

The Factors Affecting the Transfer of Training: A Case Study of the Metropolitan Waterworks Authority of Thailand

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Abstract

This study aims to evaluate the trainees' behavior in terms of knowledge, skills and attitudes (KSA), as well as to determine the influential factors of the transfer of training of the trainees in the Metropolitan Waterworks Authority's middle management training program. This study applies both qualitative research method by conducting 360-degree interviews with the trainees and their supervisors, co-workers and subordinates for the trainees' behavioral evaluation, and quantitative research method by conducting a questionnaire survey with the trainees to identify the influential factors of the transfer of training. The behavioral evaluation indicates that the trainees have been improved in working ability and outcomes, adaptation of acquired knowledge, cooperation, and leadership; and the trainees most successfully transferred the acquired knowledge from the training to the directly relevant works and the equally difficult works. The data analysis results reveal that the most influential factor on transfer of training is the trainees' characteristics. The results on the influential factors on the transfer of training enable trainees' behavioral changes and the discovery of new training programs that creates the highest possible learning. The results also imply the significant impact of organizational culture on the transfer of training. The present study provides a fuller understanding of the training program by incorporating from pre-program to post program processes, and reveals the success of the transfer of training in the specific context of Thailand.

Keywords: transfer of training, training evaluation, training design, human resource development, management development, national culture

Introduction

Since training is a costly investment for the transformation of human resources into human capital, an organization thus expects certain tangible and intangible achievements from such investment. Upon the completion of a training program, an organization usually conducts a meticulous audit on the training effectiveness as to whether the obtained knowledge, skills, and attitudes (KSA) are transferred to improve the job performance.

Management development programs for middle- and senior-level positions had conventionally been carried out by the Office of the Civil Service Commission of Thailand. Currently, these management training programs are pervasive among various public organizations in Thailand, and are utilized for enhancing and retaining valuable employees.

Since Thailand's Civil Service Reforms in 2012, formal and institutional efforts for civil servant' training and development have continuously been pursued for the purpose of

effective bureaucratic system development. Consequently, public training institutions under the guidance of the Civil Service Commission have been providing several types of management training programs for Thailand's civil service.

Previous empirical studies have shown ineffectiveness of the transfer of training with low return on investment. Specifically, only ten percent of the investment in skills could actually be transferred to the behavioral change in the workplace (Ford *et al.*, 2011; Grossman and Salas, 2011). Furthermore, the study of Yunus and Yasin (2014) revealed that a small amount of acquired knowledge and skills was truly adapted in the jobs.

Regarding the post-training process in Thailand, a reaction evaluation is commonly conducted because it is a compulsory practice and is already included in the training budget. Unfortunately, other essential evaluation processes, including learning evaluation, behavior evaluation, and result evaluation, are frequently overlooked. Training evaluation solely focusing on the trainees' perception may be the result of various factors, such as lack of budget, time consumption, and changes in trainees' responsibilities and positions, which complicate the evaluation process.

Similarly, there are few studies on training evaluation in domains other than the trainees' perception in Thailand, while the studies on the transfer of training are also limited. Specifically, most studies emphasize reaction evaluation, which only involves the reaction level of trainees. In other words, they mostly elaborate on the trainees' attitudes and satisfaction towards course objectives, content, venue, and spontaneous reaction, while the ultimate goal of training, which is the transfer of training into positive behavior or improved job performance, is unfortunately neglected.

Therefore, this study utilizes an in-depth investigation into the influential factors of the transfer of training, which consists of three main factors: the trainees' characteristics, training design, and the work environment. Furthermore, insights and recommendations regarding the importance of training assessment are also provided.

Research Questions

There are two research questions. First, what is the most influential factor in the overall (perceived) transfer of training? Second, how can trainees practice the knowledge learned from the training in their work context?

Literature Review

Thailand needs highly competent civil servants who can drive the country out of the middle income trap. Currently, the government has launched a national strategy called "Thailand 4.0" to develop the country to become "Digital Thailand," which emphasizes the

investment in human resources and innovation as urgent initiatives (The Secretariat of the Prime Minister, 2016).

The development of middle and top management in public organizations is considered an urgent policy. The development of human resources in the public sector is thus required in order to be concordant with the establishment of the ASEAN Economic Community (AEC), and to professionally deal with an unpredictable environment resulting from globalization, technological changes, and the virtualization of communication. Therefore, management development programs have been practiced as a direct intervention for the improvement of civil servants' knowledge, skills, and attitudes.

The transfer of training is an important mechanism for facilitating individual changes according to the requirements of the organizational system. This study then reviewed extensive theories in order to determine the factors that have an influence on the transfer of training. These theories are related to the motivation for transferring, transfer design, and transfer climate. The findings will provide a better understanding of why individuals wish to enhance their performance after attending a training program, which training design facilitates their ability to successfully transfer the acquired knowledge and skills, and what kind of work environment encourages the transfer.

Theories Supporting the Transfer of Training

The transfer of training has been widely studied by many well-known academicians. The seminal study of Baldwin and Ford (1988) divided the determinants of the transfer of training into three main categories: 1) training inputs, consisting of the trainees' characteristics, training design, and the work environment; 2) training outputs, consisting of learning and retention; and 3) the conditions of transfer, consisting of the generalization and maintenance of the training.

Kirwan and Birchall (2006) claimed that the motivation to transfer depended on the readiness of learners, while Velada *et al.* (2007) suggested that training design, performance, self-efficacy, training retention, and performance feedback were associated with the transfer of training.

In addition, Nikandrou *et al.* (2009) indicated that the influential factors on the transfer of training could be categorized into two main groups: factors related to the trainees themselves and the training programs. The first group included the motivation to learn, the opportunity to apply the new skills, personal career goals, and ambition, while the second group included the program's objectives and scope, methods, techniques, and equipment. They further suggested that the trainer should be both theoretically and practically competent so that effective transfer of knowledge and skills could be achieved.

Grossman and Salas (2011) summarized the key determinants of transfer of training into three categories: 1) the trainees' characteristics, including cognitive ability, self-efficacy,

motivation, and perceived utility of training; 2) training design, including behavioral modeling, error management, and realistic training environment; and 3) the work environment, including the transfer climate, support, opportunity to perform, and follow-up.

Moreover, the study of Tonhäuser and Büker (2016) in Germany suggested other various factors that influenced the transfer of knowledge from the individual level and the learning field level to the organizational level, while most of the previous studies focused rather on the individual level.

Certain studies in neighboring countries of Thailand, such as Malaysia, identified four factors affecting the transfer of knowledge, as follows: 1) the trainees' characteristics; 2) the work environment; 3) training design; and 4) learning space. The last factor referred to net-based or e-learning spaces because different technologies were utilized in facilitating the better transfer of knowledge. In addition, Bhatti *et al.* (2013) studied a training program in the Malaysian Banking industry and suggested six factors that influenced the transfer of training: 1) learner readiness, 2) peer support, 3) supervisor support, 4) instrumentality, 5) transfer motivation, and 6) training retention.

Wen and Lin (2014) also studied this topic in Taiwan by utilizing structural equation modeling (SEM) and claimed that the role of motivation in self-efficacy highly influenced the transfer of training. Furthermore, Obaid *et al.* (2016) studied this topic with the academic staff in several universities in Palestine and found the significant impact of supervisor support on employees' performance enhancement.

Regarding previous related literature, several other influential factors on the transfer of training have been cited. For instance, the content of training programs, namely hard- or soft-skill trainings, was found to have an impact on the transfer of training (Laker and Powell, 2011). The present author also reviewed previous literature related to the factors influencing the transfer of training in the past five years, and each input factors is elaborated in the light of previous reviews and more recent empirical findings in **Table 1** as follows.

Table 1

Factors Influencing the Transfer of Training

Authors	Factors of transfer	Finding and contributions	Journal	Countries studied
Vishal Arghode and Jia Wang (2016)	Training design	Trainee-centered learning, learning environment, and interesting instruction were utilized as techniques and strategies in engaging trainees.	European Journal of Training and Development	USA
K. G. Garner, Casey R. Lynch and Paul F. Dux (2016)	Training design	There were certain conditions determining the transfer of the decision-making training. Transfer of training required abstract rules that could be generalized to other stimulus sets.	Journal of Experimental Psychology: Human Perception and Performance	Australia
Rita Alvelos and Aristides I. Ferreira (2015)	Work environment	There was a significant association between perceived content validity and transfer design.	European Journal of Training and Development	USA
Abdul Rahim Zumrah (2015)	Work environment	There were significant relationships among perceived organizational support (POS), transfer of training, and service quality in the Malaysian public sector.	European Journal of Training and Development	Malaysia
Eva Ellström and Per-Erik Ellström (2014)	Work environment	Managers' attention to and support for the work-based vocational education and training (VET) program for care workers encouraged the transfer of training in the work place.	European Journal of Training and Development	Sweden
Ana Inés Renta-Davids, José Miguel Jiménez-González, Manel Fandos-Garrido and Ángel Pío González-Soto (2014)	Training design	Transfer of training was influenced by trainee motivation, training design, and learning-conducive work features.	European Journal of Training and Development	Spain
Stephen L. Yelon, J. Kevin Ford and William A. Anderson (2014)	Training design	To achieve effective transfer of training, trainees were required to learn needed competencies, apply the practical approaches taught, and learn to arrange physical resources, time, and opportunities to transfer.	Medical Teacher	USA
Muhammad Awais Bhatti, Mohamed Mohamed Battour, Veera Pandiyan Kaliani Sundram and Akmal Aini Othman (2013)	Work environment situational and individual factors	There was a significant association between learner readiness and transfer motivation.	European Journal of Training and Development	Malaysia

(continued)

Authors	Factors of transfer	Finding and contributions	Journal	Countries studied
Anastasios D. Diamantidis and Prodromos D. Chatzoglou (2012)	Training design	The level of learning was not directly influenced by the training material, instructors, or training environment.	European Journal of Training and Development	Greek
Khalil M. Dirani (2012)	Work environment	The impact of training, trainees' career development, and their attitudes toward the work environment encouraged the transfer of training.	European Journal of Training and Development	Lebanon
Amanda Shantz and Gary P. Latham (2012)	Trainee characteristics	Written self-guidance (WSG) was found to increase the trainees' self-efficacy, which further elevated their performance.	Human Resource Management	UK

Factors Influencing the Transfer of Training

It is extensively recognized that trainees' characteristics are considered as cognitive attributes in achieving training outcomes. Specifically, their learning ability, motivation to learn, the perceived utility of the training, and the perceived prospects of career advancement are indicated to have an impact on the transfer of training.

Trainees' characteristics can be categorized into two main groups: psychology and motivation-related factors (Holton and Baldwin, 2003). Cognitive ability is a crucial attribute of individuals in analyzing and synthesizing complicated ideas during training programs. Obviously, competency is an essential requirement for good job performance. Hence, highly-competent trainees are likely to maximize the magnitude of the training transfer via the adaptive abilities of knowledge, skills, and attitudes obtained during the training programs into the work context. On the other hand, lack of cognitive ability will lead to a low level of acquisition of learning from the training programs. Grossman and Salas (2011) also confirmed that cognitive ability was a strong determinant of the transfer of training.

Motivation to learn is another essential determinant that encourages individuals to act and behave in certain situations, and subsequently encourages the transfer of training (Wen and Lin, 2014). Even though several studies have explored the influence of motivation to learn on the transfer of training, these studies unfortunately treated it rather as an outcome than an influential factor (Blume *et al.*, 2010). Recently, trust has been claimed as one of the most crucial factors that influenced the transfer of training (Xue *et al.*, 2011). Specifically, interpersonal trust between top management and employees influences individuals' subjective attitudes, which further determine the knowledge-learning behavior. Therefore, employees who have a trustful relationship with their supervisors will likely increase commitment and collaboration toward the training program.

The perceived utility of training that is associated with career advancement is another determinant of the motivation to learn. Trainees that consider training to be practical and beneficial to their jobs are more likely to learn and adapt the new knowledge and skills to the workplace (Obaid *et al.*, 2016). Furthermore, trainees that perceive the acquired knowledge and skills from the training to be applicable in solving work-related problems are more likely to be motivated to learn. Career advancement and promotion are also considered as intrinsic motivation, and positively influence the motivation to learn. According to Holton and Baldwin (2003), when trainees are not motivated or rewarded, they will hesitate to learn and tend to conceal their knowledge. On the other hand, career advancement and promotion encourage trainees to learn and adapt the newly-obtained competences to their jobs (Bhatti *et al.*, 2013; Grossman and Salas, 2011). Hence, trainees' competency, trust in supervisors, the perceived utility of learning, and career advancement are the determinants of the transfer of training.

Training designs, which can be defined as the content and instructional design aspects of the training programs, are composed of influential elements, such as training content,

instructional techniques, and feedback. Burke and Hutchins (2007) suggested six factors that influence a training design: identification of learning needs, learning goals, content relevance, instructional strategies and methods, self-management strategies, and instructional media. Moreover, the quality of the training design is influenced by the quality of the training needs analysis, and such analysis is required to include organizational, task, and personal analysis levels in order to match the training program with the organization's strategies, and prepare employees with appropriate knowledge, skills, and abilities to match the job requirements.

The training content should be work-related, and includes both hard- and soft-skill training. While the first is technical training, the latter emphasizes interpersonal and management (Laker and Powell, 2011). Furthermore, these two types of training utilize different training methods; for instance, the hard-skill training applies instructive and demonstrable methods, such as automobile training.

Strategies for the training method are indeed vital for the success of training programs. There are several methods of training, such as seminars, group discussion, workshops, etc. Among them, team learning and action learning achieve mostly a high successful rate in terms of training transfer (Hughes and Kardash, 1995).

Team learning and action learning methods achieve a high rate of transfer because learners have an opportunity to behave and get feedback on their behavior, which further leads to adjustment to appropriate behavior. In addition, the team learning method enables learners to recognize their mistakes and other people's perspectives so that behavior adjustment is achieved (Bandura, 1977). Moreover, Noe *et al.* (2010) also found that the learner-centered training design would engage learners with the program and further facilitate the transfer of training. Such findings were also confirmed by Patricia and McLean's (2013) study, which indicated that the training method had an impact on the transfer of training.

The work environment refers to the situation that assists the transfer of training into the work context, including support from supervisors and coworkers, opportunity for knowledge utilization, and positive and negative reinforcement following the use of the training in the workplace. The concept of the work environment has been expanded to include social support (Burke and Hutchins, 2007) and social climate (Grossman and Salas, 2011), which have frequently been a topic of transfer of training assessment. The relationship between trainees and the work environment includes interpersonal relations, especially between individuals from different hierarchical positions (Hofstede, 1980).

Supervisory support is a top-down relationship that creates a favorable work condition so that trainees can adapt the obtained knowledge and skills to their jobs. Trainees that believe that their supervisors will support the transfer of training will be more encouraged to transfer the learned knowledge and skills. Martin (2010) also explained that the work environment and peer support create a favorable climate for sharing knowledge and experiences. Peer support refers to joint efforts in identifying opportunity and utilizing

obtained knowledge and skills. Hence, peer support facilitates the transfer of training through feedback, aspiration, problem-solving assistance, and offering coaching assistance (Martin, 2010). Although the study of Blume *et al.* (2010) indicated that supervisory support had a greater moral influence than peer support, both the support from the supervisor and peers benefit trainees in terms of feedback, which has a significant positive influence on the transfer of training (Goodman *et al.*, 2011; Van den Bossche *et al.*, 2010).

Opportunity for knowledge utilization, as well as positive and negative reinforcement, are associated with the organizational climate and culture. These factors may encourage or discourage the transfer of training. Organization culture refers to the shared values and beliefs that direct individual behavior to conform to the organization's norm. Moreover, societal and cultural values have an impact on organizational structuring, which further creates the automatic patterns of perception, thoughts, feelings, and behavior that provide stability and comfort for employees. The extent and influences of organizational culture on employees are varied according to size and geographical location. For instance, within the high-context culture of Asian countries, politeness and maintaining "face" are considered as individuals' pride, dignity, honor, and self-esteem, while an effort to maintain group harmony is also essential. Therefore, loss of face may result in embarrassment for an individual and a group (DeCapua and Wintergerst, 2004).

In conclusion, the factors that influence the transfer of training are 1) the trainees' characteristics, such as cognitive ability and motivation to learn; 2) the training design, such as training content and instructional method; and 3) the work environment, such as supervisory and peer support, and organizational culture.

The Influence of Thai Cultural Values on the Transfer of Training

The Metropolitan Waterworks Authority (MWA) is one of Thailand's state-owned enterprises controlled by the Ministry of Interior (MOI) and the culture of the MWA has been adopted by the MOI. The MOI is the oldest ministry in Thailand and was established in 1892. Compared to other ministries in Thailand, the structure and culture of the MOI are rather bureaucratic in which a hierarchical level, unity of command, and a seniority-based culture have been embedded for more than a hundred years. In Thailand, position, title, rank, and status are very important because Thai people acknowledge people with higher status or positions. This argument is confirmed by the study of Komin (1990) and Holmes and Tangtontavy (1995), where it was seen that the administration in Thailand is influenced by four main values: acknowledgement of (and submission to) ('Pu Yai'), i.e. those in a higher position or authority; consideration of others ('Kreng Jai'), i.e. the hesitation to bother a person of higher rank in the sense of psychological respect; criticism avoidance (face saving), where face can be referred to as one's ego or self-image; and indebted goodness ('Bun Khun') or the reciprocal relationship between the giver and the receiver.

Based on Hofstede's cultural dimensions, Thai people can be generally considered to have a high degree of power distance, collectivism, femininity, uncertainty avoidance, and

short-term orientation. Hofstede's study further explains that Thai people rather submit to their superiors and try to avoid criticism or save face. Because it is a feminine culture, Thai people tend to avoid confrontation or express contradictory opinions, especially to people of higher status (Hofstede, 1980).

Since Thai people assess events once they take action by using personal values as the criteria, values thus come to play a crucial role in understating an individual's behavior in the work environment. Previous studies have revealed that national culture has an influence on human resource management and also the transfer of training (Schuler, *et al.*, 1996).

National culture also affects the transfer of training. In the MWA training program, the participants were well aware that passing this program would grant them promotion opportunities. Unfortunately, the number of vacant positions was less than the number of trainees. Everyone was therefore motivated to reveal his or her potential to the executives. For those with high expectation regarding promotion and seniority in terms of age and work experience the training was a crucial opportunity to portray their competency and potential.

Besides expectations for promotion, trainees from various organizational units tried to save face, because losing face meant being insulted by others. Thai scholars, such as Komin (1990), have claimed that Thai people have a high ego and take criticism personally rather than objectively in a constructive manner. As a result, the trainees sensed a competitive atmosphere during the training.

Factors Influencing the Transfer of Training at the Metropolitan Waterworks Authority (MWA)

The Metropolitan Waterworks Authority (MWA) is one of Thailand's state-owned enterprises. As of 2015, the organization had 4,362 employees with an annual expenditure of 7.3 billion Baht, of which 2.6 billion were invested in human resources, especially in human resource development. It is crucial to note that the MWA has continuously given priority to training and development functions in order to keep up with today's dynamic environments, especially in light of the regional integration of the ASEAN Economic Community.

The MWA's middle management training program has been held annually for more than 15 years. Although the assessment of the training's effectiveness beyond reaction evaluation is certainly critical, it has never been conducted. The program objective was to develop and prepare middle managers for higher-level positions. In 2015, the MWA's middle management training program had 94 trainees, and took 96 hours over a two-month period. The trainees were from the MWA's nine different functional divisions, such as water production and transmission, engineering and constructions, plan and development, information technology, finance, and governor and deputy governor, etc. During the beginning stage of the program, the present author discussed with and interviewed the Deputy Governor of Administration and the Director of the Human Resource Management Department in order to comprehend the objectives and expectations of the organization, and

subsequently conducted a needs analysis covering organizational, task, and person-analysis levels.

Regarding the MWA training program, the trainees expected to be promoted to a higher position. Seniority is an essential factor for career advancement in the Thai civil service. Seniority values result from social characteristics, attitudes, beliefs, and way of life that have been long fostered and inherited from the country's politics and government. The acceptance of the power of individuals with higher social status is considered as a core value of the Thai civil service. Hanks (1968) explained that karma determines status and positions. Specifically, it is widely believed and accepted that people possess high social status because they had positive karma in their previous lives.

The criteria for career advancement in the Thai civil service consist of general and position-specific qualifications. The general qualifications refer to the characteristics that are specified when taking the civil servant positions, such as having a Thai nationality and being 18 years of age and above, while position-specific qualifications are composed of educational qualifications that are appropriate for the job characteristics and the duration of holding the previous position, which is commonly two years, as well as virtue. Although seniority is not officially specified, it is commonly recognized as one of the most essential criteria for promotion.

This training program was designed to conform to the MWA's middle manager competency framework, emphasizing performance orientation in accordance with the MWA's interest in being a high performance organization.

Regarding the trainees' characteristics in this training program, they were carefully recruited by the Human Resource Department, and were required to pass the interview examination by the committee. Their age, tenure, and previous performance were also considered as the program's entrance requirements. This program was considered as preparation for these trainees to grow as top managers of the MWA.

In Thailand, tenure is the indicator of engagement level. Despite the current dynamic environment, in which generation Y employees have a high turn-over rate, the turn-over rate is still low in the public sector, where career advancement to top management is more likely for those with long tenure. Long tenure implies that individuals have positive attitudes toward an organization, and that they trust and are loyal to their supervisors. This conforms to Thailand's values, which give priority to the reciprocal relationship between supervisors and subordinates. In this training program, it was found that individuals with high job engagement were more likely to be motivated to learn and transfer their training.

The motivation to learn, which is a determinant of the transfer of training, refers to the expectations regarding promotion and career advancement. Hence, trainees that wish to be promoted are more likely to transfer the acquired knowledge. Therefore, it is an essential motivation.

Regarding the training design, the training content and instructional methods are influential factors in the transfer of knowledge and skills. Training content reflects the job requirement. In this study, training content was measured according to the trainees' attitudes toward the training in terms of particular job-related tasks, and the responses indicated whether the training content enhanced their job performance.

The utilization of various training methods and techniques not only heightened the trainees' interest, but also the training effectiveness. Team learning and project-based learning were the fundamental instructional methods in this training program. Team learning has increasingly received attention in the program designing and planning processes, where multiple techniques are applied, such as lectures, case studies, discussions, collaborative assignments, and shared leadership. Team learning is likely to elevate trainees' learning process and experience, and subsequently facilitates the transfer of training to their job (Hughes Caplow and Kardash, 1995).

The MWA's middle management development training program took approximately two months, and trainees were divided into subgroups of eight to ten members in accordance with their job functions, such as engineers, accountants, financial officers, technology officers, and service providers. Every group member was encouraged to take on new roles and behaviors. Every group was assigned to develop and submit a concrete project within a specified period, while the members were required to work together throughout the entire training period without the possibility of switching between groups. They were welcomed to consult with advisors and lecturers at any convenient time. Furthermore, every group was assigned to present a weekly progress report elaborating not only the progress of the project, but also identifying each member's contributions to the project development and presentation. Upon the last stage of the program, every group was assigned to give a presentation to the MWA's top management, and the program's lecturers and external academicians, who were to provide valuable comments and recommendations.

Regarding the work environment, the acknowledgement and acceptance of individuals in higher position or with authority are essential values in Thailand. According to Hofstede's dimensions, Thai people are rather collectivist than individualist. Supervisors are then supposed to look after and nurture their subordinates, while they receive loyalty in return. Such values are a result of the paternalistic culture in Thailand, in which supervisors take on a role similar to parents, and managers tend to be involved with employee-empowering practices. In the high collectivist culture of Thailand, bonding among people is strong, and individuals consider themselves as a part of a group. Accordingly, supervisory support is a crucial determinant of the magnitude of training transfer.

The opportunity to utilize the acquired knowledge and skills is highly influenced by the prospects to be promoted to a higher position. That is, trainees that perceive a training program as a requirement for promotion will likely have higher motivation to learn and transfer the obtained knowledge and skills. Hence, the work environment factors in this program, such as supervisory support and perceived utility of training, are closely associated

with the Thai culture. In the MWA's training program, trainees well realized that passing this program would provide them with career advancement. Nevertheless, vacant positions were not available for every trainee. Every trainee was then motivated to exhibit his or her potential to the executives. Therefore, the training program was a critical opportunity for trainees with high prospects of promotion and seniority in terms of age and tenure to expose their competence and potential.

Forms of Transfer

There are several types of transfer of training. Since the training program in this study aimed to prepare trainees for top management, the transfer of training thus not only focused on the current jobs, but also generalized the training outcomes and adjusted behaviors that were appropriate for top management positions. Hence, this study focused on four main forms of transfer as follows.

- 1) Near transfer - This is the transfer of conditions or simulations in the training that are directly relevant or very similar to the work context (Baldwin and Ford, 1988). In this training program, there were certain courses that were relevant to the trainees' current jobs, such as "MWA Sustainable Production Innovation" and "MWA Branding and Customer Relations Management." The similarity between the training and on-the-job requirements should allow trainees to relate their current work context to the training so that the transfer of knowledge and skills will enhance job performance (Yamnill and McLean, 2001). Thus, the training contents and teaching methods that involve near transfer will effectively assist the transfer of training to the current job.
- 2) Far transfer - This is the transfer of conditions or simulations in the training that are similar to but not directly relevant to the work context. There were MWA training courses on strategic specifications and business directions, such as "Policies and Direction of Thai State Enterprises," "Strategic Planning," "Proactive Marketing and Business Negotiation," "Engagement, Network Building, and Leadership," "Organizational Vision and Modern Management," and "Corporate Governance." The acquired knowledge from these courses could be adapted and transferred to other jobs, especially to administration-related jobs in which trainees are supposed to solve strategic problems. Hence, far transfer is the concept according to which trainees can generalize specific knowledge and skills from one context to another.
- 3) Lateral transfer - This is the transfer of conditions or simulations in the training to equally-difficult work contexts (Fuenham, 2005). In this type of training program, there were certain courses on leadership and administration, such as "Organizational Conflict Management," "Systems Thinking and Executive Decision Making," and "Coaching Skills for Executives." From these courses, trainees can adapt the acquired knowledge to other contexts.

4) Vertical transfer - This is the transfer of conditions or simulations in the training to more difficult or complex work contexts (Fuenham, 2005). This training program offered many substantial experiences to trainees by organizing a seminar for knowledge sharing with other organizational units, and arranging joint field trips where trainees were given opportunities to have experience with the different problems of each department, such as field trips on water management, the protection of sea water influx in MWA's freshwater canals, and national sustainable development projects, etc. The acquired knowledge and experiences gave trainees new thinking perspectives and methods. Being exposed to these experiences from other organizations assisted them in solving more difficult problems than those that occurred in their current work context.

Research Methodology

The objectives of this study were to evaluate the trainees' behaviors after the completion of the training programs in terms of knowledge, skills, and attitudes; and to determine the factors that influence the transfer of training. This research acquired reliable information from various sources. In order to conduct a cross check concerning whether the opinions of the participants and the surrounding people were consistent with each other, the triangulation method was employed. In the triangulation, perceived transfer of training was measured from the perspectives of the trainees and their supervisors, coworkers and subordinates. The researcher used both qualitative and quantitative research methods. This was followed by the use of a more qualitative and descriptive design in which the trainee's self-evaluation and a 360-degree interview with supervisors, subordinates, and coworkers were implemented. The method composed of four key stages as follows.

1) Questionnaire - The questionnaire was designed in order to examine the trainees' behaviors in transferring the learned knowledge, skills, and attitudes to their jobs. The trainees were asked to evaluate their perceived transferred of training. The question items were based on the courses. In this program, the courses could be grouped into three main categories, namely; 19 courses on knowledge enlargement, 14 courses on skill development, and 6 courses on attitude adjustment.

2) Interview with supervisors - Here the questions were related to the trainees' behavior in terms of performance, work methods, work-related thinking methods, and supervisor of their subordinates. The interviews took approximately one hour to one hour and thirty minutes.

3) Interview with coworkers - The questions here were related to the trainees' behavior in terms of coordination, teamwork, and work-related assistance. The interviews took approximately one hour to one hour and thirty minutes.

- 4) Interview with subordinates - The questions were related to the trainees' behavior in terms of work methods, coaching, and effectiveness in moderating meetings. The interviews took approximately one to one and a half hours.

Since training not only constitutes behavioral change, it sometimes contributes innovation to the organization. For this reason the case study called "Water Pipe Explorer" was selected because their project presented during the training period made an impression on the top management and because it can be applied to actually reducing water loss.

Data Collection

This study examined MWA's middle management development training program, which took 96 hours, and there were 94 trainees. This study was conducted after the program had been completed for approximately six months, and some trainees thus had changed positions or transferred to other departments. Therefore, there were some inevitable limitations. Simple random sampling was implemented in order to select the target respondents, which were trainees in certain main and supportive functions. Regarding the main functions, including engineering and construction, water production and transmission, and service provision, there were 22 interviewees, consisting of four supervisors, four coworkers, five subordinates, and nine trainees. Regarding the supportive functions, including finance, plan and development, and information technology, there were eight interviewees, consisting of two supervisors, two coworkers, two subordinates, and two trainees. In total, thirty interviews were conducted, and each took approximately one hour over approximately a two-month period.

The interviewees were asked to give feedback on the trainees' behavioral changes after participating in the program. Regarding the supervisors, the interviews focused on working outcomes, leadership, and planning and problem-solving abilities. The interviews with coworkers emphasized coordination abilities, cooperation, teamwork, and integration ability, while the interviews with subordinates concentrated on teaching and coaching abilities, consultation, listening to and assisting in problem-solving, and applying the acquired knowledge to the work context. There was also another set of question items for trainees themselves.

Regarding the study on the factors that were seen to influence the transfer of training, the research methodology consisted of three main stages as follows.

- 1) Regarding the analysis on the relationships between the three independent variables and the dependent variable, the independent variables were the trainees' characteristics, training design, and work environment, while the dependent variable was the transfer of training. The statistics utilized were percentage, mean, and standard deviation (SD), the values of the trainees' attitudes, and other related findings. The meanings of the mean values are elaborated below.

1.00-1.50 indicated a very low relationship level, 1.51-2.50 indicated a low relationship level, 2.51-3.50 indicated a high relationship level, and 3.51-4.00 indicated a very high relationship level.

- 2) Hypothesis testing - Hypotheses were tested in order to determine the influences of the independent variables on the transfer of training.
- 3) The case study - In order to obtain insights and a deeper understanding of the factors influencing the transfer of training, the case study method was implemented to confirm the quantitative research results. It was conducted using in-depth interviews with the target participants in order to better explain and interpret the quantitative research results.

Data Collection and Analysis Procedures

The questionnaire survey was implemented as the primary source of data collection. The questionnaire was designed based on the extensive reviews of previous literature on influential factors. The dependent variable was the transfer of training, which referred to the degree to which trainees adapted the acquired knowledge, skills, and attitudes to their work context.

A pilot test was conducted to establish the content validity of the instrument. Moreover, a group of three experts, who were academicians and practitioners of public organizations, were asked to review the survey instrument and they submitted suggestions for improvement. Their comments were used to revise items. The internal consistency reliability of the survey instrument was assessed by calculating Cronbach's alpha.

Some examples of the questions are

- "I believe that applying the knowledge gained from the training will help me be evaluated with higher job performance."
- "I use what I learned from the training in my daily work activities."
- "I try to apply my new learning in the different contexts of my work environment."

In this study, four forms of transfer were emphasized: near, far, lateral, and vertical. Hence, the transfer of training was measured with the following indicators:

- 1) Near - the application to directly-related or very similar jobs
- 2) Far - the application to similar, but not directly-related jobs
- 3) Lateral - the application to other jobs with a same level of difficulty
- 4) Vertical - the application to other jobs with more difficult and complex conditions

As mentioned, the independent variables consisted of the trainees' characteristics (ability, trust, perceived utility of training, and career advancement), training design (content,

team learning, and project-based learning), and work environment (supervisory support and social climate). The questionnaire was composed of three main parts, and a Likert scale was utilized. The first part included the target respondents' demographic information; the second part included question items on the trainees' attitudes and perceptions toward the three independent variables (trainees' characteristics, training design, and work environment); and the third part consisted of question items on the trainees' attitudes and perceptions toward forms of transfer.

There was a total of 94 questionnaires, and the sample was composed of 52 female respondents and 42 male respondents. Upon the completion of the data collection, the data were recorded and analyzed using SPSS software version 16.0. Multiple regression analysis was used to test the hypotheses and to examine the relationships among the variables with coefficient correlations. In order to confirm the quantitative research results, the case of "Water Pipe Explorer" was also conducted. The members of the group were interviewed and their output presented during the training period was focused on. The research results are presented in the following section.

This research, however, exhibited a limitation concerning the lack of longitudinal data on the transfer of training.

Results

The results were divided into two main parts. The first part explained the behavioral evaluation of the trainees in terms of knowledge, skills, and attitudes, while the second part explained the factors that were seen to influence the transfer of training and the hypothesis-testing results.

Behavioral Evaluation of Trainees

In this section, two measurement tools were utilized. The first tool was the questionnaire for the trainees' self-evaluation, and it was used in order to understand how the trainees adapted the acquired knowledge, and how they perceived their acquired knowledge, skills, and attitudes after they completed the program. The second tool was the 360-degree interview with supervisors, subordinates, and coworkers so that the trainees' acquired knowledge, skills, and attitudes in the workplace could be reflected on.

Regarding the trainees' self-behavioral evaluation in terms of knowledge, skills, and attitudes, the results indicated that the course perceived to offer the most knowledge was "Strategic Analysis and Business Development" with the mean of 3.32, while the course with the second highest mean was "MWA Branding and Customer Relations Management."

Moreover, regarding the courses in the skill development category, the course that was perceived to have the highest influence on their behaviors in the workplace was “Strategic Presentation and Business Development” with a mean of 3.19.

In addition, regarding the course in the attitude adjustment category, the course that was perceived to have the most influence on their behavior in the workplace was “Organizational Engagement, Connections and Leadership” with the mean of 3.26.

The findings from the 360-degree interview with supervisors, coworkers, subordinates, as well as the trainees themselves, are provided in **Table 2**. The results surprisingly showed the alignment of perceptions of the trainees and their supervisors, coworkers, and subordinates. Most of the transfers consisted of coordination, cooperation, and self-flexibility. The trainees perceived themselves more confident and more mature person. The results of the interview were discussed more on the case study.

Table 2

The Perception of the Trainees’ Behavioral Changes Regarding Supervisors, Coworkers, Subordinates, and Trainees

Supervisors	Coworkers	Subordinates	Self-Evaluation
<ul style="list-style-type: none"> ➤ Better cooperation ➤ Being more responsible ➤ Better work outcomes ➤ Appropriate to be promoted to higher positions ➤ Better integration of knowledge ➤ Better attitudes ➤ Higher motivation ➤ Being more courageous in making decisions ➤ Better leadership ➤ Better academic and human resource managerial knowledge 	<ul style="list-style-type: none"> ➤ Better leadership ➤ Improved problem analysis and solving ability ➤ Better speaking skills ➤ More flexibility regarding work and people ➤ Systematic teaching and passing on knowledge abilities ➤ Improved work effectiveness ➤ Systematic application of acquired knowledge 	<ul style="list-style-type: none"> ➤ More flexibility in work ➤ Better teaching and coaching skills ➤ More listening to subordinates’ opinions ➤ Better conflict-resolution skills ➤ Being more generous and understanding ➤ Good adaptation of acquired knowledge ➤ Better personality ➤ Better at mistake reduction ➤ Being more supportive ➤ Fully taking care of and giving advice to subordinates ➤ Higher motivation to work 	<ul style="list-style-type: none"> ➤ Being more mature ➤ Being more prudent ➤ More application of good governance ➤ More connections with people from other organizational units ➤ More trust ➤ Better coordination ➤ Better adaptation of acquired knowledge, skills, and techniques ➤ Better customer relations management ➤ Good application of teaching and coaching techniques ➤ Building self-confidence among subordinates

Another set of questionnaire was also used to ask about the forms of the transfer of the acquired knowledge, skills, and attitudes: near, far, lateral, and vertical transfers. Eighty sets of questionnaires were returned and represented 86.02 percent of the response rate. The results revealed that, regarding the application of **acquired knowledge**, the form of transfer applied the most was near transfer, with the mean of 3.21, and the other form of transfer applied to a lower degree was lateral transfer, with the mean of 3.16, far transfer with the mean of 3.05, and vertical transfer with the mean of 2.89. Regarding the application of

acquired skills, the form of transfer applied the most was near transfer, with the mean of 3.25, and other forms of transfer applied at lower degree were lateral, far, and vertical transfer with the mean of 3.16, 3.09, and 2.88, respectively. Lastly, regarding the application of **acquired attitudes**, the form of transfer applied the most was near transfer, with the mean of 3.34, and other forms of transfer that were applied to a lower degree were lateral, far, and vertical transfers, with the mean of 3.28, 3.25, and 3.05, respectively.

The Factors on Influencing the Transfer of Training and Hypothesis-Testing Results

Regarding the research framework, the three influential factors on the transfer of training were 1) trainees' characteristics, including ability, trust in the supervisor, the perceived utility of training, and career advancement; 2) training design, including content, team learning, and project-based learning; and 3) work environment, including supervisory support and social climate. The research question was "What is the most influential factor on the transfer of training?"

The results revealed that all three factors significantly predicted the transfer of training at the .05 significant level, as shown in the table below.

Table 3

The Relationship between the Independent Variables and the Dependent Variable

Model Summary

Model	R (The Correlation Coefficient)	R-squared (The Coefficient of Determination)	Adjusted R Squared	Std. Error of the Estimate (The Deviation of Dependent Variable)
1	.899 ^a	.809	.801	.17496

Regarding the power to predict all of the influential factors, R, which is the measure of the strength and direction of the relationship, was equal to .889^a, and the R-Squared, which indicates the predicting power of the three influential factors, was 80.9 percent, and the deviation of the dependent variable was only .17496.

		Trainees' Characteristics	Transfer of Training
Trainees' Characteristics	Pearson Correlation	1	.854**
	Sig. (2-tailed)		.000
	N	80	80
Transfer of Training	Pearson Correlation	.854**	1
	Sig. (2-tailed)	.000	
	N	80	80

		Training Design	Transfer of Training
Training Design	Pearson Correlation	1	.792**
	Sig. (2-tailed)		.000
	N	80	80

Transfer of Training	Pearson Correlation	.792**	1
	Sig. (2-tailed)	.000	
	N	80	80

		Work Environment	Transfer of Training
Work Environment	Pearson Correlation	1	.568**
	Sig. (2-tailed)		.000
	N	80	80
Transfer of Training	Pearson Correlation	.568**	1
	Sig. (2-tailed)	.000	
	N	80	80

Multiple Regression Analysis Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig. (P)
	B	Std. Error	Beta		
1 (Constant)	.252	.176		1.429	.157
Trainee's Characteristics	.424	.072	.487	5.894	.000
Training Design	.293	.062	.358	4.721	.000
Work Environment	.202	0.61	.192	3.289	.002

The tables above suggest that the trainees' characteristics, including ability, trust in the supervisor, the perceived utility of the training, and the perceived prospects of career advancement, were the factors that most influenced the transfer of training. The second most influential factor was training design, which referred to the teaching methods that conformed to the Thai culture and values. The last influential factor was the work environment, which referred to supervisory support and the work environment, where a reciprocal relationship was emphasized.

A Case of a Project

The project was called "Water Pipe Explorer" and was implemented by a ten-member group. Since most members were engineers in the water production and transmission department, they wanted to further study the existing project called the "Wireless Exploration Vehicle," which was submitted in the MWA's Science Excellence Project contest in 2013. Nevertheless, this project still possessed some limitations, as the vehicle could explore water pipes only in a dry environment and thus could not explore the water pipes that were carrying water.

The project development process took approximately two months (eight weeks). The group regularly held weekly meetings, which the author also attended in order to interview the members as well as to discuss the teaching methods and the project. The author found that the group regularly had informal meetings beyond the official weekly training meetings. Regarding the weekly progress reports, the group not only received comments and recommendations from the program instructor, but also from other groups. A variety of learning was subsequently achieved. The group also elaborated on how this innovative development of the pipe exploration vehicle could significantly reduce the waste of water

from broken pipes or underground leakage because the standard sizes of Bangkok water pipes were 800, 1,000, and 1,200 millimeters, which were too small for manual inspection.

The group interview revealed that the advancement and development of the exploration vehicle was an unusual outcome, because the development of these kinds of technological systems is normally pursued by a different department of mechanics. It was thus unexpected that the training program's learning process would enable this group to produce such an innovation. Nevertheless, knowledge sharing among the members enabled them to pursue the idea of exploring pipes for leakage through the transmission of a video signal to a computer located above ground. This innovation enabled the MWA to reduce wasted water.

There was an engineer that held a master's degree in administration and was the group leader. During the interviews, he revealed the following: "The creation or development of technology in the organization normally is completed after it is submitted to a contest and receives an award. There is no further development or utilization. However, once this training was finished, we could be promoted and received support from "Pu Yai." More importantly, the organization unit has employees that are interested in the innovation and technology of pipe exploring vehicles so they apply the knowledge and submit the project to the contest, and eventually win the organization's innovation and performance award of the year."

There were weekly activities that supported the project operation. That is, there was an individual exercise, and all members were required to discuss the tangible knowledge and experience. In addition, everyone was responsible for the entire project process, including information searching, the systematic collection of information, and information synthesis. Weekly discussions within the group also increased the sense of familiarity. One participant noted: "The close cooperation during the training helped us build good relationships, and after the training we are now working faster and more effectively, and some of the burden of formality has been reduced so that problem solving has become more flexible. Eventually, the water users will be more satisfied with the services."

Regarding the group interviews, they implied that the development and advancement of the exploration vehicle contributed to extraordinary outcomes. That is, this kind of technical system was usually developed by the mechanics department. It was then unexpected that this training program's learning process would enable this group to develop such innovation. One of the interviewees noted the following: "This innovation not only helps with water pipe monitoring, but also with analyzing the sediment level in the water tanks. In the future, we also have a plan to develop a water pipe exploring submarine."

Discussion

The research results implied that competence and motivation, which were the trainees' prospects from the training program, were the factors that most influenced the

transfer of training. Such a finding was consistent with several studies, for example those of Fuenham (2005), Cheng and Hampson (2008), and Cheng and Ho (2001).

Individuals' competency is a crucial factor influencing their self-efficacy. The highly competent individuals, who acquire appropriate work-related knowledge, generally perceive such knowledge as a challenging opportunity to apply it enhance their work performance. This assumption is also supported by various academicians' frameworks, such as those of Bandura (1977), Baldwin and Ford (1988), and Colquitt *et al.* (2000), which illustrated the relationship between self-efficacy and work performance.

The motivation to learn also encouraged the trainees to adapt the obtained knowledge to their jobs. In this study, every trainee was motivated by the idea of promotion to a higher position. This training program was highly prioritized by the top management of MWA and many executives discussed this program with the trainees throughout the program period. All of the trainees were well aware that a high score would yield them an opportunity for career advancement. At the end of the program, there was a project contest in which an award was given, as well as a comprehensive test, where the trainee's scores were disclosed by ranking. Consequently, the highly competent trainees with expectation on promotion would be motivated to learn in order to further enhance their competency. Therefore, the correlation of competency and career advancement was .854, which was the highest among the other factors. Such a result was also consistent with the study of Chiaburu and Lindsay (2008).

The correlation of the training content, instructional media, and teaching techniques was .792. This indicated that team learning, project-based learning, and joint activities influenced the trainees to learn and share knowledge, and subsequently the transfer of training was achieved.

Project-based training is the appropriate teaching technique for the adult's learning process. In this study, there were eight projects, each of which was composed of approximately ten members. Every member was required to plan the report development to be presented to the top management, instructors and external academicians, who would provide valuable recommendations. During the project development process, each group was assigned to have both formal and informal meetings, and the project leaders divided the responsibilities so that the adaptation of the acquired knowledge to problem-solving was actually undertaken. Such a result was also consistent with various academicians, such as Rodriguez and Gregory (2005).

The last influential factor was the work environment, which consisted of supervisory support and organizational cultures (Salas *et al.*, 2006c). Theoretically, trainees that were supported and given opportunities by their supervisor would successfully transfer the training. Based on previous literature, the organizational culture of respecting seniority was indeed crucial, especially in the public sector. Individuals with a higher seniority position were then respected by those with less seniority. Therefore, the trainees that expected to receive respect from coworkers, supervisors, and subordinates would likely transfer their

training. The interview findings also revealed that every trainee was trying his or her best in their project because it was a substantial opportunity to display his or her competency to the supervisors. Regarding the project presentation, some executives saw the potential in certain projects and actually further practiced the project and provided supportive budget.

Recommendations and Summary

Study in this specific area has rarely been conducted by human resource academicians in Thailand because there are few related studies in comparison to the studies in Western countries, where this topic is in the mainstream of human resource development. The study on the factors that influence the transfer of training enables behavioral changes and subsequently the discovery of new programs that create the highest possible learning.

In other countries, this topic has been widely studied and has found new different influential factors. In the past, this area of study was divided into different parts, and was focused only on post-program evaluation. Nevertheless, current studies have provided a fuller understanding of the training program by incorporating the whole process, even before the program begins. Regarding the public sector in Thailand, despite a large amount of budget being provided, the training programs are more likely to be treated as rituals, while the evaluation outcomes on the trainees and training institutes are often neglected. Hence, civil service reforms truly require human resource management reforms, especially the process of developing human resource knowledge, skills, and paradigms. If there is a connection between the training achievement and the training budget, several public parties, including governmental organizations, training institutes, administrators of training programs, and civil servants, will give priority to learning and developing the training programs that actually create the transfer of training.

Regarding the research results, it was revealed that the trainees' competence and motivation highly influenced the transfer of training. This implies that the training program's recruiting process is indeed vital. It is important that this process be free from political interventions, such as "pulling strings" under the patronage system. Trainee readiness will assist the trainee in better understanding the content and enable him or her to adapt it to his or her job. Hence, good inputs have a substantial influence on the program itself. In this program, the middle management position's capacity was the pillar of the program design so that it covered the position capacity. This process indicated how this program was meticulously designed and developed. With the combination of a good program, expert instructors, trainee-centered learning, pre- and post-program tests, and project-based learning in which the trainees could apply the acquired knowledge and put it into action under the supervision of the instructor, these factors would undoubtedly enable the program to achieve its objectives. Hence, with this concept, organizations are recommended to conduct a systematic analysis before designing the program so that the program will match the trainees and the organization. This implies that the training that considers this tailored-made concept will provide better practice than a general ready-made program.

A positive learning environment and project-based learning were crucial. Moreover, during the training period, there were ice-breaking activities and field trips. Therefore, beyond instruction, the program administrators should closely take care of the program, be willing to listening to and solve problems, as well as thoughtfully advise the trainees.

Furthermore, the research results indicated that the trainees were highly interested in this program because they were motivated by the prospects of career advancement. The organization and top management are then suggested to understand and communicate promotion criteria, such as seniority, the duration of holding the position, etc., so that these highly-motivated trainees will be well aware of the criteria and adapt themselves to the organization. Nevertheless, upon the completion of the program, an organization is supposed to make some changes in the job positions, such as job rotation, for various other functions or for more significant job positions so that the trainees will be able to fully apply their acquired knowledge.

Implications for research and practice

Subsequent to 2010, the literature on the factors that influence the effective transfer of training has been mixed, and it is rather difficult to search for universal fit factors. Interestingly, the results of this study suggested that the success of the transfer of training depended on the specific context. That is, although the results indicated that the trainees' characteristics had the highest influence on the transfer of training, the characteristics were still too broad and there were other specific attributes, such as trust and the relationship with the supervisor, that influenced the trainees' attitudes and that further determined their knowledge learning behavior in the Thai culture. Furthermore, the training design with the emphasis on team learning and project-based learning was seen to facilitate the effective transfer of training because it conforms to the collectivist and cooperative culture of Thailand. Regarding the work environment, the role of the supervisors in the Eastern countries is obviously broader than in the Western countries because it is not just the typical supervisor-subordinate relationship the supervisors are obliged to take on a parent-like roles to help and support their subordinates. Even if the work relationship ends, the sentimental relationship remains strong. Hence, the research findings were consistent with Grossman and Salas' (2011) study, which supported the specific-focused context.

Furthermore, this study is expected to potentially raise the awareness of the Thai human relations circles and encourage human resource practitioners to conduct transfer of training-related research, as well as to motivate the training programs of public organizations to conduct a results evaluation, rather than merely a reaction evaluation, in the post-training process.

Lastly, the findings implied that organizational culture undoubtedly had a significant impact on the transfer of training. Therefore, this study enhances this particular area of study by extending the concept of the work environment to the perspectives of cultural practices and values. Since the work environment in any culture encourages individuals to acquire skills and apply them to achieving career survival and advancement, individuals from

different ethnicities and cultures thus should have different specific cognitive characteristics. In the Thai culture, individuals interact with each other with respect to age, seniority, and position, and consequently, authority and elders are highly valued. Although several academicians and practitioners well recognize that the transfer of training is influenced by the training environment, little empirical research is available to advocate such practice. Therefore, the influence of the organizational culture on transfer behavior and job performance certainly needs further investigation.

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