A Historical Approach on Individual Incentive Program In A Collectivist Society In An Indonesian Glass Lens Manufacturing

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Abstract

Transferring production operations overseas was a cost driven strategy and in glass bifocal lens manufacturing, high quality labor skills were required and yield targets were critical. Sensitivity analysis conducted showed three levels of yield drop would result in significant increase in costs of products. At the same time, major considerations were made due to cultural differences of individualist versus collectivist. Incentive programs, both monetary and recognition, were implemented to motivate assembly operators of production to achieve yield targets. The findings were while individual incentives continued to be paid out on monthly basis, the public recognition had to be removed. Individual public recognition was concluded as hindrance to achieving performance results in a collectivist society. In the end, the incentive program proved successful and the factory achieved its yields. Another importance collectivist trait observed were employees who obtained incentives were found helping their co-workers to improve their skills over coffee breaks. This paper used an evidence-based approach provided by the Management of the Indonesia factory.

Keywords: Incentive Program, Employee Recognition, Individualist Versus Collectivist, Glass Lens Manufacturing, Indonesia.

1. INTRODUCTION

The company which transferred glass bifocal and trifocal production from United States of America to Indonesia deployed employee incentives program; was studied on an evidence-based approach over a year, covering the aspects of individualist-collectivist societies (IND-COL).

This paper aimed to address what would be the effective rewards program for a company that had transferred its operations from an individualist society to a collectivist society. This was important as the well-established company needed to meet its manufacturing performance goals in terms of meeting target yields in new manufacturing location, and with serious consequence because if it is unmet, this would be reflected in increase of costs. There were several types of employee rewards program and chosen for this study was individual incentive and employee recognition. This study used a more in-depth concept of IND-COL which included the horizontal and vertical dimensions to be more explicit in the discussion. The concepts of horizontal and vertical dimension of IND-COL followed were works done by Gyorkos et al. (2013); Singelis et al., (1995) and Triandis et al., (1986). In rewarding employees, Sprinkle (2000) stated that incentives significantly enhanced performance. The company who participated in this study implemented

incentives program, because being a new set-up with newly hired employees, incentives would increase the rate of learning and accelerate learning curve (Sprinkle, 2000). The company also needed employees to use resources more effectively and efficiently as their requirements were costs driven; which incentives could motivate on this level. The company also had to effectively keep the employees that they took time and effort to train and incentive programs were found to retain employees (Aguinis et al., 2012).

This study was proved useful as the company which participated in this study was willing to make real time changes to revise the rewards program should it be found not working. The company did not have to wait for year-end manufacturing closing or employee appraisal. The changes made within the study period made the findings of this paper significant.

The implications of this research were that practitioners could consider implementing similar rewards program for high-skilled labor in manufacturing. This paper gave insight of the type of rewards program that would be effective in a horizontal collectivist society.

2. LITERATURE BACKGROUND

2.1 Industry History

Until the 1960s, growth in the ophthalmic goods industry had occurred at a steady, predictable rate, largely dictated by the rate of population growth in the United States of America (U.S.). During the 1960s, however, an increased demand for optical products elevated industry sales levels to unprecedented highs, prompted by greater availability of eye examinations and the development of contact lenses to be used in place of eyeglasses. The 1960s sales were boosted by the country's federal programs like Medicare and Medicaid which helped pay for eye exams for the elderly and the poor (Encyclopedia, 2019). Pricing of corrective eyewear became an ongoing concern for U.S. government regulators where a number of states prohibited advertising of eyewear prices. This resulted in prices averaged 25% higher than in states with no restrictions. In the late 1970s the US Federal Trade Commission moved to end all advertising restrictions to level out pricing practices which succeeded to create a more price-driven eyewear market (Encyclopedia, 2019).

Worldwide, vision represented an estimated USD36 billion-dollar industry comprised of services (approximately USD15 billion) and sale of corrective eye glasses and lenses (approximately USD21 billion) with steady expected growth of 1 to 2% (HarrisWilliams & Co., 2015). Modest, but steady growth of vision care services driven by the following key market trends: Aging Population Growing Coverage for Vision Care (HarrisWilliams & Co., 2015). Products and services in the eye care industry clustered around two goals which were refractive vision correction and treatment of eye diseases. Over 150 million Americans used corrective eyewear for refractive vision problems, with an estimated USD21 billion market for glasses and contact lens sales (Pathipati & Tsai, 2018). In the late 1990s, relatively small compared to most industries, U.S. optical supplies sector consisted of five main product segments: frames for eyeglasses, lenses for eyeglasses, contact lenses, sunglasses, and cleaning solutions and specialty products (Encyclopedia, 2019).

In addition to positive secular trends driving long-term growth, the vision market exhibited highly stable demand due to non-deferrable nature of service and corrective device purchases (HarrisWilliams & Co., 2015). Industry participants include independent opticians, optometrists, ophthalmologists, corporate providers/mass merchandisers, and glasses/contact lens manufacturers and distributors. Vision care providers compete based on service quality, patient loyalty, professional training, and personalization of service (HarrisWilliams & Co., 2015). Corrective device retailers compete based on location, merchandising, price, treatment technologies/products, and ability to franchise operations. Vast majority of vision service providers also sell corrective devices; a highly fragmented independent provider landscape (HarrisWilliams & Co., 2015).

Given that vision problems were more common as people age, demand for eye care was expected to correspondingly increase. For instance, there was a 20 to 25% increase in the number of individuals with cataracts, age-related macular degeneration, and glaucoma between 2000 and 2010. The growth in all three of these age-related eye diseases would only accelerate as the population gets older (Pathipati & Tsai, 2018). Lifestyle trends supported a greater need for eye care as well. Perhaps most significantly, there continued to be a pattern of poor nutrition and exercise in the U.S. Diabetes had therefore become increasingly prevalent. Between 1995 and 2010, age-adjusted incidence of diabetes mellitus increased by 82.2%. Diabetic retinopathy was the most rapidly growing major eye disease, with an 89% increase in prevalence between 2000 and 2010 (Pathipati & Tsai, 2018).

The successful development of lightweight, high-quality plastic lenses helped revolutionize the eyeglasses segment, particularly for consumers with stronger prescriptions. In the past, glass lenses tended to be heavy, and if a person's eyesight was worse than average, glass lenses quickly grew thick and were regarded by many as unaesthetic. Glass was then replaced by Plastics, which was lighter and able to offer more dramatic reductions in weight and thickness for stronger prescription wearers (Encyclopedia, 2019).

In terms of global presence, U.S. companies ranked among some of the world's largest optical goods producers, and many obtained significant shares of their annual sales from abroad, but they faced mounting competition from overseas competitors. Production of low-cost frames, and sometimes lenses, was increasingly more cost efficient in places like Asia, where lower wages translate into cost savings for producers. U.S. imports of low-tech eyewear typically dwarfed exports. For example, in trade of plastic frames and mountings, in 1997 the value of U.S. imports were nearly four times that of exports, and in trade of other frames and mountings U.S. exports were just a tenth of imports (Encyclopedia, 2019). In 2000, an Italian eyewear with a history of 700 years became a world leader with breakthroughs of new materials combined with new technologies and design (Luxottica, 2020). When imports were considered, the net US market for optical goods exceeds USD 4 billion, as a large share of US purchases were of foreign-made goods and approximately 500 US companies produced optical goods but, in terms of sales volume, the industry was dominated by a few large companies (Encyclopedia, 2019).

In area of employment, the U.S. optical goods industry employed approximately 27,000 people, of whom about 62 percent are in non-management positions. The industry's annual domestic payroll was worth more than $756 million and represents just over 20 percent of annual revenues. Employment in the industry had been slowly declining since the early 1990s and, on average, production workers at optical goods businesses earn less than the average manufacturing wage (Encyclopedia, 2019).

2.2 Individualist and Collectivist Society
Many studies on individualist and collectivist societies have been done in-depth; with major publication started from Hofstede in the 1980s. Hofstede (1980) defined individualism as a loosely knit social framework while collectivism was characterized by a tight social framework in which people distinguish between in-groups and out-groups. Individualism and collectivism represented abstract psychological concepts with core explanatory factors for social differences, constructed to explain patterns of events (Kim et al., 1994). In Gyorkos et al. (2013) study, the results were in line with Hofstede's (1981) results indicating that power distance and individualism are the most correlated constructs of culture out of his five dimensions.

An individualist was independent from social interaction, focused on rights above duties; more geared to achieve social status and with that more likely to be competitive and goal-oriented (Oyserman et al., 2002; Hofstede, 2001; Triandis & Gelfand, 1998). An individualist rationalized relationships based on cost versus benefits, where one would enter if found beneficial and would exit when the costs exceed the benefits (Singelis et al., 1995). In contrast, a collectivist displays

interdependence between individuals and groups; with his or her personal values emphasized the importance of building harmonious relationships with others and inclined to meet their obligations to the group (Triandis, 1995). Because in-groups were stable and impermeable (Oyserman et al., 2002), collectivists could establish strong bonds with in-group members. The key discriminating factors of individualism were self-reliance and separation from in-groups while collectivism key aspects were family integrity, interdependence and sociability (Triandis et al., 1988; Triandis et al., 1986).

Some studies were made to quantify these two societal cultures and such methods were relating to social groups such as friends, neighbors, co-workers and strangers (Matsumono et al., 1997; Hui, 1988;). It was Triandis and Singelis et al who proposed measurement based on vertical and horizontal dimensions; which resulted in four dimensions (Singelis et al., 1995; Triandis et al., 1986). The first dimension was Vertical Individualism (VI) where the individual was autonomous and saw each other as different and expected inequality; with self being independent and different from others (Singelis et al., 1995; Triandis et al., 1986). The second dimension was Horizontal Individualism (HI) where an autonomous self was postulated; however, with individuals more or less equal in status with others and self was independent and same as others (Singelis et al., 1995; Triandis et al., 1986). The third dimension was Vertical Collectivism (VC) where individual saw themself as an aspect of an in-group, however members in the in-group were different, with some having more status than others and self was interdependent and different from others (Singelis et al., 1995; Triandis et al., 1986). The fourth dimension was Horizontal Collectivist (HC) where the individual saw themself as part of the in-group, self was interdependent and the same as others (Singelis et al., 1995; Triandis et al., 1986). Other measurement methods were a number of measures of Individualism and Collectivism such as the INDOCOL scale (Hui, 1988) and the Self-Construct Scale (SCS) (Singelis, 1994).

In more recent study, Cozma (2011) stated that previous measures (Hui, 1988) had low reliabilities, but treating IND-COL as a multidimensional construct (Triandis & Gelfand, 1998; Singelis et al., 1995) the reliability increased bringing more confidence in the measure and the items of these measures taped better the underlying constructs they represented. This was one of the limitations of Hofstede (1980) measure which lacked correspondence between operational definitions of IND-COL and the items that Hofstede designated to tap IND-COL constructs (Cozma, 2011). Cho et al. (2012) stated that the empirical results provide support for horizontal collectivism and vertical individualism as important influencers of perceived consumer effectiveness. In Gyorkos et al. (2013) study, its confirmatory factor analyses provided satisfactory support to the original theoretical models for both the Horizontal Vertical Individualism Collectivist (HVIC), showing HVIC was an adequate instrument for the measurement of horizontal and vertical individualism and collectivism; confirming works by Singelis et al., (1995) and Triandis et al., (1986).

Trust was particularly important for firms with global expansion and market presence (Lane, 1998). Internal trust was the climate of trust within an organization, defined as positive expectations that individuals had about the intent and behaviors of organizational members based on organizational roles, relationships, experiences and interdependencies (Schockley-Zalabak et al., 2000).

Certain aspects of collectivist culture could inhibit trust formation as one of the main reasons could be distinction between in-groups and out-groups (Triandis, 1995). Collectivists preferred to belong to groups, and appeared to place group interests above individual interests because it was their long-term interest to do so (Yamagishi, 1998). In-group bias was learned where collectivist cultures encouraged individuals to trust in-groups more than out-groups (Yamagishi, 1998). With that, Huff and Kelley deduced individuals from collectivist cultures had a stronger in-group bias, resulting in lower individual's propensities to trust external partners (Huff & Keley, 2003). When collectivists must develop relationships with outsiders, they take great time care to

evaluate a partner and nurture the relationship so that the outsider could be brought into their in-group (Huff & Keley, 2003). For an organization of collectivist cultures to overcome cultural tendency to distrust outsiders in an increasing global economy, it was to expand the scope of their in-groups (Huff & Keley, 2003).

In implementing Western talent development programs in collectivist culture countries, there were challenges because of several specific cultural traits intertwined with the country's history, culture and values about the receiving party. As suggested by Lucas et al. (2018), the traits were employees' tenure with the company where the focus on tenure strengthens the sense of belonging; however it also pointed to an implicit assumption that one must prove his or her value before being able to influence change in the company. Secondly, egalitarian culture assumptions (where all people were equal and deserve equal rights and opportunities) could be a barrier to the implementation of meritocracy-based models (people selected according to merits) which left the question to leaders to decide to discuss with all or exclusively with talents (Lucas et al., 2018). Another trait was the company's culture of constant quest for excellence may result in excessive perfectionism and slow down decision making and action (Lucas et al., 2018). Implementation of a talent management system that was based on meritocracy principles in a collectivist country like Brazil; characterized by high power distance, collectivism, and emphasis on personal relationships over merit were challenging due to cultural obstacles (Lucas et al., 2018). Efforts had to be made for adaptation of imported concepts to the Brazilian context should embrace local cultural traits and contexts (Lucas et al., 2018). Using a meritocratic model in a high-power distance culture created conflict between employees as being selected for the talent pool also meant receiving special treatment, with differentiated access to exclusive developmental opportunities (Lucas et al., 2018).

2.3 Individual Incentive Program
Rewards payout based on individual performance were hypothesized to be an important antecedent of empowerment as rewards along with performance were significantly related to physiological empowerment (Spreitzer, 1995). Organization- and group-based rewards could be effective, however, often individual employees do not see a clear link between their actions, performance at higher levels and their subsequent reward (Lawler, 1992). To strengthen the link, individual performance and rewards could increase feelings of empowerment by recognizing and reinforcing personal competencies and providing individuals with incentives for participating in and affecting decision-making at work (Spreitzer, 1995). Empowerment was important as it intertwined with Lucas' findings that the hallmark of a company's history and culture is the autonomy of working cells (Lucas et al., 2018).

According to Sprinkle (2000), incentives significantly enhanced performance (with controlled duration of effort) and incentive-based compensation contracts increased the rate of learning and accelerated the learning curve. Evidence that monetary incentives increased effort and performance was consistent with the results of experiments where the task is more physical than cognitive (Sprinkle, 2000). These findings made firms motivate employees to use resources more effectively and efficiently. Incentives increased intensity of effort where it improved individual's analysis and encouraged them to develop strategies to maximize performance, motivating individuals to work smarter (Sprinkle, 2000). The above contradicts findings from Kohn (1993) stating that monetary incentives increase pressure and discourage risk-taking, creativity and innovation. Flexible manufacturing practices, just-in-time production methods, and total quality management had increased frontline workers with involvement in all phases of manufacturing processes (Banker & Potter, 1993).

Incentive programs were found to retain employees (Aguinis et al., 2012). This was important to organizations because the cost of turnover of employees was one and a half to two times of the salary of the employee (Holliday, 2021). The general statistics showed that average employee turnover per year was 18% (Holliday, 2021) and Deloitte Indonesia reported average industry

turnover was 10% (Deloitte, 2019). It was difficult to maintain employee turnover in a factory at zero, because according to the Indonesian Manpower Act Number 13 Years of 2003 Human Rights Law, everyone had the right to obtain a decent livelihood by leaving their current job for another (Yayat, 2018).

2.4 Employee Recognition
Recognition of results was expressed in formal manner for example, incentive bonuses when specific objectives were achieved, ceremonies to highlight special achievements and performance evaluation meetings; and informally like peers spontaneously congratulate an employee who had tackled a major task or a manager saluting a job well done at a team meeting (Brun & Nugas, 2008).

Studies had shown employee recognition was an essential component for motivation (Porter & Lawler, 1968; Vroom, 1964) and a component of meaningful work (Mow, 1987). It promoted on-the-job learning (Lippit, 1997), and contributed to employee job satisfaction, giving a positive impact on organizational productivity and performance (Applebaum & Kamal, 2000).

On the downside, recognition of results had perverse effects, such as jealousy, sense of unfairness or more competitiveness among employees. Therefore, recognition must be applied shrewdly and complemented with other signs of recognition (Applebaum & Kamal, 2000).

A lack of recognition at the workplace constituted the second largest risk factor for psychological distress and most employees expressed the need to be recognized by their superiors, co-workers and clients (Brun & Nugas, 2008). Brun and Dugas (2008) summarized recognition as a constructive response, and a judgement made about a person's contribution, reflecting not just work performance but also personal dedication and engagement where it could be carried out on a regular or ad hoc basis, expressed formally or informally, individually or collectively, privately or publicly and monetarily or non-monetarily.

2.5 Manufacturing Analysis
There were several manufacturing analyses and models based on stochastic processes. In the study of Azadeh et al. (2014) on integrated health, safety, and environment and maintenance systems, multivariate analysis was used for continuous performance assessment and improvement of these systems which was an approach to help policy makers and top managers. Teeravaraprug and Cho (2002) explored the process target problem with the consideration of multiple quality characteristics. Shao et al. (2000) examined several methods for process target optimization when several grades of customer specifications were sold within the same market. To determine the optimal process target and variance, Al-Fawzan and Rahim (2001) applied the Taguchi loss function. Cho (2002) found that when historical data concerning customer loss associated with product performance were available, a quality loss function using a well-established statistical method, such as regression analysis, might be a more practical alternative procedure in studying optimum process target.

Sensitivity analysis helped to identify those elements of the system that exercise a high degree of leverage on system behavior. Sokolowski and Banks (2010) defined sensitivity analysis as the study of how uncertainty in a model's output can be assigned to the various sources of input uncertainty. The sensitivity analysis was important to help uncover model errors and identify important bounds on input variables, identify research priorities and simplify models.

According to Bowling et. al. (2004), it was beneficial to perform sensitivity analysis to illustrate the possible impact of estimated parameters on the optimal process mean and the optimal expected profit in real world industrial settings. By varying the cost parameters, for example, such as scrap cost, rework cost, process mean, and process standard deviation, the sensitivity analysis

displayed the behavior of the optimum process target under different conditions (Bowling et al., 2004).

In Pokoradi (2016) study on simulation-based sensitivity analysis in operation and maintenance in the automotive industry, a matrix-algebraic method can be used for investigating these processes with systems approach analysis after determining probability changes of operational states and setting up the transition probability matrix. From the mathematical point of view, maintenance was a discrete state space stochastic process without after-effects, so it can be modelled as a Markov-chain. The analysis of maintenance systems and processes was to assist in decision making in maintenance management (Pokoradi, 2016).

3. METHODOLOGY

3.1 The Eyeglass History

Tracing the American Optical (AO) lineage, the first glass bifocal example would that of the cemented wafer and the method to produce a bifocal was common at the turn of the 20th Century; where the bifocal was produced by cementing the segment wafer or "add" onto the single vision "distance" lens as designed by Ben Franklin (Jobson, 2015). Cementing the add power onto the lens became a practical early method to produce bifocals, and was introduced by AO in the mid-1880s. The lens and reading addition illustration demonstrated how wafers were literally added to the base prescription lens to produce a bifocal. The "addition power" was actually cemented and called as"add power" (Jobson, 2015). A multifocal lens was either a bifocal or a trifocal wherein the "Add" (or the reading power) was fused to the distant power "lens blank". Historically, fused glass lenses were manufactured from two pieces of glass of different density, which were fused together. Glass in the reading segment had a higher index of refraction to provide additional plus power (Jobson, 2015). Along with the fashion statement eyeglasses were becoming, advancement in lens technology brought progressive lenses (no-line multifocal glasses) to the public in 1959. Almost all eyeglass lenses are now made of plastic, which is lighter than glasses and breaks cleanly rather than shattering in shards (Surrence, 2013).

3.2 The Company History

There are only a few manufacturers in the world which could produce multifocal glass lenses. Founded slightly over 90 years ago, an American eye care manufacturer based in St Cloud, Minnesota produced glass lenses that met industry standards. For 50 years, glass lenses produced had qualities of high optical clarity, high scratch resistant, long lasting lenses material, less susceptible to extreme temperatures, high-index options for thinnest profile and full features for tinting and photochromic treatments. The manufacturer also started production of plastic lenses. It was the first major ophthalmic lens company to introduce prescription polycarbonate lenses. In the 1990s, it was the first to launch progressive lens, polarized lens and premium high-performance lens which won an industry award.

In 1997, the company opened a factory in Jakarta, Indonesia with the primary purpose of transferring its glass manufacturing from United States of America (U.S.) to Indonesia because it was uncompetitive to produce at in the U.S. Several countries in Asia (China, Thailand, Indonesia) and South America (Brazil) were considered however Indonesia was chosen with favorable investment climate and the local partner selected had some experiences in similar technology. The glass lens production involved a highly skilled assembly operation and final yields of the lens are dependent solely on the operator's expertise. In order to be cost competitive, it was important that similar yields were achieved as those that were achieved at their U.S. factory. This was because material costs were a major component in the overall cost structure of the product, especially in "Photo Grey"or "Photo Brown" lenses which had a photochromic property and activate/deactivate for outdoors (in the sun) or indoors. The raw materials "lens blank" for both distant and "Add power" were manufactured by Corning in France and came at premium prices. So, it was critical to ensure that appropriate yields were achieved.

Drawing upon literature background presented earlier on industry analysis, company history and literature review, this case study was to find out if individual incentive programs and employee recognition would contribute at a company level. The sensitivity analysis was chosen as most suitable for this study because it could illustrate the possible impact of cost parameters under different conditions (Bowling et al., 2004) and since this study was about the assembly operators that were highly skilled dependent, there was a level of uncertainty of the input of work done the operators (Sokolowski & Banks, 2010).

A company cooperated in this study and data was collected on a monthly basis on the target yields achieved by each assembly operator and amount of incentive paid out. The sensitivity analysis was determined by the factory management and calculated based on their costs versus target yields. The output achieved by every operator was recorded on a daily basis and then averaged out to monthly for incentive calculation. The study took place over one year.

3.3 Factory Key Requirements
The factory infrastructure, layout and processes were designed with assistance and expertise from U.S. personnel. All equipment and tooling were transferred from the U.S. factory. Only spare parts were locally sourced. Essentially a like-for-like equipment-copy approach was utilized to ensure smooth and successful setup and start-up. For raw materials, the exact same components were used, primarily imported, including specific consumables, in order to provide consistency. Only common chemicals were locally sourced.

For learning of processes or Standard Operating Procedures (SOP), Indonesian employees were sent to the U.S. to be trained in a 2-to-4-week window in specific key processes. Trainers were also sent from the U.S. to Indonesia for actual hands-on training. SOPs were established and translated from English to Bahasa Indonesia.

The Assembly operation was a critical operation. This was a Newton Ring technique, wherein the fused Bifocal Button was correctly placed on top of a Glass Blank so as to minimize/eliminate light infringes and thus produce a perfectly assembled piece, to be thermally fused as the next step. This next step was an irreversible process thus it is important to get this done correctly. Any mistakes and the resulting product would need to be scrapped. Extra training manuals with videos and other aids were prepared and employees were specifically trained for this. An explanation of the Glass Bifocal Assembly Technique using the Newton Rings Method produced in the factory was shown in Appendix 1. The process of the glass assembly was found in Appendix 2.

3.4 Initial Outcome
The cost of product analysis was made by the Factory management which consisted of material, labor and overhead costs for Photo and White lens; based on average cost of product per piece. For Photo, the yield target for material was 58.68% and for labor & overhead at 30.06%. For White, the yield target for material was 34.92% and labor and overhead were 47.32%. A sensitivity analysis was conducted to show an increase in costs if yields dropped by 10, 20 and 30%. If the yield loss for Photo at 11.26% dropped 10%, the increase in costs would be 11%, if yield dropped 20%, the cost would increase by 25% and if yield dropped by 30%, the increase in costs would be 43%. For White, the yield loss was 17.77%; and therefore, if the yield dropped by 10%, or by 20% or 30%, the increase in costs were the same as Photo. The actual cost of Photo Lens raw material was double that of a White Lens raw material, so it was critical that yields were brought under control, especially for the Photo lens, because such drops in yields were making it a net-loss situation. The sensitivity analysis showed it was critical to meet the target yields required.

	Target		-10% change in yield		-20% change in yield		-30% change in yield	
	Photo	White	Photo	White	Photo	White	Photo	White
Material	58.68%	34.92%	52.81%	31.43%	46.94%	27.93%	41.08%	24.44%
Labor & Overhead	30.06%	47.32%	27.06%	42.58%	24.05%	37.85%	21.04%	33.12%
Yield Loss	11.26%	17.77%	20.13%	25.99%	29.01%	34.21%	37.88%	42.44%
Increase in cost	-	-	11%	11%	25%	25%	43%	43%

TABLE 1: Sensitivity Analysis on Increase in Costs if Yields Dropped by 10%, 20% and 30%.

It was expected that similar yields would be achieved since the total technology (design, equipment, raw materials and consumables) were transferred from the U.S. The average yields achieved in the U.S. were between 88% to 92%, since it was a highly skilled precision work. However, in reality yields in Indonesia varied between 60% to 95%, with an average yield of only 70%; which were below expectations. Upon further investigation it was observed that the yield varied significantly between the assembly operators at the Indonesian factory, which was a key process. While the variation was significantly lower amongst operators at the U.S. factory.

4. RESULTS
Similar individual yield issues were observed during the start-up operations at the US factory, so an individual incentive program was customized to reward employees with consistent yields while attaining the required productivity. This was consistent with studies by Sprinkle (2000); Spreitzer (1995) and Lawler (1992). On an organizational level, the concern for employee recognition was expressed through policies and programs stating the organization's intention to recognize the work performed by its members (Brun & Nugas, 2008).

It was proposed that the individual incentive program be established at the Jakarta factory for its 32 assembly operators. The age range of the assembly operators were 17 to 30 years, with a majority of 84.4% in their 20s. Majority of them, 50%, finished junior high school and 21.9% finished senior high school. The remaining 18.7% of them graduated from senior high school of economics and 9.4% of them graduated from senior high school of engineering. They were employed at least one year before the incentive program started.

The criteria were set as follows; firstly, they must assemble the minimum requisite number of pieces as per their established quota. The reason was to ensure it was fair that the personnel were not beating the system by taking additional work time getting their job done (as they were entitled to overtime pay). When the first criterion was met, then each assembly operator was given a unique number and their product was tracked all the way to the final inspection, where the actual yield was determined. Then depending on the actual yield achieved for that particular operator, an incentive was provided for every 1% additional yield achieved with no cap. The Management placed no cap as 100% yield was impossible anyway.

The target yield would be set for two products; the yield for "Photo" products and the yield for "White" products on a monthly basis. With that, two incentives were decided based on two yieldtargets, Photo and White, and the amount of incentive was based on yield achieved or not achieved. There would be a lesser incentive amount for yield drop below 10%. However, if the yield drop was more than 10%, based on sensitivity analysis done, then there would be no incentive payout as the increase of costs would be too high.

Initially yields started improving in the second month by 4.8% after the incentive program was introduced and for the Management, it was possible to distinguish between the high and low
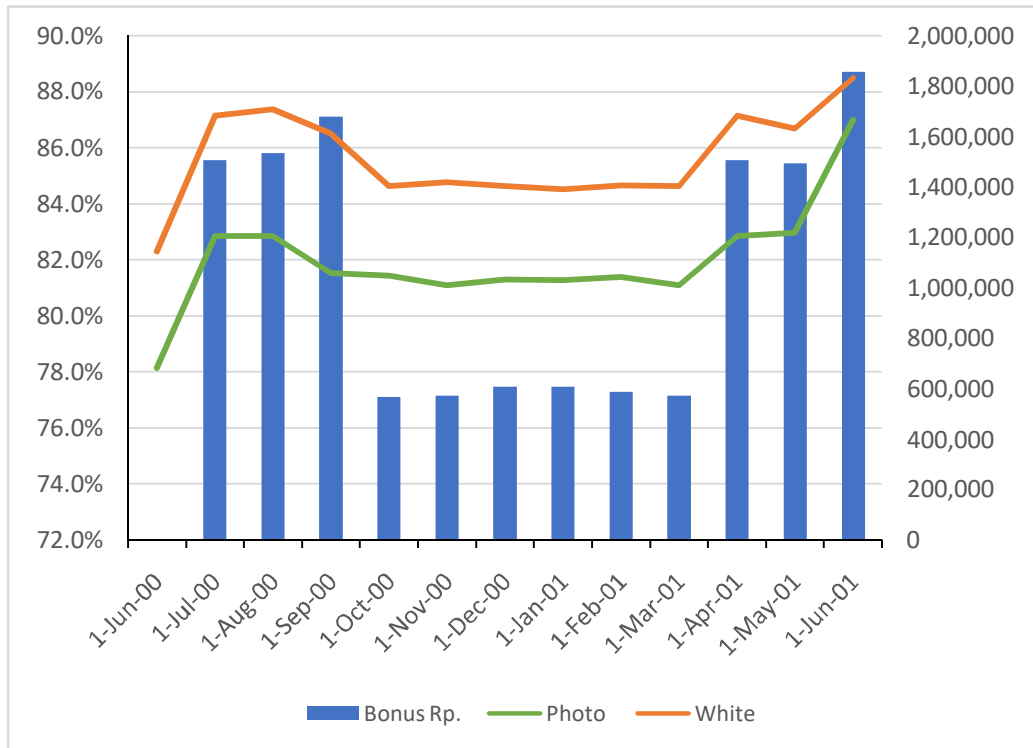
performers. The high performers were very pleased as they were getting additional monetary rewards. In the second month, the high yield result was maintained and the Management gave a public recognition to high performers in a ceremony at the Factory. The high performers were the same persons since the incentive program started, meaning they were able to perform from the start, and consistently. They made up 45%, 46% and 48% of the total group who received the incentives in the first three months of the program. Going into the fourth month, the yields dropped 1.1 % after that and the percentage of those receiving incentives dropped to 19%. For the next six months the yield result continued at low levels; the percentage of those receiving incentives remained at 19 to 20%; even with continual incentive program and public recognition.

The Management was taken aback with the results, and they investigated what could be the reasons for the drop. They communicated with the supervisors and assembly operators via meetings and dialogues, in groups and one-to-one. The Management had built internal trust with their supervisors and assembly operators which was important and in-group trust was higher within an organization (Schockley-Zalabak et al., 2000; Triandis, 1995). Feedbacks and responses pertaining individual competencies were evaluated and this was possible because collectivists placed importance on integrity as well (Triandis et al, 1986). Technology transfer and skills training given were reflected because the effect of implementing a meritocratic-based model in a collectivist society (Lucas et al., 2018) was in question.

As the high performers were able to achieve before, therefore, quality and materials of training were not in question. The Management eventually found out that some of the collectivist traits were displayed as to how it affected the incentive program which recognized individual performance. Indonesia as a collectivist culture country, in comparison to the U.S. which is an individualist country according to Hofstede (2018). In addition, the glass assembly process was highly skill dependent which meant individual assembly operator performance was critical. Therefore, the idea to reward all employees if overall results of target yield were met was considered but concluded not practical for reasons mentioned before. To remove the incentive program would result in risking target yields not met; or worse risking increase of costs, and employees would be demotivated. Careful probing was carried by the Management as to how to improve the incentive program. This was done with care as in-groups were stable and impermeable (Hofstede, 2001) and the assembly operators being in a collectivist society would prioritize maintaining a harmonious relationship among them (Triandis, 1995). The Management realized the public recognition exercise had to be reconsidered because they realized their group was more of a Horizontal Collectivism (HC) where the employees felt they were part of the in-group, and self was interdependent and the same as others (Singelis et al., 1995; Triandis et al., 1986). Public recognition action would take away the status of the same as others. Collectivists established strong bonds with in-group members (Oyserman et al., 2002) and would place group interest above individual interests (Yamagishi, 1998) which explained why most of the high performers gave up their incentives during the six months of low results, and finally to avoid public recognition. In the end, the Management decided to try to remove the public recognition, however continue to pay the individuals who achieved and placed the monetary into their payrolls. This meant employee recognition was still given monetarily on a regular basis, however, the public compliments to high performance were removed and given privately when deemed suitable.

The results of removing public recognition were the yields immediately shot up 2.2% the following month and the earlier same high performers were "back" to receive their incentives. The high performers admitted they were not comfortable with public and individual recognition as it made them feelthey were being treated higher than and "singled out" from their in-groups. They viewed their relationship with their co-workers more important than achievements. The few high performers continued to excel because they needed the incentives because money was tight to support their families. The next month showed an increase of up to 45% the total group managed to receive their incentives. In the 12th month, the yield was at its highest with an increase of 2.9%

and the percentage of employees receiving incentives were also the highest at 52%, which now became the majority of the assembly operators. This was summarized in Graph 1.

GRAPH 1: Incentive payout in Total versus Yields of Photo and White for 12 months.

Other collectivist traits observed by the Management was that the high performers were seen coaching and showing tips and tricks to their co-workers i.e., the low performers during breaks; rather than taking breaks. According to the Management, this was in contrast with the U.S. factory where the workers did take their breaks when it was break time. This was because individualists focused on rights (to coffee breaks) and rationalized relationships based on cost versus benefits (Singelis et al., 1995; Kim et al., 1994).

The success of the incentive program helped the Company to retain the employees for certain numbers of years (Aguinis et al., 2012). There were about 6.2% employees who resigned in less than 2 years, which in comparison to the reported average 18% employee turnover by Holliday (2021) showed a good result for the Company. Majority of the employees, 37.5%, stayed for two to four years. Those who stayed four to six years were 21.9% and those who stayed for six to ten years were 25%. The Company enjoyed good employee retention. The breakdown of employees' years of service as followed: -

Length of service (years)	Percentage of Employees (%)
Below 2	6.2
2 to 4	37.5
4 to 6	21.9
6 to 10	25.0
Above 10	9.4

TABLE 2: Percentage of employees by years of service.

Another observation was the innovation level did not grow as expected, in comparison with their U.S. factory. Future research could be looked into innovation factors in terms of individualist-collectivist cultures.

5. DISCUSSION AND CONCLUSION

Taras et al. (2015) indicated that the dimensionality of individualism-collectivism may depend on (a) the specific instrument used to collect the data, (b) the sample characteristics and the cultural region from which the data were collected, and (c) the level of analysis.

Collectivist nature ingrained in Indonesian culture superseded individual achievement and individual recognition. The incentive program was successfully designed and implemented to achieve the desired results within an Indonesian cultural context by continued incentive payout in the monthly payroll and removal of public employee recognition ceremony. It was concluded while it was important to give employees its due recognition, public recognition was a hindrance in a collectivist society. The extent of the hindrance was that the employees gave up their incentives and thus Company target yields were not met; which was quite drastic as it affected the employees' earnings and Company's costs were at risk of increase. For the twelve months, the factory produced about 5.4 million pieces of glass lens, which was high output by industry standards of that period of time and met Management expectations.

The incentive program did not continue, as the glass assembly line was discontinued and scaled down tremendously. This was because of the rise of plastic materials at that period of time. Plastic lenseswere lighter and could also be made to better resist breakage than glass and, when treated with coatings, could help reduce the glare associated with traditional glasses. These enhancements helped drive strong sales of the newer technologies, and in large part these sales came at the expense of reductions in demand for older materials ie. glass (Luxottica, 2020).

The employees from Glass assembly were moved to a new plastic - polycarbonate production line. However, the incentive program did not continue because the polycarbonate production line was significantly more automated due to injection molding and coating equipment, and reliance on human labor skill was less significant than the assembly operation in Glass. Therefore, the individual incentive program would not be suitable and effective in the new production scenario. However, the Management understood employee rewards were still key motivators in achieving production objectives, and a different type of incentive program was introduced. Simultaneously, the assembly operators from Glass were fine with disbanding the individual incentive program and gladly accepted the different type of incentive program, which was a gain share team-based approach. This was because the team-based incentive approach was closer and more connected to collectivist traits. This was in agreement with Appelbaum and Kamal to apply incentive programs shrewdly and along with other signs of recognition (2000). This study's conclusion was in accordance with the review of organization and management theory (Cristofaro et al., 2021).

In going forward, the Management to this day continued to provide training and information sharing, because each employee was expected to seek his or her self-knowledge and self-development so that the company could have pipeline succession on both technical and managerial careers (Lucas et al., 2018).

The limitations of this research were gathering evidence of the actions taken by the Management of the factory to overcome the implementation challenges of rewarding their employees. The findings of the study would have benefitted more if the period of study could be prolonged, unfortunately the glass lens production had to cease operations. Further research could be done to draw hypotheses based on surveys or interviews on employee recognition using quantitative methods and explore employee incentive programs in other manufacturing sectors. For future research it was important to note as per Cozma (2011), that individualism-collectivism was a

dynamic concept because the culture shifts over time, hence what was true 30 years ago might not be true now, and what was true now might not be valid 30 years from now.

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APPENDIX 1

Glass Bifocal Assembly Technique using the Newton Rings Method

Concentric coloured rings, which appeared when two pieces of glass were pressed together, were commonly referred to as "Newton Rings". This phenomenon was discovered by an English physicist Sir Isaac Newton (1643-1727) from which it obtained its name.

The rings appeared when there was a tiny air gap between two pieces of clear material. Light rays encountered destructive interference if the gap was of a certain size relative to the wavelength, resulting in the effect. It was most pronounced if a convex lens was pressed up against a perfectly flat glass surface.

Glass which had been treated usually roughened very slightly to prevent Newton's rings from forming; was commonly called Anti-Newton glass. It was most often used with film and negative carriers in photographic enlargers. The roughening prevented the formation of tiny air gaps between the surfaces.
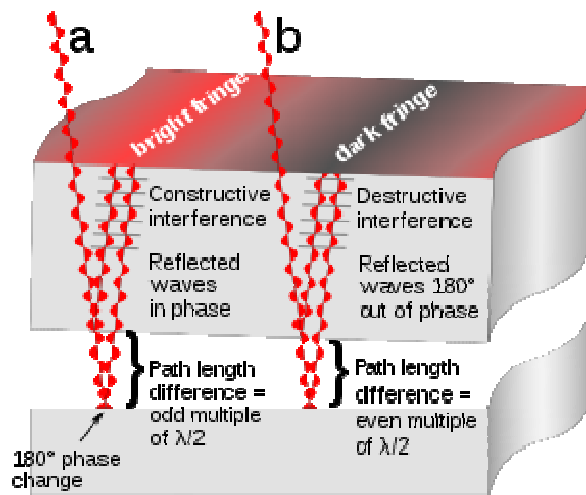
Closeup section of Glass Lenses.

Closeup of a section of the top glass on the optical flat, showing how interference fringes formed. At positions where the path length difference is equal to an odd multiple (2n+1) of a half-wavelength *(a)*, the reflected waves reinforce, resulting in a bright spot. At positions where the path length difference is equal to an even multiple (2n) of a half-wavelength *(b)*, (Lambda by 2)the reflected waves cancel, resulting in a dark spot. This resulted in a pattern of concentric bright and dark rings, interference fringes.

APPENDIX 2

Glass Multifocal Assembly.