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Improving Employee Performance through Organizational Development Interventions on Personal Competence: An Action Research study of BTIC in China

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Abstract

The study investigated the effects of organizational development interventions on Personal Competence such as Perceived Career Development, Management Competence, Affective Commitment, Continuance Commitment and Collaboration Skills to improve team leaders' Employee Performance in Beijing Tianhai Industrial Co., Ltd (BTIC). The study was conducted on 40 team leaders from production department in BTIC using qualitative and quantitative research methods. Before implementing the OD intervention, the researcher collected data on personal competence such as perceived career development, management competence, affective commitment, continuance commitment, collaboration skills and employee performance through questionnaires and interviews. The OD interventions included project starting, training, coaching, team building, evaluation and feedback. After the intervention, the same questionnaires and interviews were used to gather data, and the changes were compared to evaluate the effectiveness of the ODI. The data collected before and after the ODI were analyzed, and it was found that the data were not normally distributed. The researcher used unary linear regression, and Wilcoxon signed rank to validate the hypotheses. The results indicated that perceived career development, management competence, affective commitment, continuance commitment, collaboration skills and employee performance of the team leaders had significantly improved after the ODI. In conclusion, this study indicates that project starting, training, coaching, team building, evaluation and feedback are effective ODI for enhancing perceived career development, management competence, affective commitment, continuance commitment, and collaboration skills. Furthermore, the study finds that perceived career development, management competence, affective commitment, continuance commitment, and collaboration skills positively correlate with employee performance.

Keywords : personal competence, perceived career development, management competence, affective commitment, continuance commitment, collaboration skills, employee performance

Introduction

Background

The world today is experiencing unprecedented changes, with a new round of technological revolution and industrial transformation deepening. Technological change has become an important factor for the survival and development of enterprises, and enterprises need better personal competence and employee performance to drive technological innovation and development. Personal competence is referred to as his or her ability to achieve success in a job, such characteristics as knowledge, skills and attitudes, which established standards are used to measure, and which training and development are used to better (Marwansyah, 2016). Personal competencies are traits that help a person take the responsibility of his or her job. The capacity contains a wide range of forms and combinations of learning, awareness, power, motives and specialties (Lakshminarayanan et al., 2016). Companies will try to highlight employee performance to meet their goals (Noe, 2017). Many factors can have an influence on employee performance, from internal self-operated employees, inner organization, to external organizational factors (Ida et al., 2018).

This study uses team leaders of production department from Beijing Tianhai Industrial Co., Ltd (BTIC) as objects. Tianhai Industrial Company is a state-owned group company with eight subsidiaries, including BTIC. BTIC is the leading backbone enterprise of Tianhai Industrial Company, with 1385 employees.

Research Problem

The organizational assessment used focus discussion, in-depth interview and SWOT analysis. Thirty-three employees including 11 middle managers and 22 team leaders from production department participated in the preliminary research, and provided information and understanding on the current situation of the team leaders' Personal Competence and Employee Performance and enabled the researcher to identify the areas for improvement in BTIC. According to the analysis of the preliminary diagnosis and the SWOT analysis of the present situation of team leaders' personal competence in BTIC, it leads to poor employee effectiveness and low employee efficiency, which does not help improve Employee Performance in BTIC. Therefore, the study aims to improve the team leaders' personal competence (Perceived Career Development, Continuance Commitment, Management competence, Affective Commitment, and Collaboration Skills) from the perspective of organization development to improve Employee Performance in BTIC.

Research Questions

1. What is the current situation of team leaders' Personal Competence and Employee Performance in BTIC?
2. What OD interventions could be designed and implemented based on the pre-assessment results to improve the team leaders' PC and EP?
3. What is the significant difference between team leaders' Personal Competence and Employee Performance in BTIC at the pre- and post-ODI stages?
4. What insight of team leaders' PC and EP could be derived from the qualitative data from the informant?

Research Significance

1. Through organization development interventions, improving Personal Competence helps to improve employees' career development and satisfaction, improve their work efficiency and quality, enhance teamwork and communication, and enhance the competitiveness of the enterprise.

2. The performance of an organization depends on the Employee Performance, which in turn depends on the organization's support and encouragement. Employee Performance is crucial for organizations.

3. The rapid development of new technologies and the digital transformation and upgrading of enterprises have prompted enterprises to accelerate the improvement of Personal Competence. Personal Competence has a significant impact on Employee Performance.

4. Through training, team building, and coaching, Personal Competence can be effectively improved, ultimately achieving an improvement in Employee Performance. The successful practice of BTIC will rapidly implement in the whole group company and even across the entire energy and gas storage and transportation equipment manufacturing and service industry.

Literature Review

Personal Competence

Personal Competence refers to perform well in a job, which can be assessed with certain criteria, and which can be enhanced by training and development (Marwansyah, 2016). Competency is used to describe work-oriented projects or certain consequences (Viktoriya et al., 2021). In the study, Personal Competence refers to Perceived Career Development (PCD), Management Competence (MC), Affective Commitment (AC), Continuance Commitment (CC), and Collaboration Skills (CS).

Perceived Career Development (PCD)

With Social Exchange principles, perceived career development depicts the perceived progress in personal position in this organization, achieving certain performance achievements on a certain career path (Widiastari & Etikariena, 2022). According to interchange outlook, when employees receive expected rewards in a job, they would develop a psychological emotion of returning the organization via various routes. According to the dual factor theory of motivation, the chance in career development is seen as a motivational incentive that makes employees sense and beware of their own needs in professional development. Based on Maslow's need-hierarchy principles, cognitive needs and self-high esteem bring about the sense of improvement, which can stimulate staff to engage passionately in work (Li & Ning, 2021). In this study, Perceived career development refers to team leaders of production department perceived progress in their position in BTIC linked to career promotion obtained via performance achievements, which also includes in proactive personality, ability to work under pressure, and self-motivation.

Management Competence (MC)

Management skills involve effective decision-making, task formulating and planning during the fulfillment phase, procedures arrangement, management of subordinates, communication skills, and achieving goals (Viktoriya et al., 2021). In view of (Katz, 1974), at all levels of management, interpersonal skills are of importance to the same extents for leaders (Tyrańska, 2016). In this study, Management Competence refers to the competence in which team leaders effectively appropriate human and material resources to realize production department objectives, such as quality assurance, problem-solving, and communication competence.

Affective Commitment (AC)

Organization commitment describes the commitment intensity from employees, as well as their recognition sense of the values and goals of an organization (Al-Jabari & Ghazzawi, 2019). About the theory of social identity, individuals cling themselves to different social units, based on their religious beliefs, political connections, and organizational membership (Tajfel, 2010). Employees get emotionally attached to the organization and automatically take the responsibility for the success and loss of the unit. Staff with high emotion typically pursue excellent performance, exhibit favorable career attitudes, and show a desire to remain in the organization (Nizarwan & Fatwa, 2020). In this study, Affective Commitment represents team leaders' emotional connections to, involvement in, and recognition with BTIC, especially work ethics.

Continuance Commitment (CC)

Continuance Commitment is about an individual's decision to stay in an organization because they have already utilized the organization's time and resources, while also weighing the cost of changing jobs. Employees with a continuous agreement will stay because they need to do so. Due to the lack of alternative solutions, they also stay in the organization (Kelvin, 2021). Becker's theory explains organizational commitment as the main predictor of voluntary staff turnover (Sayani & Swamy, 2014). According to social exchange theory, the basic premise is that relationships where returns overtake costs will build up lasting mutual trust and attraction (Gilbert & Konya, 2020). In this study, Continuance Commitment means team leaders' view on whether the price of leaving BTIC is greater than that of remaining, especially work responsibility and accountability, deadline and target orientation if prefer the view of staying.

Collaboration Skills (CS)

Collaboration skills include management of group activities and social interaction. The assignments are increasingly being carried out among teams of people with complementary professional quality (Clarke & Chris, 2010; Fraser & Hvolby, 2010). The members need to have a clear idea of their own and partners' roles (Ester et al., 2020). Collaboration skills include Building shared understanding, Collective contributing, and Regulating (Scoular, 2020). The collaborative relation forms the final step, whose function is required to previously establish coordination and cooperation (John, 2011). In this study, Collaboration Skills refers

to team leaders' skills during management of team activities and social interaction, such as team work, interpersonal skills, organization and coordination.

Employee Performance (EP)

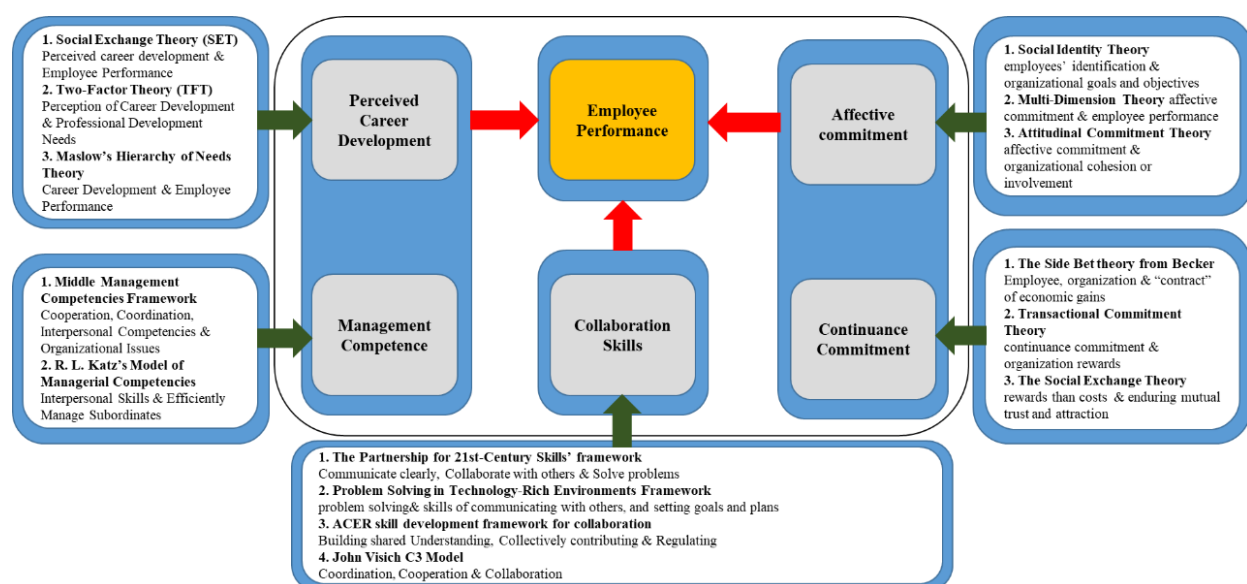
Personnel performance refers to the outcomes achieved by employees using their skills in the position (Andrew, 2017). The indicators can be such as quality, quantity, punctuality, effectiveness, independence and work commitment (Wijayanto & Riani, 2021). In the research, Employee Performance refers to the result of team leaders in BTIC work through management process, which indicates as effectiveness and efficiency.

Theoretical Framework

The theoretical framework summarizes the content of the literature review and gives ideas of relevant variables for this study, as shown in Figure 1.

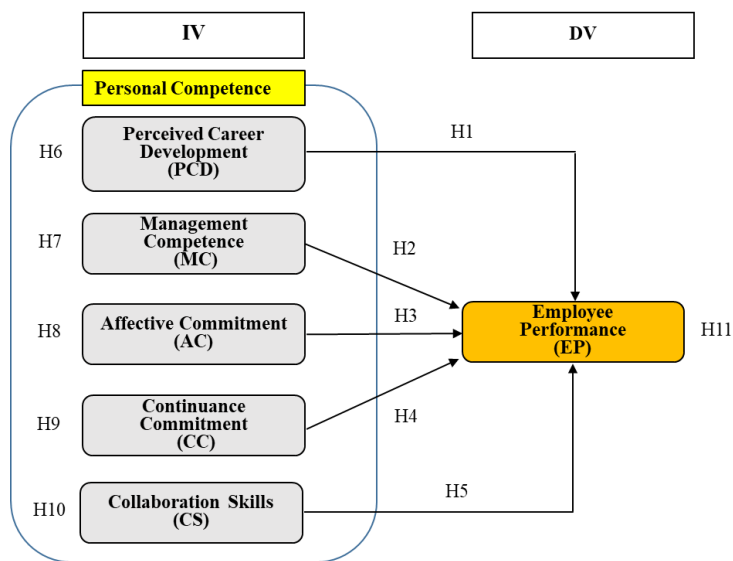
Figure 1

Theoretical Framework



Conceptual framework

The Conceptual framework includes the independent and dependent variables, as shown in Figure 2. IV is Personal Competence, including Perceived Career Development, Management Competence, Affective Commitment, Continuance Commitment, and Collaboration Skills. And DV is Employee Performance.

Figure 2*Conceptual Framework*

Based on the literature review, the study proposes 11 hypotheses as follows:

H1: Perceived Career Development has significant impact on Employee Performance.

H2: Management Competence has significant impact on Employee Performance.

H3: Affective Commitment has significant impact on Employee Performance.

H4: Continuance Commitment has significant impact on Employee Performance.

H5: Collaboration Skills have significant impact on Employee Performance.

H6: There is a statistically significant difference in Perceived Career Development between pre- and post-OD Intervention.

H7: There is a statistically significant difference in Management Competence between pre- and post-OD Intervention.

H8: There is a statistically significant difference in Affective Commitment between pre- and post-OD Intervention.

H9: There is a statistically significant difference in Continuance Commitment between pre- and post-OD Intervention.

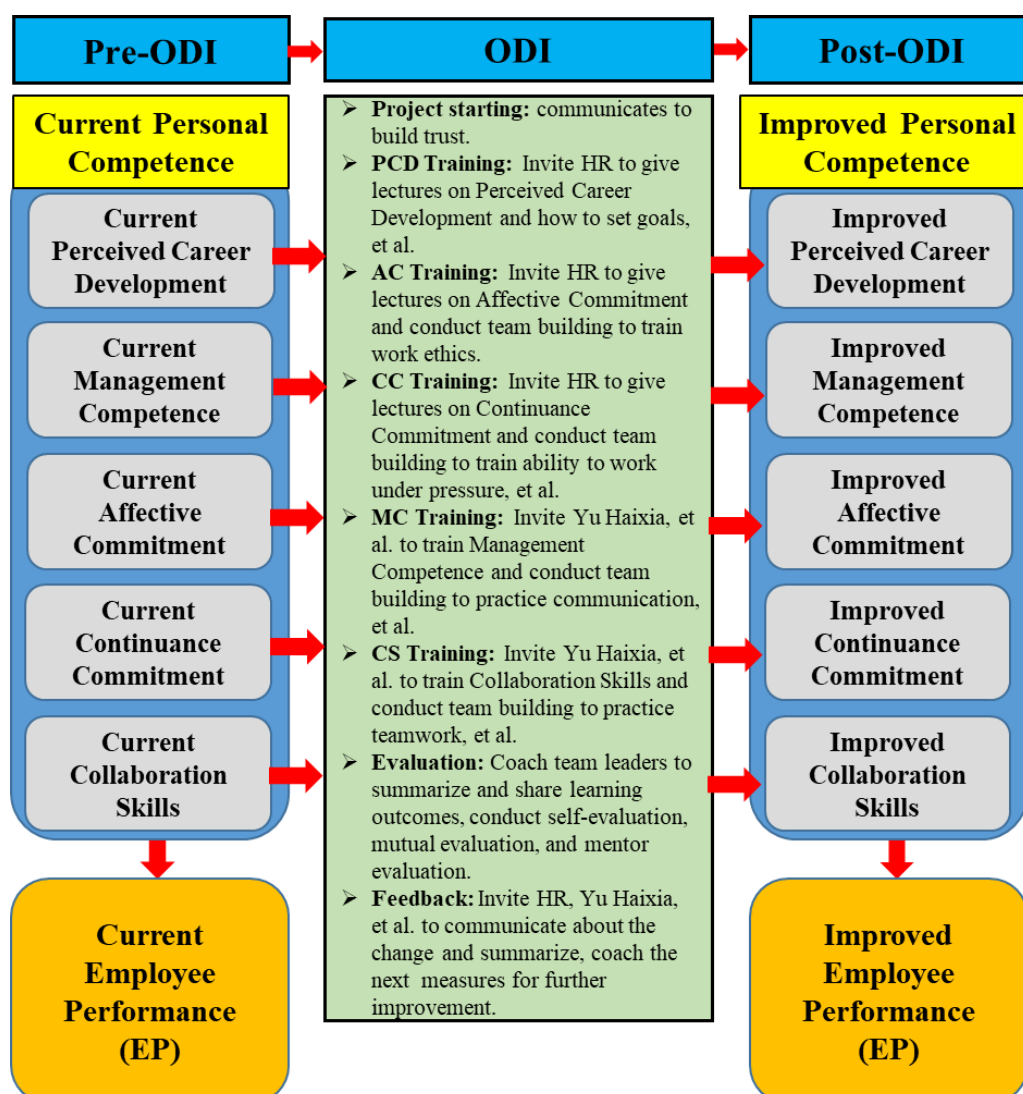
H10: There is a statistically significant difference in Collaboration Skills between pre- and post-OD Intervention.

H11: There is a statistically significant difference in Employee Performance between pre- and post-OD Intervention.

The Action Research Framework

The action research framework consists of three stages, and they are Pre-ODI, ODI, and Post-ODI, as follows.

Figure 3

Action Research Framework**Research Methodology****Research Design**

The study adopted a combination of qualitative and quantitative research methods to assess the impact of an OD intervention on team leaders in BTIC. Qualitative research involved literature review and interviews with team leaders, while quantitative research was conducted through *Questionnaire Star* online surveys. The researcher designed a questionnaire based on a literature review and collected data through *Questionnaire Star*. 40 participants were asked to complete and return the electronic questionnaire online. The intervention included project starting, training, coaching, team building, evaluation and feedback. Post-OD intervention, the same questionnaire was used to collect data, and the changes were compared to determine the effectiveness of the intervention. Furthermore, the study conducted semi-structured individual interviews with 8 participants to qualitatively understand changes in personal competence and employee performance pre- and post-OD intervention.

Research instruments

Based on the existing Perceived Career Development scale (Widiastari & Etikariena, 2022), Management Competence scale (Viktoriya et al., 2021), Affective Commitment scale (Martha, 2018), Continuance Commitment scale (Martha, 2018), Collaboration Skills scale (Scoular, 2020) and Employee performance scale (Wijayanto & Riani, 2021), the researcher designed a new questionnaire. The questionnaire contained six variables and 32 items in total. The scoring standard used Likert 5-point score: 1 score = Strongly disagree, 2 scores = Disagree, 3 scores = Uncertain, 4 scores = Agree, 5 scores = Strongly agree.

Table1

The Structure of the Questionnaire

Variable	Number of items
Perceived Career Development	5
Management Competence	5
Affective Commitment	6
Continuance Commitment	8
Collaboration Skills	3
Employee Performance	5
Total	32

To test the validity, the researcher sent the questionnaires to 5 OD experts for Item Objective Congruence (IOC) test. After 5 experts filled in the IOC table, the researcher made a summary. The average score for each item is more than 0.6. The questionnaire has good validity. The researcher distributed the questionnaires to 30 team leaders who were not the same participants in the study, and all retrieved. As shown in Table 2, based on the analysis of SPSS 26, the Cronbach's Alpha values of six variables were larger than 0.7. Therefore, the questionnaire had good reliability.

Table2

Comparing the Number out of Measurement Items before and after Pilot Testing

Variable	Number of Measurement Items		Cronbach's Alpha
	Before Pilot Test	After Pilot Test	
Perceived Career Development	5	5	0.777
Management competence	5	5	0.858
Affective Commitment	6	6	0.840
Continuance Commitment	8	8	0.899
Collaboration Skills	3	3	0.824
Employee Performance	5	5	0.879
Total	32	32	

Research Sampling

This study centered around employees in BTIC, specifically those in the production department, totaling 789 individuals, including 75 team leaders who are the backbone of the enterprise, the frontline production management personnel and the focus of organizational development and change. To ensure a receptive group, the researcher focused on team leaders.

The Personal Competence improvement of team leaders has a significant impact on employee performance and even organizational performance improvement. According to Hair et al. (2010), the research sample was narrowed down to 40 team leaders for this study. So, the population are 75 team leaders and the sample are 40 team leaders.

The Implementation of the Intervention

Pre-ODI Stage. The researcher investigated team leaders for current situation with both quantitative and qualitative methods, which included one-to-one, in-depth interviews, as well as questionnaires.

ODI Stage. The researcher developed the OD intervention, such as training, coaching and team building. The intervention process started in May 2023 and ended in June 2023, taking 8 weeks, excluding holidays.

Step 1-Project starting

The first step is project starting. The researcher presents an outline and communicates with team leaders to build up the trust atmosphere, provide them the details required, help team leaders determine what type of training is needed.

Step 2- PCD Training

The second step is PCD training. Invite HR who is an expert in OD of BTIC to give lectures on the concept of Perceived Career Development and how to set goals such as career goal, income goal, promotion goal, skill development goal, and how to improve proactive personality, Self-motivation.

Step 3- AC Training

The third step is AC training. HR of BTIC was invited to give lectures on the concept of Affective Commitment and conduct team building to train work ethics. Team leaders are encouraged to enter the training course for questions and discussions.

Step 4- CC Training

The fourth step is CC training. Lectures are given by HR on the concept of Continuance Commitment and conduct team building to train ability to work under pressure, responsibility and accountability, deadline and target orientation.

Step 5- MC Training

The fifth step is MC training. Yu Haixia, et al., are invited to enter training team leaders, where the contents include concept of Management Competence and conduct team building to practice communication, problem solving, quality assurance.

Step 6- CS Training

The sixth step is CS training. Yu Haixia, et al., still come to training team leaders the concept of Collaboration Skills and conducting team building to practice teamwork, interpersonal skill, organization and coordination. This activity lasted for 2 hours.

Step 7- Evaluation

The seventh step is evaluation. Based on previous training, coach team leaders to summarize and share learning outcomes, conduct self-evaluation, mutual evaluation, and mentor evaluation, this activity lasted for 3 hours.

Step 8-Feedback

The last step is feedback. The researcher, HR and Yu Haixia, et al. will group participants and provide one-on-one feedback to let them know their performance results.

Personal competence can be improved through training and development (Marwansyah, 2016). According to Marwansyah's view, step 1 to step 6 and step 8, each activity lasting for 2 hours. While step 7 lasting for 3 hours.

Post-ODI Stage. In the stage of post-ODI, collect all the data and compare and analyze them. The researcher expects improvement in independent variables and the dependent variable.

The OD intervention activities are shown in Table 3.

Table3

The OD interventions program

Variables	ODI	Place	OD practitioner	Contents	Time
	Training Lecture Team building	BTIC	Researcher Team leaders	Project starting. The first conference is held where the researcher gives a profile and communicates with the participants to establish trust.	May 10, 2023 14:00-16:00
PCD			HR of BTIC Researcher Team leaders	PCD Training. Invite HR of BTIC to give lectures on the concept of Perceived Career Development and how to set goals such as career goal, income goal, promotion goal, skill development goal, and how to improve proactive personality, Self-motivation.	May 17, 2023 15:00-17:00
AC				AC Training. Invite HR of BTIC to give lectures on the concept of Affective Commitment and conduct team building to train work ethics.	May 24, 2023 15:00-17:00
CC				CC Training. Invite HR of BTIC to give lectures on the concept of Continuance Commitment and conduct team building to train ability to work under pressure, responsibility and accountability, deadline and target orientation.	May 31, 2023 15:00-17:00
MC			YuHaixia MaJun Wangli Researcher Team leaders	MC Training. Invite Yu Haixia, et al. to participate in training team leaders, the contents include concept of Management Competence and conduct team building to practice communication, problem solving, quality assurance.	Jun 7, 2023 13:00-15:00
CS				CS Training. Invite Yu Haixia, et al. to participate in training team leaders, the contents include concept of Collaboration Skills and conduct team building to practice teamwork, interpersonal skill, organization and coordination.	Jun 14, 2023 15:00-17:00
			HR of BTIC YuHaixia MaJun Wangli Researcher Team leaders	Evaluation. Based on previous training, coach team leaders to summarize and share learning outcomes, conduct self-evaluation, mutual evaluation, and mentor evaluation.	Jun 21, 2023 14:00-17:00
				Feedback. Invite HR of BTIC, Yu Haixia et al. to communicate with team leaders about the change and summarize the experience, coach team leaders the next measures for further improvement.	Jun 28, 2023 14:00-16:00

Results and Discussion

Demographic Profile of Participants

As shown in Table 4, out of 40 participants, 12 participants are aged 26-34, which accounting for 30%; 20 participants are aged 35-44, which accounting for 50%; 8 participants are aged 45-54, which accounting for 20%. 10 participants hold Bachelor's degree or above, which accounting for 25%; 4 participants hold Junior college's degree, which accounting for 10%; 8 participants hold Secondary specialized school's degree, which accounting for 20%; 18 participants hold High school's degree or below, which accounting for 45%. 38 participants are male, which accounting for 95%; And 2 participants are female, which accounting for 5%.

Table4

Demographic Information of Participants

Basic Information	Categories	Number of Participants	Percent
Education Background	Bachelor's degree or above	10	25%
	Junior college	4	10%
	Secondary specialized school	8	20%
	High school or below	18	45%
Gender	Male	38	95%
	Female	2	5%
Age	Under 25	0	0
	26-34	12	30%
	35-44	20	50%
	45-54	8	20%
	Over 55	0	0

As shown in Table 5, the results show that all variables improved after the organization development interventions (ODIs). There was a statistical significance on the mean score of Perceived Career Development, Management Competence, Affective Commitment, Continuance Commitment, Collaboration Skills and Employee performance at the Post-ODI stage. According to the results, the mean of the PCD scale is 4.43, the mean of MC scale is 4.47, the mean of AC scale is 4.36, the mean of CC scale is 4.60, the mean of CS scale is 4.35, and the mean of EP scale is 4.43, which all significantly improved compared to the pre- ODI data. All variables improved after organizational development intervention (ODI) evidenced by the results. In addition, the qualitative data results obtained through in-depth interviews with 8 team leaders are consistent with the quantitative results.

Table 5

Summary of the Connection between Quantitative and Qualitative Findings

Variables	Findings (5-Point scale)		Summary of Qualitative Results after ODIs
	Pre-ODI Mean	Post-ODI Mean	
PCD	3.53	4.43	1. I have gained many career development resources. 2. I am closer to my revenue target. 3. I have also achieved specific results in job promotion.
PCD1	3.75	4.48	
PCD2	3.03	3.68	

Variables	Findings (5-Point scale)		Summary of Qualitative Results after ODIs
	Pre-ODI Mean	Post-ODI Mean	
PCD3	3.48	3.95	4. I improved my project coordination skills. 5. My professional skills are continuously enhanced. 6. My personal goal is consistent with organizational goal.
PCD4	3.55	4.58	
PCD5	3.60	4.55	
MC	4.05	4.47	1. I gradually master communication skills, effective communication can create a harmonious atmosphere. 2. I have a certain level of decision-making power. 3. I assign tasks based on each person's abilities and strengths, ensuring that they can be completed within the specified time and track progress in real-time.
MC1	4.00	4.50	
MC2	4.03	4.53	
MC3	4.03	4.50	
MC4	3.86	4.38	
MC5	4.05	4.43	
AC	3.90	4.36	1. The organization is a whole, and I am an organizational part. 2. I have seen that the rest of my career is bright and has clear goals, which makes me feel full of hope and vitality to work with the organization and move forward. 3. I am willing to contribute to the organization and do my best to solve the problems it encounters.
AC1	3.98	4.48	
AC2	3.83	4.50	
AC3	3.90	4.45	
AC4	3.80	4.43	
AC5	4.00	4.40	
AC6	3.18	3.53	
CC	3.48	4.60	1. Organization is significant to me, and I aspire to realize my life value here. 2. The current personal development opportunities are still excellent, and the relationship with colleagues is very harmonious. At the same time, I identify with our team and hope to make substantial contributions myself. 3. Leaving the organization makes me feel at a loss. 4. There has been no intention of resigning in the past five years.
CC1	3.25	3.48	
CC2	3.38	3.48	
CC3	3.43	3.73	
CC4	3.48	3.55	
CC5	3.73	4.40	
CC6	3.45	3.60	
CC7	3.38	3.70	
CC8	3.53	3.75	
CS	3.85	4.35	1. The team leader needs to coordinate the relationships. 2. Encourage good communication among team members; Make everyone feel interdependent and develop a good relationship.
CS1	3.78	4.38	
CS2	3.83	4.38	
CS3	3.88	4.43	
EP	3.93	4.43	1. I mastered more ways and methods to efficiently complete my work. 2. I enhance stress resistance, sense of responsibility, and awareness. 3. The salaries, responsibilities, promotions, et al., assigned to employees by the organization have a positive effect.
EP1	3.95	4.45	
EP2	3.90	4.48	
EP3	4.00	4.40	
EP4	4.03	4.45	
EP5	3.65	4.30	

Hypothesis Testing

Hypothesis 1-5 were formulated, and Unary linear regression Analysis was used to test these hypotheses. Hypothesis 6-11 were formulated, and Wilcoxon Signed Rank analysis was used to test the hypothesis. The results are shown in Table 6 and Table 7.

Table 6

Hypothesis Testing- Unary linear regression analysis

Hypothesis	N	Test Statistics				Results
		Sig.	Durbin-Watson	Standard Beta	R ²	
H1: Perceived Career Development has significant impact on Employee Performance.	40	.046	1.602	.312	.097	H ₀₁ is rejected and H _{a1} is accepted.
H2: Management Competence has significant impact on Employee Performance.	40	.000	1.820	.527	.278	H ₀₂ is rejected and H _{a2} is accepted.
H3: Affective Commitment has significant impact on Employee Performance.	40	.000	1.586	.560	.314	H ₀₃ is rejected and H _{a3} is accepted.

Hypothesis	N	Test Statistics				Results
		Sig.	Durbin-Watson	Standard Beta	R ²	
H4: Continuance Commitment has significant impact on Employee Performance.	40	.004	1.515	.443	.196	H ₀₄ is rejected and H _{a4} is accepted.
H5: Collaboration Skills have significant impact on Employee Performance.	40	.009	1.601	.407	.166	H ₀₅ is rejected and H _{a5} is accepted.

Table 7

Hypothesis Testing- Wilcoxon Signed Rank analysis

Hypothesis	N	Test Statistics		Results
		Sig. (2-tailed)	Z	
H6: There is a statistically significant difference in Perceived Career Development between pre- and post-OD Intervention.	40	.000	-4.199	H ₀₆ is rejected and H _{a6} is accepted.
H7: There is a statistically significant difference in Management Competence between pre- and post-OD Intervention.	40	.000	-3.494	H ₀₇ is rejected and H _{a7} is accepted.
H8: There is a statistically significant difference in Affective Commitment between pre- and post-OD Intervention.	40	.000	-3.689	H ₀₈ is rejected and H _{a8} is accepted.
H9: There is a statistically significant difference in Continuance Commitment between pre- and post-OD Intervention.	40	.000	-2.264	H ₀₉ is rejected and H _{a9} is accepted.
H10: There is a statistically significant difference in Collaboration Skills between pre- and post-OD Intervention.	40	.000	-3.542	H ₀₁₀ is rejected and H _{a10} is accepted.
H11: There is a statistically significant difference in Employee Performance between pre- and post-OD Intervention.	40	.000	-3.771	H ₀₁₁ is rejected and H _{a11} is accepted.

Hypothesis 1

As shown in table 6, the standard regression beta value is 0.312, which is less than 1, indicating a small correlation between independent variables. The p value of Perceived Career Development is 0.046, which is less than the alpha value of 0.05. And the Durbin-Watson value of Perceived Career Development is 1.602, which is between 1.5 and 2.5. Therefore, Perceived Career Development has significant impact on Employee Performance. According to social exchange theory, employees can do better in work when they have confidence in promotion in the organization, individuals who perceive more career development opportunities can inspire higher levels of work engagement (Widiastari & Etikariena, 2022). The quantitative analysis results confirmed this theory.

Hypothesis 2

As shown in table 6, the standard regression beta value is 0.527, which is less than 1, indicating a small correlation between independent variables. The p value of Management Competence is 0.000, which is less than the alpha value of 0.05. And the Durbin-Watson value of Management Competence is 1.820, which is between 1.5 and 2.5. Therefore, Management Competence has significant impact on Employee Performance. According to Katz's Model, management competencies include strategic vision, generation of effective decisions, task formulation and the planning of their implementation stages, organization of implementation processes, management of subordinates, professional external and internal communication

skills, and achieving results (Viktoriya et al., 2021). The quantitative analysis results confirmed this theory.

Hypothesis 3

As shown in table 6, the standard regression beta value is 0.560, which is less than 1, indicating a small correlation between independent variables. The p value of Affective Commitment is 0.000, which is less than the alpha value of 0.05. And the Durbin-Watson value of Affective Commitment is 1.586, which is between 1.5 and 2.5. Therefore, Affective Commitment has significant impact on Employee Performance. According to Social Identity Theory, employees with high affection usually perform well, have positive attitudes, and desire to be in with the company (Nizarwan & Fatwa, 2020). The quantitative analysis results confirmed this theory.

Hypothesis 4

As shown in table 6, the standard regression beta value is 0.443, which is less than 1, indicating a small correlation between independent variables. The p value of Continuance Commitment is 0.004, which is less than the alpha value of 0.05. And the Durbin-Watson value of Continuance Commitment is 1.515, which is between 1.5 and 2.5. Therefore, Continuance Commitment has significant impact on Employee Performance. According to Transactional Commitment Theory, workers with high continuance commitment to the institution will work hard to ensure that the institutions goals and objectives are achieved. Continuance commitment plays a crucial role in improving the performance of workers (Tutei et al., 2018). The quantitative analysis results confirmed this theory.

Hypothesis 5

As shown in table 6, the standard regression beta value is 0.407, which is less than 1, indicating a small correlation between independent variables. The p value of Collaboration Skills is 0.009, which is less than the alpha value of 0.05. And the Durbin-Watson value of Collaboration Skills is 1.601, which is between 1.5 and 2.5. Therefore, Collaboration Skills has significant impact on Employee Performance. According to ACER skill development framework for collaboration, effective collaboration involves a division of labor with participants who are engaged in active discourse that results in a compilation of their efforts (Scoular, 2020). The quantitative analysis results confirmed this theory.

Hypothesis 6

As shown in table 7, using Perceived Career Development data at pre- and post-ODI for Wilcoxon signed-rank test, it is found that $z = -4.199$ and the p-value is 0.000, which is less than the alpha value of 0.05, indicating significant results. Hence there is a statistically significant difference in Perceived Career Development between pre- and post-OD Intervention. According to Maslow's Hierarchy of Needs Theory, Employees need to feel safe and vulnerable in the working environment; training, skills enhancement, and appropriate tools are critical in leading to career development (Kapur, 2017). The quantitative analysis results confirmed this theory.

Hypothesis 7

As shown in table 7, using Management Competence data at pre- and post-ODI for Wilcoxon signed-rank test, it is found that $z = -3.494$ and the p-value is 0.000, which is less than the alpha value of 0.05, indicating significant results. Hence there is a statistically significant difference in Management Competence between pre- and post-OD Intervention. According to Katz's Model, employees should acquire interpersonal skills that contribute to effective customer communication (Guillot, 2016). Solve personal problems, develop logistical arrangements for team work, and provide individual and team support can be used to build the team (Hansen et al., 2020). The qualitative analysis results confirmed this theory.

Hypothesis 8

As shown in table 7, using Affective Commitment data at pre- and post-ODI for Wilcoxon signed-rank test, it is found that $z = -3.689$ and the p-value is 0.000, which is less than the alpha value of 0.05, indicating significant results. Hence there is a statistically significant difference in Affective Commitment between pre- and post-OD Intervention. According to Attitudinal Commitment Theory, the decision to become affectively committed to an organization develops over time through positive organizational experiences. Affective commitment interventions include Management training, Increased employee involvement and autonomy (Olutobi, 2018). The qualitative analysis results confirmed this theory.

Hypothesis 9

As shown in table 7, using Continuance Commitment data at pre- and post-ODI for Wilcoxon signed-rank test, it is found that $z = -2.264$ and the p-value is 0.000, which is less than the alpha value of 0.05, indicating significant results. Hence there is a statistically significant difference in Continuance Commitment between pre- and post-OD Intervention. The basic premise of social exchange theory is that relationships providing more rewards than costs will yield enduring mutual trust and attraction (Gilbert & Konya, 2020). The quantitative analysis results confirmed the theory.

Hypothesis 10

As shown in table 7, using Collaboration Skills data at pre- and post-ODI for Wilcoxon signed-rank test, it is found that $z = -3.542$ and the p-value is 0.000, which is less than the alpha value of 0.05, indicating significant results. Hence there is a statistically significant difference in Collaboration Skills between pre- and post-OD Intervention. According to Problem Solving in Technology-Rich Environments Framework, building team structure, learning teamwork skills, taking team action, improving communication, and handling conflict are principal components of collaborative teaming (Bolkan, 2015). The quantitative analysis results confirmed the theory.

Hypothesis 11

As shown in table 7, using Employee Performance data at pre- and post-ODI for Wilcoxon signed-rank test, it is found that $z = -3.771$ and the p-value is 0.000, which is less than the alpha value of 0.05, indicating significant results. Hence there is a statistically significant difference in Employee Performance between pre- and post-OD Intervention. According to Performance Feedback theory, the individual performance increased if there is a match between the job and the ability to work in accordance with the contribution rate increased performance (Hendra et al., 2017). The quantitative analysis results confirmed the theory.

Qualitative Results

According to the qualitative results, team leaders' personal competence has been improved (they can achieve self-motivation, coordinate the relationships among members of the team, efficiently complete the work, gradually master communication skills, the work ethics had been improved), at last positively impacted on Employee Performance, which are consistent with the quantitative results.

Discussion

Based the results of unary linear regression analysis, personal competence significantly impacts employee performance. Among the factors that influenced employee performance, the maximum factor is affective commitment, which accounts for 31.4% ($R^2 = .314$). And the minimum factor is perceived career development, which accounting for 9.7% ($R^2 = .097$). Based the results of the Wilcoxon signed rank test, there were significant difference between before and after ODI in personal competence and employee performance in BTIC.

Conclusion and Recommendations

Conclusion

The research found the current personal competence of team leaders in BTIC, such as perceived career development, management competence, affective commitment, continuance commitment, collaboration skills and employee performance had been improve after implementing OD interventions of training, team building, coaching and feedback. The Wilcoxon rank test further confirms the significant differences in these regions before and after OD intervention.

The research also found that OD interventions are suitable for improving perceived career development, management competence, affective commitment, continuance commitment and collaboration skills among team leaders in BTIC. In addition, the data showed a positive correlation between perceived career development, management competence, affective commitment, continuance commitment, collaboration skills, and employee performance. Regression analysis also confirmed that these variables play a crucial role in employee performance. The qualitative results consistent with the quantitative results. Overall, the findings indicate that OD interventions have great potential to improve personal competence and employee performance of team leaders in BTIC.

Recommendations for future research

This study aims to improve the Personal Competence of BTIC team leaders, such as Perceived Career Development, Management Competence, Affective Commitment, Continuance Commitment and Collaboration Skills, through OD intervention, in order to improve the Employee performance of team leaders. The study also examined the relationships between these variables and drew conclusions. However, there are some limitations in the research process that require further improvement.

Firstly, this study only lasted for two months, so the data and conclusions can only reflect the effectiveness of the intervention during this period. To enhance the impact of intervention measures, future research can extend the research period to six months or more and adjust the intervention measures based on feedback.

Secondly, the research sample is limited to the team leaders of the BTIC production department, which may limit the generalizability of the research results. To obtain more comprehensive results, future research can expand the sample range to include team leaders and even other employees from different departments of the same or across enterprises.

Thirdly, the researchers suggest increasing the sample size in subsequent studies. The sample size of only 40 team leaders needs improvement, and statistical analysis shows that the data distribution is not normal. By expanding the sample size, the data will better reflect the population, resulting in more reliable and effective results.

Finally, this study did not consider demographic variables such as birth background, major studied, and years of work to explore the impact of improving the Personal Competence of team leaders in equipment manufacturing enterprises on employee performance. Future research can combine these variables to enrich research findings.

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