

# ERP Training: A Framework to Develop Appropriate Training to Accommodate the Variety of End-user Learning Styles in Thailand

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## ABSTRACT

This article proposes an ERP training framework to accommodate the various learning styles of Thai users by analyzing the current ERP training approach and the learning styles of Thai users, including learning style and cultural learning behavior, which are reflected through the training outcomes of various end-user learning style groups. A qualitative research approach was employed in this study. Semi-structured interview and questionnaire were used as instruments to collect data based on seventy-two end-users who had participated in ERP training in implementation projects at twenty-two companies in Thailand. The recommendations for an ERP training framework were developed based on four dimensions of the current approach, which largely failed to accommodate Thai users' various learning styles. This framework would help to improve ERP training quality, which is a key success factor in ERP implementation.

**Keywords:** Educational culture; ERP training; Individual learning style; Training outcome; Hofstede's cultural dimensions.

## INTRODUCTION

Previous research was conducted to investigate whether the current ERP training approach accommodates the various learning styles of Thai users and how it affects training outcomes. ERP training outcome evaluation revealed that the current ERP training does not accommodate the various learning styles of Thai users, which include both individual learning styles and cultural learning behavior. Four problem areas of the current approach were identified by learners from various learning style groups who were not satisfied with the current ERP training approach in various ways. Learners revealed the inability of the current approach to match the various individual learning styles. Training was found to have a negative effect on the perceived level of understanding as to how the ERP system works, and confidence in applying knowledge from training when using the system alone [1]. Moreover, the investigation of the cultural learning behaviors of Thai end-users to evaluate the effectiveness of the current ERP training approach revealed that Thai end-users' learning behaviors impacted the effectiveness of current ERP training, which may explain the dissatisfaction [2].

Prior research supports the assumption that the current ERP training approach is incompatible with Thai users' various learning styles, and impacts both the effectiveness and the outcomes. This supports the assertion that the current ERP training approach was designed without taking into account the various cultural settings in which it might be employed, thus lacking consideration of the various learning styles of end-users. Therefore, the current ERP training

approach does not include appropriate methods and materials to accommodate such learning styles. This may lead to ineffective training in regard to how to use the ERP system properly. The research question is as follows: *“Why does the vendors’ training approach in ERP implementation methodology fail to provide sufficient knowledge about how to use the ERP system properly?”*

To enhance the effectiveness of ERP training by developing an appropriate ERP training framework, it is necessary to identify the reasons for the incompatibility between the current ERP training approach and the end-user learning styles. The proposed ERP training framework helps both practitioners and researchers to improve information system (IS) knowledge transfer for the ERP system. Moreover, this framework can be very helpful to academic researchers, especially those who are interested in IS knowledge transfer development for ERP systems, to extend existing knowledge and to enhance training outcomes. Furthermore, this research will be of most benefit to practitioners, who can apply the training framework. Moreover, it also encourages ERP vendors to be careful when designing an ERP training approach, in which the various learning styles of end-users should be considered. This could facilitate better knowledge transfer and reduce user resistance to the new ERP system. The improvement of end-user training not only enhances the performance of tasks, but also helps the organization to reduce training and maintenance costs in providing support to end-users when using a new system.

## LITERATURE REVIEW

### Learning Styles and ERP Training

An Enterprise Resource Planning (ERP) System is software that integrates a company’s business management functions [3]. Implementing an ERP system can bring an array of benefits to a company, but there are a significant number of ERP implementation failures. Such failures have been the focus of a number of studies which identified the ineffectiveness of training as a major problem, largely as a result of end-users’ reluctance and resistance to the new system. This jeopardizes the long term benefits of the ERP system for the company [4]. The current ERP training approach does not provide learners with sufficient knowledge to use the system by themselves [5]. Consequently, the current ERP training is ineffective for most learners.

The implementation methodology designed by ERP vendors is usually adopted for ERP training. However, the methodology is designed and developed in the West, with a western cultural perspective, and as a result, does not necessarily match the learning styles of Asian learners who have a significantly different learning culture. Although the training method may be successful in a western context, there is no guarantee that it will be successful in other learning cultures. It is therefore necessary to adapt the ERP training materials and delivery to suit the range of end-user learning styles.

Education researchers have attempted to explain the issues that exist in matching course design and learning style. It is clear that an appropriate teaching design that matches the learning styles of learners can significantly improve the outcomes of training [6]. However, the failure to take the learning styles of learners into account can lead to ineffective training and knowledge transfer [7, 8]. Reference [9] revealed that ERP training design and learning style affect end-user task performance. Consequently, the matching of learning style and training method can result in enhanced training outcomes and greater user satisfaction [10].

In previous research, learning style or learning behavior was classified based on two main factors: cultural learning behavior, and individual learning style. Prior research investigated

the relationship between cultural values and individual learning style, but there is little agreement about the results [6, 11]. Consequently, end-user learning style in this research focuses on both individual learning style and cultural learning behavior. End-users were classified into learning style groups by employing Kolb's learning style inventory, and Hofstede's cultural dimensions were used to explain the cultural learning behavior of Thai end-users.

### **Individual Learning Style**

Reference [12] identified four learning modes to classify learners based on the following: learning from feelings is represented by Concrete Experience (CE); learning by watching and listening is Reflective Observation (RO); learning by thinking is referred to as Abstract Conceptualization (AC), and learning by doing is Active Experimentation (AE). These learning modes are represented by the following four learning styles.

- *Converging learning style:* (learning by thinking and doing- AC/AE). Abstract conceptualization and active experimentation are features of the converging learning style. Knowledge is acquired by thinking or the analysis of conceptual ideas and theories, and these ideas are then applied. Converging learning style learners prefer learning based on the resolution of practical problems. This type of learner usually prefers technical aspects and problem solving, but often lacks social skills.
- *Diverging learning style:* (learning by feeling and watching- CE/RO) real-world experience and reflective observation are the features of the diverging learning style. Learners' knowledge acquisition is instinctive. Diverging learning style learners prefer to collect information by observation and solve problems by being creative rather than by active experimentation. They work towards the big picture from the bottom up. Diverging style learners can view situations from different perspectives; they are more social and prefer group work. Consequently, brainstorming and discussion in groups suits their learning style.
- *Assimilator learning style:* (learning by thinking and watching- AC/RO) abstract conceptualization and reflective observation characterizes the assimilating learning style. Learners in this group prefer to learn by thinking, so ideas and concepts are more important than actual practice. They also possess the ability to create logical frameworks based on comprehensive information. They also learn from logical and analytical interactions. Consequently, they require clear and precise explanation rather than practical experience. In contrast to diverging style learners, they view topics from the top down rather than the bottom up.
- *Accommodating learning style:* (learning by feeling and doing- CE/AE) accommodating learning style learners combine concrete experience and active experimentation. Learners prefer hands-on experience and employ their senses rather than analysis. Therefore, accommodating learning style learners base their understanding on their experience but they lack analytical abilities. They are more inclined to experiment through trial and error by working in the field and by employing various methods to achieve an objective. Consequently, this type of learner prefers fieldwork, simulation and games to lectures.

### **Cultural Learning Behavior**

Learning behavior is strongly affected by cultural background because educational experiences in a particular culture shape the way people learn. Hofstede's cultural dimensions can be applied to assess the impacts of culture on learning [13]. The learning culture in Thailand contrasts with that of the West [14]. The dimensions of Hofstede's cultural analysis that are relevant to education include power distance, collectivism/individualism, masculinity/femininity and short/long term orientation. Thailand is characterized by high

power distance, collectivism, femininity and short-term orientation. Thai education is largely teacher-centered, so learners are passive and expect to be guided and instructed by a teacher without question and without much interaction. Knowledge is transferred from the teacher to the students. Questioning the teacher in class is inappropriate as it is seen as showing a lack of respect and could lead to a loss of face for the teacher [15]. As a result, learners often lack vital skills such as critical thinking, problem solving and creative skills [16, 17]. Secondly, the traditional culture of rote learning involves teachers providing information to students, so students do not acquire self-learning skills. Thai learners lack motivation [18], which is indicated by the femininity dimension in Hofstede's analysis. Consequently, most students are passive as opposed to active learners. Thirdly, study is largely regarded as a one-time process, and students fail to appreciate the concept of lifelong learning, or learning as a process. Consequently, learning only takes place in class and little effort is made outside the classroom [19]. Fourthly, the Thai education system is also rather test-focused, which may encourage learners to focus more on memorization than conceptual understanding. As a result, the culture affects the method of teaching, the behavior of the student and the focus is on testing rather than learning. Students, consequently, have low levels of independent thinking ability and performance [20, 21].

### **Training Outcome**

Collecting data and feedback to evaluate the training outcomes is important so that training can be reviewed and enhanced. However, using a single dimension of measurement does not reflect the complexity of training and could lead to inaccuracy [22]. Therefore, Kirkpatrick's framework, which is widely used, is appropriate because this framework includes four levels of analysis as follows:

- *Level 1: Reaction:* various aspects of training are evaluated by participants including satisfaction, opinions and an assessment of the importance of training.
- *Level 2: Learning:* the quantity of information that learners acquire on a course is measured. This level depends on evaluation data from trainers
- *Level 3: Behavior:* the learner's ability to apply skills and knowledge in actual use is measured. Level three is often employed with computer-based performance testing to determine whether a learner can apply knowledge when at work.
- *Level 4: Results:* the impact of training on organizational goals where cost reduction and quality and quantity improvements are measured.

### **METHODOLOGY**

In this study, a qualitative research approach was employed to identify the problem areas of the current ERP training approach which does not accommodate the various end-user learning styles in terms of either individual learning style or cultural learning behavior. Recommendations can then be made about an ERP training framework that accommodates the various learning styles of Thai users. Semi-structured face-to-face interviews and questionnaires were employed as instruments to collect data. Firstly, a questionnaire was employed to obtain demographic data and to identify the individual learning styles of end-users. This was followed by interviews to evaluate the training outcomes of the ERP training for each learning style group, and included the exploration of the cultural learning behavior of Thai end-users, which influenced the effectiveness of the ERP training approach. However, the ERP training outcome evaluation presented in this research was measured by Kirkpatrick's framework on only three levels: 1) Attitude 2) Perceived level, and 3) Applied knowledge behavior. The fourth level assesses training from a business point of view, which managers and executives can understand, such as increased production, better quality, reduced costs, enhanced sales and profit, and return on investment. However, in this research, it is necessary to evaluate the training outcome from the end-user's perspective.

The population in this study was end-users who had experienced ERP training during an implementation project. Content analysis is used to determine the pattern or themes that commonly occur. NVIVO software is applied as a tool for behavioral coding. The data were coded by employing the directed content analysis approach. The researchers employed existing theory and relevant prior research findings to develop the initial coding theme prior to the analysis of data.

## RESULTS

### Demographic Data of Respondents

**Table 1. Demographic Characteristics of Respondents (N=72)**

	Category	Frequency	Percentage (%)
Gender	Female	52	72.22
	Male	20	27.78
Age	≤ 20	-	-
	21-30	18	25.00
	31-40	33	46.00
	41-50	18	25.00
	51-60	3	4.00
	> 60	-	-
Education	Diploma	2	2.78
	Bachelor	54	75
	Master	16	22.22
	Others	-	-
ERP Experience after Training	< 1 Year	16	22.22
	1-2 Years	37	51.39
	> 2 Years	19	26.39
ERP Brand	SAP R/3	18	25
	SAP A/1	8	11.11
	SAP B/1	20	27.78
	Microsoft		
	Dynamic	14	19.44
	Navision		
	JDE E1 Hyperion	3	4.17
Others	9	12.5	
Individual Learning Style	Accommodating	25	34.72
	Converging	23	31.94
	Assimilating	13	18.06
	Diverging	11	15.28

Most respondents in this research were female (72.22%). The majority of respondents were in the age range of 31 to 40 years old (46%). The educational level of the respondents was bachelor degree 75%, master degree 22.22% and diploma 2.78%. The respondents had about one to two years' experience using an ERP system after training (51.39%), more than two years (26.39%) and less than one year (22.22%). Based on the questionnaire, the results indicated that the most frequent learning style of respondents was the accommodating learning style (34.72%), the converging learning style was the second largest group (31.94%), the assimilating learning style was third (18.06%), and the smallest group was the diverging learning style (15.28%).

## **ERP Training Outcome Evaluation for Various Group of End-users Learning Styles**

Dissatisfaction about the ERP training was expressed by various individual learning style groups. Members of different individual learning style groups were not satisfied with the ERP training approach in different ways. The results indicated that there were incompatibilities between the ERP training approach and the individual learning style of end-users according to the ERP training outcome evaluation. These incompatibilities also had a negative effect on the perceived level of understanding as to how the ERP system works and the confidence to apply the knowledge acquired in training in actual use.

### **Accommodating Learning Style**

The time allocation for ERP training was inadequate in terms of both the total amount of time and the study period. This was the biggest concern of accommodating style learners who prefer to learn based on trial and error by working in the field and by trying different ways to accomplish an objective. Learning by trial and error to acquire hands-on experience is not one-time learning but is continuous, even after the go-live stage. This is an ongoing and time-consuming process [23]. This contrasts with the current ERP training approach which provides only one training session and mostly focuses on the implementation period and ignores the importance of pre and post (go-live) training. This method does not maximize knowledge acquisition about using the ERP system, especially for accommodating style learners, who prefer hands-on experience when using the ERP system, which includes dealing with problems based on real circumstances after the go-live period.

Furthermore, the pre-implementation period is also important, but the current ERP training does not include training orientation to inform end-users about how they should prepare for training. Accommodating style learners rely on senses rather than logical analysis. Consequently, training orientation would help them to know more about the ERP system and its benefits, which would better prepare them for training. This is necessary for accommodating style learners in order to increase their motivation to train effectively and efficiently. Moreover, training as a single process also affected the cognitive load of learners because the current ERP training time allocation was insufficient and there was a rush to go-live without considering training efficiency. The compressed training schedule meant excessive cognitive load which pressured participants to learn about how using the new system in a short period of time. There are also issues of dissatisfaction that affected their perceived level of understanding as to how the ERP system works, which for the accommodating learning style learners was slightly poor. The current ERP training approach does not enhance understanding of the ERP system for end-users. Therefore, they suggested that the training method should allow them to acquire hands-on experience by applying workshop or simulation training techniques to give them the opportunity to visualize how the ERP system works. This may help them to improve their understanding of the ERP system and should be considered when designing ERP training.

### **Converging Learning Style**

The major dissatisfaction of converging learning style learners was about the content and method. The process to construct knowledge for converging style learners is first to understand the concepts and theories and then to apply them to understand how the system works in practice [24]. Converging style learners prefer to start with explanations as to how the ERP system works and then practice in authentic situations. However, it was difficult to conceptualize their ideas based on the training content, which was poorly designed and did not cover the particular organizational business processes. The training content focused on teaching how to complete transactions by using the ERP system without addressing whether the content was sufficient to allow the end-users to perform their routine jobs when using this

system. The training content is usually set up by the trainer, and end-users do not participate in training content preparation. Although user requirements were collected at the beginning of the implementation phase, the poor quality of the training content was an issue for end-users. The lack of participation in the training content preparation process is related to the impact of educational culture, which is discussed in a later section. Moreover the training content focused on teaching about end-user responsibilities, but did not include cross-functional business processes which might be related to their responsibilities. For this learning style, training content which covers cross-functional business process can help them to conceptualize how the ERP system works. Understanding the overall system and dataflow, including the links between each process, can help end-users of this learning style to visualize how the ERP system works. Furthermore, the current ERP training content focuses on teaching only how to use the ERP system, but does not teach how to solve usage problems, troubleshooting or special techniques, which is the greatest concern for converging style learners. This contrasts with their learning style as they prefer to learn based on problem-solving to construct knowledge [25, 26]. Therefore the lack of this training content makes it difficult for learners to enhance their knowledge and usage capability. After receiving information and the concepts are understood, the converging style learner will apply these ideas in practice. Therefore, the traditional training method of class training, where there is a poor balance between lecture and practice, and where the focus is on lecture and demonstration via slide projector rather than providing sufficient practice, fails to allow understanding as to how the ERP system works in practice and does not meet their needs. In contrast, on-the-job training focuses on practice and is a training method that provides sufficient opportunities to understand how the ERP system works in practice. However, on-the-job training focuses on practice but does not provide fundamental and rational explanations, which worries converging style learners. Consequently, training based on one training method cannot completely enhance the knowledge of converging style learners.

Reference [27] mentioned that providing both lecture and tutorials is suitable for converging style learners to enhance their knowledge. However, on-the-job training is mostly conducted by key users and provides opportunities for trainers and learners to work together closely. Therefore, learners can ask questions immediately. However, key-users mostly lack knowledge transfer skills and have knowledge limitations in answering questions and problem solving skills.

These issues affect converging style learners' perceived level of understanding and the current ERP training approach cannot deliver knowledge that allows end-users to have a clearer understanding as to how the ERP system works. Furthermore, converging learning style respondents stated that the factors which may help them to improve their understanding of the ERP system should be considered when designing ERP training. Firstly, the content should map between "as-is" and "to-be" to allow end-users to acquire a better understanding of how their working process are being replaced by the business processes of the new ERP system. Secondly, the training method should provide opportunities to practice based on real circumstances, such as workshop or simulation cases. As mentioned earlier, converging style learners prefer to learn based on problem-solving to understand how the concepts work in practice. Therefore, the training method should provide hands-on experience by applying workshop or simulation cases to give them the opportunity to learn based on problem-solving situations. Practice with abnormal work cases encourages them to think critically and enhances problem-solving skills, which are abilities that converging learning style learners use to find practical solutions and also help them to acquire a better understanding.

### **Assimilating Learning Style**

The assimilating learning style involves thinking more than acting, so ideas and concepts are important for them. They have the ability to understand comprehensive information and to form it into a clear, logical format. Therefore, good and clear explanation is important for this learning style rather than practical opportunities. Learners mostly prefer to learn from high level concepts and work down to the details. Therefore, it is better to provide reading materials, followed by lectures with demonstrations, allowing sufficient time to reach a conclusion [25]. However, the training materials and user manual were poor and failed to provide content to cover the particular organizational business processes. The manual is normally developed by the ERP vendor and is applied in all training situations. This kind of manual is not developed to match particular job characteristics but focuses only on how to use the ERP system in general. The manual contents are not customized to particular organizational business processes and lack troubleshooting and special techniques, which is the major concern of assimilating-style learners. Consequently, consistent and well-presented learning materials are important for assimilating-style learners. Moreover, the training content for assimilating learners should provide an understanding of the relationships between the concepts and the boundaries of the course. This is in contrast with the current ERP training content, which teaches only end-user responsibilities and lacks cross-functional knowledge. This is important for assimilating style learners to help them to conceptualize ideas as to how the ERP system works and to enhance their knowledge.

The poor design of the training manual and training content affects learners' perceived level of understanding as to how the ERP system works. Furthermore, assimilating learning style end-users also stated that the training content should map between 'as-is' and 'to-be' to allow end-users to have a clearer and better understanding of how their existing working process are replaced by the business processes in the ERP system. Assimilating style learners prefer to learn by thinking rather than acting. Consequently, understanding ideas and concepts about 'as-is' and 'to-be' are important to this learning style to better understand and visualize how the ERP system works and how the system affects the way they do their job. Although assimilating style learners prefer lecture and demonstration via slide projector, the examples of work cases and exercises that were used in the training class were very simple, general cases. This does not reflect actual use, where problems when using the system in their role can happen all the time. Therefore, demonstration with abnormal work cases can extend their knowledge and enhance their problem-solving skills too.

### **Diverging Learning Style**

The current ERP training focuses on learning how to use the system only for the end-user's responsibilities, which is incompatible with diverging style learning. For this reason, learners of this style prefer to learn from specific details to construct the big picture. The learners in this group prefer to learn only the parts related to their responsibility, but do not want to know about other content that does not affect them. Diverging style learners have the ability to build their knowledge by discussion. However the discussion topics have to be strongly related to course content [23].

However, the training content did not cover and was not applied to fit the particular organizational business processes for which they had responsibility. This was the major concern of these learners in contrast to converging and assimilating style learners, who were more concerned about the training content not covering cross-functional business processes. Moreover, the manual provided too much information, which is incompatible with this learning style as they prefer the manual to be pertinent, not to use too many words, and to explain the system step-by-step. Reference [28] mentioned that learners who had concrete experience,



such as diverging style learners, preferred to learn by following a step-by-step guidance procedure. Furthermore, the content should be well-defined and clear in regard to the subject area, which makes it easier to understand. Consequently, the manual to serve this learning style should be a 'how to' book with captured screen shots and short and sharp explanations. Diverging style learners often develop a personal manual during the class with short steps and explanations, which are easier to remember. This is consistent with the diverging learning style, where learners start with specific detail and then construct the big picture.

Diverging learning style learners were unhappy with the poor design of the training content and the manual, which affected their perceived level of understanding as to how the ERP system works. They prefer to learn only about their responsibilities and are not interested to know other knowledge even though it might be related to them. Consequently, the training content should cover and be applied to fit their particular needs, which could help to improve their perceived level of understanding. Moreover, traditional training methods, such as classroom training, focus on lecture, but fail to provide sufficient opportunities to explore the system during training. Therefore, the opportunity to practice by repetition was suggested by diverging style learners.

Furthermore, end-users of all individual learning style groups agreed about the lack of practice before the go-live stage, which affected their confidence to apply knowledge and to use the ERP system by themselves. Moreover, hands-on experience is also important to help end-users to become familiar with the new system. End-users mostly did not practice by themselves outside the training class. Practicing from their point of view is a form of work. This issue is related to cultural learning behavior and will be discussed later. Therefore, traditional training methods, such as classroom training, and inappropriate training time allocation do not provide the opportunity for end-users to have sufficient hands-on experience, which does not give them confidence to use the system by themselves. However, to be trained by on-the-job training can help them to increase confidence to apply knowledge when using the ERP system because this training method focuses on practice based on real circumstances. In addition, the trainer and end-users work closely, so the end-users can ask questions at any time. Consequently, the learning process is ongoing. On-the-job training can also help to improve confidence to apply knowledge when using the ERP system, but to be trained by key-users who lack knowledge and knowledge transfer skills, and lack the ability to provide fundamental and rational explanations was a concern for converging and assimilating style learners.

### **Cultural Learning Behavior of Thai End-users Affected the Effectiveness of the Current ERP Training**

The results of the research findings revealed how the four distinct cultural learning behaviors of Thai end-users in the current ERP training approach impacted the effectiveness of ERP training. The discussion on the findings is presented in the next section. Firstly, the results revealed that Thai end-users were largely unwilling to read the ERP training user manual. The manual was mainly used when end-users needed to find a solution to a particular problem or to remind them about a non-routine process rather than for self-study. However, reading the manual to find solutions was not the end-users' first choice. They preferred to obtain assistance from the trainer. The format and content of the training and manuals did not adequately support Thai end-user learning behaviors. The current ERP training and user manual content were not based on end-user characteristics and were not customized to be relevant to the particular organizational business processes. Much of the content focused on step-by-step use of the system, but ignored trouble-shooting and problem-solving skills. The end-users stated that the user manuals had too much content and a lot of unimportant information. Furthermore, Thailand does not have a strong reading culture [29]. Reference [30]

revealed that 44.08 percent of Thais do not read outside their study/work period because they dislike it in spite of the fact that reading is at the heart of self-education and enhances intellectual growth [31]. In a developing nation such as Thailand, where the education system is teacher-centered and learners are passive, learners are largely ill-equipped for self-learning. Moreover, learning is considered as a one-time process and employees lack the motivation and ability to study alone. Furthermore, reading the user manual takes place outside training, but Thai employees may lack the self-discipline to do this. Consequently, although learning how to use an ERP system requires self-learning, Thai end-users do not like to read the manual [32]. Therefore, better training and user manuals should be developed that encourage end-users to read them.

Secondly, the results indicated that Thai end-users are unwilling to ask questions in the classroom even when they do not understand. End-users are afraid to lose face in front of others. Thailand is a collectivist society, so employees are unwilling to express their individual opinions freely. Face-saving and “Kreng-Jai” are evident in Thai hierarchical relationships and require acceptance without argument from a lower status individual to save the face of the superior. Consequently, both trainers and trainees avoid putting themselves in positions in which they might lose face [15]. This perhaps helps to explain why end-users are unwilling to participate actively in class. Therefore, the use of traditional training methods should be re-considered. A training method that encourages more classroom involvement by end-users should be adopted. Furthermore, the results also indicate that on-the-job training may be preferable as end-users would be more likely to ask questions. Thailand has a feminine culture in which informal, personal communication is preferred [33]. On-the-job training provides opportunities for end-users and the trainer to work together more closely. It reduces the likelihood of losing face and puts fewer barriers between the teacher and the learner. However, poor key user selection and the lack of people who can both understand the system and teach are problems when employing the “train-the-trainer” method in a Thai context. Thailand is characterized by high power distance so people are expected to show loyalty and respect to superiors in exchange for protection and guidance. Therefore key-users are not always selected based on their suitability as a trainer. It was found that most key-users did not possess the skill to transfer knowledge and had limitations in terms of ERP system knowledge. This is a serious limitation of the “train-the-trainer” method [34].

Thirdly, the results indicated that Thai end-users are often unprepared for training because they lack self-preparation skills. Most end-users believe that it is the trainer’s responsibility to prepare training that matches their organizational processes. This is a problem when designing training content because ERP consultants lack knowledge about each organization’s business processes. ERP consultants are unable to prepare such training content as it is unlikely that an outsider would be familiar with the organization’s business processes. Therefore, the content is based on the writer’s own experience, which does not necessarily reflect the needs of the user. Consequently, end-users expressed dissatisfaction with the training content as it largely failed to enhance the users’ ability to use the ERP system at work. Thai employees lack self-learning skills because the Thai education system is constructivist in nature and is characterized by high power distance and teacher-centeredness. Knowledge is transferred by the teacher rather than discovered by learners. As a result, learners are passive recipients of knowledge. Furthermore, Thailand is a feminine society that lacks competitiveness in the classroom. Thai employees are often unmotivated and do not take responsibility for their own learning [18]. End-user participation is necessary for effective training, so it is necessary to work with end-users to improve training content to match real work situations

Fourthly, the results also indicated that Thai end-users lack the ability and willingness to practice outside the class. Consequently, employees lack experience of constructivist learning as individuals [35]. Moreover, Thai employees often care more about immediate gratification than long-term fulfillment. Reference [13] revealed that Thais tend to be short-term oriented. Consequently, learning is often regarded as a one-time process rather than an ongoing process (life-long learning) and learning is expected to happen only in the classroom [19]. The use of traditional training methods such as classroom-based training mainly involves presentations with slides and fails to provide opportunities to practice during training. This training is designed based on the understanding that end-users practice outside the class, which is incompatible with Thai cultural learning behavior.

Learning how to use the ERP system involves a lot of detail. Consequently, placing time limitations on the learning process pressures end-users to learn how to use the ERP system quickly, thus increasing the cognitive load and negatively affecting end-user confidence and familiarity when using the system.

Moreover, the current ERP training was designed to be conducted only once [36], but Thai end-users require more direct experience to help them to learn how the ERP system works. Experience is important in changing end-users to become active rather than passive learners. The current ERP training does not include training orientation, which could help users to prepare for training. End-users are usually not given the opportunity to share ideas about the training they prefer. Furthermore, follow-up about using the ERP system after the go-live period is also useful as it would allow them to better understand the ERP training content and to resolve any problems they faced after the initial training. Therefore, both the insufficient training time and the inappropriate time period for ERP training created difficulties for Thai end-users.

## **DISCUSSION AND RECOMMENDATIONS**

The findings identify four types of problem associated with the current ERP training approach which can be used as evidence to make recommendations about a more appropriate ERP training framework that can accommodate the various learning styles of Thai users and their culture.

### **Training Method**

*Class Training:* The major problem of the current traditional ERP classroom training method is the inappropriate proportions of lecture and practice, and focuses only on how to key-in data rather than on understanding the business process. The current ERP training method is based on instruction-oriented knowledge transfer rather than exploration-oriented knowledge transfer [37]. The training method is incompatible with the different end-user learning styles, and was the focus of complaints from converging learners. However, although sufficient hands-on experience is important, fundamental and rational explanation is also important and is required by converging style learners too.

Moreover, end-users with different individual learning styles made suggestions about the current ERP training method. The converging and assimilating learners, who both prefer to learn based on thinking, suggested that learning based on problem-solving, such as practice with abnormal business work cases, can help to enhance their understanding. The converging and accommodating learners, who both prefer to learn by doing, suggested that providing the opportunity to practice based on real circumstances, such as simulated business cases is important. This would help them to acquire a better understanding.

Therefore, the ERP training method should be a mixed training method that should combine simulation training with traditional classroom training. Simulation training provides the opportunity for end-users to acquire hands-on experience by simulating business processes, which helps them to visualize the business process more easily and to distinguish between 'as-is' and 'to-be' before the go-live stage [38]. Furthermore, class training can provide necessary information such as the fundamentals of the ERP system and rational explanations, which helps end-users to understand the detail and skills more deeply because the simulation training technique can enhance process orientation knowledge and integrative skill, but does not always provide other knowledge such as the fundamentals of the ERP system. Consequently, the combination of, firstly, traditional classroom training to explain the fundamentals of the ERP system, and secondly, simulations to understand the business process, is necessary. An understanding of how the ERP system works is required to acquire business process knowledge rather than just the functionality of the ERP system.

*Train-the-Trainer Training:* The "train-the-trainer" approach involves training by key-users who often lack ERP knowledge and knowledge transfer skill. It is difficult to find key-users who have skills in effective knowledge transfer, the existing business process, and the new ERP system. Although the advantage of on-the-job training by key-users is that it is based on real circumstances and allows learners to visualize how the system works and to ask questions when they face problems, in practice it is hard to achieve because key-users are sometimes unable to provide clear solutions to a problem. Moreover, the Thai education system is largely teacher-centered so learners depend on teachers to transfer knowledge. Consequently, learners expect their instructors to know everything. Therefore, the "train-the-trainer" training method should not be applied as the main ERP training method but is more appropriate to be used after the go-live period. End-users should be trained directly by ERP consultants and training preparation should be carried out more effectively. This is consistent with reference [39], who found that practice following the "train-the-trainer" training method is difficult. It is also difficult for ERP consultants to transfer knowledge in the limited implementation period. Consequently, knowledge and skill transfer to end-users should be carried out by ERP consultants rather than key-users. However, the "train-the-trainer" training method is more appropriate to be used after the go-live period because key-users can employ on-the-job training to help other end-users using the actual ERP system at work. This is consistent with reference [40], who stated that the "train-the-trainer" training method is an effective solution for organizations to transfer knowledge to end-users post-implementation. On-the-job training was selected to be the training method by key-users, and it has been identified as an effective training method to assist end-users when using the ERP system.

### **Training Content**

The current ERP training content is poor as it focuses mostly on the software menu, but does not provide business knowledge that reflects the particular organizational business processes. This is consistent with references [36, 37] who categorized the ERP system knowledge as software knowledge, business process knowledge and organization-specific knowledge. However, this research argues that training should also include problem-solving knowledge. Therefore, end-user participation is important when designing the training content to ensure that all of the required knowledge is included. Moreover, the following important knowledge should be covered in training:

- Software knowledge to describe the system menu and functions including the fundamental understanding of various ERP modules.
- Business process knowledge (including transformation processes, cross-functional processes and organizational processes) to explain how the organizational processes are transformed by the ERP process and why tasks are performed, including cross-

functional business knowledge to show the links in the business process across a company and the data flow within the system. Moreover, the training content should be integrated with the particular organizational business processes.

- Problem solving knowledge, such as trouble-shooting and special techniques should also be included in the ERP training content. Problem solving training should reflect the real daily operations of users, which helps users to better understand the capabilities, functionality, and applications of the system.

Therefore, these three types of knowledge should be considered when designing ERP training content.

### **Training and User Manual**

The current ERP training and user manual focuses on explaining how to use the ERP system in general, and the user manual content was not developed based on actual job characteristics. The content was mostly not relevant and covered only end-user job processes. Furthermore, the manual was mostly used to find solutions to problems rather than to enhance knowledge. Therefore, the user manual content was poorly designed and included too much content that was not interesting to read. It was also found to be difficult to find content in a short time. The manual also lacked trouble-shooting and special techniques. This is a problem as it fails to consider the behavior of end-users.

Therefore, the standard manual that was developed by ERP vendors to explain how to use the ERP system and is applied in all organizations is inadequate. The user manual should be modified to reflect the actual job characteristics to support end-user tasks. It should be designed as a more user-friendly 'how to' book which would allow users to find solutions quickly and should include trouble-shooting and special techniques. Consequently, a manual that provides only instructions about how to use the ERP system fails to serve their purposes. This is consistent with reference [41] who found that the user manual should support usability in terms of navigation, presentation, and learnability. The improvement of the user manual is important to increase training efficiency and to avoid the extra cost of help-desk support.

### **Training Time Allocation**

The current ERP training Most ERP training approaches rely on the implementation method and ERP phase model developed by ERP vendors. This model focuses on the action implementation phase. The current ERP training was designed to provide a one-time process during implementation before the go-live period, so pre and post training is overlooked. Reference [40], stated that the sequencing of training should be reconsidered to match the different stages of the implementation lifecycle so that resources and materials can be allocated more effectively to end-users.

Furthermore, providing ERP training as a one-time process does not accommodate cultural learning behaviors. The lack of self-study is evident which is incompatible with the variety of individual learning styles especially for accommodating and assimilating style learners, for whom time plays an important role in their learning process. Therefore, training should be a continuous process and should be arranged not only during the implementation period, but also during the pre and post implementation stages.

A variety of training courses should be provided to end-users at different stages of the ERP lifecycle to provide the particular knowledge and skills required in each stage. The training objectives should include software knowledge, business knowledge and problem solving knowledge, all of which are important knowledge to use the ERP system. However, this

knowledge cannot be acquired in one-time training, so training should be a continuous process. Reference [42] mentioned that the success of ERP training should be based on long-term planning. Moreover, another recommendation is that a pre-training process, such as training orientation, should be provided to end-users to enhance readiness.

### CONCLUSION

A considerable volume of research has been conducted to improve the quality of ERP training and many frameworks have been developed to improve training quality. However, such frameworks fail to accommodate the variety of individual learning styles and different cultural learning behaviors. More modern approaches are widely applied in the education and business sectors in many countries, but are limited in IT [7].

Moreover, most of the prior recommendations to improve the quality of ERP training have focused on the training method [43]. However, the prior recommendations pay less attention to other dimensions of ERP training such as training content, the training and user manual, and the training time allocation. The empirical evidence reveals that learners of different individual learning styles are concerned about the current ERP training approach for various reasons. Consequently, ERP training quality should not only be based on improving the training method, but also on other dimensions of the ERP training approach which should be improved to accommodate the variety of individual learning styles and different cultural learning behaviors. Based on the findings of this study, the four dimensions of ERP training were found to be a concern for end-users of all individual learning styles and cultural learning behaviors and were linked together in this framework.

Thereby, this framework would help to improve ERP training quality, which is a key success factor of ERP implementation in accommodating the variety of individual learning styles and cultural learning behaviors. It would also help organizations to reduce training cost and maintenance fees in providing extra support to end-users when using the new system.

However, the recommendations for an ERP training framework in this study mainly focus on the ERP training that is bundled into ERP implementation methodology and provided by ERP vendors during the implementation stage, which is mostly known as “the ERP methodology-training approach”. Furthermore, the study was mostly based on the perspectives of end-users who had experienced ERP training, especially in regard to Thai cultural learning behaviors. The researchers suggest that future research should investigate other cultural learning behaviors in other countries. This might reveal other issues with the ERP training approach that impact the effectiveness of training outcomes and can be useful in revising and refining the recommendations for an ERP training framework so that it can be more generalizable to other contexts.

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