, 6.2 (2020), 301–12

Lestari, Sri, and Riani Nahriyati, 'PENGARUH KOMPENSASI DAN DISIPLIN KERJA TERHADAP KINERJA KARYAWAN (Studi Kasus PT Lastana Express Cabang Raden Inten)', *Aliansi: Jurnal Manajemen Dan Bisnis*, 17.1 (2022), 95–106

Mangkunegara, Anwar Prabu, and Anwar Prabu, 'Manajemen Sumber Daya Manusia', *Bandung: PT. Remaja Rosdakarya*, 2009

Merta, I Wayan, I Gede Sudarmanto, I Sri Dhyanaputri, Ida Ayu Made Sri Arjani, and Anwar Mallongi, 'Working Position Improvement by Adding Supporting Tool Reduced Subjective Complains and Increase Productivity of Weavers in Tenganan Village Karangasem Regency (Indian Journal)', *Indian Journal of Public Health Research & Development*, 9.8 (2018), 1500–1506

Singodimedjo, Markum, 'Manajemen Sumber Daya Manusia, SMMAS' (Surabaya, 2002)

St-Vincent, M, I Kuorinka, D Chicoine, S Beaugrand, and J Fernandez, 'Assimilation and Use of Ergonomic Knowledge by Nonergonomists to Improve Jobs in Two Electrical Product Assembly Plants', *Human Factors and Ergonomics in Manufacturing & Service Industries*, 7.4 (1997), 337–50

Tampubolon, Biatna Dulbert, 'Analisis Faktor Gaya Kepemimpinan Dan Faktor Etos Kerja Terhadap Kinerja Pegawai Pada Organisasi Yang Telah Menerapkan SNI 19-9001-2001', *Jurnal Standardisasi*, 9.3 (2007), 106–15

Tangkittipaporn, Jiraporn, and Worapun Jiangsathaporn, 'Musculoskeletal Pain and Mental Agony Reacting to Ergonomic Risks in the Thai Informal Working Environment', *Psychology*, 7.2 (2017), 73–88

Thibaud, Montbel, Huihui Chi, Wei Zhou, and Selwyn Piramuthu,

'Internet of Things (IoT) in High-Risk Environment, Health and Safety (EHS) Industries: A Comprehensive Review', *Decision Support Systems*, 108 (2018), 79–95

USAHA, LEGALITAS BADAN, 'Bentuk-Bentuk Badan Usaha', *Kewirausahaan (E-Bisnis Dan E-Commerce)*, 2022, 263

Weerdmeester, Bernard, *Ergonomics for Beginners: A Quick Reference Guide* (CRC Press, 2008)

Whysall, Zara, C Haslam, and R Haslam, 'Implementing Health and Safety Interventions in the Workplace: An Exploratory Study', *International Journal of Industrial Ergonomics*, 36.9 (2006), 809–18

Wirawan, Wirawan, 'Evaluasi Kinerja Sumber Daya Manusia', *Jakarta: Salemba Empat*, 2010