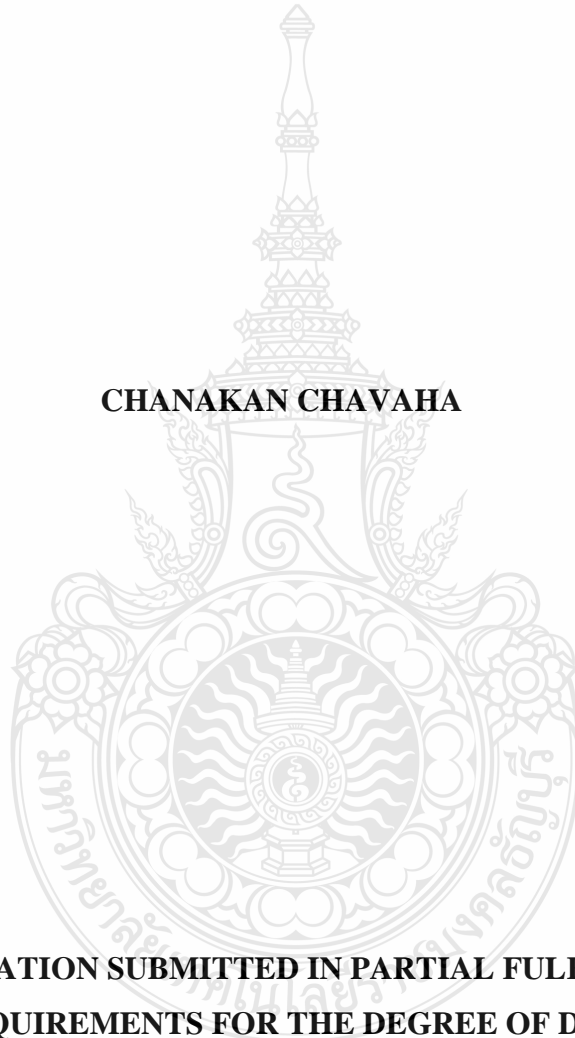


**THE IMPACT OF HUMAN RESOURCE DEVELOPMENT AND CONTINUOUS  
IMPROVEMENT ON PERFORMANCE IMPROVEMENT  
IN THE STEEL INDUSTRY**

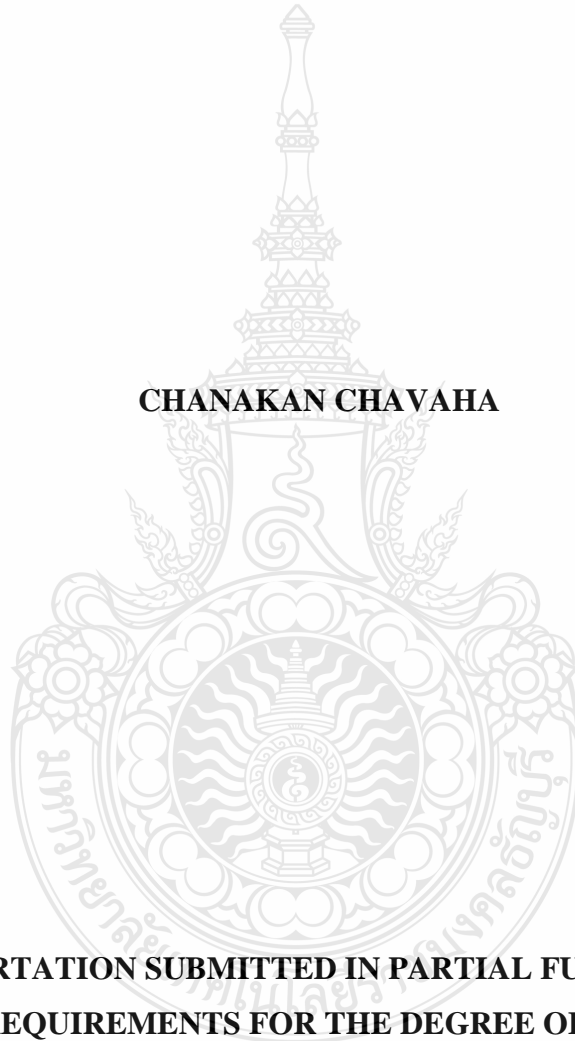
**CHANAKAN CHAVAHA**



**A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT  
OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF  
PROGRAM IN BUSINESS ADMINISTRATION FACULTY OF  
BUSINESS ADMINISTRATION  
RAJAMANGALA UNIVERSITY OF TECHNOLOGY THANYABURI  
ACADEMIC YEAR 2018  
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**Dissertation Title** The Impact of Human Resource Development and Continuous Improvement on Performance Improvement in the Steel Industry

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**Program** Business Administration

**Dissertation Advisor** Associate Professor Chanongkorn Kuntonbutr, D.B.A.

**Dissertation Co-advisor** Assistant Professor Natnarong Jaturat, Ph.D.

**Academic Year** 2018

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January 25, 2019

<b>Dissertation Title</b>	The Impact of Human Resource Development and Continuous Improvement on Performance Improvement in the Steel Industry
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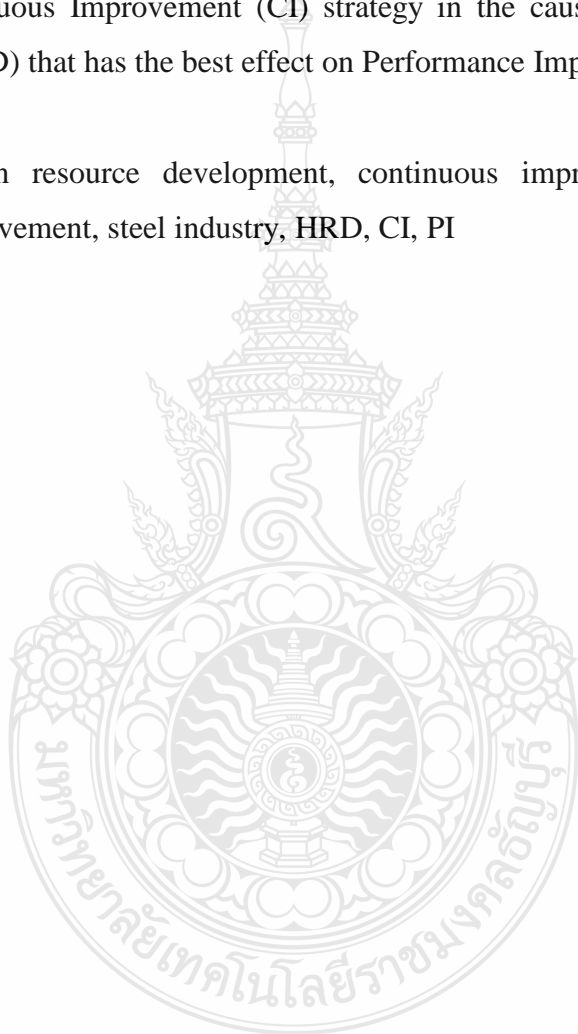
### **ABSTRACT**

This research presented a conceptual model to develop employees' performance using a human resource development and business strategy (Continuous Improvement) to practice within the organization. The researcher developed a questionnaire to examine the relationships among the independent variables: Human resource development, mediator: Continuous Improvement, and dependent variable: Performance Improvement. The population was composed of employees in steel industry. The sample was 622 people.

The study contains four research questions: First, does Human Resource Development (HRD) influence Performance Improvement (PI) through Continuous Improvement (CI)? Second, does HRD influence PI through CI among the various levels of employee positions in the business? Third, does HRD influence PI through CI among business functional areas? Finally, does HRD influence PI through CI between the different of personality of openness to experience? Dimensions of variables include three variables: independent variable, mediator variable, and dependent variable. Independent variable, namely HRD, has been regrouped into five factors: planning, learning culture, design, training and development, and feedback system. Mediator variable, namely CI has six factors: getting the CI habit, focusing CI, spreading the word, CI on the CI system, walking the talk, and learning organization. Dependent variable, namely PI has three factors: cost performance, relationship performance, and organizational performance.

The data was calculated using the Structural Equation Model (SEM). The results indicated a positive influence of the implementation of the model. Human Resource Development (HRD) and Performance Improvement (PI) through Continuous Improvement (CI) has been implemented with direct and indirect effect. It is also revealed that the organizational personnel whose positions were Levels 5-6, and above 6 in all responsibilities together with the personnel with explorer personalities enable to exploit the Continuous Improvement (CI) strategy in the cause of Human Resource Development (HRD) that has the best effect on Performance Improvement (PI).

**Keywords:** human resource development, continuous improvement, performance improvement, steel industry, HRD, CI, PI



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Chanakan Chavaha

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# CHAPTER 1

## INTRODUCTION

### **1.1 Background and Problem Statement**

Nowadays, every organization invests in a large variety of human resources which are high value organizational capitals. Human resource is regarded as human capital or intellectual capital, and is significant to an economic system. Since every organization requires competent workers, it should essentially realize how to build on the advantages on its human resources. In order to build a competitive advantage, the organization must have higher competent personnel. Therefore, personnel must be developed continuously and systematically. Training and development must include explicit planning, and be substantially managed. In particular, personnel must understand the working proficiency and communication between superiors and subordinates within the organization. Furthermore, they must realize how to use the equipment, machines, work appliances as well as new technologies. Additionally, they must recognize how to utilize the continuous improvement system for their work. Such a system will solve work-related difficulties, detect work-related errors and produce work higher quality. As a result, an organization should train its personnel in order to reap the benefits of appropriate and quality personnel. For example, personnel characteristics should include being knowledgeable, creative, and willing to perform high quality work. On the other hand, management executives need to place equivalent importance on different groups of people within the organization. Moreover, they would be impartial in allocating compensation, benefits, services and occupational opportunities, as well as the quality of work performance. Incidentally, the organization should recognize the significance of building a positive work environment and encourage employees to devote themselves to their organization. In addition, the organization should focus on its management team, which can assist the building up of a cooperative employee group. This cooperation can contribute to the fostering of a learning organization where everyone comes to realize the advantages and disadvantages of reciprocity. This realization can solve work-related problems and build competitive advantages for the organization.

Considering the status of current world economic circumstances, a significant factor is the utilization of domestic austerity, especially in large economy countries: The United State of America and European countries. This factor necessitates a strict monetary policy as well as the payment reduction of each country. Thus, the governments have to assist in maintaining the economic stability of each country. Manufacturing, trading and exchanging products in a market will flow if the economic circumstances facilitate the trade, and the manufacturing resources are utilized completely. If complete utility of every factor of production is undertaken, full employment can be assured. Besides, the levels of product prices will not highly increase. In addition, it can be assured that the country will have the possible highest income, and profits will extend across the entire city.

The steel industry in Thailand is one of the country's basic industries and is significant for developing the country. It is important because of its connection with numerous, influential Thai industries such as the automotive industry, electric appliances, electronics, furniture, canned (and packaged) food, machinery and the construction industry. The amount of iron and steel manufactured in 2016 was approximately 7,728,338 metric tons (excluding, in order to prevent multiple counting, semi-finished steel, cold rolled steel, coated steel, and metal pipes). When compared to a similar period last year, the amount of manufactured iron and steel increased by 18.98 percent. Equally important, when considering each product, it is found that the highest increase of a manufacturing product is long steel, which accelerated by 27.02 percent. On the contrary, the increase of flat steel was 8.90 percent. Regarding domestic distribution, the amount of iron and steel manufacturing was approximately 19,074,108 metric tons, which is a rise of 10.86 percent. In this distribution, the amount of long steel was escalated to 15.82 percent whereas the amount of flat steel rose to 7.91 percent. In terms of export price, there was an increase of 13.25 percent. Conversely, the import price decreased to 3.66 percent. It is expected that there will be an approximate 17.8 million tons consumption of Thai steel in 2017 which will reflect an increase between 1.1 and 2.8 percent. Incidentally, it is anticipated that the flat steel industry will enjoy a heightened amount of consumption following an expansion of the electric appliance industry: particularly air-conditioners. Apart from flat steel, the

utilization of long steel in the construction industry is predicted to escalate. Influenced by government construction projects for economic stimulation, the ministry of transport has a plan in 2017 to invest in transportation. In this case, 36 infrastructure construction projects, which are the extension of first phase projects, will be expanded. Illustrations of particular projects requiring cabinet approval were the double-track railways from Pak Nam Pho to Den Chai, Jira to Ubon Ratchathani, Khon Kaen to Nong Khai, Chumphon to Surat Thani, Surat Thani to Songkhla, Hat Yai to Padang Besar, Den Chai to Chiang Mai and Den Chai to Chiang Rai junctions. These projects will contribute to the heightened requirement of long steel (Office of Industrial Economics, 2016).

The steel industry is one of the basic industries which is significant for all developing countries in the world. The companies have many employees. Employees with highest knowledge and ability to work in the industry will continue to be employed. The industry has included many machines, tools, products and employees for production and export of their products; therefore, it's important to have high standards of working because of its connection with numerous influential industries such as automotive industry, electrical appliances, electronics, furniture, foods package, machinery and construction industry. For economic stimulation, the government ministry has plans to invest in the steel industry, specifically in transportation projects.

Many big organizations have success in their business because they have employees with high ability and they have great strategies. They have to employ people with high ability for business competitive advantage.

## **1.2 Purpose of the Study**

Based on the literature review and the study interest of the author, this research has several study objectives: first, to study the current human resource development in steel industry. Second, to develop and test model between HRD and CI in the steel industry. And third, To find the related factor of the relationship of HRD, CI, and performance improvement in the steel industry.

### **1.3 Research Questions**

1. Does Human Resource Development (HRD) influence Performance Improvement (PI) through Continuous Improvement (CI)?
2. Does HRD influence PI through CI among the various levels of employee positions in the business?
3. Does HRD influence PI through CI among in business functional areas?
4. Does HRD influence PI through CI between the different of personality of openness to experience? (which includes of explorer and preserver)

### **1.4 Hypothesis**

When the human resource department is involved in learning about CI, this greatly benefits the organization (Hyland, Di, & Becker, 2005). The entire staff is involved in the learning process and this allows all employees to be accountable and understanding of the new guidelines. Most of the research showed that people grew exponentially on an individual level and therefore it affected the whole for the greater good. To the companies benefit, if HRD could affect the companies in the following ways if they were to be involved and show support through facilitating and supporting employee, encouraging employee participation and commitment on an individual, team, and organizational level (Jorgensen & Hyland, 2007). Some empirical evidence showed the need for managerial staff to have a stronger understanding and implementation of the CI abilities. Employees were able to make small changes amongst themselves, but it was discovered that the managerial staff was not a direct influence of this result. It is suggested that CI professionals create a new plan of implementation that would further motivate managerial staff. If CI professionals and managerial staff can create an improvement plan based off common goals, things could run smoother during the Competency Enhancement phase. Positive results show that employee development did improve. Reconstructing the model to enhance managerial development and participation is the next step (Gao, 2011). Therefore, the following hypotheses had been proposed:

Research question 1: Does Human Resource Development (HRD) influence Performance Improvement (PI) through Continuous Improvement (CI)?

H1: HRD have an impact on PI.

H2: HRD have an impact on PI through CI.

Research question 2: Does HRD influence PI through CI among the various levels of employee positions in the business?

H3: HRD have an impact on PI of level 1-2.

H4: HRD have an impact on PI through CI of level 1-2.

H5: HRD have an impact on PI of level 3-4.

H6: HRD have an impact on PI through CI of level 3-4.

H7: HRD have an impact on PI of level 5-6.

H8: HRD have an impact on PI through CI of level 5-6.

H9: HRD have an impact on PI of level higher than 6.

H10: HRD have an impact on PI through CI of level higher than 6.

Research question 3: Does HRD influence PI through CI among in business functional areas?

H11: HRD have an impact on PI of functional engineer.

H12: HRD have an impact on PI through CI of functional engineer.

H13: HRD have an impact on PI of functional quality.

H14: HRD have an impact on PI through CI of functional quality.

H15: HRD have an impact on PI of functional HR.

H16: HRD have an impact on PI through CI of functional HR.

H17: HRD have an impact on PI of functional technician.

H18: HRD have an impact on PI through CI of functional technician.

Research question 4: Does HRD influence PI through CI between the different of personality of openness to experience? (which includes of explorer and preserver)

H19: HRD have an impact on PI of explorer.

H20: HRD have an impact on PI through CI of explorer.

H21: HRD have an impact on PI of preserver.

H22: HRD have an impact on PI through CI of preserver.



## **1.5 Definition of Terms**

1. Human Resource Development (HRD): is a process of development and the release of the power of wisdom including the capability for producing the work system and the inner processes efficiently: the group process, the work system, and personnel performance (Swanson, and Holton, 2009). Human Resource Development (HRD) consists of planning, learning culture, design, training and development, and feedback system.

2. Continuous Improvement (CI): is a capability learning in a company. This research CI includes six factors such as getting CI, focusing CI, spreading, CI on CI, walking, and learning (Bessant & Caffyn, 1997; Caffyn, 1999 cited in Gao, 2011).

3. Performance Improvement (PI): the construct of performance improvement is measured in terms of cost performance, relationship performance, and organizational performance (Bessant & Caffyn, 1997; Caffyn, 1999 cited in Jorgensen, Boer & Laugen, 2006).

4. Openness to experience from big 5 model of personality trait the construct is measured in terms of explorer and preserver (Costa & McCrae, 1992 cited in Howard and Howard, 1995).

## **1.6 Scope of the Study**

This study is a study about human resource development practices, continuous improvement, and employee efficiency. The research sample of this study is from the steel industry sector. The researcher developed a questionnaire that was designed to provide information to test relationship among HRD (independent variable, CI (mediator), and performance improvement (dependent variable). The purposive sample includes employee from the steel industry sector who answered the questionnaire. For statistical analysis, this research utilizes Structure Equation Modeling (SEM).

## **1.7 Organization of the Study**

This study consists of five chapters. Chapter one covers the background and Problem Statement, purpose of the study, research questions, hypotheses, a conceptual model, definition of terms, scope of the study and organization of the study. Chapter

two reviews previous studies related with human resource development, continuous improvement, and performance improvement. It also shows the selection variable of the research framework including: HRD definitions, view of CI, and PI. Chapter three covers the research methodology that consists of quantitative research for analyzing data and hypothesis testing and validation of the results respectively. Chapter four presents and discusses the research finding. Chapter five comprises the conclusion, discussion, research implications, research limitation and future research.

### 1.8 Research Framework

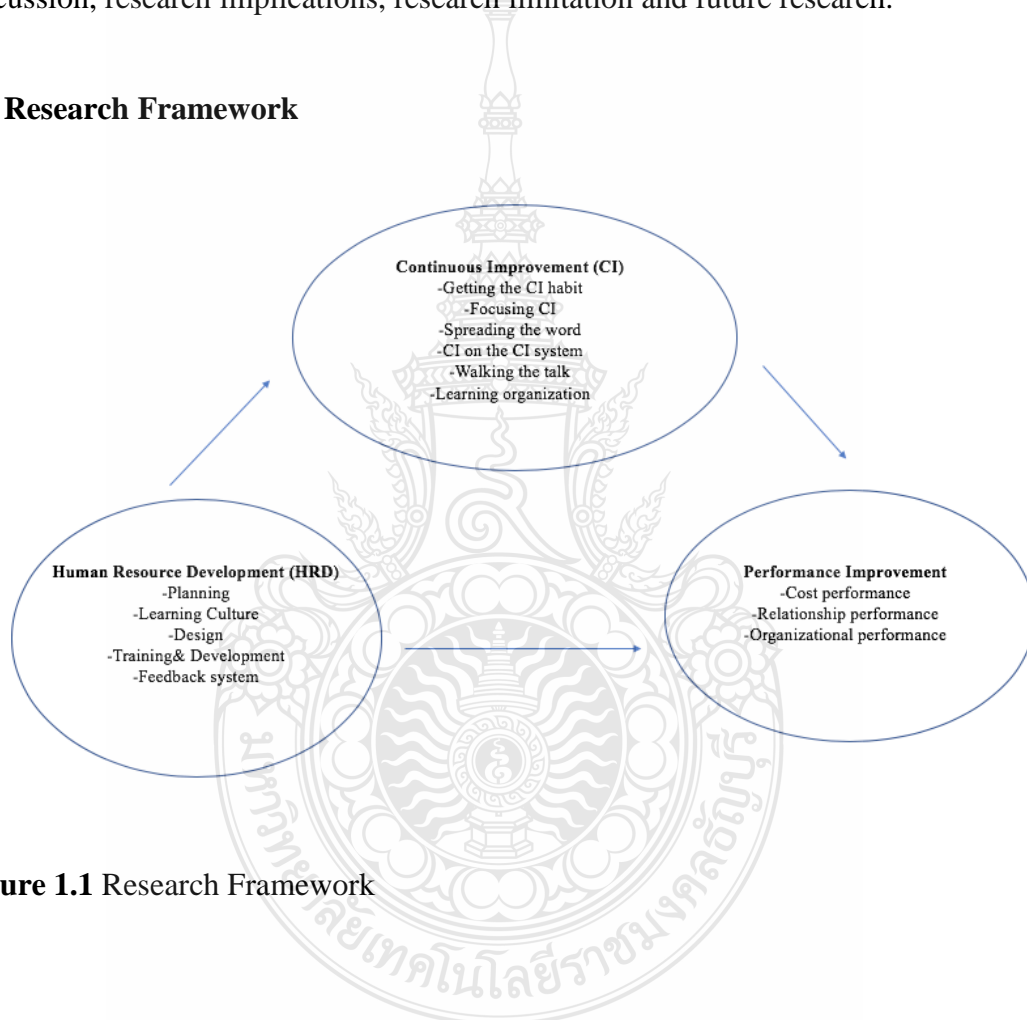


Figure 1.1 Research Framework

## **CHAPTER 2**

### **LITERATURE REVIEW**

This chapter contains a profile of research related to Human Resource Development (HRD), Continuous Improvement (CI), and Performance Improvement. This literature review is divided into three sections. The first section introduces the history of HRD, theories and practices; the second section reviews Continuous improvement; the third section provided the relationship among HRD, CI and performance.

#### **2.1 Human Resources Development (HRD)**

This section will provide an introduction to HRD and a discussion of human resource development programs and HRD competencies.

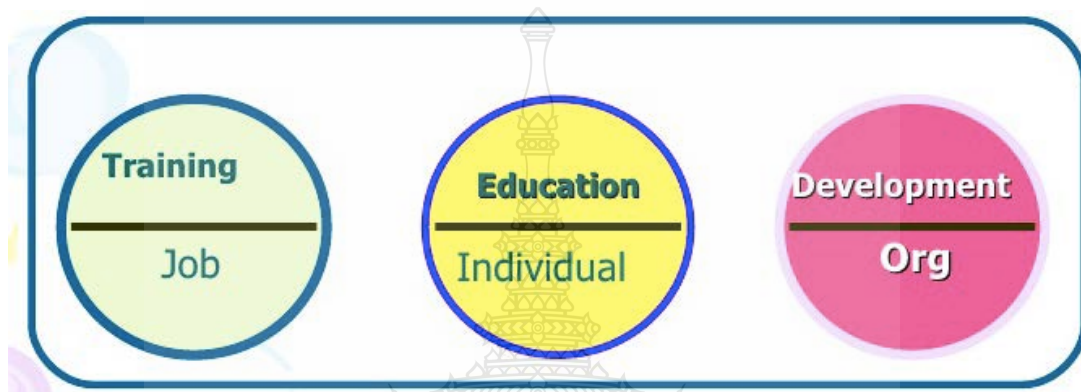
Amartya Sen (1999), the 1998 Nobel Laureate in Economic Sciences, described the term "development," in his book *Development as Freedom*, as a process of stepping into the real human freedoms. This process involves an increase of gross national product, an acceleration of personal income, a revolution of industrial society and an innovation of technological breakthrough. Amartya Sen considered that these involvements are tools or mediums of freedoms expansion for everyone in society to follow his or her desires. However, those freedoms rely on other related variables or determinants such as resource allocation, promulgation of regulations, or social organization, political system and human rights issues. Therefore, if freedoms mean advancement of development, development will be the terminal objective to place the importance on the human rights and freedoms everyone desires.

Craig (1976, cited in Weinberger, 1998) stated that human resource development is an activity that focuses on the central position of a human's potential development in every dimension of their lifetime.

Jones (1981, cited in Weinberger, 1998) described human resource development as a systematic extension of human competencies in work performance conforming to personal and organizational requirements.

R. Smith (1998, cited in Weinberger, 1998) explained that human resource development consists of projects and activities held directly and indirectly with intention of increasing personal and organizational productivities and profits.

Leonard Nadler (1970) is a scholar regarded as the father of human resource development. Nadler introduced concepts or a Human Resource Development model in this image (figure 2.1).



**Figure 2.1** Nadler's (1970) Concept of HRD Model

Based on Nadler's (1970) Concept of HRD Model, the themes of HRD activities must conform to the main purpose of the concepts requiring developments as follows:

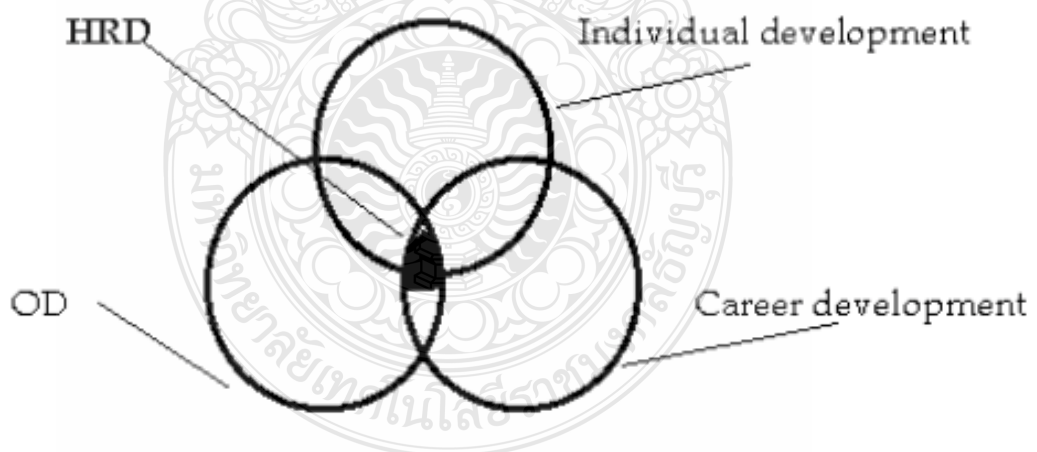
1. Job refers to a current or a present job of an individual. It pairs with training, an arrangement of learning activities in various themes. The training aims to enhance employees' readiness for their work. Examples of training are the theoretical training held in a lecture room, on-the-job training and distance training.

2. Individual refers to personal development through a learning activity within the theme of education. This education assists personnel in learning and preparing for their desired future careers. Consequently, they can get ready for future jobs or new positions and be progressive in their job positions.

3. Organization Development refers to a better performance and sustainable growth of organizations. The concept of Human Resource Development focusing on organizations is utilized for assisting them to prepare for any circumstance. Nadler (1970) used the words Organization Development and Development for explaining the

phrase Individual Development. The definition of Individual Development states that it is an arrangement of individual's learning activities, training and education. Thus, Development in this definition refers to personal development that does not only emphasize present and future careers but also learning for general advancement. Examples of these advancements are knowledge, skills, attitudes reflecting individual wisdom and proficiencies both at work and in private life.

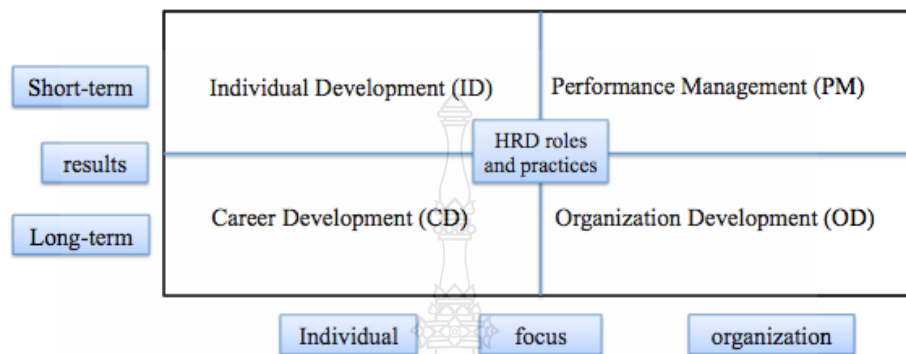
Gilley, Egglund, & Maycunich Gilley (1989, 2002) proposed a HRD concept with three main parts which overlap. The first part is Individual Development covering Nadler's (1970) concepts of development through education, training and self-learning in various ways. The second part is Career Development, which emphasizes personal advancement in a long-term career. The last part is Organization Development, which emphasizes the development and adaptation processes of an organization. These processes can assist the organization in coping up with both internal and external transformation. This notion conforms to Nadler's concepts as can be viewed from the following figure 2.2.



**Figure 2.2** (Gilley et al., 1989) Concepts of HRD Model

Consequently, in 2002, a concept that included Career Development for an entire organization was proposed. The concept was termed Performance Management to be utilized for increasing overall efficiency of personnel performance over time. Gilley et al. (2002) further added roles and practices that covered both short and

long-term contributions. These roles and practices emphasized four dimensions of both the individual and the organization. Gilley et al., in 1989, further added one dimension based on three proposed components, as can be viewed in figure 2.3.



**Figure 2.3** Human Resource Development Model (Gilley et al., 2002)

Raymond A. Noe, (2002, 2005, 2010) studied several scholars' proposals and summarized four approaches for Individual Development: Formal Education, Assessment, Job Experience and Interpersonal Relationships. These approaches were explained as follows:

1. Formal Education refers to an arrangement for formal education for personnel. This formal education includes projects held in both internal and external organizations as well as short and long-term projects proposed by advisors or institutes. The projects relating to the arrangements for formal education are held for all levels of employees; however, most of these projects are for those at executive levels. An example is a leadership development course. Many organizations give priority to their own courses since the objectives of the courses are designed for specific business needs and the organizations' specific assessment tools. Furthermore, managers at all levels are comfortable to participate. Popular topics included in an executive development course are how to create a vision, how to be the customers' champion, how to manage diversity and skills for management. In fact, some organizations resort to an approach of sending their employees to learn in outside institutes, supporting their tuition fees.

2. Assessment refers to a gathering of data and information, including feedback for the assesses. Thus, they can recognize and understand their behavior, types of communication, personal values and skills. There are various assessment methods. The popular ones used in many organizations are as follows:

The assessment center refers to a process where many assessors cooperatively assess employees' performance through a variety of practices. The assessment center is likely to hold outside institutes. For instance, it may be held in an auditorium where employees are assessed according to various ways. Many assessors cooperatively assess each individual in order to compare each assessment result. Examples of assessment methods may include role-play assignments and an assignment to categorize different types of documents in a given basket. The intention of these assignments is to test the individual's management competencies. The main purposes of using an assessment center consist of the selection of a proper person by considering all the results and to support him or her to become an executive. Another purpose is to use the assessment results for setting HRD requirements that conform to individual needs.

Benchmark is a tool designed for measuring factors that are significant to an achievement measurement. The achievement is measured through research and an assessment. Practices or standard models used for an assessment must be successfully tested models known as "best practices".

Performance appraisals and 360-degree feedback systems: Performance appraisals are various: performance ratings, work behaviors rating, rankings of leadership personalities or rankings of characters enhancing work success. Superiors might conduct Performance Appraisals of subordinates as in the past. However, such ways are now not considered to be all-around appraisals. As a result, the notion of subordinates doing performance appraisals of their superiors was proposed and 360-degree feedback system has been developed to achieve performance appraisals that include every perspective. In this process, personnel carry out performance appraisals by themselves. Meanwhile, superiors, subordinates, customers and colleagues do performance appraisals conjointly by utilizing an agreed standard form in order to achieve an all-around perspective.

3. Job experience refers to relationships, problems, demands, tasks and other features that employees experience in their jobs (Noe, 2010: 364). To develop personnel by accumulating details of their knowledge, skills, experiences and attitudes from job experiences follows Noe's proposed concept, called Job Enlargement or an extension of work boundary. Job enlargement can be done by adding challenging tasks and new responsibilities. For example, Job rotation refers to the employees' arrangement of various responsibilities in organizations or similar divisions. Accordingly, they can understand more about the work environment, work conditions, the thinking and work processes of different divisions. These understandings, consequently, can advantage personnel for coordination. Equally important, job rotation builds personnel's readiness for job development and reduces the organization's expenses due to insufficient personnel. Insufficient personnel can be solved by the job rotation since it can assist employees to enhance their knowledge, skill and job experiences. An effective job rotation can be linked to development and training, which all levels of employees can utilize. Promotions, transfers, temporary assignments and downward movement: Promotions refer to more challenging assignments, authority, duties, responsibilities, usually with higher compensation. Transfers refer to a self-expansion for working in other institutes; however, the responsibilities are still the same. Nevertheless, transfers differ from job rotation. To clarify, job rotation focuses on employees' rotation for training to do various types of work within the same institute. Temporary assignments refer to special assignments or assignments of temporary work, projects or voluntary duties. An example of a temporary assignment would be external secondment, whereby employees are transferred to other institutes but they still retain the position in their former institutes. This process of assignment can assist personnel in learning from their work performance and developing through their job experiences. This process is more advantageous than disadvantageous to employees, with a key disadvantage of the temporary assignment being a feeling of disquiet around the change.

4. Interpersonal relationships: An approach for Individual Development is to utilize the members of organizations who have higher experiences for enhancing relationship skills. This approach can more effectively assist personnel in developing their knowledge, skills and understanding of customers. Raymond A. Noe, (2010)



proposed two methods:

(1) Mentoring: a mentor refers to a person who has more experience, makes outstanding contributions and has higher seniority. A senior is responsible for providing advice to a person who has less job experience and lower seniority. A junior who receives advice is called "a mentee" or "a protégé". Generally, this development approach is informal depending on the mentor and mentee's interests and personal values. However, there is research with a hypothesis and recommendation on the corresponding characteristics between mentors and protégés. In other words, employees who are enthusiastic, mature and well-adjusted, and who devote themselves to success tend to require mentors who have similar characteristics (Turban, and Dougherty, 1994 cited in Noe, 2010:371). Nonetheless, the arrangement of relationship systems in a mentoring system can be a part of an organizational development plan or policy. Thus, the mentoring system arrangement will be formal. Noe (2010) provided characteristics of a development project via formal mentoring system as follows:

- Both the mentor and the protégé are willing to participate in the development. The development might be terminable without reproach or punishment.
- A relationship between a mentor and a protégé can be accessible through various informal ways.
- Typically, a mentor has been selected because of his or her experience in developing other people. Besides experience, a mentor has been selected because of his or her mentoring intentions of assisting other people. The mentor must have skills in communication, work training and profound listening.
- A matching of a mentor and a protégé is based on their coordination in achieving both of their goals.
- In a formal mentoring system, objectives and meeting sessions must be explicitly set out.
- When the operation is completed, the assessment will also be completed for measuring achievement.
- When achieving the goals, reward will be given in order to present the value of the mentoring system.

The advantage of developing a relationship via a mentoring system is that both mentors and protégés receive benefits in both career and psychological development. For instance, the mentor is responsible for assisting a protégé through coaching and providing career advice. Furthermore, the mentor must be a model for a protégé, a support when the protégé requires advice, encouraging him or her. A mentoring system is part of a process of sharing and exchanging personnel's internal knowledge. It is one way to assist organizations to maintain proficient personnel.

(2) Coaching: coach refers to a colleague or chief who works with employees and uses a motivating method to support and strengthen employees. The coach will give feedback to employees in order to assist them in developing their skills, knowledge and proficiencies in their work (Noe, 2010: 375). Coaching is a process aiming to solve work-related difficulties and develop employees simultaneously. Coaching can help develop a good relationship between a coach and a coachee both in psychology and challenge. This challenge can push forward the performance of both in each session. Coaching is begun with a step of preparation. Thereafter, it continues with steps of discussion, orientation, coaching and follow-up, respectively. In a relationship of performance appraisal, individual assessment or a 360-degree feedback system will be used. Most coaching activities are held in the coachee or apprentice's first job session, which takes approximately seven to twelve months (Noe, 2010: 376). Coaching benefits a coach in leadership development, communication development, stimulation and motivation. Likewise, it benefits a coachee in learning, confidence building and accumulating relationship skills in the first session of work training or work performance (371-378).

Jeffrey H. Greenhaus (1987, cited in Ivancevich, 2010) defined a career as a form of job experience involving positions, duties, authorities for the determination of activities conducted during an individual's working life expectancy (436).

John M. Ivancevich, (2010) outlines a general definition of a career as a job promotion that an individual has already selected for gaining a higher salary, responsibilities and authority concurrently (435).

Gutter and Otte (1993, cited in Gilley, et al. 2002) proposed models of career development as follows: organizational career development, career planning and career management (59-60).

Organizational career development refers to an outcome of the interaction between employees and the organization through career planning.

Career planning is a distribution procedure for stimulating self-awareness, identifying opportunities, obstacles, and alternatives as well as ranking the job growth. Incidentally, it is a process involving objectives set for future careers, operating activities and educational management. Additionally, it involves the enhancement of the experience for the development following directions, times and procedures of career advancement.

Career management is a process that is the continuation of personnel's preparation or assistance for self-understanding of strengths, weaknesses, interests and individual values. In fact, it is a process utilizing career planning for work performance. Furthermore, it involves a concurrent follow-up of the career planning and the organization's career management system. With a view to career management, it involves a process of recruitment and selection as well as human resource allocation within various divisions. In addition, it involves performance appraisals, as well as training and development in accordance within appropriate conditions and time. Career stages (Noe, 2010) were divided into four sessions or stages:

1. Exploration stage: at the first session, the individual explores an interesting career. Elements answering the question "How long will we require exploring this career?" are varied: our interests, job descriptions, values, preferences, and colleagues. Personnel under 30 years old are considered to be in this exploration stage. It takes two years for the exploration through the probation. A short-term employee is called "an apprentice".

2. Establishment stage: the individual regularly searches for a proper workplace where he or she can devote himself or herself completely. In fact, the workplace must facilitate a person to get a job promotion, job stability, self-development skill and appropriate returns on responsibilities, duties and expenses. Moreover, the workplace must conform to an individual's lifestyle, organizational

circumstances as well as colleagues. It takes two to ten years for this stage. Personnel whose ages are between 30 and 45 years old are considered to be in this establishment stage.

3. Maintenance stage: this stage involves skills development and maintenance for other institutes' acceptance. By this stage, personnel's experience has been knowledge and skills accumulation for ten years. Personnel whose ages are between 45 and 60 years are considered to be in this maintenance stage. A status of personnel in this stage is as a mentor.

4. Disengagement: the final stage of working in an institute is retirement when personnel must separate from the organization. Personnel who are more than 60 years old are considered to be in this disengagement stage. However, due to their full knowledge, skills and experiences, personnel at this stage can assist others by providing advice and support.

With a view to Career anchors, Schein proposed eight indicators or clues, which the individual utilizes for a career selection (Schein, 1978; 1990 cited in Gilley et al., 2002: 61; Delahaye, 2005: 161). These indicators are the motives for individual career selection along with career development, which are called "Career anchors". In other words, these indicators are compared to the anchors that the individual casts in the ocean of life when that person finds a suitable career for settlement or anchorage. There are eight indicators as follows:

1. Managerial competence: if a person has administration and management skills, the career development must emphasize continuous assignments of higher responsibilities.

2. Technical/Functional competence: career development for a person who has the technical skill must focus on assignments corresponding to his or her technical skill.

3. Security and stability: a person who is keen on security and stability, his or her career development must emphasize honor, stable income and assurance.

4. Pure challenge: for a person who is fond of a challenge, career development must focus on challenging tasks, current and challenging problems.

5. Autonomy and independence: career development for an independent person must involve self-authority, self-responsibility and self-determination.

6. Lifestyle integration: simultaneous job and lifestyle growth is a strategy for career development in this group.

7. Service/Dedication: career development for this group involves meeting new people and being serviceable to institutes, society and new people.

8. Entrepreneurship/Creativity: career development for a person, who has the soul, imagination and accountability of an entrepreneur, entertains an assignment of a full responsibility in that proprietorship.

Warren Bennis (1969, cited in McLean, 2006) defined Organizational Development (OD) as a response to change by providing an approach strategy. OD is compared to a complex learning strategy for changing organizational beliefs, attitudes, values and structures. It assists in the adaptation of better models regarding technologies, marketing and new challenges. Additionally, it assists in ordinary organizational transformation such as beliefs, attitudes, values and structures. Consequently, OD has been studied and gathered in Edgar Schein's model of organizational culture and leadership (1980 cited in McLean, 2006:7). According to this 1980 model of organizational culture and leadership, when OD is in a context of the organization, the OD transformation process can occur on many levels and in several sections. Transformation is easy or difficult depending on the remainders. In this case, each section depends the other. Nevertheless, it is independent and has its own settlement as well as a particularity.

Cumming and Worley (2005:1, cited in McLean, 2006) described Organizational Development as a system that features extensive application. This system utilizes behavioral science knowledge for creating strategic transformation and systematic improvement. Moreover, this knowledge creates reinforcement tactics for restructuring and systematic improvement. Due to this utilization, the organization can achieve its goals effectively.

McLean (2006) applied his international HRD definition to define Organizational Development (OD) as a process or any activities based on behavioral science with short and long-term purposes. This process accumulates or enhances

knowledge, capacities, productivities, preferences, incomes, relationship skill and expected outcomes. It is a process for individuals, groups, organizations, communities, nations, religions or, at its highest purpose, for humankind (McLean, 2006:9). According to Egan (2002), ten groups of dependent variables or OD expected outcomes can be categorized as follows:

1. To advance organizational renewal
2. To engage organization culture change
3. To enhance profitability competitiveness
4. To ensure the health and well-being of organizations and employees
5. To facilitate learning and development
6. To improve problem-solving
7. To increase effectiveness
8. To initiate and/or to manage change
9. To strengthen system and process improvement
10. To support adaptation for a change

To sum up, OD is one of HRD missions that expects a long-term outcome and indicates what is of importance for the organization.

The main aims of OD are to enhance organizational effectiveness and increase effective contributions. Additionally, its main targets are to produce organizational efficiency, well-being as well as cooperation. Thus, organizational efficiency improvement requires better approaches for production and service. Moreover, it requires the improvement of communication within the organization, work performance, an educational system, compensation and a reward system. In addition, organizational efficiency requires the improvement of the designs for all work systems of the organization (Gilley, and Maycunich, 2000b, cited in Gilley et al., 2002:141).

A popular approach to organizational efficiency improvement is Re-engineering, which requires a revision of work systems and all other organizational sections. Furthermore, the improvement of an organization's health or organizational strengthening refers to the improvement that enhances personnel's spirits and morale along with boosting their creativity. In addition, it includes the improvement that supports personnel's innovation and creates their positive work environment.

Organizational wellness is an outgrowth of a good relationship between employees and the organization.

Neilsen (1984, cited in Gilley et al., 2002) studied the main objectives of OD for building organizational collaboration within many dimensions as follows:

1. The structure and policy that facilitates understanding of the mission statement and the organizational aims.

2. A compensation and reward system that emphasizes group's contributions as well as individual exertion.

3. A measurement and assessment system that is compared to a meter that assists in improving contributions and productivities instead of being only a scale for measuring contributions.

4. A HRD process that emphasizes participation in searching for desired future careers. This process is based on the organization's future requirements along with a survey on employees' present and future performance levels corresponding to the organization.

OD observation is an activity or project involving nonstop interaction amongst many divisions in an organization (Burke, 1992, cited in Gilley et al., 2002:142). In general, the goals of OD are undetermined for a management division; however, they may be determined beforehand to assist a management division to achieve specific targets. To clarify, OD will assist the organization by presenting precise information in order to improve organizational status that links and relates to different cultures, the environment or fosters a contributions system for the organization (Kotter, 1992, cited in Gilley et al., 2002:142). Therefore, it is assumed that OD assists organizational leaders to make a strategic decision based on an investigation of the organization's present status. In addition, it assists management to predict explicit future consequences.

Gary N. McLean (2006) responded to questions of why and when an organization decides to utilize OD for organizational improvement. He argued that OD is an extensive field, not a tool or technical approach to be utilized by a group of OD practitioners. Therefore, McLean suggests various circumstances when OD could be utilized.

1. A circumstance when it is necessary for the organization to develop or further add its vision and mission.
2. A circumstance when it is necessary for the organization to manage appropriate structures and duties, and to set the shared aims for facilitating everyone to cooperate appropriately.
3. A circumstance when it is necessary for the organization to set up a strategic planning for directing a future of the organization.
4. A circumstance when it is necessary for the organization to resolve a conflict at any level.
5. A circumstance when it is necessary for the organization to intervene in any system. This intervention occurs since the organization requires the improvement of a work process or a work procedure in order to follow a master plan continuously.
6. A circumstance when it is necessary for the organization to build strong collaboration, which leads to its efficiency and effectiveness.
7. A circumstance when it is necessary for the organization to create a compensation and reward system that corresponds to organizational goals.
8. A circumstance when it is necessary for the organization to set policies, a work process and a work procedure for on-going improvement of the organization.
9. A circumstance when it is necessary for the organization to assess or survey the environment, its strengths and weaknesses in order to develop and improve the organization.
10. A circumstance when it is necessary for the organization to assist employees and low-level managers who require mentors and coaches to better their performance.
11. A circumstance when it is necessary for the organization to create an individual feedback system in accordance with appropriate occasions for assisting in the self-improvement of employees.

McLean (2006) contended that OD is a field driven by values and humanism (27). The OD Network recapitulated the OD practical principles which held that OD is an attempt at systematic and methodical change. This transformation utilizes



organizational theory and behavioral science including the knowledge and skills to assist the organization and its sub-systems. The intention of this utilization is to assist the organization in adapting to a sustainable existence. Apart from the practical side of OD, activities called “interventions” are derived from the utilization of core OD principles and values.

McLean (2006) explained the main values set by OD with the intention of using them as conceptual frameworks and driving the practical activities forward. Factors that OD practitioners must realize and adhere to are:

1. Respect and Inclusion
2. Collaboration
3. Authenticity
4. Self-awareness
5. Empowerment
6. Democracy and Social Justice

Apart from the aforementioned core values, OD integrates many significant principles for achieving the following goals:

1. OD has been supported by theories.
2. OD is systematic.
3. OD is practical action research.
4. OD emphasizes a process.
5. OD uses a database for determination.
6. OD gives priority to customers.

Gilley et al. (2002) references various OD values:

1. OD gives opportunities to employees for promoting the dignity of the human being instead of being one of the resources in a production.
2. OD gives opportunities to the organization’s members as well as the organization itself in order to develop and enhance to its highest potential.
3. OD enhances the effectiveness of the organization through the successful utilization of strategic aims and objectives.
4. OD creates a positive and challenging work environment for employees.

5. OD assists employees and executives to have opportunities to set and find their own work environments.

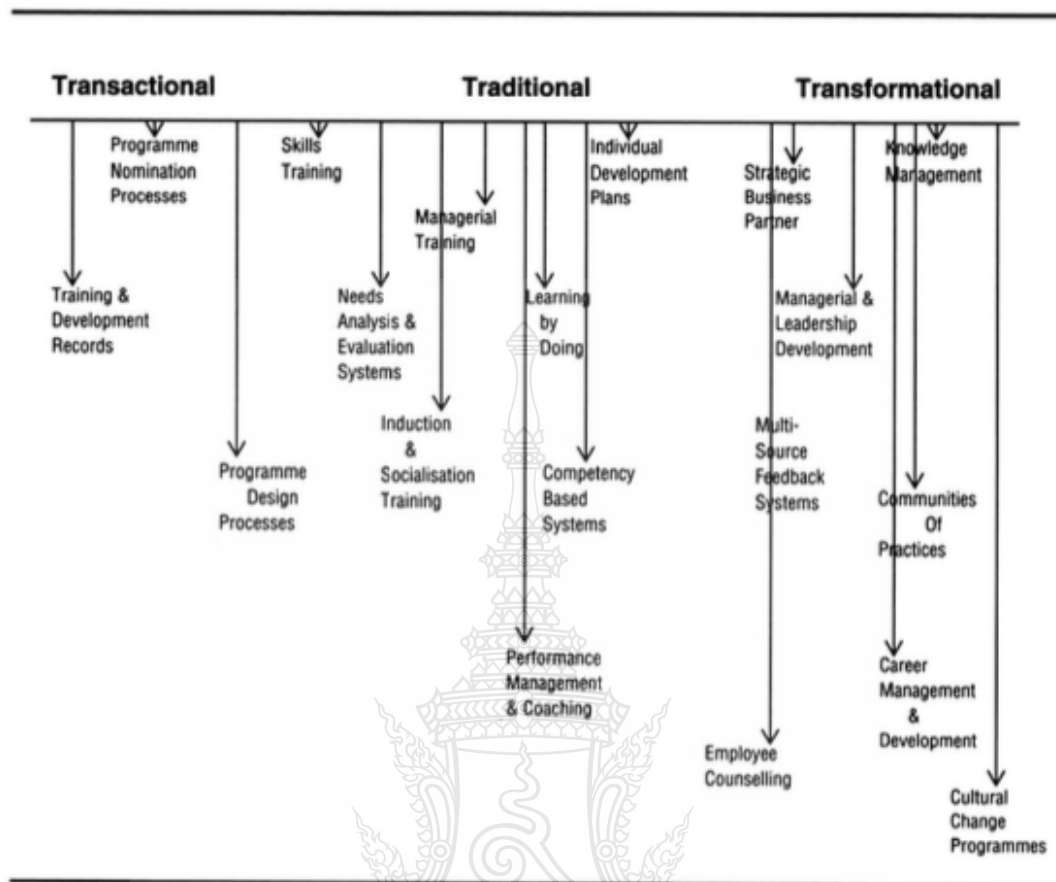
6. OD supports every employee to be treated humanely. This issue is complicated in terms of values and beliefs, including priorities both at work and in private life.

Lepak (2005) develop a framework for three roles in HRD practices: transactional, traditional, and transformational that shown fourteen activities of HRD into three domains and emphasized.



**Figure 2.4** Categorization of HR Activities Adapted from Carrig (1997) Cited in Lepak, Bartol, and Erhardt (2005).

Garavan (2007) suggested a new model of strategic HRD which extends the original model of SHRD that contains nine key characteristics of SHRD that the new model focus on the four-level context of SHRD: (1) The Global Environment; (2) Strategy, structure, culture, and Leadership; (3) Job value and uniqueness; and (4) Individual Expectation, Employability, and Career that shown nineteen activities of HRD into three domains and emphasized (see in figure 2.7).



**Figure 2.5** Categorization of SHRD Activities Based on Ideas by Carrig (1997) Cited in Garavan (2007)

## 2.2 Continuous Improvement (CI)

Continuous Improvement (CI) is a concept that is efficiently utilized in administration and management. This notion emphasizes the participation of each employee to search for a new approach in order to regularly enhance work performance as well as the work environment. The keys to Kaizen are to maintain the good and to develop it continuously.

Gao (2011, p.12) Continuous Improvement (CI), or “Kaizen” in the Japanese language. The significance of the Kaizen process is to utilize employees’ knowledge and capacities in performance improvement through a use of minimal investment. In this case, a minimal improvement increases gradually and continuously. However, the Kaizen process is in contrast to innovation. To clarify, innovation is a significant change

that utilizes highly complex technologies including massive investment funds. Thus, no matter what economic circumstances are, Kaizen can be utilized for improvement.

The Kaizen philosophy of continuous incremental improvement is originally a Japanese management concept including elements such as quality, effort, involvement of all employees, willingness to change, and communication (Imai, 1986). This philosophy aligns with the mission of the university, which focuses on a community of learning. The Kaizen philosophy focuses on improving processes through incremental change, as opposed to transformational change. This action research study does not use the Kaizen model of change; however, the Kaizen philosophy of incremental change to improve processes underline the collaborative effort to revise the program review of the Bachelor of Arts in Human Resources degree. This program review process engages the institution in a level of active inquiry that shifts the organization's focus from blaming other stakeholders to the development of action strategies that address the areas of concern simultaneously maximizing the strengths of the program.

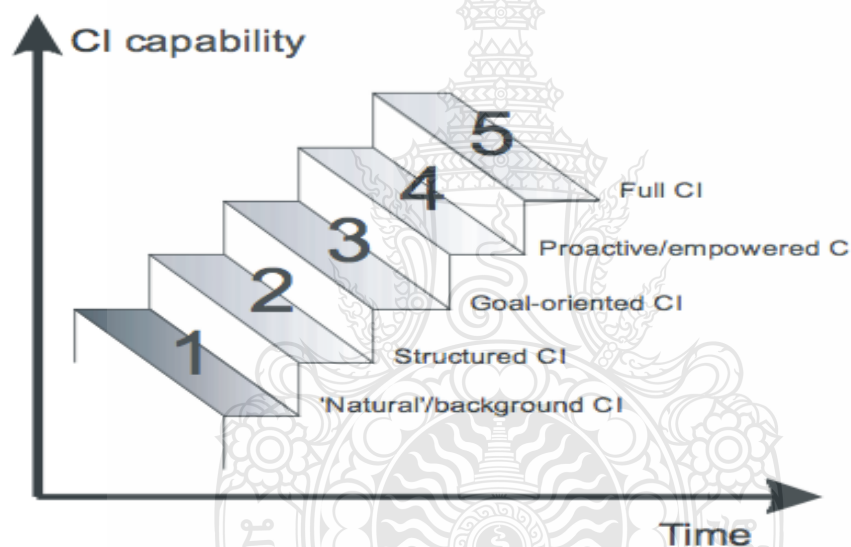
The CI maturity model is a powerful framework for evaluating the usefulness of CI implementation and demonstrating the different levels of CI maturity. This model asserts five CI capability levels at five different stages described by a linear process of CI capability development (see Figure 2.8). Additionally, the value of the CI maturity model is also determined by a series of suggested routine behaviors needed to successfully implement CI context of full CI abilities, which are the characteristics needed by companies to develop CI capability. This study adopted the five state of full CI abilities associated with all CI behaviors in the CI maturity model to investigate the relationship among HRD practices, CI abilities, and Employee performance.

Jorgensen et al. (2006, p.329) The five stages of maturity in the CI Model (based on Bessant & Caffyn, 1997; Caffyn, 1999) includes: 1) 'Natural'/background CI. There is no formal CI structure, problem-solving is random, and the dominant mode of problem-solving is by specialists; 2) Structured CI. There are formal attempts to create and sustain CI, and a formal problem-solving process is used, supported by basic CI tools. CI is often parallel to operations; 3) Goal-oriented CI. All of stage 2, plus formal deployment of strategic goals and monitoring and measurement of CI against these goals; 4) Proactive/empowered CI. All of stage 3, plus the responsibility for CI is

devolved to the problem-solving units; and 5) Full CI capability—the learning organization. CI has become a dominant way of life, involving everyone in the organization. Learning is automatically captured and shared.

In figure 1, Level 1: Natural/background CI: There isn't a consistent, professional standard for problem-solving within the workplace. There is a lack of formal support. Management typically controls the solutions. Employees are not solution-based when confronted with problems. Level 2: Structured CI: The CI initiative begins. The industry is implementing new structures and patterns to allow the staff to participate in the problem-solving process. The staff is becoming more aware of how to function within the company as they are trained with CI tools. Level 3: Goal-oriented CI: As the company implements more of the CI model, formal development helps create a stronger company within. During this stage, goals, behavior and concerns are addressed. An approach to stabilize and create solutions toward these goals is established and maintained. Staff are encouraged to participate in activities that strengthen their problem-solving abilities. Level 4: Proactive/empowered: As the staff becomes more integrated in the new system, they are encouraged to have more independence as more responsibilities are delegated. Management allows staff to work through problems within groups or individually as a means to share authority, thus empowering each employee. This level allows experimentation to form as a means to create experience through trial and error. Level 5: Full CI: After the goals and behavioral standards are established and the staff is aware of how to function with independence, the CI model has been fully implemented and the company will begin to see major positive results. Experimentation still occurs as a way for employees to practice their autonomy. Employees are trained to have an automatic response in solving problems. They can function without the control of management. Given this much responsibility, employees are held to high ethical standards and should practice integrity throughout each decision-making process. Companies can build more trust within their staff; therefore, work performance and ethics will improve. Continuous Improvement ability has to be used many times to achieve full CI benefits in organization. When the organization use Continuous Improvement strategy then the employees' behavior become routine that the organization during becomes organization

learning such as 1. People learn from their experiences; both positive and negative. 2. Individuals seek out opportunities for learning; personal development (e.g. actively experiment, set their own learning objectives) 3. Individual and groups at all levels share (make available) their learning from all work experiences. 4. The organization articulates and consolidates (captures and shares) the learning of individuals and groups. 5. Managers accept and where necessary, act on all the learning that takes place. 6. People and team ensure that their learning is captured by making use of the mechanisms provided for doing so. 7. Designated individual(s) use organizational mechanisms to deploy the learning that is captured across the organization.



**Figure 2.6** The five Stages of Maturity in the CI Model (based on Bessant & Caffyn, 1997; Caffyn, 1999) Source: Jorgensen, Boer & Laugen, 2006.

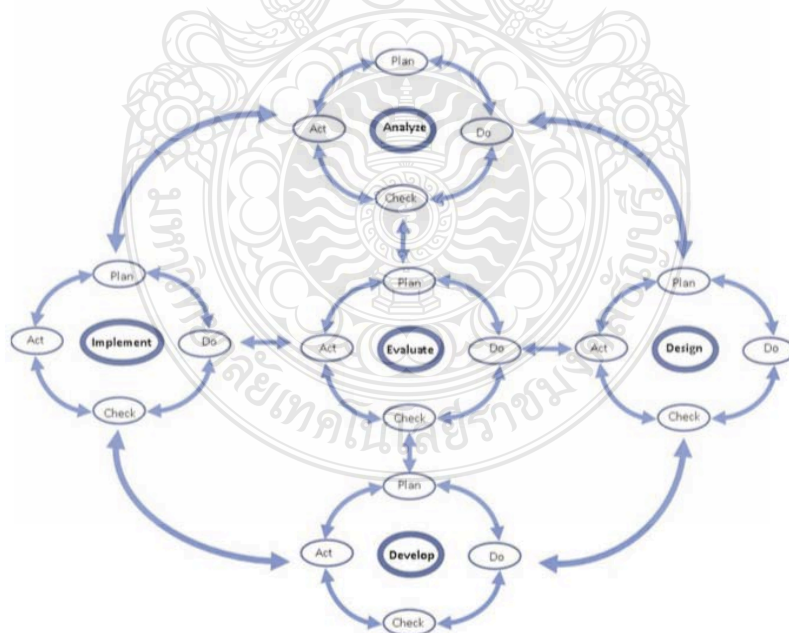
This model assumes that the development of CI in an organization follows a linear trajectory a transition from one level to the next occurs only after all of the behaviors associated with the lower level have been practiced. Consequently, for CI to be successfully implemented, behavioral routines that represent organizational abilities have to be accumulated. This assumption of linearity has been demonstrated to be inaccurate in several studies (e.g., Jørgensen, 2003; Rijnders, 2002; Savolainen, 1999). However, Jorgensen et al. (2006) also found that all of the CI capabilities are not

equally weighted in relation to the development of CI maturity, and concluded that CI maturity need not necessarily follow a linear progression in order to positively impact performance. Consequently, she suggested that the goal of the individual company could ostensibly be used to determine where CI development effort should be targeted (Jorgensen, Boer & Laugen, 2006). Therefore, this study focused on identifying the types of CI abilities that are better associated with HRD practices and Performance Improvement, rather than discussing whether CI abilities equally contribute to Performance Improvement.

Marco (2015) states Total Quality Management (TQM) is, "the continuous improvement of work processes to enhance the organization's ability to deliver high-quality products or services in a cost-effective manner," (Spector and Beer, 1994 cited in Marco and others, 2015). Continuous improvement is the ongoing improvement of products, programs, services, or processes (Blazey, 2006). CI helps TQM improve their standards by guiding them through the upgrade process. CI is always assessing how to further create quality within the workplace. TQM benefits from CI as it helps TQM to stay organized and supported. TQM's guidelines regarding the treatment of employees and maintenance of the work environment directly correlate to the employee's output and quality of work. Team work, proper support and respect are all important for employees' well-being. CI helps with employee growth and participation, as well as distribution of responsibilities. The studies suggest that CI improved the working environment and therefore the quality and output of product (Baird et al., 2011; de Menezes, 2012; Lagrosen and Lagrosen, 2005). Employees feel happier and more relaxed when working in an environment that supports their learning and growth. CI helps management teams operate more smoothly through structural guidelines. CI helps management connect more easily with the employees to create good relationships and safe conditions for all. Employees and managers both benefit from this. If everyone is focused on the same goal or outcome, the company will be strong and powerful.

Baker (2012) suggested one of the most widely used continuous improvement tools is the four-step quality model known as the PDCA cycle – Plan – Do – Check - Act. In the first step, Plan, businesses find a process to improve, define the problem with the process, and develop solutions. In step 2, Do, the business implements a

solution identified in step 1 and tests the change. In step 3, Check, the business reviews the tested change, analyzes the results, and identifies what it has learned. In step 4, Act, the business takes action based on what it learned in step 3. However, if the change did not work, the cycle begins again. Instructional Design and Technology is a rapidly growing field focus on teaching and learning. Gustafson and Branch (2007, p. 11) described instructional design as a “systematic process that is employed to develop education and training programs in a consistent and reliable fashion.” For example, the “ADDIE” model is the generic model representing the basic functions of the systemic design model. The ADDIE model uses the following: analysis of learners and needs, design of the instructional strategy and instructional methodology, development of the instructional content, implementation of the instructional intervention, and evaluation of the learning outcomes and instructional effectiveness. The important parts of this instructional development model are enhanced when the PDCA cycle of continuous improvement is incorporated. Learning needs are determined from the results of gap analyses and needs assessments; solutions for this gap come from a cyclical evaluation. Figure 2.9 show each of the elements of the instructional design model using the PDCA.



**Figure 2.7** Core Elements of Instructional Development, Adapted using Continuous Improvement Cycle. Source: Baker, Chow, Woodford & Maes (2012).



Organizations, focusing on continuous improvement, should consider incorporating the models and methods of IDT. These models and methods can give the next step into the improvement of organizational training program development. In order to give top quality training to the employees of any organization, an advance practice of having SMEs design, develop, conduct, facilitate and evaluate training needs to happen. Most organizations need the training and development of employees to survive long-term.

### **2.2.1 Learning Organization and Continuous Improvement**

Senge (1990) believed that the core establishment of the learning organization is based on five disciplines. These disciplines can result in a form of a continuous performance approach for all level of individuals, working teams and the organization. Senge defined “The Learning Organization” as an organization where people enhance their capabilities in order to create contributions that influence a future.

The term “Disciplines” refers to techniques that require habitual consideration and learning. Disciplines are utilized as the development approaches for skills or capabilities enhancement through performance as well as creative seeking for the new. The five disciplines consist of Personal Mastery, Mental Models, Shared Vision, Team Learning and Systematic Thinking, respectively.

#### **2.2.1.1 The First Discipline: Personal Mastery**

The learning organization will be established only if a person has knowledge acquisition. Self-training via habitual learning is a significant fundamental for the competency enhancement to be more proficient. Mastery is a totality of skills and competencies. It is based on a reality that influences a realization of what is significant to the organization and to us as well as what a possible vision is.

#### **2.2.1.2 The Second Discipline: Mental Models**

Mental Models consist of assumptions, beliefs and conclusions or images that are crystallized in the thoughts of an influential person concerning the understanding of the world. Additionally, these elements affect behaviors, values, and attitudes towards individuals, every aspect and every circumstance. The roles of the second discipline are to train us for understanding and differentiating between what we believe and how we perform. Furthermore, it trains us to explore our thoughts and

beliefs. Besides, their roles are to challenge us, to extend the limit and process of our thoughts, and to understand others' perspectives and thoughts.

Senge (1990) believed that individual thoughts, beliefs, and mental models are defective. As a result, it is necessary for an individual to integrate the second discipline to the fifth discipline, a systematic thinking, in order to gain the highest usefulness. Executives should integrate their mental models with a practice of strategic and systematic thinking by focusing on a whole picture and the connections of sub-elements.

An organization must set the stages that reflect a community of practice. The purpose of these stages is to open opportunities for shared learning. The illustrations of the stages are an informal learning network, opinion sharing, a meeting along the way, storytelling and experience sharing. Other illustrations are the techniques for holding a conference, new approaches for work performance, and information exchange for shared understanding. Therefore, the learning organization can be improved through the utilization of mental models.

#### 2.2.1.3 The Third Discipline: Shared Vision

An organizational vision or a future image is necessary for every leader. It is a power to drive every organizational mission to the same goal. It is a center and power of learning for the organization members. Initially, leaders must develop their personal visions from personal values, attention, priority, and realization. Thereafter, they can sell the dream by thinking aloud and sharing with others through communication or persuasion. Therefore, others can realize, understand and comply with them. This method of communication is called "walk the talk", which involves a vitalization of speech or pictures. This method can contribute to a shared vision that shares with related people at all level of the organization. These related people are persuaded to work cooperatively in the direction of turning vision into action. Additionally, they are persuaded to have a proactive behavior instead of waiting for a reaction.

Senge (1990) regarded this shared vision as a creation of governing ideas that guide the organization on how to think and what its aims, missions, and values are. A good vision must conform to the values that a person holds in

everyday life. Otherwise, that vision will become just words in a paper or a statement without motivation. These governing ideas answered three questions, which reflect what we believe. To clarify,

**What?** – What visions do we need to have?

**Why?** – Why do we do what we do? For what targets or missions? How can it assist a society?

**How?** – How do we make visions and missions real?

By using our honesty, sincerity, self-devotion, and endurance.

#### 2.2.1.4 The Fourth Discipline: Team Learning

How do we enhance the capability of a team to be higher than each individual's capability in the team? A team can develop competencies harmoniously. Senge (1990) held the view that exercises for building a good and worthwhile learning team can be completed through dialogue and discussion amongst the people of the organization. The organizational team that lacks improvement in the direction of shared understanding will have losses of energy, shared direction and effective cooperation. Consequently, Senge placed importance on an alignment that it is a significant condition for assisting a team or individual empowerment in terms of determining or solving any difficulties.

Senge (1990) maintained that team learning has three significant characteristics:

1. Team members should have capabilities to think and comprehend problems or main issues. In other words, two heads are better than one.
2. Team members should work cooperatively, think creatively and differently, and build mutual reliance.
3. The roles of the members of one team can affect other teams.

To clarify, while the members of one team learn continuously, their behaviors can affect other teams. This role can assist a learning organization to be more powerful.

#### 2.2.1.5 The Fifth Discipline: Systematic Thinking

Systematic thinking is a most significant discipline, which, in real life, many people, including company personnel and executives, cannot practice in order to gain the capability to think systematically or think ahead. Consequently, many

work-related difficulties arise when some people believe that their daily performance is the solution to the presenting problems and would bring about work improvement. However, this misconceived notion is due to their faulty or narrow thinking based only on situation or circumstance. For this reason, they cannot see the whole picture and a continuity or connection with every affected part of their work performance. In fact, their work performance is the accumulation of the problems that other people have to resolve. This situation demands a rigorous resolution, involving informed capacity. The term “system” (in systematic) refers to the relations of sub-systems within a major system and reflects an interdependence of sub-systems. The positive outcomes of each sub-system are less powerful than the coordination of the sub-systems. One operation of a sub-system can affect other remaining sub-systems in the whole. In this case, it can have an undesired impact on an organization’s prosperity, even contributing to its downfall, its profit and loss balance, as well as its public image, based on different situations and times.

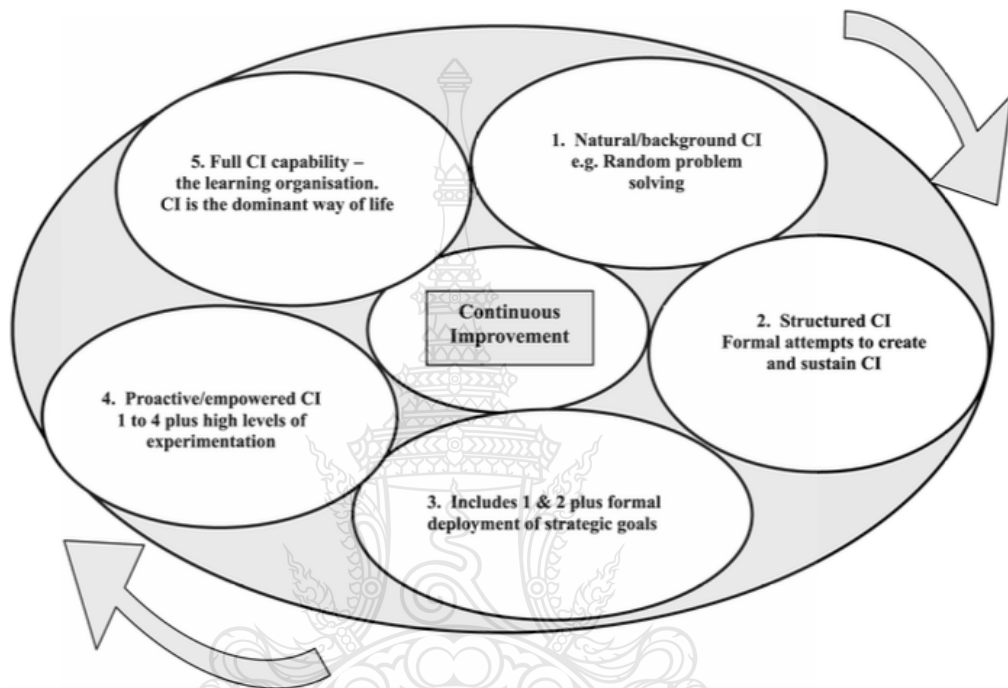
Peter and Ross (2003) suggested the continuous improvement (CI) discourse has benefited countless manufacturing enterprises to improve and adapt their methods of production that organizational learning frameworks provide useful ways of thinking about TQM and CI a more holistic process towards learning suggests that efforts to improve and develop behavioral routines will be more beneficial.

Bessant and Caffyn (1996) suggested Continuous Improvement (CI) is a strategy utilized in organizations to improve employee work performance. Many companies have already implemented this model which has proven to generate higher success rates. There's five stages of maturity for this model. The first stage is the "Natural/background CI." This beginning stage allows problem-solving techniques to be handled only by specialists.

During this stage, solutions are not implemented for longer terms. These are quick decisions with short outcomes. No formal behavioral standards or expectations are required during this stage.

Employees seek to have their problems solved by higher authority, however, outcomes may vary depending on who the employees talk to Full CI: Employees are capable of individual problem-solving. Everyone learns from their experience, good and bad. After

the goals and behavioral standards are established and the staff is aware of how to function with independence, the CI model has been fully implemented and the company will begin to see major positive results. Experimentation still occurs as a way for employees to practice their autonomy.



**Figure 2.8** Adaptive learning cycle of continuous improvement. Adapted from Bessant and Caffyn (1996) source: Perter and Ross (2003)

### **2.3 Human Resources Development (HRD) Continuous Improvement (CI) and Performance**

The Dictionary of HRD by Reynolds, Sambrook & Stewart (1993) describes “Performance Management” as a management process integrating strategic plan, performance standard, personal objectives, performance appraisal as well as training and development.

Stone (2002, cited in Delahaye, 2005) proposed the significant elements of performance management:

1. Creativity: a vision combined with strategic objectives of the organization.

2. Contribution objectives: must be set and correspond to every level from instrumentalities, duties, groups or working team to individuals.

3. Formal assessment system: utilized for verifying objectives.

4. An integration of Performance Appraisal, Individual Development and motivation system: integration aims to reward personnel in order to enhance their work-related behaviors.

Armstrong (1994: 21-22, cited in Delahaye, 2005) opines that performance management is an innovation associating the ordinary relationship-building activity of supervisors, subordinates, groups and employees. The aim of this innovation is to build a purposive interaction in terms of management. Regarding the interaction, everyone carries an expectation to understand explicit roles and duties, and he or she goes for the similar purposes. In addition, performance management is a process for enhancing continuous work performance, all associated with the compensation system.

According to Fuller and Farington (1999: 14, cited in Gilley et al., 2002), a performance management system is a performance framework that facilitates resources to be in a production system. The framework consists of the human and behaviors producing contributions, raw materials, capital, money and information. Moreover, it involves the consequences of the sequential operations or the decision-making at any level, reflection or feedback to a new system. Additionally, it associates a work environment that facilitates work performance as well as answers or solutions for work-related difficulties and obstacles of the entire system gathering as a lesson.

A Performance Improvement model was developed by Rosenberg (1992, cited in Gilley et al., 2002) and consists of five elements:

1. Performance analysis: a systematic process of searching and identifying the requirements for an organization's contributions.

2. Cause analysis: a process of understanding a cause or root of a problem. This process requires a deep analysis in order to find the real cause of the problem.

3. Intervention and implementation section: involves several work-related difficulties. Therefore, activities for solving these difficulties are varied. These

problems require knowledgeable, skillful and experienced human resource development officers to solve them.

4. Change management: a process of transformation, an overcoming of resistance, the creation of a joint vision as well as thorough communication.

5. Evaluation and measurement: a process involving follow-up after work performance and a goal attainment.

According to research by the American Society for Training and Development or ASTD in 1995, 1996 and 2000 (Rothwell, 2005), human performance improvement was described as a systematic process of searching and analyzing the contributions' gap. The purposes of this process are to plan, design, develop and improve contributions considering efficiency and worthiness of money and other factors.

Human resource development officers' roles and responsibilities regarding the performance management are to be the analysts, the HRD activity specialists, the advisers and the change catalysts. Besides these roles, other roles are to be the facilitators and activist of a transformation, the work trainers and the assessors.

When the human resource department is involved in learning about CI, this greatly benefits the organization (Hyland, Di, & Becker, 2005). The entire staff is involved in the learning process and this allows all employees to be accountable and understanding of the new guidelines. Most of the research showed that people grew exponentially on an individual level and therefore it affected the whole for the greater good. "A CI strategy—i.e. a strategy that effectively links efforts for building operational capacity with improvement and innovation capacity—would depend strongly on HRD to develop, capture, and utilize the human assets within the organization" (Hyland and Boer, 2006). It could be hypothesized that HR performance would improve with the implantation of CI in the company. However, there has been very little research conducted to support this claim. There has been on such study conducted by Jorgensen and Hyland (2007) that created a survey assessment tool with 17 items evaluated on a 4-point scale. Danish manufacturing companies served as the test subject for this project. After all the information was collected and analyzed, there was no true evidence that HRD was affected by CI. However, if a larger study was conducted with more companies scattered throughout the globe, different results may

prevail. Most people assume that HR has a direct influence on the organization's wellbeing. This could be empirically true but a different method of proving this would need to be introduced. "Using a different statistical method such as mediation analysis; and choosing more mature instruments to measure all variables, the study could be enhanced and conducted on a wider scale" (Gao, 2011). To the companies benefit, if HRD could affect the companies in the following ways if they were to be involved and show support through facilitating and supporting employee, encouraging employee participation and commitment on an individual, team, and organizational level (Jorgensen & Hyland, 2007). A Human Performance Improvement model was established to understand what areas employee improvement was needed the most. This model created "a systematic process for articulating business goals, diagnosing performance problems, recommending targeted solutions, implementing those solutions, managing cultural issues, and evaluating the intervention's success (Rothwell et al., 2000). Other studies conducted, showed how HRD had a positive effect on the finances of a company when intervention was made to solve a problem. As these studies were conducted by Swanson (1998) between the years of 1940-1970, these results did not remain consistent when tested in the 1990s. The problem suggested was the need to assess the company culture of the organization and implement changes thereafter. Performance problems would be addressed, and an end goal could be determined.

Some empirical evidence showed the need for managerial staff to have a stronger understanding and implementation of the CI abilities. Employees were able to make small changes amongst themselves, but it was discovered that the managerial staff was not a direct influence of this result. It is suggested that CI professionals create a new plan of implementation that would further motivate managerial staff. If CI professionals and managerial staff can create an improvement plan based off common goals, things could run smoother during the Competency Enhancement phase. Positive results show that employee development did improve. Reconstructing the model to enhance managerial development and participation is the next step (Gao, 2011).

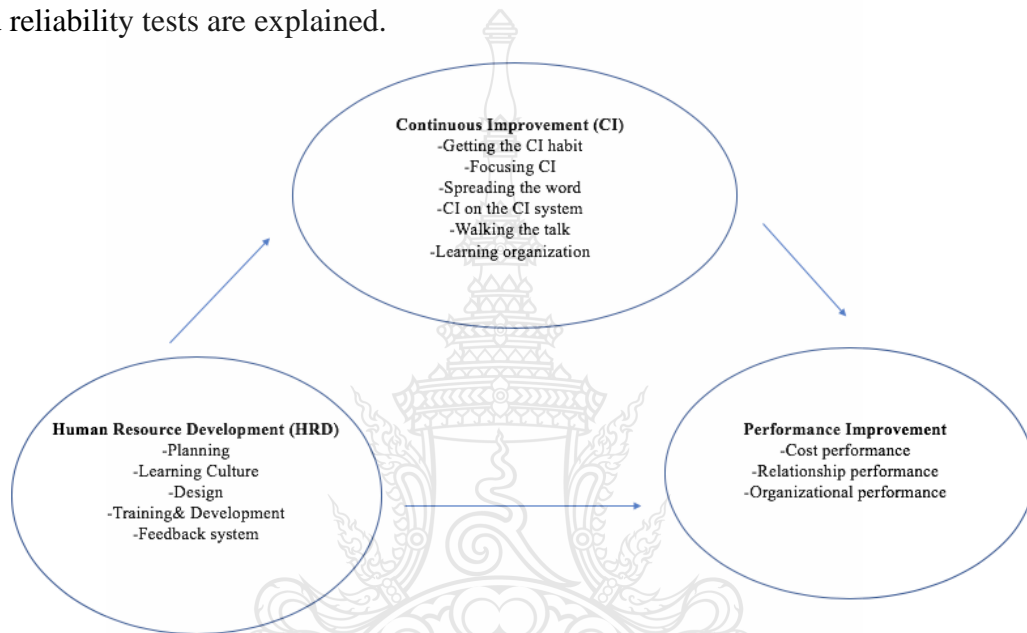


## CHAPTER 3

### RESEARCH METHODOLOGY

#### 3.1 Introduction

In this chapter, details of the research purpose and philosophical stance, research design, population and sampling, data collection and analysis methods, validity and reliability tests are explained.



**Figure 3.1** Conceptual Model

#### 3.2 Research Design and Methodology

Data sources can be divided into two types, primary and secondary, both of which are employed commonly in Human Resource Development research and Continuous Improvement. Primary data are those that have to be collected for the first time by the investigator through observation, while secondary data includes pre-existing information gathered by someone else for some other purpose. These may be internal or external to the organizations researched, in terms of where the researcher can be found. This research employs primary data collected from the steel industry to test the conceptual model.

### **3.3 Quantitative Methodology**

#### **3.3.1 Populations and Sampling**

For this study, the target population was composed of employee in steel industry. The population frame is sampled form the steel industry in Thailand. The sample size was resulting in 622 employees from the entire population of four firms of the steel producers.

These samples were divided into eight firms of steel producer. Each firm was representative of the population in each firm. The sample size was calculated according to the rule of structural equation model (SEM) which consider the number of free parameters as a rule of thumb to the determine sample size for research studios that use SEM. The suggested ratio of the sample size to the number of free parameters might be able to go as low as 10:1 under the normal and elliptical theory, especially when there are many indicators of latent variables, and the associated factor loadings are large. Though, there is even less experience on which to base a recommendation. (Bentler & Chou, 1987). The amount of the sample size required by the researcher was 622 people.

### **3.4 Research Instrumentation**

#### **3.4.1 Questionnaire Development Process**

The researcher developed a questionnaire that was designed to provide information to test relationships among the dependent variables, independent variables, mediators, and moderators based on the theoretical framework. That were included Section one Human Resource Development (HRD) comprised of twenty-four questions from 1.1 to 1.24 developed from Garavan (2007) cited in Lin Gao (2011), question two Continuous Improvement (CI) comprised of thirty-six questions from 2.1 to 2.36 developed from Bessant and Caffyn (1997) cited in Lin Gao (2011), section three Performance Improvement (PI) included three parts measured the company performance such as cost performance, relationship performance, and organizational performance that comprised of sixteen questions from 3.1 to 3.16 developed from Bessant and Caffyn (1997) cited in Lin Gao (2011), and section four openness to experience personality has two types of personality such as explorer and preserver that comprised of six questions included three positive questions and three negative

questions the positive question measure “explorer” but the negative question measure “preserver” question from 4.1 to 4.6 developed from Costa & McCrae (1992) cited in Howard and Howard (1995). All of the item ratings used a seven-point Likert-type scale (1 = Strongly Disagree to 7 = Strongly Agree).

### 3.5 Variables

Based on the original model for the categorization of HRD activities comprised of twenty-four questions from 1.1 to 1.24 which was developed by Garavan (2007) cited in Lin Gao (2011) the independent variables were defined and grouped into five factors: planning, learning culture, design, training and development and feedback system. Mediators is CI comprised of thirty-six questions from 2.1 to 2.36 that developed from Bessant and Caffyn (1997) cited in Lin Gao (2011). Dependent Variables is PI comprised of sixteen questions from 3.1 to 3.16 adopted from Caffyn (1997) cited in Lin Gao (2011).

**Table 3.1** Categorization of HRD Activities

HRD Categories	Variables
Transactional	Training & Development Records Program Nomination Processes Program Design Processes
Traditional	Skills Training Needs Analysis & Evaluation Systems Induction & Socialization Training Managerial Training Performance Management & Coaching Learning by Doing Competency Based Systems Individual Development Plans
Transformational	Employee Counseling Multi-Source Feedback Systems Strategic Business Partner Managerial & Leadership Development Career Management & Development Communities Of Practices Knowledge Management Cultural Change Programs

Source: Garavan (2007).

**Table 3.2** CI Abilities and Key Behaviors

CI Abilities	Constituent Behaviors
<p>A: Getting the CI habit: Developing the ability to generate sustained involvement in CI.</p>	<p>People make use of some formal problem finding and solving cycle. People use appropriate tools and techniques to support their improvement activities. People use measurement to shape the improvement process. People (individuals/groups) initiate and carry through to completion, improvement activities – they participate in the process. Ideas and suggestions for improvement are responded to in a clearly defined and timely fashion – either implemented or otherwise dealt with. Managers support improvement processes by allocating sufficient time, money, space and other resources. The organization recognizes in formal but not necessarily financial ways the contribution of employees to continuous improvement. Managers lead by example, becoming actively involved in the design and implementation of systematic ongoing improvement. Managers support experimentation by not punishing mistakes, but by encouraging learning from them.</p>
<p>B: Focusing CI: Generating and sustaining the ability to link CI activities to the strategic goals of the company</p>	<p>Individuals and groups use the organization’s strategy and objectives to focus and prioritize their improvement activities. Everyone understands what the company’s or their department’s strategy; goals and objectives are. Before embarking on initial investigation and before implementing a solution, individuals and groups assess the improvements they proposed against strategic objectives to ensure consistency. Individuals and groups monitor/measure the results of their improvement activity and their impact on strategic or departmental objectives. Improvement is an integral part of the individuals’ or groups’ work, not a parallel activity.</p>
<p>C: Spreading the word: Generating the ability to move CI activity across organizational boundaries.</p>	<p>Individuals and groups are effectively working across internal (vertical and lateral) and external divisions at all levels. People understand and feel ownership of the company’s processes. People are oriented towards internal and external customers in their improvement activity. Specific improvement projects are taking place with customers and/or suppliers. Relevant improvement activities involve representatives from different operational levels.</p>

**Table 3.2** CI Abilities and Key Behaviors (Cont.)

CI Abilities	Constituent Behaviors
<p>D: CI on the CI system: Generating the ability to manage strategically the development of CI.</p>	<p>Improvement activities and results are continually monitored and measured. There is a cyclical planning process whereby (a) the CI system is regularly reviewed and, if necessary, amended (single-loop learning). There is periodic review of the CI system in relation to the organization as a whole, which may lead to a major regeneration (double-loop learning). Senior management makes available sufficient resources (time, money, personnel) to support the continuing development of the company's improvement system. The individual/group responsible for designing the CI system designs it to fit within the current structure and infrastructure. Ongoing assessment ensures that the organization's processes, structure and systems consistently support and reinforce improvement activities. When a major organizational change is planned, its potential impact on the organization's improvement system is assessed and adjustments are made as necessary.</p>
<p>E: Walking the talk: Generating the ability to articulate and demonstrate CI's values</p>	<p>Managers at all levels display leadership and active commitment to ongoing improvement. When something goes wrong the natural reaction of people at all levels is to look for reasons why rather than to blame the individual(s) involved. A Continuous Improvement (CI) or equivalent formal improvement system (e.g. Total Productive Maintenance) has been introduced to involve all employees in ongoing improvement.</p>
<p>F: Building the learning organization: Generating the ability to learn through CI activity.</p>	<p>Everyone learns from their experiences, both good and bad. Individuals seek out opportunities for learning/personal development (e.g. active experimentation, setting own learning objectives). Individuals and groups at all levels share (make available) their learning from all work and improvement experiences. The organization articulates and consolidates (captures and shares) the learning of individuals and groups. Managers accept and, where necessary, act on all the learning that takes place. People and teams ensure that their learning is incorporated into the organization by making use of the mechanisms provided for that. Appropriate organizational mechanisms are used to deploy what has been learned across the organization.</p>

Bessant & Caffyn, 1997; Caffyn, 1999 cited in Gao (2011)

**Table 3.3** Performance Improvement variables

PI Categories	Variables
Speed/cost performance	Increased productivity Increased production volume Reduced cost Reduced lead times Improved delivery reliability
Relationship performance	Improved customer relations Higher customer satisfaction Improved supplier relations Improved quality conformance Improved relations between departments
Organizational performance	Improved safety and working conditions Increased employee commitment/attitude towards change Increased employee skills and competences Decreased absence Improved organization, cooperation and communication Improved administrative routines

Bessant & Caffyn, 1997; Caffyn, 1999 cited in Jorgensen, Boer & Laugen, 2006

### 3.6 Data Analysis

Since the researcher was seeking to identify the HRD practices that may influence Employee performance by better supporting CI implementation success the Mediation Model was selected as the basic model for conducting mediation analysis by employing Structure Equation Modeling (SEM). The model conceptually helped the researcher better understand the mechanism by which the independent variables influenced dependent variables through testing mediators.

The questionnaire was tested in term of content validity and reliability before collected data research sample.

#### 3.6.1 Content Validity

The content validity was assessed by-expertise including five people from the steel business. The assessment used IOC. Index of Item-objective Congruence (IOC) method to score each question according to theory, research objective, and accurate meaning. After testing each question, the result of the IOC score were used three levels included of 1 (congruent), 0 (incongruent), and -1 (moreover) which was accepted in term of the content validity. The questionnaire with the IOC score between 0.5 – 1.0 are

deemed acceptable. However, some questions were modified based on expertise's suggestion.

### 3.6.2 Reliability Testing

The reliability testing is a measurement for internal consistency of the questionnaire. The questionnaires were sent to employee in the steel industry. After receiving the questionnaires back from the research samples, data was analyzed using Cronbach's alpha to test the reliability of the questions. The test results of each questions' group were presented in Table 3.4.

**Table 3.4** Reliability Statistic

Question	Cronbach's Alpha
Part 1: Human Resource Development	.772
Part 2: Continuous Improvement	.791
Part 3: Performance Improvement	.828

In table 3.4, the Cronbach's alpha testing of Human Resource Development Continuous Improvement and Performance Improvement have testing score above .7. This indicates that the questionnaire is reliable. Measuring of model fit shown in table 3.3.

**Table 3.5** Indices for Model Assessment (Goodness-of-Fits)

Indices		Assessment	Assessment Criteria
Name	Abbreviator		
Chi-square fit index	$\chi^2$	<ul style="list-style-type: none"> <li>• Also called discrepancy or model Chi-square.</li> <li>• How it quantifies the differences between the observed and the estimated covariance matrix</li> <li>• Very sensitive on the larger sample size</li> </ul>	p value: >.05: acceptable
Relative chi-square	CMIN/DF	<ul style="list-style-type: none"> <li>• It is the chi-square fit index divided by</li> <li>• Also called normal or normed Chi-square. degrees of freedom.</li> <li>• Less dependent on sample size.</li> </ul>	<2: good fit <3: adequate fit <5: cutoff



**Table 3.5** Indices for Model Assessment (Goodness-of-Fits) (Cont.)

Indices		Assessment	Assessment Criteria
Name	Abbreviator		
Tucker Lewis Index or Non- normed fit index	TLI or NNFI	<ul style="list-style-type: none"> <li>• A relative fit index that compares the model being tested to a baseline model (null model), taking into account the degree of freedom.</li> <li>• Relatively independent on sample size.</li> </ul>	<p>&gt;.95: good fit;</p> <p>&gt;.90: adequate fit;</p>
Comparative fit index	CFI	<ul style="list-style-type: none"> <li>• The degree of fit between the hypothesized and null measurement models.</li> <li>• The least dependent on sample size</li> </ul>	<p>&gt;.95: good fit;</p> <p>&gt;.90: adequate fit;</p>

**Table 3.5** Indices for Model Assessment (Goodness-of-Fits) (Cont.)

Indices		Assessment	Assessment Criteria
Name	Abbreviator		
Root mean square error of approximation	RMSEA	<ul style="list-style-type: none"> <li>• How well a model fits a population square error of not just a sample used for estimation</li> <li>• Less dependent on sample size</li> </ul>	<.05: good fit; <.08: adequate fit <.10: cutoff;
Standardized root mean square residual	SRMR	<ul style="list-style-type: none"> <li>• Average difference between the predicted and observed variances and covariances in the model based on standardized residuals;</li> <li>• Sensitive to larger sample size or more parameters in the model.</li> </ul>	<.05: good fit; <.08: adequate fit; <.10:

### **3.7 Validity and Reliability**

#### **3.7.1 Content Validity Testing**

Content validity was used for assessing the accuracy of the questionnaire. The questionnaire was assessed by four experts in the field of the steel industry by applying the IOC method. The results from the assessment were used to adjust and improve the accuracy of each question.

#### **3.7.2 Convergent Validity Testing**

To establish Convergent Validity, SEM analysis used to assess variables, which related to factors it should theoretically be related to. In particular, the CFA Confirm Factor Analysis (CFA) was the method for testing in this study. After the CFA analysis, if variables can be arranged in the same group, they were good representatives of latent variables.

#### **3.7.3 Discriminate Validity Testing**

This is the other test which must be assessed while conducting the SEM analysis in the convergent validity test. The SEM method was used for assessing the correlation among latent variables to confirm that they indeed are good representatives of the latent variables and that they do not correlate with other latent variables.

#### **3.7.4 Reliability Testing**

The questionnaire was sent to employees included 622 people from the research population. The reliability test analyzed and selected only those with the Cronbach's alpha score above 0.7. If the score was lower than 0.7, it would be dropped out. The reliability would be tested again after receiving questionnaires. This testing is one of the requirements of the SEM analysis.

### **3.8 Sequence of Analysis**

This research uses qualitative research methodologies. The sequence of the analysis is presented as follows:

### 3.8.1 Quantitative Research

#### Pretesting

1. Content validity
2. Reliability test of 30 questionnaires to test sampling data (Cronbach's alpha)
3. Redesign questionnaire if Cronbach's alpha less than 0.7

#### Statistical Analysis

1. Descriptive statistical analysis
  - Mean, frequency
2. Reliability testing
  - Cronbach's alpha testing
3. Validity testing
  - Confirm factor analysis (convergent validity)
  - SEM method (discriminate validity)
4. Structure Equation Model testing
  - 4.1 Create model
  - 4.2 Analysis of model
  - 4.3 Measure of fit:
    - Consider  $X^2$ ,  $X^2/df$ , degree of freedom, P-Value, RMSEA, GFI
    - If model does not fit, it has to modify indices and go to analysis model again.
  - 4.4 If model fits
    - Analyze the regression weight, p-value
    - Analyze direct and indirect relationship

## **CHAPTER 4**

### **RESEARCH RESULT**

#### **4.1 Introduction**

Chapter four presented the results from the statistical analysis on the research questions, hypotheses, and data collection from 622 respondents in the steel industries in Thailand. The analysis results were divided into four parts consisting of (a) the response rate from population and sample, (b) statistical analysis in the three parts of the questionnaires including Human resource development, Continuous improvement, and employee performance of the survey respondents, (c) statistical analysis on the answers toward the research questions and hypotheses, and (d) summary. Therefore, according to the research framework used in this study which is the structural equation modeling (SEM) analysis. It was an important tool for answering the research questions. This chapter illustrated the information related to data preparation, demographic summaries, and structural equation model analysis. Finally, the results of hypothesis testing were illustrated through the structural equation model analysis.

#### **4.2 Data Preparation**

This stage directly concerned about data arrangement including data screening, editing, and data coding and entry. The details were depicted below.

##### **4.2.1 Data Screening and Editing**

In order to obtain the completed data, the following process of data gathering was conducted. The questionnaires were distributed to the target group of population that was 18,585 employees in the steel industries. The researcher received the returned 622 questionnaires.

##### **4.2.2 Data Coding and Entry**

The variables in this study had been encoded as to simplify the data processing and interpretation process. The abbreviation used for variables as shown in table 4.1.

IBM's statistical software packages were used for data analysis. SPSS Statistics version 20 was used for descriptive statistics and SPSS Amos version 23 was used for Structural Equation Model (SEM) analysis.

**Table 4.1** Abbreviation of Constructs and Observed Variables

<b>Construct Group</b>	<b>Observed variable</b>	<b>Type of variable</b>
Human resource	Planning (X1)	Independent
Development (HRD)	Learning Culture (X2)	Variable
	Design (X3)	
	Training & Development (X4)	
	Feedback System (X5)	
	Getting CI (M1)	
Continuous Improvement (CI)	Focusing CI (M2)	Mediating Variable
	Spreading (M3)	
	CI on the CI (M4)	
	Walking (M5)	
	Learning (M6)	
	Performance	
Improvement (PI)	Relationship Performance (Y2)	
	Organizational Performance (Y3)	

### 4.3 Demographic Data

Questionnaires that sent to research sample was defined the respondent are employees in the steel industry. The questions were asking about demographical which consist of six parts: gender, age, education, experience, and monthly salary. The summarized of demographic shown in table 4.2

**Table 4.2** Demographic Summary

	Frequency	Percentage
<b>Gender</b>		
Male	515	82.8
Female	107	17.2
<b>Age</b>		
Below 25	13	2.1
25-35	196	31.5
36-45	255	41.0
46-55	124	19.9
above 55	34	5.5
<b>Education Background</b>		
Lower than high school degree	31	5.0
High school degree	102	16.4
Vocational Certificate/ High Vocational Certificate	278	44.7
Bachelor degree	192	30.9
Higher than bachelor degree	19	3.1
<b>Experience</b>		
Less than 3 years	112	18.0
3-5 years	153	24.6
6-10 years	224	36.0
more than 10 years	133	21.4
<b>Monthly salary</b>		
Less than 10,000 THB	105	16.9
10,000-20,000 THB	235	37.8
20,001-30,000 THB	195	31.4
More than 30,000 THB	87	14.0

**Table 4.2** Demographic Summary (Cont.)

	Frequency	Percentage
<b>Functional Area</b>		
Engineer	107	17.2
Quality	187	30.1
Human Resource	30	4.8
Technician	298	47.9
<b>Position</b>		
Level 1-2	105	16.9
Level 3-4	295	47.4
Level 5-6	186	29.9
Higher than Level 6	36	5.8

#### 4.3.1 Profile of the Respondents

The demographic data from respondents were classified into personal profile. The personal profile composed of gender, age group, educational background, experiences in the job functions, and monthly salary.

The personal profile of respondents, in term of age group, the majority of the respondents were within almost 82.8% sample size were included male, followed by female at 17.2%, the most of the sample size included age group of 36-45 years old, accounted for 41.0%, followed by the age group of 25-35 years old at 31.5%. As for the educational background, respondents with vocational certificate were the largest group which accounted for 44.7%, bachelor degree at 30.9%. In the aspect of working experiences in the steel industry, the group with working experiences more than 10 years was the dominant at 36.0%, follow by the group between 3-5 years experiences was the dominant at 24.6%. The employee's monthly salary was majorly 10,000-20,000 Thai Bath at 37.8%, followed by 20,000-30,000 Thai Bath at 31.4%.



#### 4.4 Descriptive Statistics

The following section summarized features of data collected for the study and presented in quantitative and a comparable fashion.

##### 4.4.1 The Descriptive Statistics of Variable

The attribute of construct was measured by fourteen unobserved variables, which are HRD: planning, learning culture, design, training and development, and feedback system, CI: getting, focusing, spreading, ci on ci, walking and learning. PI: cost performance, relationship performance, and organizational performance. Which were used to rate respondent's level of agreement. The statistical analysis of the minimum and maximum score, mean value and standard deviation value, as shown in table 4.3.

**Table 4.3** The Descriptive Statistics of Variable

Variable	Min	Max	Mean	Std. Deviation
HRD				
Planning	1	7	5.737	1.143
Learning Culture	1	7	5.097	1.375
Design	2	7	4.702	1.434
Training & Development	2	7	5.273	1.141
Feedback system	2	7	5.477	1.106
CI				
Getting the CI habit	2	7	5.307	1.188
Focusing CI	2	7	5.550	1.144
Spreading the word	1	7	5.339	1.282
Ci on the Ci system	2	7	4.414	1.322
Walking the talk	1	7	5.144	1.148
Learning organization	1	7	5.186	1.245

**Table 4.3** The Descriptive Statistics of Variable (Cont.)

Variable	Min	Max	Mean	Std. Deviation
PI				
Cost Performance	2	7	5.333	1.229
Relationship Performance	1	7	5.525	1.113
Organizational Performance	1	7	5.459	1.233

SD=1.143). The item with the lowest mean value was “Design” (M=4.702, SD=1.434).

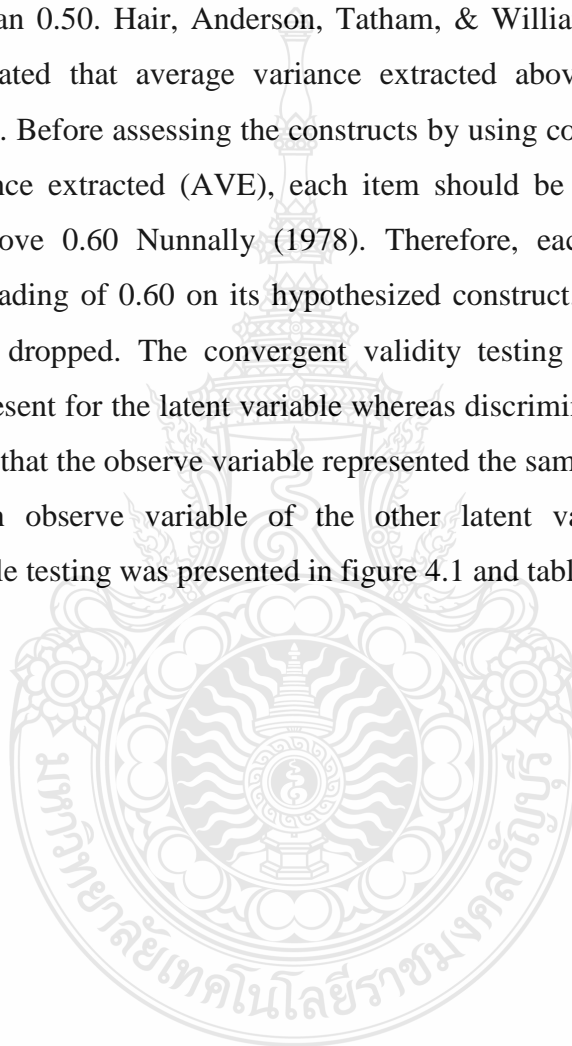
The item of CI with the highest mean value was “Focusing CI” (M=5.550, SD=1.144). The item with the lowest mean value was “CI on the CI system” (M=4.414, SD=1.322).

The item of PI with the highest mean value was “Relationship performance” (M=5.525, SD=1.113). The item with the lowest mean value was “Cost Performance” (M=5.333, SD=1.229).

#### 4.5 Convergent and Construct Validity

The structural equation model (SEM) is the technique that integrated the various techniques of variances analysis by using its principle to apply together in the hypothesis testing. This study used SEM to test by using Confirmatory Factor Analysis (CFA), covariance, and correlation. Thus, SEM could either be the technique for cause or relationships finding. SEM analysis contained two parts in composition including measurement model and structural model. The measurement model was assessed by using Confirmatory Factor Analysis (CFA). CFA is the study to confirm the relationship between observed variables according to the theories or previous research. Besides, CFA is another sub-technique for SEM analysis. In this stage, the construct validity was assessed by the parameter estimation method in each construct measurement model. For the structural model, it was assessed by homological validity and provided to capture the estimation of the measurement model and their structural relations. Additionally, SEM needs to analyze the constructs by measuring on construct reliability and the

average variance extracted (AVE) measure. Average variance extracted (AVE) is the variance that in the indicators as explained by the common factor and average trait-related variance extracted. The reliability of a construct derives from the computing of composite reliability (CR) of a construct. Composite reliability (CR) is the measurement of the overall reliability from the heterogeneous collection from similar items. Composite reliability should be more than 0.70, and the average variance extracted should be more than 0.50. Hair, Anderson, Tatham, & William, (1998), Anderson & Gerbing (1988) stated that average variance extracted above 0.50 is indicated as convergent validity. Before assessing the constructs by using composite reliability (CR) and average variance extracted (AVE), each item should be assessed. The value of loading should above 0.60 Nunnally (1978). Therefore, each item should have a minimum factor loading of 0.60 on its hypothesized construct. The item that is lower than 0.60 will be dropped. The convergent validity testing was to verify that the indicators can represent for the latent variable whereas discriminant validity testing was performed to show that the observe variable represented the same latent variable and did not associate with observe variable of the other latent variables. The result of independent variable testing was presented in figure 4.1 and table 4.4.



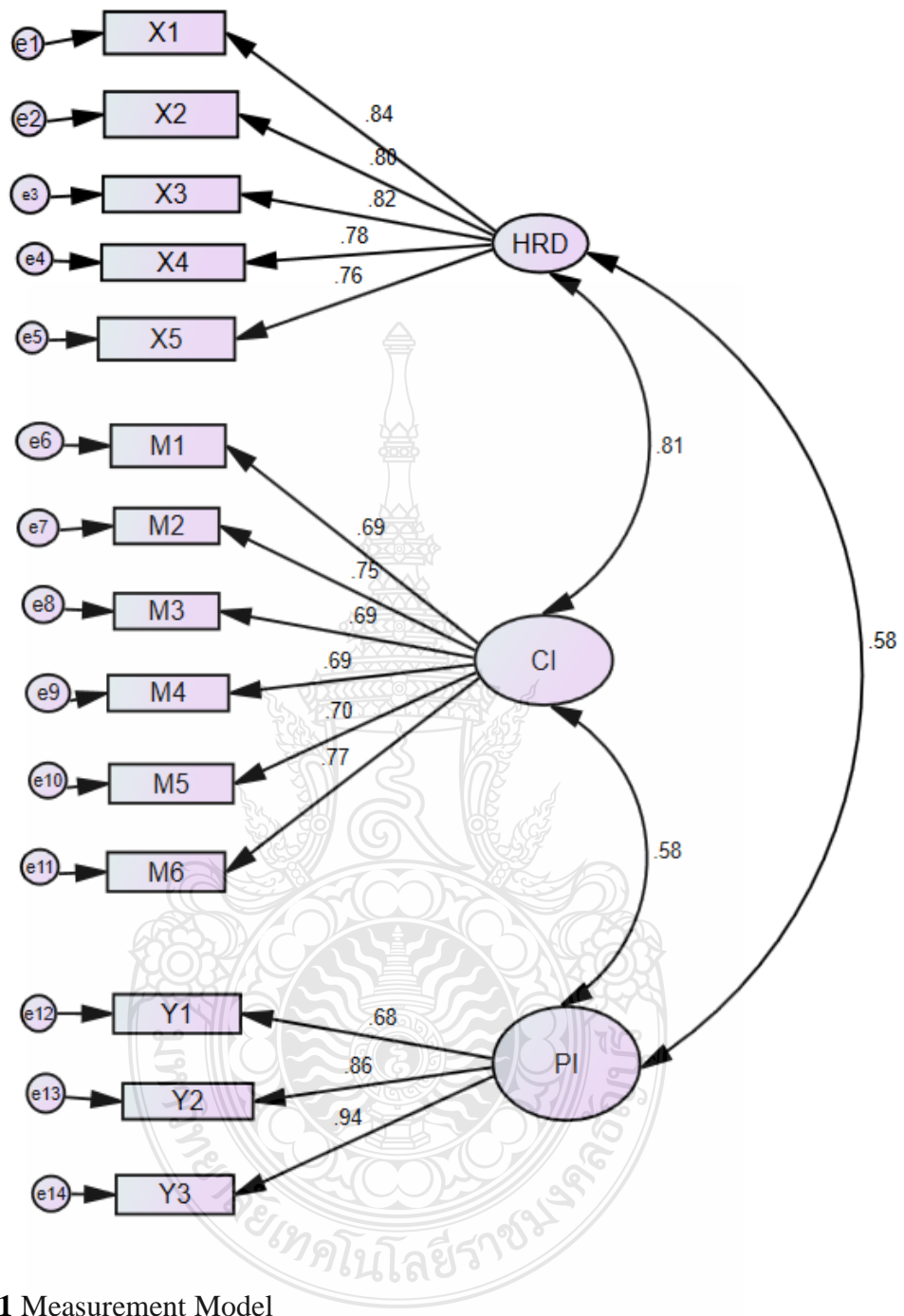


Figure 4.1 Measurement Model

**Table 4.4** Factor Loading of Variables, Average Variance Extracted (AVE), Critical Ratio (CR), and  $R^2$

<b>Variables</b>	<b>Factor loading</b>	<b><math>R^2</math></b>	<b>Composite Reliability</b>	<b>AVE</b>
<b>HRD</b>			0.89	0.64
Planning(X1)	.84	0.71		
Learning Culture(X2)	.80	0.64		
Design(X3)	.82	0.67		
Training& Development(X4)	.78	0.61		
Feedback System(X5)	.76	0.58		
<b>CI</b>			0.86	0.51
Getting the CI habit(M1)	.69	0.48		
Focusing CI(M2)	.75	0.56		
Spreading the word(M3)	.69	0.48		
Ci on the Ci system(M4)	.69	0.48		
Walking the talk(M5)	.70	0.49		
Learning organization(M6)	.77	0.60		
<b>PI</b>			0.87	0.70
Cost Performance(Y1)	.68	0.46		
Relationship Performance(Y2)	.86	0.74		
Organizational Performance(Y3)	.94	0.88		

HRD construct had factor loading values ranged from 0.76 to 0.84, and the  $R^2$  values range between 0.58 to 0.71 which are within the acceptable range. Composite reliability at 0.89 indicated the acceptability of construct reliability. The acceptable AVE value must be higher 0.5 (Fornell & Larcker, 1981), the AVE from the model was 0.64 also indicated acceptability of the construct reliability.

CI construct had factor loading values ranged from 0.69 to 0.77, and the  $R^2$  values range between 0.48 to 0.60 which are within the acceptable range. Composite reliability at 0.86 indicated the acceptability of construct reliability. The acceptable

AVE value must be higher 0.5 (Fornell & Larcker, 1981), the AVE from the model was 0.51 also indicated acceptability of the construct reliability.

PI construct had factor loading values ranged from 0.68 to 0.94, and the  $R^2$  values range between 0.46 to 0.88 which are within the acceptable range. Composite reliability at 0.87 indicated the acceptability of construct reliability. The acceptable AVE value must be higher 0.5 (Fornell & Larcker, 1981), the AVE from the model was 0.70 also indicated acceptability of the construct reliability.

#### 4.6 Discriminant Validity

The squared correlation values were ranged from 0.58 to 0.83 which were equal or more than 0.2 but not over 1.00. The testing result of squared correlation was then accepted. This kind of discriminant validity could be checked from the comparison between AVE value and the squared correlation (Hair, 2010). Finally, the researcher proved on the discriminant validity of the instrument by examining the AVE which should be more than the squared correlation as recommended by Fornell and Larcker (1981). The testing results showed that the values as obtained supported the discriminant validity as shown in table 4.5. The value of AVE for each construct was greater than the level of correlation involving the construct.

**Table 4.5** Discriminant Validity

	<b>HRD</b>	<b>CI</b>	<b>PI</b>
<b>HRD</b>	<b>0.800</b>		
<b>CI</b>	0.810	<b>0.716</b>	
<b>PI</b>	0.580	0.580	<b>0.830</b>

#### 4.7 Relationship among Independent Variable, Mediator Variable, and Dependent Variable

This section illustrated the assessment of the model proposed in this study. The concepts in this study were improving employees' performance that was divided into three operational phases: 1) Concept and Design consisting of human resource

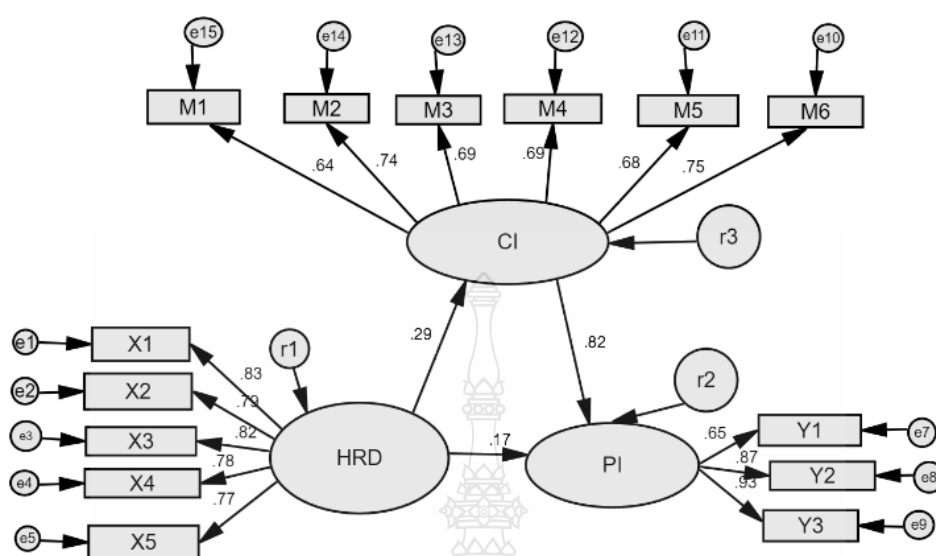
development, 2) Implementation and Control consisting of continuous improvement, and 3) Measurement and Delivery. The aim was to seek for the relationship between the Human resource development, Continuous improvement, and Employee performance. Human resource development were the independent variables, and Continuous improvement were the mediator variables while Employee performance were the dependent variables. After creating the model, the model fit testing was conducted following the methodology that states as the analysis of SEM. The result of model fit testing was shown in table 4.6.

**Table 4.6** Model fit Analysis for the Model

<b>Model Fit Criteria</b>	<b>Value</b>	<b>Acceptable level</b>
Chi-Square	886.799	-
Degree of freedom	101	-
Chi-Square/ df	6.780	< 2
<i>p</i> -value	0.000	$p > 0.05$
GFI	0.691	$\geq 0.90$
AGFI	0.584	$\geq 0.80$
RMR	0.206	Close to zero
RMSEA	0.152	< 0.10
NFI	0.804	> 0.90
CFI	0.827	> 0.90

According to table 4.6, the result of model fit testing showed that they were consistent with data. The diagram of the model one was depicted in figure 4.2.

### 4.7.1 Structural Model 1



**Figure 4.2** Structural Model 1 with Direct and Indirect Effect

**Table 4.7** Model fit Analysis for Modified Model

Model Fit Criteria	Value	Acceptable level
Chi-Square	510.779	-
Degree of freedom	312	-
Chi-Square/ df	1.754	< 3
<i>p</i> -value	0.000	$p > 0.05$
GFI	0.787	$\geq 0.90$
AGFI	0.911	$\geq 0.80$
RMR	0.095	Close to zero
RMSEA	0.058	< 0.10
NFI	0.913	> 0.90
CFI	0.965	> 0.90
Hoelter	222	> 200



According to table 4.7, the parameter value of similarity model has reached to many in model fit criteria such as Chi-Square/Degree of freedom, GFI, AGFI, RMR, RMSEA, NFI, and CFI. The researcher adjusted the model by changing the Modification Index (MI) value which is the statistical value used for the decision to adjust the mode. The adjusting technique was to add the linking lines between the variable to reduce the degree of freedom as follows: e1 and e4, e1 and e5, e2 and e3, e4 and e5, e7 and e9, e10 and e15, e12 and e13, e14 and e15.

**Table 4.8** Hypothesis Testing of Model

				<b>Estimate</b>	<b>S.E.</b>	<b>C.R.</b>	<b>p-value</b>
H1:	HRD	→	CI	0.291	0.057	9.445	***
H2:	HRD	→	PER	0.172	0.126	3.500	*
H3:	CI	→	PER	0.822	0.044	17.269	***

\*\*\*  $p$ -value < 0.001 (statistical significance at 0.001 level)

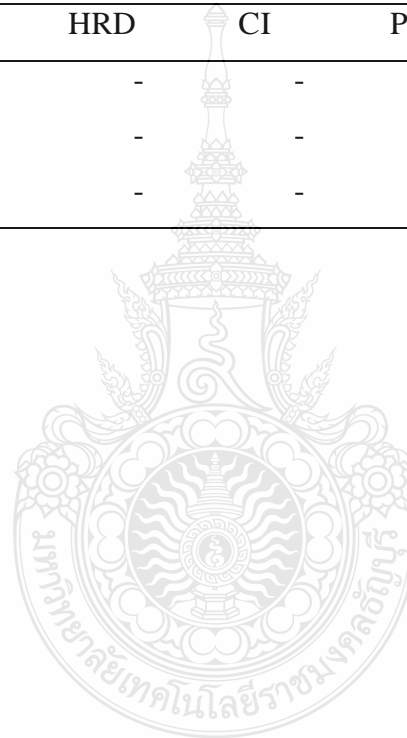
\*\*  $p$ -value < 0.01 (statistical significance at 0.01 level)

\*  $p$ -value < 0.05 (statistical significance at 0.05 level)

Table 4.8 showed the direct and indirect effect of the model that Human Resource Development (HRD) had a positive direct effect on Continuous Improvement (CI) ( $\beta = 0.291$ ) ( $p$ -value < .001), Human Resource Development (HRD) had a positive direct effect on Performance Improvement (PI) ( $\beta = 0.172$ ) ( $p$ -value < .05), Continuous Improvement (CI) had a positive direct effect on Performance Improvement (PI) ( $\beta = 0.822$ ) ( $p$ -value < .001). As for the relationship between variables such as Human Resource Development (HRD) had a positive indirect effect on Performance Improvement (PI) ( $\beta = .411$ ) ( $p$ -value < .05). The standardized direct, indirect and total effect coefficients and the  $R^2$  associated with the SEM as shown in table 4.9.

**Table 4.9** Standardized Direct, Indirect and Total Effects among Variables

	R <sup>2</sup>	Standardized Direct Effect			Standardized Indirect Effect			Standardized Total Effects		
		HRD	CI	PER	HRD	CI	PER	HRD	CI	PER
HRD		-	.291	.172	-	-	.411	-	.291	.583
CI	.52	-	-	.822	-	-	-	-	-	.822
PER	.54	-	-	-	-	-	-	-	-	-

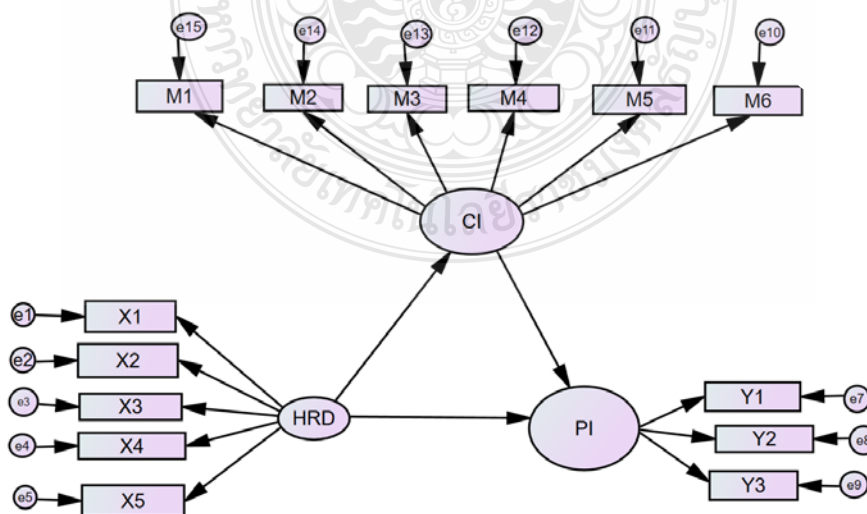


According to the model, the research findings of the relationship between Human Resource Development, Continuous Improvement, and Employee Performance were shown in table 4.9. First of all, Human Resource Development had a positive effect on Continuous Improvement (H1), Human Resource Development had a positive effect on Employee Performance (H2), and Continuous Improvement had positive effects on Employee Performance (H3). After empirically testing and analyzing the proposed model was finished, it was found from the study that each theory was used in testing and set as H1, H2, and H3 with the direct effect. Indirect effects were seen in Human Resource Development had an indirect effect on Employee Performance ( $\beta = 0.411$ ).

The coefficient of determinant ( $R^2$ ) indicated that Human Resource Development (HRD) had a positive effect on Continuous Improvement (CI) with the accuracy of 52%, Human Resource Development (HRD) had a positive effect on Continuous Improvement (CI) and Performance Improvement (PI) with the accuracy of 54%.

#### 4.7.2 Structural Model 2

In order to answer the first research question and to test hypothesis, structural model two was conducted to test relationship Human Resource Development (HRD) and Performance Improvement (PI) through Continuous Improvement (CI) among the various levels of employee positions in business.



**Figure 4.3** Structural Model 2 (levels of employee positions in business)

**Table 4.10** Hypothesis Testing of Model of Levels of Employee Positions in Business.

Level	Hypothesis	Estimate	S.E.	C.R.	<i>p</i> -value
1-2	H4: HRD → CI	.813	0.103	6.776	***
	H5: HRD → PI	.151	0.170	2.039	*
	H6: CI → PI	.144	0.190	0.707	.479
3-4	H7: HRD → CI	.830	0.64	12.018	***
	H8: HRD → PI	.433	0.065	9.495	***
	H9: CI → PI	.201	0.571	1.647	.099
5-6	H10: HRD → CI	.801	0.83	9.132	***
	H11: HRD → PI	.336	0.113	2.464	*
	H12: CI → PI	.341	0.121	2.449	*
Upper6	H13: HRD → CI	.875	0.143	4.510	***
	H14: HRD → PI	.801	0.358	9.651	***
	H15: CI → PI	.466	0.597	2.740	**

\*\*\**p*-value < 0.001 (statistical significance at 0.001 level)

\*\* *p*-value < 0.01 (statistical significance at 0.01 level)

\* *p*-value < 0.05 (statistical significance at 0.05 level)

**Table 4.11** Model fit Analysis for Modified model of Levels of Employee Positions in Business.

Position	Chi-Square	Degree of freedom	Chi-Square/df	<i>p</i> -value	GFI	AGFI	RMR	RMSEA	NFI	CFI
Level 5-6	1057.749	150	7.052	0.000	0.786	0.701	0.163	0.112	0.776	0.800
Level Upper 6	189.230	71	2.914	0.000	0.907	0.821	0.170	0.088	0.941	0.960

According to table 4.11, the parameter value of similarity model has reached to many in model fit criteria such as Chi-Square/Degree of freedom, GFI, AGFI, RMR, RMSEA, NFI, and CFI. The researcher adjusted the model by changing the Modification Index (MI) value which is the statistical value used for the decision to adjust the mode.

The standardized direct, indirect and total effect coefficients and the  $R^2$  associated with the SEM as shown in table 4.12.

**Table 4.12** Standardized Direct, Indirect and Total Effects among Variables of Levels of Employee Positions in Business

	R <sup>2</sup>	Standardized Direct Effect			Standardized Indirect Effect			Standardized Total Effects		
		HRD	CI	PI	HRD	CI	PI	HRD	CI	PI
Level 5-6										
HRD			.801	.336			.273		.801	.609
CI	.64		-	.341			-		-	.341
PI	.41		-	-			-		-	-
Level >6										
HRD			.875	.801			1.435		.875	.634
CI	.77		-	.466			-		-	.466
PI	1.03		-	-			-		-	-

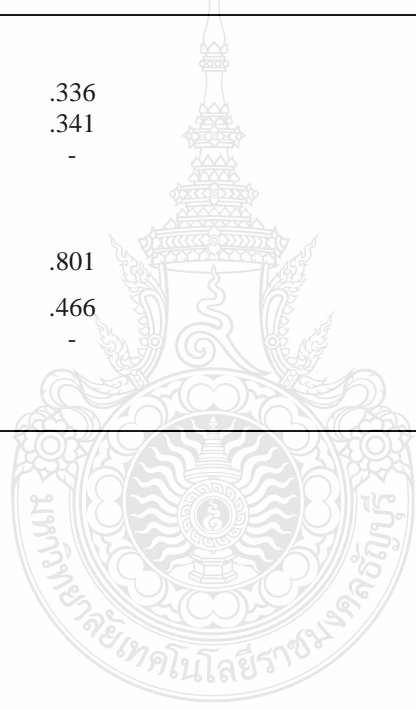


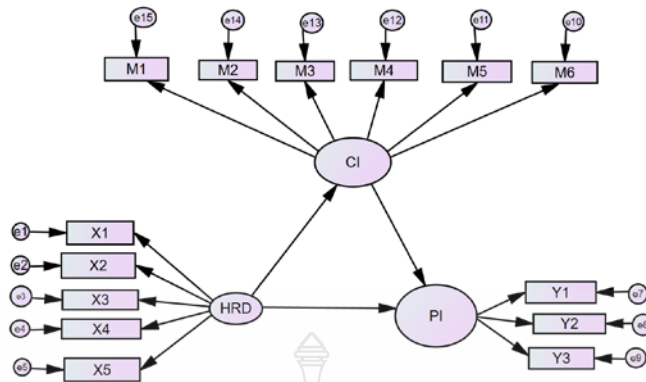
Table 4.12 showed the direct and indirect effect of the model that Human Resource Development (HRD) had a positive direct effect on Continuous Improvement (CI) ( $\beta = 0.813, 0.830, 0.801, 0.875$ ) (p-value < .001), Human Resource Development (HRD) and Continuous Improvement (CI) had a positive direct effect on Performance Improvement (PI) ( $\beta = 0.451, 0.433, 0.336, -0.801$ ) (p-value <.001). As for the relationship between variables such as Human Resource Development (HRD) had a positive indirect effect on Performance Improvement (PI) ( $\beta = 0.117, 0.167, 0.273, 1.435$ ) (p-value < .001).

According to the model, the research findings of the relationship between Human Resource Development, Continuous Improvement, and Performance Improvement were shown in table 4.12. First of all, Human Resource Development had a positive effect on Continuous Improvement, Human Resource Development had a positive effect on Performance Improvement, and Continuous Improvement had positive effects on Performance Improvement. After empirically testing and analyzing the proposed model was finished, it was found from the study that each theory was used in testing and set as Hypothesis one with the direct effect. Indirect effects were seen in Human Resource Development had an indirect effect on Performance Improvement ( $\beta = 0.117, 0.167, 0.273, 1.435$ ).

The coefficient of determinant ( $R^2$ ) indicated that Human Resource Development (HRD) had a positive effect on Continuous Improvement (CI) with the accuracy of 69%, Human Resource Development (HRD) had a positive effect on Performance Improvement (PI) with the accuracy of 66%, Continuous Improvement (CI) had a positive effect on Performance Improvement (PI) with the accuracy of 33%.

#### **4.7.3 Structural Model 3**

In order to answer the first research question and to test hypothesis, structural model two was conducted to test relationship Human Resource Development (HRD) and Performance Improvement (PI) through Continuous Improvement (CI) among in business functional areas.



**Figure 4.4** Structural Model 3 (business functional area)

**Table 4.13** Hypothesis Testing of Model of Business Functional Areas.

Functional	Hypothesis	Estimate	S.E.	C.R.	<i>p</i> -value
Engineer	H16: HRD → CI	0.770	0.113	6.288	***
	H17: HRD → PI	0.382	0.148	2.167	*
	H18: CI → PI	0.256	0.159	2.461	*
Quality	H19: HRD → CI	0.827	0.080	9.292	***
	H20: HRD → PI	0.376	0.123	2.443	*
	H21: CI → PI	0.275	0.137	2.776	*
HR	H22: HRD → CI	0.408	0.182	4.235	**
	H23: HRD → PI	0.490	0.365	2.853	*
	H24: CI → PI	0.486	0.347	2.884	*
Technician	H25: HRD → CI	0.832	0.062	12.342	***
	H26: HRD → PI	0.309	0.096	4.591	***
	H27: CI → PI	0.370	0.108	3.012	*

\*\*\**p*-value < 0.001 (statistical significance at 0.001 level)

\*\* *p*-value < 0.01 (statistical significance at 0.01 level)

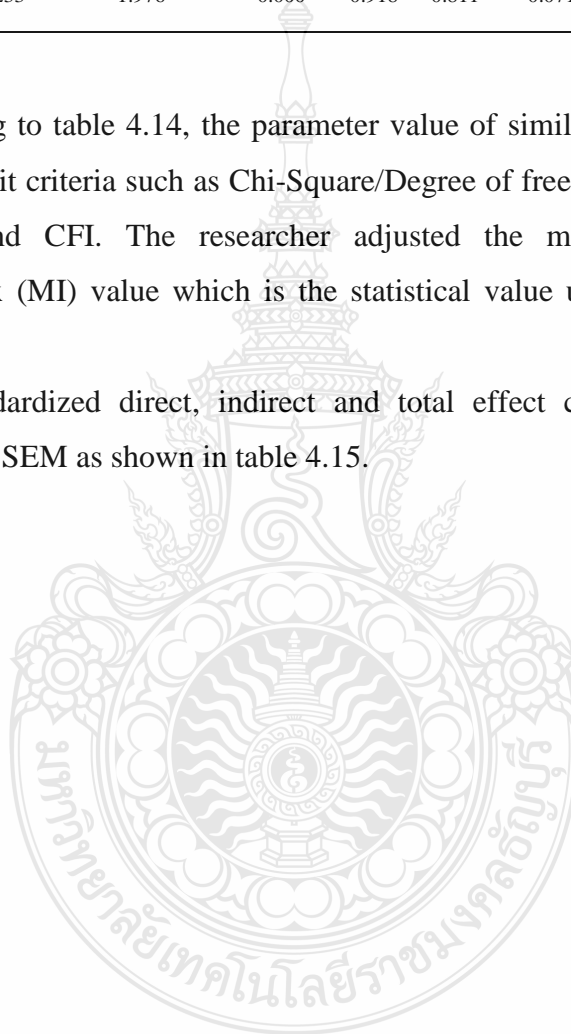
\* *p*-value < 0.05 (statistical significance at 0.05 level)

**Table 4.14** Model fit Analysis for Modified Model of levels of Business Functional Areas.

Functional	Chi-Square	Degree of freedom	Chi-Square/df	p-value	GFI	AGFI	RMR	RMSEA	NFI	CFI
Engineer	189.222	96	1.977	0.000	0.921	0.832	0.079	0.077	0.899	0.960
Quality	639.998	75	8.533	0.000	0.789	0.704	0.166	0.160	0.780	0.757
HR	585.112	239	2.451	0.000	0.839	0.799	0.123	0.105	0.882	0.915
Technician	438.301	233	1.976	0.000	0.918	0.811	0.071	0.082	0.877	0.940

According to table 4.14, the parameter value of similarity model has reached to many in model fit criteria such as Chi-Square/Degree of freedom, GFI, AGFI, RMR, RMSEA, NFI, and CFI. The researcher adjusted the model by changing the Modification Index (MI) value which is the statistical value used for the decision to adjust the mode.

The standardized direct, indirect and total effect coefficients and the  $R^2$  associated with the SEM as shown in table 4.15.





**Table 4.15** Standardized Direct, Indirect and Total Effects among Variables of Business Functional Areas

	R <sup>2</sup>	Standardized Direct Effect			Standardized Indirect Effect			Standardized Total Effects		
		HRD	CI	PI	HRD	CI	PI	HRD	CI	PI
Engineer										
HRD		-	.770	.382	-	-	.197	-	.770	.579
CI	.59	-	-	.256	-	-	-	-	-	.256
PI	.36	-	-	-	-	-	-	-	-	-
Quality										
HRD			.827	.376			.228		.827	.604
CI	.68		-	.275			-		-	.275
PI	.39		-	-			-		-	-
Human Resource										
HRD			.408	.490			.286		.408	.776
CI	.69		-	.486			-		-	.486
PI	.32		-	-			-		-	-
Technician										
HRD			.832	.309			.308		.832	.617
CI	.69		-	.370			-		-	.370
PI	.42		-	-			-		-	-

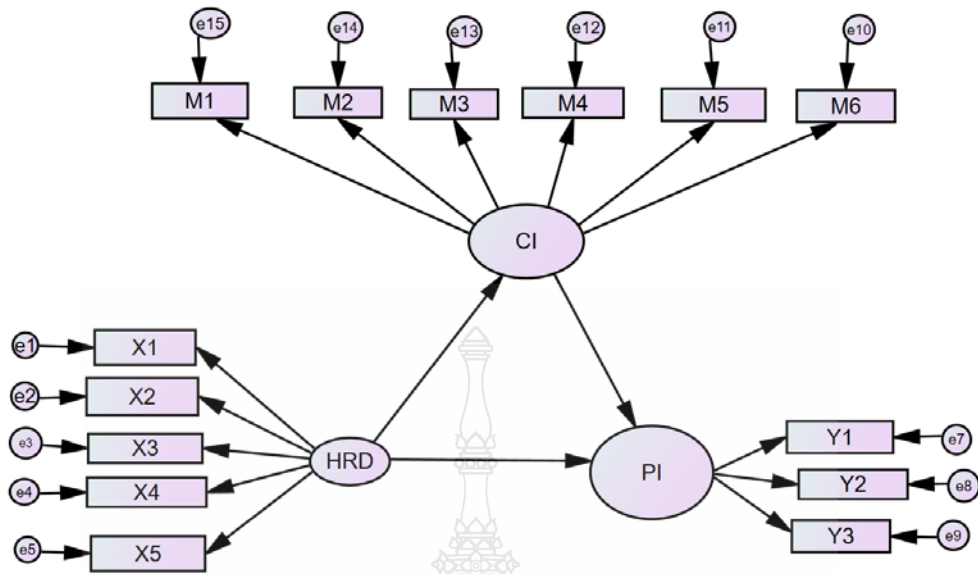
Table 4.15 showed the direct and indirect effect of the model that Human Resource Development (HRD) had a positive direct effect on Continuous Improvement (CI) ( $\beta = 0.770, 0.827, 0.408, 0.832$ ) (p-value < .001), Human Resource Development (HRD) and Continuous Improvement (CI) had a positive direct effect on Performance Improvement (PI) ( $\beta = 0.382, 0.376, 0.490, 0.309$ ) (p-value <.001). As for the relationship between variables such as Human Resource Development (HRD) had a positive indirect effect on Performance Improvement (PI) ( $\beta = 0.197, 0.228, 0.286, 0.308$ ) (p-value < .001).

According to the model, the research findings of the relationship between Human Resource Development, Continuous Improvement, and Performance Improvement were shown in table 4.15. First of all, Human Resource Development had a positive effect on Continuous Improvement, Human Resource Development had a positive effect on Performance Improvement, and Continuous Improvement had positive effects on Performance Improvement. After empirically testing and analyzing the proposed model was finished, it was found from the study that each theory was used in testing and set as Hypothesis one with the direct effect. Indirect effects were seen in Human Resource Development had an indirect effect on Performance Improvement ( $\beta = 0.197, 0.228, 0.286, 0.308$ ).

The coefficient of determinant ( $R^2$ ) indicated that Human Resource Development (HRD) had a positive effect on Continuous Improvement (CI) with the accuracy of 69%, Human Resource Development (HRD) had a positive effect on Continuous Improvement (CI) and Performance Improvement (PI) with the accuracy of 59%.

#### 4.7.4 Structural Model 4

In order to answer the first research question and to test hypothesis, structural model two was conducted to test relationship Human Resource Development (HRD) and Performance Improvement (PI) through Continuous Improvement (CI) among the different form personality of openness to experience included explorer and preserver.



**Figure 4.5** Structural Model 4 (openness to experience)

### Summary of Model Analysis

**Table 4.16** Hypothesis Testing of Model of Openness to Experience.

Personality	Hypothesis	Estimate	S.E.	C.R.	p-value
Explorer	H28: HRD → CI	0.441	0.081	3.033	***
	H29: HRD → PI	0.378	0.072	4.128	***
	H30: CI → PI	0.829	0.048	15.539	**
Preserver	H31: HRD → CI	0.809	0.109	7.306	***
	H32: HRD → PI	0.315	0.165	1.690	.091
	H33: CI → PI	0.323	0.171	1.700	.089

\*\*\*  $p$ -value < 0.001 (statistical significance at 0.001 level)

\*\*  $p$ -value < 0.01 (statistical significance at 0.01 level)

\*  $p$ -value < 0.05 (statistical significance at 0.05 level)

**Table 4.17** Model fit Analysis for Modified Model of Openness to Experience.

Personality	Chi-Square	Degree of freedom	Chi-Square/df	p-value	GFI	AGFI	RMR	RMSEA	NFI	CFI
Explorer	912.572	138	6.613	0.000	0.788	0.703	0.174	0.48	0.773	0.799

According to table 4.17, the parameter value of similarity model has reached to many in model fit criteria such as Chi-Square/Degree of freedom, GFI, AGFI, RMR, RMSEA, NFI, and CFI. The researcher adjusted the model by changing the Modification Index (MI) value which is the statistical value used for the decision to adjust the mode.

The standardized direct, indirect and total effect coefficients and the  $R^2$  associated with the SEM as shown in table 4.18.



**Table 4.18** Standardized Direct, Indirect and Total Effects among Variables of Openness to Experience

	R <sup>2</sup>	Standardized Direct Effect			Standardized Indirect Effect			Standardized Total Effects		
		HRD	CI	PI	HRD	CI	PI	HRD	CI	PI
<b>Explorer</b>										
HRD		-	.441	.378	-	-	.231	-	.441	.609
CI	.68	-	-	.826	-	-	-	-	-	.826
PI	.40	-	-	-	-	-	-	-	-	-



Table 4.18 showed the direct and indirect effect of the model that Human Resource Development (HRD) had a positive direct effect on Continuous Improvement (CI) ( $\beta = 0.441, 0.809$ ) (p-value < .001), Human Resource Development (HRD) and Continuous Improvement (CI) had a positive direct effect on Performance Improvement (PI) ( $\beta = 0.378, 0.315$ ) (p-value <.001). As for the relationship between variables such as Human Resource Development (HRD) had a positive indirect effect on Performance Improvement (PI) ( $\beta = 0.231, 0.261$ ) (p-value < .001).

According to the model, the research findings of the relationship between Human Resource Development, Continuous Improvement, and Performance Improvement were shown in table 4.18. First of all, Human Resource Development had a positive effect on Continuous Improvement, Human Resource Development had a positive effect on Performance Improvement, and Continuous Improvement had positive effects on Performance Improvement. After empirically testing and analyzing the proposed model was finished, it was found from the study that each theory was used in testing and set as Hypothesis one with the direct effect. Indirect effects were seen in Human Resource Development had an indirect effect on Performance Improvement ( $\beta = 0.231, 0.261$ ).

The coefficient of determinant ( $R^2$ ) indicated that Human Resource Development (HRD) had a positive effect on Continuous Improvement (CI) with the accuracy of 68%, Human Resource Development (HRD) had a positive effect on Continuous Improvement (CI) and Performance Improvement (PI) with the accuracy of 40%.

#### **4.8 Hypothesis Testing**

The following research questions were raised in the earlier discussion whether, do core Human Resource Development and Continuous Improvement relate, do Continuous Improvement and Performance Improvement relate, and Continuous Improvement mediate core Human Resource Development and Performance Improvement. The summary of hypothesis testing as shown in table 4.19. Therefore, the following hypotheses had been proposed:

- H1: HRD have an impact on PI.
- H2: HRD have an impact on PI through CI.
- H3: HRD have an impact on PI of level 1-2.
- H4: HRD have an impact on PI through CI of level 1-2.
- H5: HRD have an impact on PI of level 3-4.
- H6: HRD have an impact on PI through CI of level 3-4.
- H7: HRD have an impact on PI of level 5-6.
- H8: HRD have an impact on PI through CI of level 5-6.
- H9: HRD have an impact on PI of level higher than 6.
- H10: HRD have an impact on PI through CI of level higher than 6.
- H11: HRD have an impact on PI of functional engineer.
- H12: HRD have an impact on PI through CI of functional engineer.
- H13: HRD have an impact on PI of functional quality.
- H14: HRD have an impact on PI through CI of functional quality.
- H15: HRD have an impact on PI of functional HR.
- H16: HRD have an impact on PI through CI of functional HR.
- H17: HRD have an impact on PI of functional technician.
- H18: HRD have an impact on PI through CI of functional technician.
- H19: HRD have an impact on PI of explorer.
- H20: HRD have an impact on PI through CI of explorer.
- H21: HRD have an impact on PI of preserver.
- H22: HRD have an impact on PI through CI of preserver.

**Table 4.19** Hypotheses Testing Results

<b>Hypothesis</b>	<b>Result</b>
H1: HRD have an impact on PI.	Supported
H2: HRD have an impact on PI through CI.	Supported
H3: HRD have an impact on PI of level 1-2.	Supported
H4: HRD have an impact on PI through CI of level 1-2.	Not supported
H5: HRD have an impact on PI of level 3-4.	Supported
H6: HRD have an impact on PI through CI of level 3-4.	Not supported
H7: HRD have an impact on PI of level 5-6.	Supported
H8: HRD have an impact on PI through CI of level 5-6.	Supported
H9: HRD have an impact on PI of level higher than 6.	Supported
H10: HRD have an impact on PI through CI of level higher than 6.	Supported
H11: HRD have an impact on PI of functional engineer.	Supported
H12: HRD have an impact on PI through CI of functional engineer.	Supported
H13: HRD have an impact on PI of functional quality.	Supported
H14: HRD have an impact on PI through CI of functional quality.	Supported
H15: HRD have an impact on PI of functional HR.	Supported
H16: HRD have an impact on PI through CI of functional HR.	Supported
H17: HRD have an impact on PI of functional technician.	Supported
H18: HRD have an impact on PI through CI of functional technician.	Supported
H19: HRD have an impact on PI of explorer.	Supported
H20: HRD have an impact on PI through CI of explorer.	Supported
H21: HRD have an impact on PI of preserver.	Supported
H22: HRD have an impact on PI through CI of preserver.	Not Supported

#### 4.9 Research Questions and the Answers

This study had earlier raised three major research questions which were:

RQ1: Does Human Resource Development (HRD) influence Performance Improvement (PI) through Continuous Improvement (CI)?

RQ2: Does HRD influence PI through CI among the various levels of employee positions in the business?

RQ3: Does HRD influence PI through CI among in business functional areas?



RQ4: Does HRD influence PI through CI between the different of personality of openness to experience? (which includes of explorer and preserver)

The thirty-three hypotheses were developed and tested in order to determine answers for the above research questions, the answers were as shown below:

**Table 4.20** Summary of Research Questions, Tested Hypotheses and Results

Research questions	Hypothesis	Answer for research question
RQ1: Does HRD influence PI through CI?	H1, H2, H3	Yes
RQ2: Does HRD and PI through CI among the various levels of employee positions in business?	Level 1-2 (H4,H5,H6)	No
	Level 3-4 (H7,H8,H9)	No
	Level 5-6 (H10,H11,H12)	Yes
	Upper than 6 (H13,H14,H15)	Yes
RQ3: Does HRD influence PI through CI among in business functional areas?	Engineer (H16,H17,H18)	Yes
	Quality (H19,H20,H21)	Yes
	HR (H22,H23,H24)	Yes
	Technician (H25,H26,H27)	Yes
RQ4: Does HRD influence PI through CI between the different of personality of openness to experience? (which includes of explorer and preserver)	Explorer (H28,H29,H30)	Yes
	Preserver (H31,H32,H33)	No

## **CHAPTER 5**

### **CONCLUSION AND RECOMMENDATIONS**

#### **Introduction**

This chapter presented the discussion of the empirical findings for research questions posited for this study from data analysis in the preceding chapter, as well as, the discussion of the consistency and contradiction with the relevant studies and existing literature, followed by theoretical contribution and practical implications in the next section. This chapter was then concluded with limitation of the study and recommendations for future research.

#### **5.1 Discussion of the Research Finding**

According to the structural model in the past chapter that shown good practice for success performance. Human resource development practices such as training records are continually updated and monitored, appropriate employees are nominated to attend the right training and development activities, training programs are designed to satisfy learning needs and improve employee competencies, technical training improves employee's skills, employee training needs are effectively identified and met, Training evaluation is done. New hire orientation activities (e.g., Corporate Entry Conference, Corporate Entry Program, etc.) help increase employee's commitment to the company. the organization supports programs, activities, processes, etc. to improve employee's interpersonal skills, managerial training (e.g., Leadership, Supervisory Training, etc.) helps supervisors manage their teams or improve their leadership skills. The performance management process/employee dialogue process enables objective evaluation of employee performance, coaching and mentoring can help employees solve work related challenges or supports their future development. Employees build up new competencies and experience through their work activities, employees' position descriptions are defined by responsibilities and required knowledge, experience, individual development planning is discussed between the supervisor and employee, and is implemented, employee counseling helps employees in their daily work, Feedback Systems (e.g., 360 degree feedback, BASICS live/employee satisfaction

surveys) are effective. Human Resources professionals play a proactive role in developing organizational strategies, supervisor's leadership skills have improved, employee's current position in the company is aligned with my individual development goals, sharing knowledge or exchanging appropriate information within the organization is encouraged. Human resources support ways to share knowledge, corporate culture is evolving in order to promote business strategies, human resources tools (e.g., HRD online, etc.) can help employees and managers easily understand and use Human Resources Core Processes, succession planning supports talent development and ensures the next generation of leaders. The steel industry has applied full Continuous Improvement (CI) strategies like the organization learning to achieve tremendous growth and development as an organization. Employees in the steel industry have practiced CI activities such as everyone learns from their experiences both good and bad, employees seek out opportunities for learning and personal development by setting their own learning/career objectives, and employees feel comfortable to reach out to colleagues at all levels in the organization to share and receive information needed to support their work, The organization articulates and consolidates (captures and shares) the learning of individuals and groups, managers accept and where necessary act on all of the learning that takes place, people and teams ensure that learning is incorporated into all working processes within the organization, and appropriate organizational processes are used to deploy what has been learned across the organization. When a strategy is initially used, there may be a faulty initial stage. This research includes three indicators of Performance Improvement (dependent variable) such as cost performance, relationship performance, and organizational performance. Cost performance such as increased production volume, increased productivity, improved delivery reliability, reduced lead times, and reduced cost. Relationship performance such as improved product quality, higher customer satisfaction, improved supplier relations, improved customer relations, and improved relations between departments. Organizational performance such as improved administrative tasks, decreased absence, improved safety and working conditions, increased employee skills and competences, increased employee commitment/attitude towards change, and improved organization, cooperation and communication. The steel

industry is the organizations that drive many countries forward. Thus, the personnel of the steel-manufacturing group are significant representatives of all organizations. The study; revealed that if the organizations utilize a CI strategy with human resource development in their management, their personnel's performance would increase. That an in-depth case study of other industries might be useful to deepen understandings of this topic.

### **5.1.1 Discussion of Research Question 1**

According to the research question I; Does HRD influence Performance Improvement through CI ? That the result of first structural model and H1, H2, and H3 testing indicated that HRD and Performance Improvement through CI is completed. Then, it presents valuable for investment. It is to monitor the operation of human capital that shall be focused on the jobs transfer to actual operation. This process can be determined in terms of preparation, training, and maintenance and support. The ability of employees could be improved by HRD and CI practices, such as people learn from their positive and negative experiences, individuals search opportunities for learning/personal development, individuals and groups at all levels share their learning from all work experiences, managers accept and act on all the learning that occurs when necessary, and designated individuals use organizational mechanisms to deploy the learning that is captured across the organization. These initiatives could increase the ability of all employees. This supported Lin Gao (2011) that found the overall relationship among the independent, dependent variable, and mediators that significant strong relationship between independent, dependent variable, and mediators: HRD practices strongly and positively influenced performance improvement as fully mediated by CI abilities. Which conforms to the study of Hyland, Paul and Di Milia, Lee and Becker, Karen L (2005) who learned about behaviours reported in a survey of a sample of 580 manufacturing organisations in Europe Australia and South East Asia. It compares the learning in firms who have involved the human resource function in CI with those firms where the human resource function has not been involved. The paper also looks at how widespread CI is in the organisations surveyed and initial findings clearly demonstrate that when the human resource function is involved, CI is more widespread than in firms that choose not to include the personnel or HR department in

CI activities. When a strategy is initially used, there may be a faulty initial stage. However, as the strategy is improved and adjusted, repetition can remedy any faultiness. Subsequently, such fallibility can be dealt with immediately. This can build the self-efficacy required for learning experiences using strategies accurately. Although some strategies are effective in a particular country's context, other countries may experience different effects in particular parts of a strategy. The resulting different experiences can occur due to various organizational cultures. Also, work-related obstacles frequently arise. Even though one problem is solved, a new problem will predictably arise. Therefore, CI is necessary for every organization to solve difficulties and enhance its contributions.

### **5.1.2 Discussion of Research Question 2**

According to the research question II; Does HRD influence Performance Improvement through CI among the various levels of employee positions in the business? That the result of structural model two from each level of employee positions in business with hypothesis 4 to hypothesis 15 testing indicated that hypothesis H10, H11, H12, H13, H14, and H15 were significant that Human Resource Development (HRD) had an influence on Performance Improvement through CI was completed. Career stages (Noe, 2010) were divided into four sessions or stages: First, exploration stage: at the first session, the individual explores an interesting career. Elements answering the question "How long will we require exploring this career?" are varied: our interests, job descriptions, values, preferences, and colleagues. Personnel under 30 years old are considered to be in this exploration stage. It takes two years for the exploration through the probation. A short-term employee is called "an apprentice". Second, establishment stage: the individual regularly searches for a proper workplace where he or she can devote himself or herself completely. In fact, the workplace must facilitate a person to get a job promotion, job stability, self-development skill and appropriate returns on responsibilities, duties and expenses. Moreover, the workplace must conform to an individual's lifestyle, organizational circumstances as well as colleagues. It takes two to ten years for this stage. Personnel whose ages are between 30 and 45 years old are considered to be in this establishment stage. Third, maintenance stage: this stage involves skills development and maintenance for another

institutes' acceptance. By this stage, personnel's experience has been knowledge and skills accumulation for ten years. Personnel whose ages are between 45 and 60 years are considered to be in this maintenance stage. A status of personnel in this stage is as a mentor. Fourth, disengagement: the final stage of working in an institute is retirement when personnel must separate from the organization. Personnel who are more than 60 years old are considered to be in this disengagement stage. However, due to their full knowledge, skills and experiences, personnel at this stage can assist others by providing advice and support. The result form model two was significant with higher level in the organization from level 5 to level upper than 6 that not conforms to the study of Lin Gao (2011) who found employee position levels did not moderate the overall relationship among HRD practices, CI abilities, and performance improvement that the hypothesis was not supported in all level. Each level in the company achieved the highest levels of performance. These achievements have been made in areas of cost performance, relationship performance, and organizational performance. Within these higher-level positions, workers and managers will exhibit the most expertise within their own section. As they work to improve their own business sector, the whole company will benefit. The continuous strategy works best with workers who are operating at the highest levels. Each worker can achieve this if they work hard and consistently with a positive mindset. CI practice is necessary for the high levels of staff in the company such as head of department, managers, and executives. All high levels include high education and more age, so they have more experiences and learning skills. For, they can improve their skill then develop organizational performance.

### **5.1.3 Discussion of Research Question 3**

According to the research question III; Does HRD influence Performance Improvement through CI among in business functional areas? That the result of structural model three from each business functional areas with hypothesis 16 to hypothesis 27 testing indicated that hypothesis H16, H17, H18, H19, H20, H21, H22, H23, H24, H25, H26, and H27 were significant that HRD had an influence on Performance Improvement through CI was completed. The result form model three was significant that different with the study of Gao (2011) who found that some empirical evidence showed the only HR function provided small, negative, and direct support on

HRD practices that strongly and indirectly supported performance improvement fully mediated by CI abilities then the hypothesis was not support.

The company has four sections including HR, engineer, technician and quality control. Each department has different levels. The highest-level positions are distributed throughout each area. When a company's workers practice the CI model, they will achieve success in multiple areas of business. The researcher studied functional areas in the company. The result showed HR function and Technician function have better performance than engineer function and QC function. HR department and technician are routine function, so CI could help them progress. Of course, all areas can benefit from CI; however, the aforementioned areas are the most important. HR function generally focus on training employees, so CI methods of training will help the educational process and result in employees are constantly improve. Technicians are professionals in their areas and are routine workers. Therefore, CI practice in this area is important so that the routine tasks consistently improve and the the permanforance is progressive. The steel industry has applied full Continuous Improvement (CI) strategies like the organization learning to achieve tremendous growth and development as an organization. However, as the strategy is improved and adjusted, repetition can remedy any faultiness. Subsequently, such fallibility can be dealt with immediately. This can build the self-efficacy required for learning experiences using strategies accurately. Although some strategies are effective in a particular country's context, other countries may experience different effects in particular parts of a strategy. The resulting different experiences can occur due to various organizational cultures. Also, work-related obstacles frequently arise. Even though one problem is solved, a new problem will predictably arise. Each business sector can work towards achieving the company's goal by working on their own problem areas. After being aware of problem areas, each section can create a solution and implement this into their plan for success. Therefore, Continuous Improvement (CI) is necessary for every organization to solve difficulties and enhance its contributions.

#### **5.1.4 Discussion of Research Question 4**

According to the research question IV; Does HRD influence Performance Improvement through CI between the different of personality of openness to experience? (which includes of explorer and preserver). That the result of structural model four from each personality of openness to experience included explorer and preserver with hypothesis 28 to hypothesis 30 testing indicated that hypothesis H28, H29, and H30 were significant that HRD had an influence on Performance Improvement through CI was completed. The result explorer personality form model four was significant. Which conforms to the study of Costa and McCrae (1992) cited in Howard and Howard (1995) who found that six factors of openness: fantasy, aesthetics, feelings, actions, ideas, and values. The explorer has broader interests, has a fascination with novelty and innovation, would generally be perceived as liberal, and reports more introspection. On the other hand, the preserver has narrower interests, is perceived as more conventional, and is more comfortable with the familiar. The result from model shown significant with only explorer that in the organization could practice employee to learn to explorer. When an individual displays openness personality trait, they have curious nature. They enjoy many different types of activities and are typically more artistic. This trait allows the individual to go with the flow more often, creating different experiences. This personality trait promotes creativity and exploration. Instead of being locked into a rigid schedule, the individual expressing this trait may like to travel or engage in many different activities throughout the day. An individual expressing low tolerance for openness may be more inclined to stick to a strict schedule. This individual seeks structure and consistency and does not like to have unexpected events imposed upon them. When a worker in the steel industry displays more openness, they are able to adapt and change according to the standards. If they receive constructive criticism or a new set of rules, they can easily absorb and execute the new information because of their flexibility and openness to change. An open individual will likely enjoy a new challenge and remodel their working style to meet the CI model. A closed individual may have difficulty adjusting to change because of their need and attachment to consistency. The steel industry encourages and supports an open environment for their workers. The industry should seek to hire employees with this



personality trait because the employees may express more contentment and a positive attitude due to their ability to adapt to change.

The researcher studied types of personalities of employees between preserver and explorer. HRD had an influence on Performance Improvement through CI was completed. The result showed preserver type can practice CI better than explorer. The researcher suggests organization could build up their employee to be preserver personality. On different occasions an individual may express openness or closedness. If the environment feels safe, the individual will be more inclined to explore, knowing they do not have to keep alert for harm or danger. However, the opposite is true for an individual whom does not feel completely safe in a new environment. A sense of self-preservation and high alertness may be activated as a primal instinct. An individual is not stuck in one state or another all the time. One can fluctuate between the two depending on context and environment. One might relate more to being opened or closed depending on how they spend their time and how they interact with their environment. Many adventurers, travelers and curious intellects enjoy new places, sights and sensory experiences. However, these open individuals may feel introverted at times as well as a means to process new information that they have received. Open people may express unconventional values such as a desire to be an entrepreneur or the lack of desire to be married or have children. Someone open strives to create projects and share them in the community and help others express themselves in nonconventional ways. The creative aspect of the open individual is expressed through art, whether that is musically, poetically, drawing or any and all types of art. The open mind allows inspiration to guide its actions and therefore has the ability to produce a work of art or an exchange of knowledge through discussion or teaching. Because one is so open to new experiences, knowledge and pursuits, they may have handful of different skills. It takes the personality trait of conscientiousness for the artist to execute and achieve success in their endeavors. It could be that the open individual is so open, they have difficulty harness their energy and focusing on a single task. Being conscientiousness of each new activity and fully dedicating focus and energy toward that activity will help the open individual create and share their art with the world.

## 5.2 Theoretical Contributions

This research presented a conceptual model to develop employees' performance using a human resource development and business strategy (Continuous Improvement) to practice within the organization. The result from the model showed that human resource development has a positive effect on performance improvement through CI. The researcher considers the effect from HRD with CI had the most positive effect on performance improvement among level of employee positions in business, business functional areas, and personality trait. It was empirically proven that the structural role played by HRD contributed to the employee within CI. This supported Lin Gao (2011) that focus on identifying the type of CI abilities that are better associated with HRD practices and performance improvement, therefore his study shown HRD practices strongly and positive influenced performance improvement as fully mediated by CI abilities. Each business sector can work towards achieving the company's goal by working on their own problem areas. After being aware of problem areas, each section can create a solution and implement this into their plan for success. Therefore, CI is necessary for every organization to solve difficulties and enhance its contributions.

The results had also been consistent and supported Jorgensen, Boer & Laugen, (2006) who asserted that all of the CI capabilities are not equally weighted in relation to the develop of CI maturity, and concluded that CI maturity need not necessarily follow a linear progression in order to positively impact performance. Consequently, they suggested that the goal of individual company could ostensibly be used to determine where CI development effort should be targeted. HRD theory help staff to learn more and good practices about their career. CI strategy help staff to learn automatic improvement with problem solving in the organization. HRD and CI being good together and organization can use HRD practices with CI strategy for lowest cost just take long time for the best result. Then theoretical contribution HRD and CI related talent management and long-term planning to develop employees in the company. Then organization could help staff to learn more about their career and give important to employee to improve their skill.

### **5.3 Limitation of the Study**

First of all, due to the minority of the steel factories in Thailand, companies are reluctant to reveal much information. As well, since some information is sophisticated, the researcher has been unable to collect as much data as expected. Then, limitation of the study that the researcher has to keep participants anonymous who gave all information. It's important to keep participant's names confidential because it protects the individual. Unless they consent to sharing their personal information, that cannot legally publish their information.

### **5.4 Implication for Practice**

This study the researcher intends to present the significant organizations that drive country forward. It is certain that every organization must have a human resource department or personnel as the main units in work performance. Thus, the personnel of the Thai steel-manufacturing group are a significant representative of national and international labor. Based on the study, it revealed that if the organizations utilize a Continuous Improvement strategy in their management, their performance such as cost performance, relationship performance, and organizational performance would increase as follows: In order to manage an organization successfully and achieve organizational aims and objectives, the organization should have effective applications and work systems. Moreover, it should have knowledgeable, skillful and competent human resources officers. The more the organization's officers demonstrate these human resource characteristics, the more opportunities will be there for that organization to be developed. Hence, it is necessary for the organization to have human resource development. This HRD has various approaches as follow: On the part of education, the organization is able to develop personnel by supporting them through on-going education. In this case, the organization may provide scholarships for personnel to enroll in higher education in order that they can utilize their knowledge for the organization's development. On the side of training, the organization can manage training courses for strengthening their personnel's knowledge and competence. The training can be general or specific depending on the training objectives and the necessary requirements for the organization's usability. Job rotation is the performance

management of personnel to work in various divisions during a specific period. The intention of this management is to train personnel and to enhance their skills as well as capacities extensively. The extension of job experiences is regarded as cross-function training. This training assists personnel to have more confidence in their occupational decision-making. Apart from enhancing various work-related knowledge and capabilities, job rotation assists personnel to have an extended relationship network. This network is beneficial to their work-related responsibilities. On the other hand, job rotation has some disadvantage if it is applied to such divisions as those requiring specialist personnel. Likewise, work production might be delayed by job-rotation due to the personnel's unfamiliarity with the job requirements. Nevertheless, it is assumed that these disadvantages would be short-term compared to the long-term benefits gained through personnel's experience enhancement. As well, the experience benefits personnel's future careers along with the entire organization's development. With regard to coaching and mentoring, a supervisor can be a well-performing coach. As a coach, a supervisor cooperatively sets the objectives of the exercise with their subordinates. Furthermore, such a coach explains each step of work performance and shows or provides real illustrations for the trainee. Subsequently, the coach allows the trainee to perform and while they perform, the coach assesses his or her performance and encourages him or her simultaneously. Then, the coach will conduct a follow-up of work performance after the trainee is assigned a task. On the mentoring part, the senior personnel or higher-level personnel will provide advice and a helping hand to the junior or lower level personnel. Therefore, the junior will enhance higher work-related knowledge and competencies and have higher work proficiency that lead to promotion. Mentoring can be conducted by both an individual and a group, where group mentoring can solve the problem of the insufficient mentors. The difference between mentoring and coaching is that it is unnecessary for the mentor to be a direct supervisor or a superior. The organization desiring to become a learning organization should have the basics of both coaching and mentoring. Both of them can build an atmosphere of knowledge exchange, which will lead the organization to become a learning organization. In addition, coaching and training can effectively develop human resources in the organization. Regarding career development, the person responsible for

providing advice is a direct supervisor or the human resource officer. Because of attention given to personnel's career advancement from the direct supervisors, the relationships between people in the organization are enhanced. Besides, the supervisor who is closest to the personnel can understand more about their personnel's strength and weakness than others might be able to discern. When a strategy is initially used, there may be a faulty initial stage. However, as the strategy is improved and adjusted, repetition can remedy any faultiness. Subsequently, such fallibility can be dealt with immediately. This can build the self-efficacy required for learning experiences using strategies accurately. Although some strategies are effective in a particular country's context, other countries may experience different effects in particular parts of a strategy. The resulting different experiences can occur due to different organizational cultures. As well, work-related obstacles frequently arise. Even though one problem is solved, a new problem will predictably arise. Therefore, Continuous Improvement is necessary for every organization to solve difficulties and enhance its contributions. Each business sector can work towards achieving the company's goal by working on their own problem areas. After being aware of problem areas, each section can create a solution and implement this into their plan for success. The steel industry is one of the basic industries which is significant for all developing countries in the world. The companies have many employees. Employees with highest knowledge and ability to work in the industry will continue to be employed. The industry has included many machines, tools, products and employees for production and export of their products; therefore, it's important to have high standards of working because of its connection with numerous influential industries such as automotive industry, electrical appliances, electronics, furniture, foods package, machinery and construction industry. For economic stimulation, the government ministry has plans to invest in the steel industry, specifically in transportation projects. Many big organizations have success in their business because they have employees with high ability and they have great strategies. They have to employ people with high ability for business competitive advantage. Most of the steel industry is still constrained by government regulations and intervention. Therefore, HRD must be modified to fit within the developing country's guidelines. An economic plan can help guide new policies within the developing industrial sector and

human resource sector. CI practice is necessary for the high levels of staff in the company such as head of department, managers, and executives. All high levels include high education and more age, so they have more experiences and learning skills. For, they can improve their skill then develop organizational performance. The researcher suggests organization could build up their employee to be preserver personality. On different occasions an individual may express openness or closedness. If the environment feels safe, the individual will be more inclined to explore, knowing they do not have to keep alert for harm or danger. However, the opposite is true for an individual whom does not feel completely safe in a new environment. A sense of self-preservation and high alertness may be activated as a primal instinct. An individual is not stuck in one state or another all the time.

In conclusion, Continuous Improvement strategy led to success in businesses. The company was able to produce more efficiently in a timely manner by following the CI model. Performance Improvement was the dependent variable of the model. Variables used for this study were cost performance, relationship performance, and organizational performance. All of these aspects of company performance had been thoroughly reviewed from the earlier relevant studies and have represented good measurement for performance improvement construction. Employees in the steel industry have practiced CI activities. Every organization needs to take into account that the importance of maintaining product quality as well as product development. Considering the production, the production costs must be economical, and the product must be beneficial to the organization. Many achievements are accomplished by the capacities of all-level personnel in a particular organization: the managers from various divisions such as human resources, machinery, strategy, product quality, marketing and product improvement. Personnel must be experts in the production. Additional and other related organization would be related CI activities to administration strategies.

## **5.5 Future Research**

Every organization needs to take into account that the importance of maintaining product quality as well as product development. Considering the production, the production costs must be economical, and the product must be

beneficial to the organization. Many achievements are accomplished by the capacities of all-level personnel in a particular organization: the managers from various divisions such as human resources, machinery, strategy, product quality, marketing and product improvement. Personnel must be expert in the production. In contemplation of future research, this researcher suggests further research of human resource development in terms of performance management, personality of staff in the company from big 5 model in this research study only openness with staff moreover; neuroticism, extraversion, agreeableness, and conscientiousness. Then the organization could have talent management in future plan. Such management substantially involves human resource development in every organization. Additional and related future research would be related to administration strategies. Strategic theories for administration should be introduced to the organization in order to create competitive advantage. Examples of strategic theories include TRIZ methodology and the Monozukuri development of industrial personnel. Apart from strategic theories, the factors that prevent the increase of industrial products should be studied through engagement of organizational development. Organizational development plays a role in searching out for and solving these problems. Further research might focus on other organizations that integrate Continuous Improvement with HRD for developing the effectiveness of the organization's personnel. Illustrations of other organizations would include governmental organizations, service organizations, organizations of manufacturing for export, health organizations and educational organizations.

Finally, future research could involve the study of learning organization. The learning organization under study has a substantial influence on personal development in terms of both HRD and Continuous Improvement. Therefore, the initial step is to develop personnel in the organization since a human being is the most significant factor who moves every part of the organization forward.

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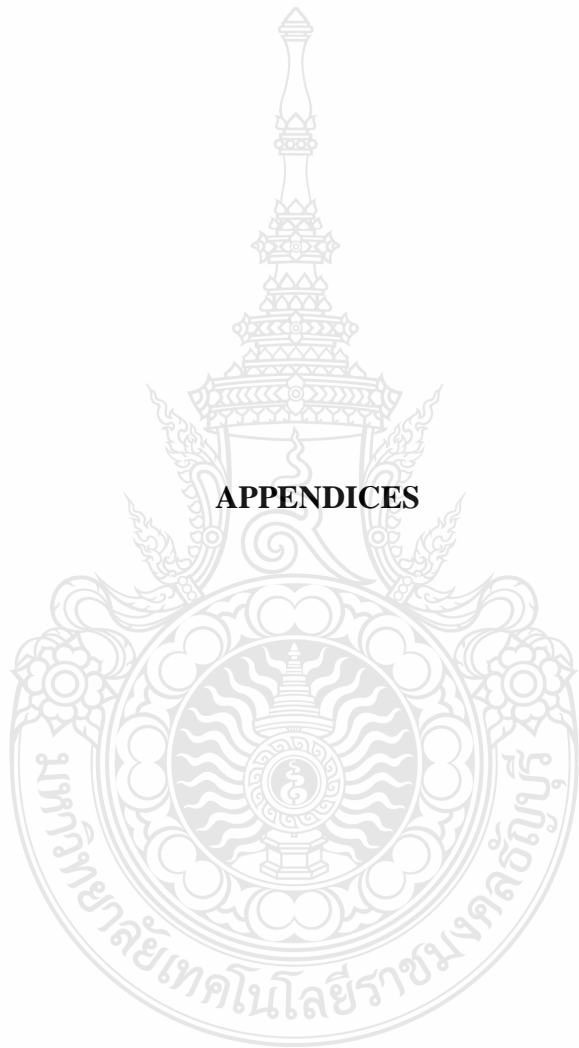
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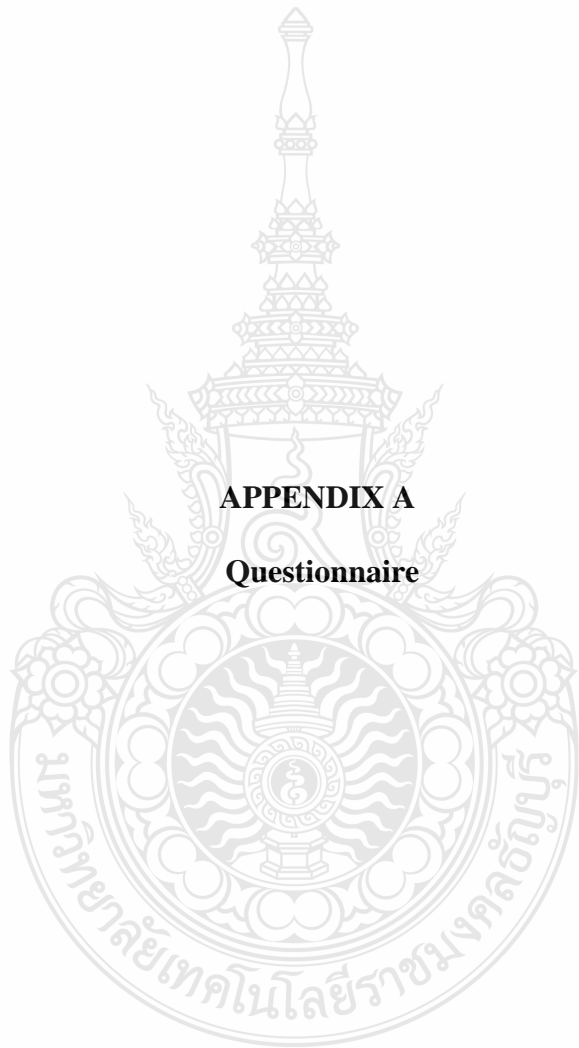
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**APPENDICES**



**APPENDIX A**  
**Questionnaire**

## Questionnaire

Topic: The Impact of Human Resource Development and Continuous Improvement on Employee Performance in The Steel Industry.

Question 1: Compared to your training and development experience, to what extent do you agree with each of the following statements regarding recent training and development activities. Please use the response scale of 1 = the least, 2 = less, 3 = rather less, 4 = neutral, 5 = rather much, 6 = much, 7 = the most.

No.	Human Resource Development Activities	1	2	3	4	5	6	7
1.1	Training records are continually updated and monitored.							
1.2	Appropriate employees are nominated to attend the right training and development activities.							
1.3	Training programs are designed to satisfy learning needs and improve employee competencies.							
1.4	Technical training improves employee's skills.							
1.5	Employee training needs are effectively identified and met.							
1.6	Training evaluation is done.							
1.7	New hire orientation activities (e.g., Corporate Entry Conference, Corporate Entry Program, etc.) help increase employee's commitment to the company.							
1.8	The organization supports programs, activities, processes, etc. to improve employee's interpersonal skills (BIG SIX capabilities).							
1.9	Managerial training ( e.g., Leadership 2000/LEP , Supervisory Training, etc.) helps supervisors manage their teams or improve their leadership skills.							
1.10	The performance management process/employee dialogue process enables objective evaluation of employee performance.							
1.11	Coaching and mentoring can help employees solve work related challenges or supports their future development.							
1.12	Employees build up new competencies and experience through their work activities.							
1.13	Employees' position descriptions are defined by responsibilities and required knowledge, experience and BIG SIX capabilities.							
1.14	Individual development planning is discussed between the supervisor and employee, and is implemented.							
1.15	Employee counseling helps employees in their daily work.							
1.16	Feedback Systems (e.g., BIX SIX Radar/360 degree feedback, BASICS live/employee satisfaction surveys) are effective.							
1.17	Human Resources professionals play a proactive role in developing organizational strategies.							
1.18	My supervisor's leadership skills have improved.							
1.19	My current position in the company is aligned with my individual development goals.							
1.20	Sharing knowledge or exchanging appropriate information within the organization is encouraged.							
1.21	Human Resources support ways to share knowledge.							
1.22	Corporate culture is evolving in order to promote business strategies.							



No.	Human Resource Development Activities	1	2	3	4	5	6	7
1.23	Human Resources tools (e.g., HRD online, etc.) can help employees and managers easily understand and use Human Resources Core Processes.							
1.24	Succession planning supports talent development and ensures the next generation of leaders.							

Question 2: Compared to your continuous improvement experience, to what extent do you agree with each of the following statements regarding recent continuous improvement activities. Please use the response scale of 1 = the least, 2 = less, 3 = rather less, 4 = neutral, 5 = rather much, 6 = much, 7 = the most.

No.	Continuous Improvement	1	2	3	4	5	6	7
2.1	Employees use some form of problem solving tools to resolve problems.							
2.2	Employees use appropriate tools and techniques to support their improvement activities.							
2.3	Employees use a form of measurement or indicators to shape the improvement process.							
2.4	Employees (individuals/groups) initiate and carry through to completion, improvement activities – they participate in the process.							
2.5	CIM: Ideas and suggestions for improvement are responded to in a clearly defined and timely fashion – either implemented or otherwise dealt with.							
2.6	Managers support the improvement of processes by allocating sufficient time, money, space and other resources.							
2.7	The organization recognizes in formal ways the employees' contributions to continuous improvement.							
2.8	Managers lead by example, becoming actively involved in the design and implementation of systematic ongoing improvement.							
2.9	Managers encourage employees to try new ideas and to learn from them.							
2.10	Individuals and groups use the organization's strategy and objectives to focus and prioritize their improvement activities.							
2.11	Employees understand the company and their department strategy, goals and objectives.							
2.12	Before kicking off a new project or implementing a solution, individuals and groups assess improvement opportunities against strategic objectives to ensure consistency.							
2.13	Individuals and groups monitor/measure the results of their improvement activity and its impact on strategic or departmental objectives.							
2.14	Improvement is an integral part of everyone's work.							
2.15	Employees are effectively working in cross functional teams across business units and divisions at all levels.							
2.16	Employees understand and feel ownership of their business unit or corporate processes.							
2.17	Employees are focused on internal and external customers in their improvement activities.							

No.	Continuous Improvement	1	2	3	4	5	6	7
2.18	Specific improvement projects are taking place with customers and/or suppliers.							
2.19	Relevant improvement activities involve representatives from different operational levels.							
2.20	Improvement activities and results are continually monitored and measured.							
2.21	In my area or location the CI system is regularly monitored and updated.							
2.22	There is periodic review of the CI process at the corporate level by the management team to ensure it's alignment to corporate goals and objectives. Adjustment of CI process is made as necessary.							
2.23	Senior management makes available sufficient resources (time, money, personnel) to support the continuing development of the CI program.							
2.24	The individual/group responsible for designing the Continuous Improvement process designed it to fit within the current structure and infrastructure.							
2.25	Ongoing assessment ensures that the organization's processes, structure and systems consistently support and reinforce improvement activities.							
2.26	When a major organizational change is planned, its potential impact on the organization's improvement system is assessed and adjustments are made as necessary.							
2.27	Managers at all levels display leadership and active commitment to ongoing improvement.							
2.28	When something goes wrong the natural reaction of people (at all levels) is to focus on why rather than to blame the individual(s) involved.							
2.29	ConCIP or equivalent formal improvement system has been introduced to involve all employees in ongoing improvement.							
2.30	Everyone learns from their experiences, both good and bad.							
2.31	Employees seek out opportunities for learning and personal development by setting their own learning/career objectives.							
2.32	Employees feel comfortable to reach out to colleagues at all levels in the organization to share and receive information needed to support their work.							
2.33	The organization articulates and consolidates (captures and shares) the learning of individuals and groups.							
2.34	Managers accept and, where necessary, act on all the learning that takes place.							
2.35	People and teams ensure that learning is incorporated into all working processes within the organization.							
2.36	Appropriate organizational processes are used to deploy what has been learned across the organization.							

Question 3: To what extent do you agree with each of the following areas of business performance have been improved in your organization. Please use the response scale of 1 = the least, 2 = less, 3 = rather less, 4 = neutral, 5 = rather much, 6 = much, 7 = the most.

No.	Performance Improvement	1	2	3	4	5	6	7
3.1	Increased production volume							
3.2	Improved administrative tasks							
3.3	Increased productivity							
3.4	Improved product quality							
3.5	Improved delivery reliability							
3.6	Reduced lead times							
3.7	Reduced cost							
3.8	Higher customer satisfaction							
3.9	Decreased absence							
3.10	Improved safety and working conditions							
3.11	Increased employee skills and competences							
3.12	Increased employee commitment/attitude towards change							
3.13	Improved organization, cooperation and communication							
3.14	Improved supplier relations							
3.15	Improved customer relations							
3.16	Improved relations between departments							

Question 4: To what extent do you agree with each of the following recent personality traits. Please use the response scale of 1 = the least, 2 = less, 3 = rather less, 4 = neutral, 5 = rather much, 6 = much, 7 = the most.

No.	Personality Traits	1	2	3	4	5	6	7
4.1	I see my self as some one who is curious about many different things.							
4.2	I see my self as some one who is inventive.							
4.3*	I see my self as some one who prefers work that is routine.							
4.4	I see my self as some one who like to reflect, play with ideas.							
4.5*	I see my self as some one who is when I'm doing well at something I always keep at it.							
4.6*	I see my self as some one who is totally disagree with people's opinion.							

Question 5: Personal information of the survey respondents.

1. What is your gender?

A: Female    B: Male

2. What is your age?

A: Below 25    B: 25 - 35    C: 36 – 45    D: 46 - 55    E: Above 55

3. What is your highest educational level completed?

A: lower High School Degree

B: High School Degree

C: Certificate of vocational and Technical / High certificate of vocational and Technical

D: Bachelor Degree

E: Upper Bachelor Degree

4. How many total years have you worked for this company?

A: Less than 3 years    B: 3-5 years

C: 6-10 years    D: More than 10 years.

5. Monthly salary

A: Less than 10,000 THB    B: 10,001-20,000 THB

C: 20,001-30,000 THB    D: More than 30,000 THB

6. Functional Area

A: Engineer    B: Quality    C: Human resource    D: Technician

7. Level of employee positions in business

A: 1-2    B: 3-4    C: 5-6    D: Upper than 6

### Explanation

Level of employee positions in business

A: 1-2 : Practitioner Level

B: 3-4 : Operational Level

C: 5-6 : Experienced Level/ Senior Professional Level

D: Upper than 6 : Head of department/ Manager/Executive/ Head of functional area

## Biography

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## Declaration

This work contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and beliefs, contains no material previously published or written by another person, except where due reference has been made in the text.

I give consent to this copy of my dissertation, when deposited in the university library, being available for loan and photocopying.

Chanakan Chavaha

