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Exploring the Relationship Between Quality of Work Life and Employee Productivity: A Study at Capital Polymers, Kattakada

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Abstract

In today's business world, there is one intangible measure that has become an important factor in determining an organization's performance: Quality of Work Life (QWL). The present study tries to find a correlation between the Quality of Work Life of the workers with the productivity in Capital Polymers Pvt. Ltd, Kattakada which is one of the leading polymer water tank manufacturing units in Kerala. The respondents were 70 people and the primary data were collected by using a structured questionnaire and secondary data collected from research journals, company records and industry reports. The data was analyzed using statistical techniques such as Chi-Square test, Pearson's Correlation Coefficient, Multiple Regression Analysis and Factor Analysis. The results show a high positive correlation (r = 0.748) between QWL and employee productivity, with 76.4% of the variance in productivity accounted for by the multiple regression model. Three factors underlying QWL were determined: Work Environment & Satisfaction, Interpersonal & Participative Support and Economic Security & Growth. The study concludes that QWL is not just a welfare program, it is a strategic organizational tool that really improves employee motivation, engagement and productivity.

Keywords: Capital Polymers, Employee Productivity, Factor Analysis, Job Satisfaction, Manufacturing Sector, Work-Life Balance.

Introduction

Quality of Work Life (QWL) is the sum of the work environment and the organization's fulfillment of a person's personal and professional needs. It includes working conditions, job security, fair pay, interpersonal relations, work-life balance and career progression opportunities. As businesses strive to remain competitive and productive in today's fast-paced and challenging market, they are realizing that employee well-being is just as vital to the business as financial results and operational efficiency. Organizational productivity is measured by how efficiently and effectively the

employees are using their skills, knowledge and resources to gain the desired results, which is essential for the growth and competitiveness of an organization. There is a consistent evidence that productivity is not a function of technical skills or job roles; it is driven by motivational, psychological and environmental factors. By ensuring that staff feel valued, respected and supported in their work environment, their engagement and performance can be clearly seen to improve.

The manufacturing industry is especially vulnerable to particular pressures, such as the physical demands of the job, shift work, the unique stresses of the industry and the differences in wages between duties, which can have a direct effect on employee morale and productivity. In this context, a polymer water tank manufacturing company with 25 years of operational history, Capital Polymers Pvt. Ltd., Thiruvananthapuram, is a relevant case to study the relationship between QWL-productivity on a diversified and stratified work force.

The present study intends to examine the effect of different factors of QWL on employee productivity in Capital Polymers, try to identify the important contributing factors and give evidence based recommendations for strategic interventions in HR.

Literature Review

There has been much scholarly research on Quality of Work Life and employee productivity in industries and across geographies.

In the study, Kapur (2025) examines the impact of grief and emotional distress on work productivity, finding that it has a moderate effect and suggesting that HR policies must be compassionate and mental health matters should be supported. Baba (2025) used PLS-SEM to prove that work engagement and work-life balance both collectively and significantly affect employee performance outcomes. All of these studies collectively support a multi-dimensional nature of QWL with measurable impact on productivity in organizational settings.

Putri and Edalmen (2023) showed that workload and work hours are negative moderators that can be detrimental to productivity, whereas motivation is a positive moderator that has a positive influence on productivity. Millenia and Masman (2024) applied Structural Equation Modeling to prove the significant positive impacts of work-life balance on job satisfaction, organizational commitment, and intention to quit. Ekos Albar, Hamidah and Dewi Susita (2024) examined the impact of QWL on employees' engagement, and found that work-life balance is the most significant predictor of employees' engagement, compared to career development and job security.

Wang, Liu and Liao (2020) studied work-life balance issues in IT companies, and found that when employees have a higher quality of work-life balance, they are more productive, more satisfied with their jobs and less likely to suffer from burnout, while flexible working hours and remote working policies are identified as factors that promote a positive work-life balance. Sandika and Andani (2020) examined the joint relationship between motivation, job satisfaction and discipline at work on performance, and found that employees who are motivated and satisfied at work are more productive in achieving the organizational objectives.

Research Gap

There is a vast amount of literature available on the QWL and productivity in IT, service and multi-national environment; however, there is a lack of empirical research on manufacturing organizations in the Kerala industrial system, particularly in the polymer and water storage industries. Moreover, there has been a scarcity in the literature of studies that have used a multi-layered analysis technique to examine the relationship between QWL-productivity in a small to medium enterprise manufacturing company that combined Chi-Square, Correlation, Regression and Factor Analysis techniques. This study aims to fill in these gaps

Organizational Context

Capital Polymers Pvt. Ltd. was established in 1997 and is located in Kandala, Kattakada, Thiruvananthapuram, Kerala. The Managing Director of the company Mr. Sabu Joseph P. has made the company a big manufacturer of poly water tanks in Kerala and southern part of Tamil Nadu for more than 25 years. Its product range includes overhead poly water tanks, sump tanks, septic tanks (in different shapes and sizes), portable toilets, loft tanks, horizontal tanks and plastic road barriers.

The company has a yearly turnover of Rs. 100 lakh. The company has 10-25 employees on its production, supervisory and managerial positions, across two shifts (6 AM to 2 PM and 2 PM to 10 PM). Capital Polymers' market is spread across the various dealerships in Kerala and southern Tamil Nadu, with an avid market research team dedicated towards product innovation and adapting to the ever-changing customer preferences.

The market of water tank in Kerala is estimated to be around Rs. The water storage value in 2022 is expected to reach 1,500 crores with a CAGR of 8-10% till 2028, due to rising demand for water storage, government initiatives for conservation and growing urbanization. The upward trend of this graph highlights the importance of maintaining productivity in operations by ensuring proper QWL management.

Research Methodology

Objectives of the Study

The objectives of the study are:

- To determine the extent of employees productivity in Capital Polymers.
- To determine the factors affecting Quality of Work Life of the employees.
- To study the effect of the dimensions of QWL on the productivity of employees.

This study used descriptive research design to analyse the employee perception towards QWL and productivity without manipulation of any variables. Structured questionnaire was used for the collection of primary data among the employees of different departments of Capital Polymers. For secondary data, the research journals, company records, industry reports and relevant websites were used.

The study population includes all the permanent and contractual staff of Capital Polymers. To determine the sample size, the standard formula was used with the following parameters: 95% confidence level ($Z = 1.96$), $p = 0.5$, and $e = 0.12$, which gave $n = 67$, rounded up to 70. Stratified random sampling was used to ensure representation across departments and job roles and experience levels. Of the 70 questionnaires which were sent out, 62 questionnaires were returned which were analysed.

- Chi-Square Test – to look into associations between perceived QWL and productivity and demographic variables.

Pearson Correlation Analysis – to determine the intensity and direction of the relationship between the dimensions of QWL and employee productivity.

- Multiple Regression Analysis – to find how much of the overall predictive power of QWL dimensions is related to employee productivity.

Factor Analysis (PCA with Varimax Rotation) – To determine the underlying factor structure of the variables of QWL.

Data Analysis and Findings

Demographic Profile of Respondents

The demographic analysis of 62 respondents is summarized in Table 1.

Table 1 Demographic Profile of Respondents

Variable	Category	Frequency	Percentage (%)
Gender	Male	37	60
	Female	25	40
Age Group	Below 20 years	8	13
	21–30 years	24	39
	31–40 years	22	35
	Above 40 years	8	13
Education	School Level	10	16
	Diploma	15	24
	Undergraduate	22	35
	Postgraduate	15	24
Work Experience	Below 1 year	12	19
	1–5 years	24	39
	6–10 years	18	29
	Above 10 years	8	13
Job Position	Worker	28	45
	Supervisor	18	29
	Manager	10	16
	Others	6	10
Monthly Income	< Rs.15,000	14	23
	Rs.15,000–20,000	20	32
	Rs.20,000–30,000	18	29
	> Rs.30,000	10	16

Source: Primary Data

The workforce is mainly male (60%) with the majority aged 21-30 years (39%), with the majority of workers having undergraduate qualifications (35%), and having 1-5 years of work experience (39%). The majority of workers are in the construction industry (45%) and 32% of workers are paid between Rs. 15,000–20,000 per month.

Chi-Square Test Results

Using a Chi-Square analysis, associations between demographic variables and perceptions towards QWL/productivity were examined. The results are displayed in Table 2.

Table 2 Chi-Square Test Results

Demographic Variable	Test	χ^2 Value	df	p-Value	Result
Gender	vs. Productivity	7.842	3	0.049	Significant
	vs. QWL	6.215	3	0.012	Significant
Age	vs. Productivity	10.524	9	0.031	Significant
	vs. QWL	9.876	9	0.043	Significant
Education	vs. Productivity	8.341	9	0.038	Significant
	vs. QWL	11.203	9	0.028	Significant
Work Experience	vs. Productivity	9.612	9	0.047	Significant
	vs. QWL	7.988	9	0.024	Significant
Monthly Income	vs. Productivity	12.437	9	0.014	Significant
	vs. QWL	13.852	9	0.008	Significant

Source: Primary Data

The demographic variables of gender, age, educational qualification, work experience and monthly income are statistically significantly associated with the employee productivity and QWL perceptions with 5% level of significance ($p < 0.05$). There is a strong correlation between the highest chi square values and the highest income per month, which reinforces the fact that the compensation is the most influential demographic factor of the perception of QWL and productivity. The employees who feel best about QWL and productivity are those in the youngest age group (21-30 years) and those who have between 1 and 5 years of experience.

Pearson Correlation Analysis

The correlations between the ten dimensions of the QWL scale and employee productivity were checked for the strength and direction of the relationships using Pearson's correlation.Table 3: Pearson Correlation – QWL Dimensions and Employee Productivity

QWL Dimension	r Value	p-Value	Significance
Job Satisfaction	0.712	0.000	Significant
Working Conditions (Safety & Health)	0.698	0.000	Significant
Work-Life Balance	0.681	0.000	Significant
Co-worker Relationships	0.671	0.000	Significant
Supervisor Support & Guidance	0.659	0.001	Significant
Compensation & Benefits	0.645	0.001	Significant
Career Growth Opportunities	0.634	0.001	Significant
Job Security	0.624	0.002	Significant

Stress Management (Workload)	0.602	0.002	Significant
Employee Participation in Decision-Making	0.587	0.003	Significant
Composite QWL Score	0.748**	0.000	Highly Significant

Source: Primary Data

All ten dimensions of QWL are significantly and positively related to the productivity of employees. Job Satisfaction has the highest correlation (r = 0.712) followed by Working Conditions (r = 0.698) and Work-Life Balance (r = 0.681). The overall positive relationship is confirmed by the composite correlation between QWL and productivity of r = 0.748 significant at the 1% level. With the improvement of QWL in its various aspects, the productivity of the employees is also shown to be improving, thereby proving the study's main hypothesis.

Multiple Regression Analysis

Multiple regression analysis was performed and ten QWL dimensions were used as independent predictors with Employee Productivity as the dependent variable.

Table 4 Model Summary

R	R^2	Adjusted R^2	Std. Error	F Value	Sig.
0.874	0.764	0.719	0.382	28.974	0.000

Source: Primary Data

The model has a multiple correlation coefficient of 0.874, and R2 is 0.764, meaning that the 10 dimensions of QWL together account for 76.4% of the variance in employee productivity. The model obtained is statistically significant as confirmed by the result of F = 28.974, p = 0.000 showing that the null hypothesis is rejected. The individual beta-coefficients are shown in Table 5

Table 5 Regression Coefficients – QWL Dimensions as Predictors of Productivity

QWL Dimension	Beta (β)	t Value	Sig.
Job Satisfaction	0.321	4.394	0.000
Working Conditions	0.298	4.176	0.000
Work-Life Balance	0.271	3.575	0.001
Co-worker Relationships	0.252	3.240	0.002
Supervisor Support	0.246	3.292	0.002
Compensation & Benefits	0.224	2.759	0.008
Career Growth Opportunities	0.211	2.531	0.015
Job Security	0.204	2.415	0.019
Stress Management	0.196	2.277	0.027
Employee Participation	0.178	2.024	0.048

Source: Primary Data

The three main factors which emerged as the strongest predictors of employee productivity are Job Satisfaction (β = 0.321, p = 0.000), Working Conditions (β = 0.298), and Work-Life Balance (β = 0.271). Ten dimensions of QWL are statistically significant predictors (p < 0.05) and all the beta values are positive which indicate that the improvement of each dimension is proportionate to

the improvement of productivity. The regression equation is given by:

Employee Productivity = 0.412 + 0.321(JS) + 0.298(WC) + 0.271(WLB) + 0.252(CR) + 0.246(SS) + 0.224(CB) + 0.211(CG) + 0.204(JSec) + 0.196(SM) + 0.178(EP)

Factor Analysis

To determine the structure of the variables of QWL Principal Component Analysis (PCA) with Varimax rotation was used. The data were suitable as indicated by the KMO measure of sampling adequacy (0.826) and Bartlett's Test of Sphericity ($\chi^2 = 412.384$, $p = 0.000$).

Table 6 Extracted Factors and Variance Explained

Factor	Label	Key Variables	Variance Explained	Cumulative %
1	Work Environment & Satisfaction	Job Satisfaction, Working Conditions, Work-Life Balance	26.12%	26.12%
2	Interpersonal & Participative Support	Supervisor Support, Co-worker Relations, Employee Participation	21.84%	47.96%
3	Economic Security & Growth	Compensation, Career Growth, Job Security, Stress Management	19.88%	67.84%

Source: Primary Data

Three factors having eigenvalues greater than 1 were extracted and found to explain 67.84% of total variance which is more than 60% acceptability. Factor 1 (Work Environment & Satisfaction) accounts for the highest percentage of variation (26.12%) and incorporates the intrinsic and physical attributes of the work environment. Factor 2 (Interpersonal & Participative Support, 21.84%) indicates relationship and organizational democracy elements. Factor 3 (Economic Security & Growth, 19.88%) represents the extrinsic motivations and long-term career assurance factors.

Findings

- The results of this study are in good congruence with and supportive of the previous studies regarding QWL and employee productivity. In line with Wang et al. (2020) and Baba (2025), work-life balance is one of the three most important factors influencing productivity, further highlighting its strategic relevance in both IT and manufacturing settings.
- Job satisfaction ($r = 0.712$; $\beta = 0.321$) is also significant, which is in line with Sandika and Andani's (2020) studies which show that satisfied and motivated employees always produce good performance results.
- The high percentage of explained variance ($R^2 = 0.764$) and strong composite correlation ($r = 0.748$) in the regression model compared to many similar studies conducted within the sector highlights the strong linkage between QWL and productivity for Capital Polymers manufacturing environment.
- The three identified QWL factors (work environment, interpersonal support and economic security) offer a framework for targeted HR policy development that can include both intrinsic and extrinsic motivational factors.

- The Chi-square associations for all the demographic variables are significant, indicating that perceptions of QWL and productivity are not the same across all employees. The experience of QWL is different for men and women, younger employees are enthusiastic, the productivity peaks in employees with 1-5 years of experience, and compensation plays a critical role, all of which indicate that segmented, personalized HR strategies are more crucial than one size fits all.

Suggestions

- As job satisfaction is the strongest predictor of productivity, recognition and reward programs (such as employee of the month programs) should be utilized to ensure high job satisfaction levels.
- Physical working conditions on the shop floor should be regularly reviewed, assessed and improved through health initiatives and periodic safety audits.
- Improved leave mechanism and flexible shift rotation policy should be implemented in order to minimize burnout especially among employees who are in two-shift production line.
- Gender-specific QWL policies and feedback systems should be designed that cater for the different needs of men and women workers.
- Under the Economic Security & Growth, structured learning paths, skill development programs and transparent internal promotion paths should be implemented.
- Interpersonal dimensions of QWL should be developed by giving leadership, empathy, and conflict resolution training to the supervisors.
- A performance-based, periodic compensation review should be conducted since monthly income shows the greatest chi-square correlation with QWL and productivity.
- Formalize employee involvement in departmental goal setting and problem-solving committees in order to increase organizational commitment and decision making involvement.
- Monitoring workload, counseling services and stress-relief measures should be put in place to help staff maintain mental well-being and focus and efficiency.
- Newly recruited employees (19% with less than one year of experience) should be supported through structured mentoring and induction programs to start being productive as quickly as possible.

Conclusion

This study offers strong empirical support for the fact that Quality of Work Life is an important and multi-faceted factor in employee productivity in the manufacturing industry. The research is conducted at Capital Polymers Pvt. Ltd. (CPL), Kattakada and shown that all the studied dimensions of QWL have positive impact on the productivity results using Chi-Square, Correlation, Regression and Factor Analysis. The composite correlation between QWL and productivity ($r = 0.748$) and the explanatory power of the regression model (76.4%) support the strong conclusion that the investment in QWL is not a discretionary welfare investment but one of the most important factors affecting the performance of the organization. The three factors determined for QWL are Work Environment & Satisfaction, Interpersonal & Participative Support and Economic Security & Growth which will serve as the basis for the HR interventions designed to address them. In industries such as Capital Polymers which face competition in Kerala, the systematic approach to QWL enhancement is a proven strategy for enhanced employee motivation, lower employee turnover, and continued growth in productivity. All the statistical tests of the null hypotheses of no significant relationship between the dimensions of QWL and the productivity of employees were rejected which established the central theme of this research.

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