



## Universidades Lusíada

Huang, Wen-Rou  
Jacobs, Ronald L.

### **A comparison of the influences of different training approaches on trainees' perceptions of self-efficacy to achieve training outcomes**

<http://hdl.handle.net/11067/1387>

#### **Metadados**

|                           |   |
|---------------------------|---|
| <b>Data de Publicação</b> | 2015-01-21  |
| <b>Resumo</b>             | The evaluation of the effectiveness of training approaches has received great attention in recent years. Self efficacy was proposed to be one of the training outcomes in evaluation. In this study, the influences of structured on-the-job training and classroom training approaches on trainees' perceptions of selfefficacy to achieve training outcomes was explored. Moreover, the relationships among the variables of trainees' general self-efficacy, self-efficacy to achieve training outcomes and two t... |
| <b>Palavras Chave</b>     | Empregados - Formação   |
| <b>Tipo</b>               | article   |
| <b>Revisão de Pares</b>   | Não   |
| <b>Coleções</b>           | [ULF-FET] IJEIM, n. 4 (2012)  |

Esta página foi gerada automaticamente em 2024-11-14T19:24:07Z com informação proveniente do Repositório

---

**A COMPARISON OF THE INFLUENCES OF  
DIFFERENT TRAINING APPROACHES ON  
TRAINEES' PERCEPTIONS OF SELF-EFFICACY  
TO ACHIEVE TRAINING OUTCOMES**

**Wen-Rou Huang**

Assistant Professor, Department of Business Administration, Feng Chia  
University, No. 100 Wenhwa Road, Seatwen, Taichung, Taiwan 40724

**Ronald L. Jacobs**

Professor and Coordinator, Human Resource Development Director, Office of  
International Programs, College of Education, University of Illinois at Urbana-  
Champaign, 1310 S. 6th St., Champaign, IL 61820 USA

Corresponding author: Wen-Rou Huang

E-mail: wrhuang@gmail.com or wrhuang@fcu.edu.tw

TEL: +886-4-24517250



**Abstract:** The evaluation of the effectiveness of training approaches has received great attention in recent years. Self efficacy was proposed to be one of the training outcomes in evaluation. In this study, the influences of structured on-the-job training and classroom training approaches on trainees' perceptions of self-efficacy to achieve training outcomes was explored. Moreover, the relationships among the variables of trainees' general self-efficacy, self-efficacy to achieve training outcomes and two training approaches have also been discussed. This study was conducted by survey in the Training and Development Center of the Taiwan Academy of Banking and Finance. The findings indicated the structured on-the-job training approach can generate greater self-efficacy to achieve training outcomes than classroom training (lecture), especially for trainees with low general self-efficacy. In addition, it was also found that there is a positive relationship between the trainees' general self-efficacy and their self-efficacy to achieve the training outcomes.

**Key-words:** structured on-the-job training approach; classroom training approach; self-efficacy; general self-efficacy

A Comparison of the Influences of Classroom Training and Structured On-the-Job Approaches on Trainees' Perceptions of Self-Efficacy to Achieve Training Outcomes

## 1. Introduction

One line of human resource development (HRD) research agenda is the evaluation of the effectiveness of training approaches. Traditionally, most of the research regarding training evaluation has relied on Kirkpatrick's four-level framework, which includes reactions, learning, behavior and results (Tracey, Hinkin, Tannenbaum, & Mathieu, 2001; Kraiger, Ford & Salas, 1993; Noe, 2010). However, the framework has been criticized and a number of scholars have proposed several new models (Kraiger, Ford & Salas, 1993; Noe, 2010). Among all the new models, self-efficacy has received a lot of attention by the scholars (Saks, 1995; Gist & Mitchell, 1992).

Self-efficacy refers to a person's estimate of his or her capacity to orchestrate performance on a specific task. In most of studies, self-efficacy has been primarily conceptualized as a situation-specific belief by many scholars. Several important aspects of self-efficacy have been identified by the scholars. First, self-efficacy is not an unchangeable construct and is treated as a state that can be developed and effectively managed (Luthans, 2002). Second, since self-efficacy can be developed through training, the scholars have proposed that self-efficacy should be deemed as training outcome, which can be included as a post-training measure of learning along with verbal knowledge, skills, attitudes and behavior transfer when evaluating the training effectiveness (Gist, 1989; Kraiger, Ford & Salas, 1993; Luthans, 2002; Noe, 2010). Gist, Schwoerer and Rosen (1989) had compared the modeling training method with the tutorial training method in the context of a field experiment involving 108 university managers. The results led to the conclusion that relative to a tutorial approach, a behavioral modeling approach yielded higher self-efficacy scores and higher performance on an objective measure of computer software mastery. Empirical studies have also indicated that a training method composed of cognitive modeling with practice and reinforcement generated significantly higher participant self-efficacy than a method involving either lecture or practice alone (Gist, 1989; Taylor, Russ-Eft & Chan, 2005).

Third, the construct of general self-efficacy has received great attention in recent years. The construct of general self-efficacy (GSE) refers to a general belief in one's ability to succeed (Schwoerer, May, Hollensbe & Mencl, 2005). Unlike specific self-efficacy, which is viewed as a malleable independent variable, GSE has been commonly viewed as a stable traitlike characteristic, which is stable over time and across situations (Eden, 1988; Eden & Kinnar, 1991; Luthan, 2002; Schwoerer, May, Hollensbe & Mencl, 2005). Many scholars now argue that GSE can be changed and developed like SSE. For example, Schwoerer et. al. (2005) examined the effects of training experience on general self-efficacy (GSE), work-specific self-efficacy (SSE), and performance expectancy and found that training increased GSE, SSE and performance expectancy.

Although many studies have indicated that self-efficacy can be developed through training and become as an additional training outcome which can be used when evaluating the effectiveness and efficacy of training approaches, much remains unclear about how trainees' self-efficacy is changed by the training while delivering through instructor-led classroom training and structured on-the-job training (S-OJT) approaches. Moreover, although there were studies about GSE in the past (Eden, 1988; Schwoerer, May, Hollensbe & Mencl, 2005; Eden and Kinnar, 1991), relatively little is known about how trainees' demographic variables influence their GSE and how trainees' GSE influences the level of their specific self-efficacy.

Therefore, the first objective of this article is to explore the influence of S-OJT and classroom training approach on self-efficacy. The second objective is

to explore the relationships among trainees' demographic variables and general self-efficacy. The third objective is to investigate the influence of trainees' GSE on their specific self-efficacy. Comprehension of these issues requires some grounding knowledge of S-OJT and classroom training derived from allied disciplines of study, which will be presented in the following.

## 2.2. Training Approaches

Structured On-the-Job Training (S-OJT). S-OJT was first proposed by Jacobs et al. in 1987 (Jacobs, 2003; Jacobs & McGiffin, 1987). The fundamental theories in S-OJT are mainly based on the principles of system theory and social learning theory (Jacobs, 2003; Noe, 2010). Based on the system theory, S-OJT can be viewed as a system which consists of training inputs, training process and training outcomes, and is affected by organizational context. Based on the social learning theory, S-OJT emphasizes that most people learn behaviors by observing others and then modeling the behaviors perceived as effective. Thus, S-OJT stresses the importance of systematic instruction of "new employees" by trained experienced experts at or near the work site (Versloot, De Jong & Thijssen, 2001). It was formally defined by Jacobs (2003) as "the planned process of developing competence on units of work by having an experienced employee train a novice employee at the work setting, or a location that closely resembles the work settings".

When delivering S-OJT, five training events were used to increase training effectiveness. According to Jacobs (2003), the first event is to prepare trainee into the training program. It focuses on directing the trainee's attention to the topic at hand, creating an atmosphere conducive to learning, giving the meaning to the topic, and establishing the standards of performance. The second event is to deliver the training materials to trainees. This event serves to guide the attention of the trainee toward specific parts of the training content. The third event focused on retention, which calls for trainees to respond in a meaningful way to the model that was presented. The fourth event incorporates motor reproduction, which involves trainees' trying out the observed behaviors. In addition, it requires that the trainers ascertain trainees' reproduced behavior and also provide feedback to the trainees about the accuracy and adequacy of their responses. The fifth event is a summative judgment of the adequacy of the trainee's performance, which is a motivational process that reinforces the positive modeled behavior (Jacobs, 2003; Noe, 2010).

Classroom Training Approach. Instructor-led classroom training is a planned training method with formal presentation by an instructor to a group of trainees, which occurs at a location designed to make learning happen rather than the actual job setting (Yelon, 1992; 1999). There are three distinguishable attributes of this training method (Yelon, 1992). First, it requires a trainer to deliver the training. Second, it involves the teaching of groups of trainees. Third,

it requires the physical separation of the classroom from the workplace. While delivering training with this training method, most of the time, the trainer will use lecture as the presentation method to deliver the training. That is, the trainer communicate through spoken words what he/she wants the trainees to learn and the trainees can be passive to an extent, sitting in a classroom to receive the training content. Such communication is essentially one-way (from the trainer to a group of trainees) instead of two-way communication between trainers and trainees (Noe, 2010). In order to increase training effectiveness, the lecture is often supplemented with question-and-answer periods, role play, discussion, or case studies (Yelon, 1999).

**Comparison of Training Approaches.** There are similarities and dissimilarities in the fundamental concepts between structured on-the-job training and classroom training. Specifically, both training approaches are planned by the trainers to achieve training objectives and the purpose is to teach workers the competencies required in the performance of their jobs. However, in contrast to classroom training where spoken words are used to deliver the training materials to trainees, in S-OJT, new or inexperienced employees learn by observing peers or managers performing the job and then being trained to imitate their behavior. In addition, S-OJT emphasizes a one-on-one basis, which is different from classroom training that involves teaching groups of trainees. Furthermore, S-OJT occurs in the actual work setting whereas classroom training separates the training from the workplace. S-OJT also emphasizes practice and feedback, and observation and interaction with others are frequent.

Many empirical studies have been conducted by the scholars to compare the training effectiveness and efficiency between these two approaches. Based on the results, classroom training is better for attaining “knowledge” outcomes while structured on-the-job training method seems to be better for “skill” outcomes (Jacobs, 1990). Knowledge gained in lecture-based training is significantly related to verbal information and intellectual skills, while that gained in S-OJT is significantly related to motor skills (Carter, 2002; Noe, 2010). In a series of research studies, Jacobs (2003) explored the issues regarding whether employees who receive structured on-the-job training (S-OJT) perform better and achieve training objectives faster than those who receive other kinds of training approaches, and, if so, what the financial implications of these outcomes are. Table 1 summarizes comparison between classroom training and S-OJT (Noe, 2010).

### **3. Research Questions**

As discussed previously, the fundamental concepts between S-OJT and classroom training approaches are different and self-efficacy can serve as one of the training criteria in evaluating the effectiveness of training approaches. Therefore, several research questions can be raised as follows:

1. Do trainees in two training groups (with the structured on-the-job training approach and the classroom training approach) differ in their self-assessment of general self-efficacy?
2. Do trainees receiving training with the classroom training approach and with the structured on-the-job training approach differ in their self-assessment of self-efficacy to achieve training outcomes?
3. Do trainees receiving training with the classroom training approach and with the structured on-the-job training approach show different relationships between their general self-efficacy and their levels of self-efficacy to achieve training outcomes?
4. Do trainees with high levels of general self-efficacy differ in their assessment of self-efficacy to achieve training outcomes after training using classroom and structured on-the-job training approaches?
5. Do trainees with low levels of general self-efficacy differ in their assessment of self-efficacy to achieve training outcomes after training using classroom and structured on-the-job training approaches?
6. What are the relationships between demographic variables and general self-efficacy across the trainees with high and low levels of general self-efficacy?

## **4. Method**

### **4.1 Research design and procedure**

The study was conducted in the Training and Development Center of the Taiwan Academy of Banking and Finance (TABF), which is a non-profit training and research foundation in the field of banking and finance in Taiwan. Because of several obstacles and limitations, real training could not be delivered to the participants and a survey design was used in this study. That is, two questionnaires were formulated to include two written training scenarios designed according to the fundamental characteristics of two training approaches, classroom training and S-OJT. The questionnaires were randomly distributed to the participants, who were then randomly divided into two groups. The participants were asked to complete the first two parts of the questionnaire such that the trainees' demographic data and the General Self-Efficacy Scale were collected. Then, the participants were asked to read the scenario describing how they would receive training and imagine that they had participated in the training. After that, the participants answer the questions of the final part of the questionnaire to predict their perceptions of self-efficacy to achieve training outcomes after the training.

In the type of survey research, there are four errors that should be controlled for population validity (Miller, 1999). These four errors include frame error, selection error, non-response error and sampling error. In this study, frame error



was controlled by using the most recently updated trainee list from the Training and Development Center of the Taiwan Academy of Banking and Finance (TABF). Selection error was controlled by ensuring that each trainee in the training center was counted once and completed only one questionnaire. Non-response error was controlled by using a questionnaire of appropriate length and an informative cover letter. In addition, the design of the questionnaire was made as attractive as possible, and some incentives were offered as part of the administration of the questionnaire. Furthermore, the researcher distributed the questionnaires to the TABF trainees personally and followed up to get the completed questionnaires from the respondents.

#### 4.2 Participants

The bankers who enrolled for classes in the Taiwan Academy of Banking and Finance (TABF) from February 21 to March 21, 2009 were selected as participants in this study and the total number in the sample frame was 528. Of the 528 trainees, 264 questionnaires regarding classroom training and 264 questionnaires regarding structured on-the-job training were randomly distributed to the trainees in TABF.

Three hundred twenty-three out of the total 528 respondents completed the questionnaires and 302 questionnaires were usable. The overall response rate was 61% in this study. Specifically, one hundred sixty-three trainees completed the questionnaires after reading the scenario about the classroom training approach, and one hundred sixty trainees completed the questionnaires after reading the scenario about the structured on-the-job training approach. Among them, 16 classroom training questionnaires and 5 S-OJT questionnaires were not included in the data analysis because only a few questions were answered or information provided was not clear. Thus, the responses of three hundred two respondents (147 classroom training questionnaires and 155 S-OJT questionnaires) provided complete demographic characteristics, general self-efficacy level and a score for trainees' self-efficacy to achieve training outcomes and were deemed usable information for the data analysis.

#### 4.3 Instrument

Two questionnaires were used to collect the data and they consisted of three parts. The first part was the participant information sheet for collection of the participants' demographic information and previous training experiences. The second part, adapted from a measure developed by Scherer and Colleagues (1982), was intended to measure the participants' scores in general self-efficacy. A seven-point Likert scale was used in this part. A Likert scale presents respondents with a set of statements about a person, thing, or concept and has them rate their agreement or disagreement with the statements on a numerical

scale that is the same for all the statements (Whitley, 1996). The scale used in this study was: 1 = strongly agree, 2 = agree, 3 = slightly agree, 4 = neither agree nor disagree, 5 = slightly disagree, 6 = disagree, and 7 = strongly disagree. The score was coded from 1 to 7. Respondents' scores on a Likert scale were the sums of their responses to the items. That is, if the trainee has a lower score, it indicates that he or she will have higher general self-efficacy.

The third part included two sections. The first section described two training scenarios (classroom training approach and S-OJT approach) (see Appendix) in each questionnaire and the second section measured the trainees' scores in perceptions of self-efficacy to achieve training outcomes. Nine items regarding the trainees' self-efficacy to achieve training outcomes were generated based on the literature of training evaluation and the concept of training outcomes. A seven-point Likert scale was also used in this part. The score was coded from 1 to 7. Respondents' scores on a Likert scale were the sums of their responses to the items. If the trainee has a lower score, it indicates that he or she will have higher self-efficacy to achieve training outcomes.

#### 4.4 Content validity, and reliability

A panel of experts reviewed the questionnaire for content validity. In other words, the survey was subjected to a series of revisions by HRD and HRM professionals, including specialists in the fields of evaluation, education and business. The internal consistency method was used to measure the reliability of the questionnaire. Cronbach's alpha was calculated for the second and third parts in the two questionnaires completed by 60 pilot trainees in TABF. For the classroom training instrument, the Cronbach's alpha of the general self-efficacy section (Part II: items 1-17) was 0.89, and the Cronbach's alpha of the trainee's self-efficacy to achieve training outcomes section (Part III: items 1-9) was 0.91. The Cronbach's alpha for the whole instrument was 0.90. For the structured on-the-job training instrument, the Cronbach's alpha of the general self-efficacy section (Part II: items 1-17) was 0.78, and the Cronbach's alpha of the trainee's self-efficacy to achieve training outcomes section (Part III: items 1-9) was 0.93. The Cronbach's alpha for the whole instrument was 0.85. All the values were above 0.7, indicating that the survey achieves acceptable measures of internal consistency. Tables 2 and 3 show the Cronbach's alpha coefficients for the survey responses.

#### 4.5 Data analysis

Inferential statistics are certain types of procedures that allow researchers to make inferences about a population based on findings from a sample (Fraenkel & Wallen, 2008). According to the literature, the t-test is based on various underlying assumptions: the two random samples must be independently selected, the sampling distribution follows the normal curve and homogeneity of variance is

assumed (King & Minium, 2003).

To meet the assumptions of independently selected and homogeneity of variance, the sample of this study was selected and randomly divided into two groups (classroom training and S-OJT groups) and the homogeneity of variance was verified and assured for each research question (reported in the following discussion of those questions). As to the assumption of sampling distribution following the normal curve, the descriptive statistics and the Shapiro-Wilk test were applied to examine the normality. Tables 4 and 5 present the results of the descriptive statistics and Shapiro-Wilk test for the classroom training group. In Table 4, there is a small gap between the mean of 2.80 and the median of 2.76. The skewness and Kurtosis value are 0.26 and -0.61, respectively. Thus, the descriptive statistics indicate that the scores for the general self-efficacy of the classroom training group were normally distributed and, in addition, that the sample was selected from a population with normal distribution. In Table 5, the value obtained in the Shapiro-Wilk test is 0.98 and is not significant at the 0.05 alpha level. Thus, the null hypothesis is not rejected, indicating that the population and the general self-efficacy scores of the classroom training group were normally distributed.

Tables 6 and 7 present the results of the descriptive statistics and Shapiro-Wilk test for the structured on-the-job training group. In Table 6, there is a small gap between the mean of 2.712 and the median of 2.705. The skewness and Kurtosis value are 0.16 and -0.62, respectively. Thus, the descriptive statistics indicate that the scores for general self-efficacy of the structured on-the-job training group are normally distributed and that the sample was selected from a population which was normally distributed. In Table 7, the value obtained in the Shapiro-Wilk test is 0.987 and is not significant at the 0.05 alpha level. Thus, the null hypothesis is not rejected, indicating that the population of the S-OJT group was normally distributed and the general self-efficacy scores of the S-OJT group were normally distributed as well.

Based on the discussion above, the t-test for independent means was appropriate to be used to compare the mean scores of two independent groups in this study. Thus, the demographic information was summarized in descriptive statistics such as means, ranges, and standard deviations. In addition, independent sample t-test, correlational statistics and the chi-square test were used to answer six research questions.

## 5. Results

### 5.1 Demographic Data

The demographic information collected from all sample subjects and sample subjects by group (classroom training and structured on-the-job training) includes: number of years worked in banking, number of years worked for the

present organization, number of years in the present position, educational level, experience in receiving classroom training, experience in receiving structured on-the-job training, and experience in attending training on conducting performance reviews for subordinate employees. The frequencies and percentages for all sample subjects and for the classroom training and structured on-the-job training groups are listed in Table 8. Since randomization was used to assign the trainees to the two groups and the demographic information for the two groups was very similar as shown in Table 8, the groups for two different training approaches can be assumed to be equivalent (Fraenkel & Wallen, 2008).

### 5.2 Research Question #1

To obtain information about the trainees' general self-efficacy, all sample subjects were asked to rate their level of confidence on seventeen measured items. On a seven point scale with one as the high confidence level and seven as the low confidence level, the mean scores for all subjects was 2.76, with a standard deviation of 0.80, as shown in Table 9. The mean scores for the classroom training group and the structured on-the-job training group were 2.80 with a standard deviation of 0.79 and 2.71 with a standard deviation of 0.81, respectively.

Independent samples t-test was used to examine the difference between the means of the scores of general self-efficacy for the classroom training group and the structured on-the-job training group. Levene's test for equality of variances was conducted to ensure equal variance. An F ratio of .028 with a probability of .867 ( $p > 0.05$ ) supported the assumption of homogeneity. Table 10 shows that the t value is 0.995 and is not significant at the 0.05 alpha level. This indicated that there was no significant difference in the assessment of general self-efficacy between the classroom training group and the structured on-the-job training group.

### 5.3 Research Question #2

To obtain information about participants' perceptions of self-efficacy to achieve the training outcomes, all participants were asked to rate their level of confidence to achieve training outcomes on nine items after reading the training scenario. On a seven point scale with one as the high point and seven as the low point, the mean of the raw scores for all participants was 2.61 with a standard deviation of 0.95, as shown in Table 11. The means of raw scores for the classroom training group and the structured on-the-job training group were 2.82 with a standard deviation of 0.90 and 2.41 with a standard deviation of 0.96, respectively.

Independent samples t-test was used to examine the difference between the means of the scores of self-efficacy to achieve training outcomes for the classroom training group and the structured on-the-job training group. Levene's test for equality of variances was conducted to ensure equal variance. An F ratio of 1.408 with a probability of 0.236 supported the assumption of homogeneity. As shown in

Table 12, the  $t$  value is 3.804 and significant at the 0.05 alpha level. Thus, there was indeed a difference in the assessment of self-efficacy to achieve training outcomes between the trainees who received classroom training and those who received structured on-the-job training.

#### 5.4 Research Question #3

Correlational statistics were used to determine the relationship between the trainees' general self-efficacy and their self-efficacy to achieve training outcomes. Tables 13, 14 and 15 present the results of the correlation statistics between general self-efficacy and self-efficacy to achieve training outcomes for the total sample, the classroom training group and the structured on-the-job training group, respectively. The correlation coefficients for the total sample, the classroom training group and the structured on-the-job training group are 0.408, 0.533 and 0.293, respectively at statistically significant at the 0.01 alpha level. All these results indicate that there is a significant positive relationship between the trainees' general self-efficacy and their self-efficacy to achieve training outcomes. In addition, the results show that there is a moderate relationship between the trainees' general self-efficacy and their self-efficacy to achieve training outcomes for the total sample and for the classroom training group. However, the correlation between general self-efficacy and self-efficacy to achieve training outcomes for the S-OJT group shows a low or weak relationship.

#### 5.5 Research Question #4

Before responding to this question, it was necessary to distinguish the trainees with high general self-efficacy from those with low general self-efficacy. In this study, it was determined that the trainees whose general self-efficacy scores were higher than 3.56 (one standard deviation above the mean) would belong to the low self-efficacy group, and the trainees whose general self-efficacy scores were lower than 1.96 (one standard deviation below the mean) would belong to the high self-efficacy group. The trainees with high general self-efficacy were divided into two groups according to the different training approaches: the high general self-efficacy classroom training group (high GSE CT group) and the high general self-efficacy structured on-the-job training group (high GSE S-OJT group).

As shown in Table 16, it was found that the trainees in high GSE CT group had a mean rater score for self-efficacy to achieve training outcomes of 1.98 with a standard deviation of 0.76. Trainees in high GSE S-OJT group had a mean rater score of 1.91 with a standard deviation of 0.92. In the  $t$ -test, a  $t$  value of 0.302 was obtained, which is not significant at the 0.05 alpha level as shown in Table 17. Thus, there was no difference in the trainees' assessment of their own self-efficacy to achieve training outcomes for the trainees with high general self-efficacy who received different training methods.

### 5.6 Research Question #5

The same criterion used in research question 4 was applied to distinguish the trainees who had low general self-efficacy. The trainees with low general self-efficacy were divided into two groups based on the two different training approaches: the low general self-efficacy classroom training group (low GSE CT group) and the low general self-efficacy structured on-the-job training group (low GSE S-OJT group).

Independent samples t-test was used to examine the difference between the mean scores of the self-efficacy to achieve training outcomes for the lower general self-efficacy groups with different training methods. Levene's test for equality of variances was conducted to ensure equal variance. An F ratio of 1.496 with a probability of 0.226 supported the assumption of homogeneity. Table 18 shows that the trainees in low GSE CT group had a mean rater score for self-efficacy to achieve training outcomes of 3.58 with a standard deviation of 0.90. The trainees in low GSE S-OJT group had a mean rater score of 2.84 with a standard deviation of 1.03. According to the t-test result, the t value is 2.931 and significant at the 0.05 alpha level as shown in Table 19. This indicates that there was a significant difference between the two groups in the trainees' assessment of their self-efficacy to achieve training outcomes. The structured on-the-job training generated higher self-efficacy to achieve outcomes than the classroom training method for the trainees with low general self-efficacy.

### 5.7 Research Question #6

The same criterion used in research questions 4 and 5 was applied to distinguish the trainees who had high or low general self-efficacy. The chi-square test was used to examine the relationships between general self-efficacy and the demographic variables, i.e., years in banking, years in organization, years in current position, educational level, training experiences, on-the-job training experiences and performance training experiences.

Based on the chi-square test results, no statistically significant correlations were found between these variables and general self-efficacy. In other words, personal characteristics such as the number of years working in banking, in the organization, in the current position, their personal educational level and their previous training experiences did not seem to influence the trainees' general self-efficacy levels.

## 6. Discussion

This study is attempted to compare the influence of S-OJT with that of classroom training approaches on the participants' perceived self-efficacy to achieve training outcomes. In addition, the relationships among trainees' general

self-efficacy, training approach and trainees' self-efficacy to achieve training outcomes were explored. Several in-depth interpretations of the results will be presented.

First, prior to the training, the participants in the two groups were similar in their general self-efficacy. Therefore, when comparing the specific self-efficacy (self-efficacy to achieve training outcomes) for the two groups receiving different training approaches, the participants' initial general self-efficacy would not be a factor influencing the training results and learning performance of either group.

Second, the findings indicate that the training approaches had an influence on the trainees' self-efficacy. More specifically, trainees who received S-OJT generated higher self-efficacy to achieve training outcomes than those who received the classroom training. These results reinforce the argument that self-efficacy can be developed and effectively managed through training (Luthans, 2002), and the training methods comprised of cognitive modeling with practice and reinforcement generate significantly higher participant self-efficacy than methods involving either lecture or practice alone (Gist, 1989; Gist, Schwoerer & Rosen, 1989).

Third, the results show that there was a moderately strong relationship between the trainees' general self-efficacy and their self-efficacy to achieve training outcomes for the total sample. More specifically, the participants with high general self-efficacy had higher perceived self-efficacy to achieve the training outcomes after the training than participants with low general self-efficacy. In this study, the correlation coefficient for the relationship between participants' general self-efficacy and their self-efficacy to achieve the training outcomes was 0.408 (for the total sample). Since the square of the correlation coefficient represents the proportion of the variance on one variable that can be accounted for by the other variable, this finding means that about 16 percent of the difference among trainees in self-efficacy to achieve the training outcomes can be attributed to difference in their levels of general self-efficacy. In other words, about 84 percent of the variance in self-efficacy to achieve the training outcomes is due to other factors, such as training approach and trainees' beliefs, experience, motivation, learning ability, perception of the favorability of the work environment and previous performance (Noe, 1986; Gordon & Cohen, 1973).

Fourth, the results show that there was indeed a difference in the assessment of self-efficacy to achieve training outcomes for the participants with low general self-efficacy who received different training methods. That is, the participants with low general self-efficacy who received the S-OJT generated higher self-efficacy to achieve training outcomes than those who received the classroom training method. Such results are consistent with the findings that trainees with low self-efficacy tend to require more guidance in skill instruction and managing practice activities (Saks, 1994). It has also been pointed out that trainees with low self-efficacy have a tendency to be less attentive and focused and experience more anger, frustration, and anxiety during training and, thus, are less likely to

enjoy the learning experience and perceive it to be valuable compared to trainees with higher self-efficacy (Saks, 1994; Gist et al., 1989, 1991). According to Saks (1994), self-efficacy is negatively related to anxiety and trainees with low self-efficacy may be particularly sensitive to the training method due to their levels of anxiety. Since the S-OJT approach provides structured guidance on how to perform the trainee's tasks in the organization and it also includes behavior modeling, reinforcement and practice, the trainees with low general self-efficacy might be able to benefit from this form of training that maximizes the learning outcomes and minimizes anxiety in the training process.

## **7. Limitations of the study**

The results of this study are limited by the research method. First, this study relies on answers provided by bankers in the training center in Taiwan on a survey. That is, any generalizations from the results of this study are limited to the population of the training and development center of the Taiwan Academy of Banking and Finance (TABF) in Taiwan. The results cannot be generalized to other groups and other countries.

Second, a written training scenario was used instead of real training. Different results could have been found if the real training would have been applied to the trainees.

## **8. Implications**

The results of this study contribute to previous research on training and self-efficacy by providing information about the influence of the structured on-the-job training approach on trainees' self-efficacy, extending this line of research to a sample of actual working employees (bankers) in organizational settings and pointing the way to a new understanding of the variable of general self-efficacy and its relationship with specific self-efficacy and training approaches as well.

In addition, the findings indicate that it is important to use a training program designed to deliver skills and increase trainees' self-efficacy simultaneously to maximize the training effectiveness. Since the structured on-the-job training approach provides structured guidance on how to perform one's tasks in the organization and includes several components that can help to increase the perceived self-efficacy of trainees during the training process, the structured on-the-job training approach can benefit trainees, especially those with low general self-efficacy, can benefit from this training method by generating higher levels of specific self-efficacy compared to the classroom training approach to enhance their learning performance. HRD professionals, thus, should consider using the structured on-the-job training approach for trainees, especially for trainees



with low general self-efficacy, for trainees who are new to a work situation, for trainees who lack confidence in learning new knowledge and skills, and for trainees who feel fear and anxiety about learning new information, in order to contribute to continuous improvement in the employees' training effectiveness and job performance.

## References

- Bandura, A. J., 1977. Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84, (2), 191-215.
- Carter, S.D., 2002. Matching training methods and factors of cognitive ability: A means to improve training outcomes. *Human Resource Development Quarterly*, 13, (1), 71-87.
- Dunlap, J.C., 2005. Problem-Based Learning and Self-efficacy: How a capstone course prepares students for a profession. *ETR&D*, 53(1), 65-85.
- Eden, D., 1988. Pygmalion, goal setting, and expectancy: Compatible ways to raise productivity. *Academy of Management Review*, 13, 639-652.
- Eden, D., & Aviram, A., 1993. Self-efficacy training to speed reemployment: helping people to help themselves. *Journal of Applied Psychology*, 78, 352-360.
- Eden, D., & Kinnar, J., 1991. Modeling Galatea: Boosting self-efficacy to increase volunteering. *Journal of Applied Psychology*, 76, 770-780.
- Fraenkel, J.R., & Wallen, N.E., 2008. How to design and evaluate research in education. New York, NY: McGraw-Hill Companies.
- Gist, M.E., 1989. The influence of training methods on self-efficacy and idea generation among managers. *Personnel Psychology*, 42, 787-805.
- Gist, M.E., & Mitchell, T.R., 1992. Self-efficacy: A theoretical analysis of its determinants and malleability. *Academy of Management Review*, 17, (2), 183-211.
- Gist, M.E., Schwoerer, C., & Rosen, B., 1989. Effects of alternative training methods on self-efficacy and performance in computer software training. *Journal of Applied Psychology*, 74, (6), 884-891.
- Gist, M.E., Stevens, C.K., & Bavetta, A.G., 1991. Effects of self-efficacy and post-training intervention on the acquisition and maintenance of complex interpersonal skills. *Personnel Psychology*, 44, 837-861.
- Gordon, M.E., & Cohen, S.L., 1973. Training behavior as a predictor of trainability. *Personnel Psychology*, 261-272.
- Jacobs, R.L., 1990. Structured on-the-job training. Columbus, OH: Ohio State University. (ERIC Document Reproduction Service No. ED 326 641).
- Jacobs, R. L., 2003. Structured On-the-Job Training: Unleashing employee expertise in the workplace. San Francisco: Berrett-Koehler.
- Jacobs, R.L., & McGiffin, T.D., 1987. A human performance system using a structured on-the-job training approach. *Performance & Instruction*, 25, 8-11.

- King, B.M., & Minium, E.M., 2003. Statistical reasoning: In psychology and education. Hoboken, NJ: John Wiley & Sons.
- Kraiger, K., Ford, J.K., & Salas, E., 1993. Application of cognitive, skill-based, and affective theories of learning outcomes to new methods of training evaluation. *Journal of Applied Psychology*, 78, (2), 311-328.
- Luthans, F., 2002. Positive organizational behavior: Developing and managing psychological strengths. *Academy of Management Executive*, 16, (1), 57-72.
- Miller, L.E., 1999. Research methods. Unpublished manuscript, The Ohio State University.
- Noe, R.A., 1986. Trainees' attributes and attitudes: Neglected influences on training effectiveness. *Academy of Management Review*, 11, (4), 736-749.
- Noe, R.A., 2010. Employee training and development. New York: McGraw-Hill.
- Saks, A.M., 1994. Moderating effects of self-efficacy for the relationship between training method and anxiety and stress reactions of newcomers. *Journal of Organizational Behavior*, 15, 639-654.
- Saks, A.M., 1995. Longitudinal field investigation of the moderating and mediating effects of self-efficacy on the relationship between training and newcomer adjustment. *Journal of Applied Psychology*, 80, (2), 211-225.
- Schworer, C.E., May, D.R., Hollensbe, E.C., & Mencl, J., 2005. General and Specific self-efficacy in the context of a training intervention to enhance performance expectancy. *Human Resource Development Quarterly*, 26, (1), 111-129.
- Sherer, M., & Maddux, J.E., 1982. The self-efficacy scale: Construction and validation. *Psychological Reports*, 51, 663-671.
- Stevens, C.K., Bavetta, A.G., & Gist, M.E., 1993. Gender differences in the acquisition of salary negotiation skills: the role of goals, self-efficacy, and perceived control. *Journal of Applied Psychology*, 78, (5), 723-735.
- Taylor, P.J., Russ-Eft, D.F., & Chan, Daniel W.L., 2005. A meta-analytic review of behavior modeling training. *Journal of Applied Psychology*, 90, (4), 692-709.
- Tracey, J.B., Hinkin, T.R., Tannenbaum, S., & Mathieu, J.E., 2001. The influence of individual characteristics and the work environment on varying levels of training outcomes. *Human resource development quarterly*, 12, (1), 5-23.
- Versloot, A.M., DeJong, J.A., & Thijssen, J. G., 2001. Organization context of structured on-the-job training. *International Journal of Training and Development*, 5 (1), 2-22.
- Whitley, B.E., 1996. Principles of research in behavioral science. Mountain View, CA: Mayfield Publishing Company.
- Yelon, S.L., 1992. Classroom instruction. In H.D. Stolovitch, & E.J. Keeps (Ed.), *Handbook of human performance technology: A comprehensive guide for analyzing and solving performance problems in organizations* (pp.383-411). San Francisco, CA: Jossey-Bass.
- Yelon, S.L., 1999. Live classroom instruction. In H.D. Stolovitch, & E.J. Keeps (Ed.), *Handbook of human performance technology: Improving individual and organizational performance worldwide* (pp.485-517). San Francisco, CA: Jossey-Bass Pfeiffer.

Table 1. Summary of the comparison between classroom training and S-OJT.

|   |   |   |
|---|---|---|
|   | Classroom   | Structured on-the-job   |
| Medium                                  | Live instructor   | Live trainer with working experience (e.g. employees, managers, or supervisors) |
| Way of delivering training              | The trainer communicates through spoken words what he/she wants the trainees to learn | The trainees observe and model the trainer's skill or behaviors                 |
| Content                                 | Verbal-based  | Skill-based; behavior-based   |
| Style                                   | One-to group  | One-on-one  |
| Location                                | Classroom   | Actual or similar to work setting   |
| Practice                                | Low   | High  |
| Feedback                                | Low   | High  |
| Observation and interaction with others | Low   | High  |
| Learning outcomes                       | Verbal information<br>Intellectual skills<br>Cognitive strategies<br>Attitudes        | Verbal information<br>Cognitive strategies<br>Motor skills                      |
| Transfer of training                    | Low   | High  |
| Effectiveness                           | High for verbal information   | High  |

Table 2. Cronbach's alpha coefficients for the classroom training questionnaire (n=30)

| Variables                                  | Cronbach's Alpha |
|--|------------------|
| General Self-efficacy                      | 0.89             |
| Self-efficacy to achieve training outcomes | 0.91             |
| Classroom training instrument              | 0.90             |

Table 3. Cronbach's alpha coefficients for the structured on-the-job Training Questionnaire (n=30)

| Variables                                  | Cronbach's Alpha |
|--|------------------|
| General Self-efficacy                      | 0.78             |
| Self-efficacy to achieve training outcomes | 0.93             |
| Structured on-the-job training instrument  | 0.85             |

Table 4. Descriptive statistics for the general self-efficacy scores of the CT Group (n =1 47)

| Confidence Level:<br>General Self-Efficacy | Mean | SD   | Median | Variance | Skewness | Kurtosis |
|--|------|------|--------|----------|----------|----------|
| CT Group                                   | 2.80 | 0.79 | 2.76   | 0.63     | 0.26     | -0.61    |

Table 5. Shapiro-Wilk test of normality for the CT Group (n =1 47)

| Source                   | Statistic | DF  | Sig.  |
|--------------------------|-----------|-----|-------|
| Classroom Training Group | 0.983     | 147 | 0.065 |

Table 6. Descriptive statistics for the general self-efficacy of the S-OJT Group (n = 155)

| Confidence Level:<br>General Self-Efficacy | Mean  | SD   | Median | Variance | Skewness | Kurtosis |
|--|-------|------|--------|----------|----------|----------|
| S-OJT Group                                | 2.712 | 0.81 | 2.705  | 0.65     | 0.16     | -0.62    |

Table 7. Shapiro-Wilk test of normality for the S-OJT Group (n = 155)

| Source      | Statistic | DF  | Sig.  |
|-------------|-----------|-----|-------|
| S-OJT Group | 0.987     | 155 | 0.143 |

Table 8. Frequencies and percentages for the demographic information: total sample (n = 302), CT group (n = 147) and S-OJT group (n =155)

|  | Total sample |      | CT group |      | SOJT group |      |
|--|--------------|------|----------|------|------------|------|
|  | n            | %    | n        | %    | n          | %    |
| <b>Number of Years Worked in Banking</b>               |              |      |          |      |            |      |
| Less than one year                                     | 18           | 6    | 9        | 6.1  | 9          | 5.8  |
| 1-5 years  | 106          | 35.1 | 56       | 38.1 | 50         | 32.3 |
| 6-10 years   | 71           | 23.5 | 38       | 25.9 | 33         | 21.3 |
| More than 10 years                                     | 107          | 35.4 | 44       | 29.9 | 63         | 40.6 |
| <b>Number of Years Worked for Present Organization</b> |              |      |          |      |            |      |
| Less than one year                                     | 71           | 23.5 | 41       | 27.9 | 30         | 19.4 |
| 1-5 years  | 162          | 53.7 | 71       | 48.3 | 91         | 58.7 |
| 6-10 years   | 36           | 11.9 | 20       | 13.6 | 16         | 10.3 |
| More than 10 years                                     | 33           | 10.9 | 15       | 10.2 | 18         | 11.6 |
| <b>Number of Years Worked in Present Position</b>      |              |      |          |      |            |      |
| Less than one year                                     | 81           | 26.8 | 43       | 29.3 | 38         | 24.5 |
| 1-5 years  | 167          | 55.3 | 81       | 55.1 | 86         | 55.5 |
| 6-10 years   | 33           | 10.9 | 16       | 10.8 | 17         | 11.0 |
| More than 10 years                                     | 21           | 7.0  | 7        | 4.8  | 14         | 9.0  |
| <b>Educational Level</b>                               |              |      |          |      |            |      |
| High School Diploma                                    | 25           | 8.3  | 11       | 7.5  | 14         | 9.0  |

|   |     |      |     |      |     |      |
|---|-----|------|-----|------|-----|------|
| Some university/College                                   | 24  | 7.9  | 12  | 8.2  | 12  | 7.7  |
| University/College  | 179 | 59.3 | 87  | 59.2 | 92  | 59.4 |
| Master's degree   | 74  | 24.5 | 37  | 25.2 | 37  | 23.9 |
| Ph.D.   | 0   | 0    | 0   | 0    | 0   | 0    |
| Number of Classroom Training Experiences in the Past Year |     |      |     |      |     |      |
| None  | 59  | 19.5 | 30  | 20.4 | 29  | 18.7 |
| One to three  | 144 | 47.7 | 67  | 45.6 | 77  | 49.7 |
| More than three   | 99  | 32.8 | 50  | 34.0 | 49  | 31.6 |
| Structured On-the-Job Training Experiences                |     |      |     |      |     |      |
| Yes   | 192 | 63.6 | 90  | 61.2 | 102 | 65.8 |
| No  | 110 | 36.4 | 57  | 38.8 | 53  | 34.2 |
| Performance Training Experience                           |     |      |     |      |     |      |
| Yes   | 56  | 18.5 | 31  | 21.1 | 25  | 16.1 |
| No  | 246 | 81.5 | 116 | 78.9 | 130 | 83.9 |

Table 9. Mean score and standard deviation for general self-efficacy, total sample (n = 302), CT group (n =1 47) and S-OJT group (n = 155)

| Confidence Level:<br>General Self-Efficacy | Mean | n   | SD   |
|--|------|-----|------|
| Classroom Training                         | 2.80 | 147 | 0.79 |
| Structured On-the-Job Training             | 2.71 | 155 | 0.81 |
| Total Sample                               | 2.76 | 302 | 0.80 |

Table 10. Independent samples t-test for CT group (n =1 47) and S-OJT group (n = 155) for general self-efficacy scores

| Independent Samples t-test   | T     | df  | Sig.  | Mean Difference |
|--|-------|-----|-------|-----------------|
| General Self-Efficacy<br>Classroom Training and<br>Structured On-the-Job Training Groups | 0.995 | 300 | 0.321 | 0.09161         |

Table 11. Mean and standard deviation of raw scores on self-efficacy to achieve training outcomes, total sample (n = 302), CT group (n =1 47) and S-OJT group (n = 155)

| Confidence Level: Self-Efficacy to Achieve Training Outcomes | Mean | n   | SD   |
|--|------|-----|------|
| Classroom Training   | 2.82 | 147 | 0.90 |
| Structured On-the-Job Training                               | 2.41 | 155 | 0.96 |
| Total Sample   | 2.61 | 302 | 0.95 |

Table 12. Independent samples t-test for CT group (n =1 47) and S-OJT group (n = 155).

| Independent sample t test   |       |     |       |                 |       |
|---|-------|-----|-------|-----------------|-------|
|   | T     | df  | Sig.  | Mean Difference | SE    |
| Self-efficacy to achieve training outcomes (classroom training and structured on-the-job training groups) | 3.804 | 300 | 0.000 | 0.409           | 0.107 |

Table 13. Correlation matrix between general self-efficacy and self-efficacy to achieve training outcomes for total sample (n=302)

|   | 1     | 2      |
|---|-------|--------|
| 1. General self-efficacy                      | 1.000 | .408** |
| 2. Self-efficacy to achieve training outcomes |       | 1.000  |

\*\* p<0.01

Table 14. Correlation matrix between general self-efficacy and self-efficacy to achieve training outcomes for the CT group (n=147).

|   | 1     | 2      |
|---|-------|--------|
| 1. General self-efficacy                      | 1.000 | .533** |
| 2. Self-efficacy to achieve training outcomes |       | 1.000  |

\*\* p<0.01

Table 15. Correlation matrix between general self-efficacy and self-efficacy to achieve training outcomes for the S-OJT group (n=155).

|   | 1     | 2      |
|---|-------|--------|
| 1. General self-efficacy                      | 1.000 | .293** |
| 2. Self-efficacy to achieve training outcomes |       | 1.000  |

\*\* p<0.01

Table 16. Mean score and standard deviation for self-efficacy to achieve training outcomes

| Independent sample statistics                       |    |      |      |      |
|---|----|------|------|------|
| Self-efficacy to achieve training outcomes          | n  | Mean | SD   | SE   |
| High general self-efficacy classroom training group | 20 | 1.98 | 0.76 | 0.17 |
| High general self efficacy SOJT group               | 33 | 1.91 | 0.92 | 0.16 |

Note. The high GSE CT group (n = 20) and the high GSE S-OJT group (n = 33) [Q4]

Table 17. Independent samples t-test for the high GSE CT group (n = 20) and the high GSE S-OJT group (n = 33).

| Independent sample t test   |       |    |       |                 |      |
|---|-------|----|-------|-----------------|------|
|   | T     | df | Sig.  | Mean Difference | SE   |
| Self-efficacy to achieve training outcomes (high GSE CT group and high GSE S-OJT group) | 0.302 | 51 | 0.764 | 0.078           | 0.26 |

Table 18. Mean score and standard deviation for self-efficacy to achieve training outcomes

| Independent sample statistics                      |    |      |      |      |
|--|----|------|------|------|
| Self-efficacy to achieve training outcomes         | n  | Mean | SD   | SE   |
| Low general self-efficacy classroom training group | 31 | 3.58 | 0.90 | 0.16 |
| Low general self efficacy SOJT group               | 27 | 2.84 | 1.03 | 0.20 |

Note. The low GSE CT group (n = 31) and the low GSE S-OJT group (n = 27). [Q5]

Table 19. Independent samples t-test for the low GSE CT group (n = 31) and the low GSE S-OJT group (n = 27).

| Independent Sample t test   |       |    |       |                 |      |
|---|-------|----|-------|-----------------|------|
|   | T     | df | Sig.  | Mean Difference | SE   |
| Self-efficacy to achieve training outcomes (low general self-efficacy classroom training and low general self-efficacy SOJT groups) | 2.931 | 56 | 0.005 | 0.78            | 0.27 |

## Appendix

### TRAINING SCENARIO (S-OJT)

Your organization has announced that it plans to implement a new performance review process. As a manager, you will be expected to use the new process when you evaluate the performance of your subordinate employees. A training program has been developed to help you understand the reason for using the new performance review process, the components of the process, and specific techniques to use when actually conducting the review. The following describes how you will receive the training. You will be assigned to a trainer who will provide the training one-on-one. Your trainer will give you a training module which contains all the information necessary to learn about the new performance review process. The module can also serve as a reference after the training. Then, your trainer will explain how the one-on-one training will be conducted and the expected outcomes of the training.

At the beginning of the training session, the trainer will ask you to sit with him in a quiet conference room. The trainer will explain why it is important for the organization to use the new performance review process, the key concepts of the process, and the five steps of the process. Then the trainer will ask that you and he engage in several role play situations so that you can practice using the techniques associated with each step of the process. During the role plays, the trainer will act as the employee and you will act as the manager. Following each role play, the trainer will provide you with feedback on how well you used the techniques and respond to any of your questions. When you feel capable of performing the techniques associated with the process, the trainer will ask you to conduct a role play with another trainer, and then he will observe you and then

complete an evaluation form that documents whether you have achieved the training objectives. The training program will require about four hours of your time.

### **TRAINING SCENARIO (Classroom approach)**

Your organization has announced that it plans to implement a new performance review process. As a manager, you will be expected to use the new process when you evaluate the performance of your subordinate employees. A training program has been developed to help you understand the reason for using the new performance review process, the components of the process, and specific techniques to use when actually conducting the review. The following describes how you will receive the training. You will be assigned to a training session along with 20 other managers. The trainer introduces himself and gives each of you a training manual which summarizes the presentation notes and the concluding activity. The training manual can also be used for reference after the training. Then the trainer will explain the schedule for the training session. At the beginning of the training session, the trainer introduces the topic of the training session. The trainer will explain why it is important for the organization to use the new performance review process, the key concepts of the process, and the five steps of the process. Then the trainer will introduce the practice component of the training session. Trainees will be asked to work with a peer trainee and each trainee will be expected to demonstrate how to use the techniques associated with each step of the process. The trainer will observe each pair of trainees as they practice with each other. Following the practice sessions, the trainer will ask two to three trainees if they would conduct a role play with him in front of the other trainees. Following the role plays, the trainer will facilitate a discussion about using the performance review process. Finally, the trainer will ask if trainees feel capable using the process back on the job. Each trainee will receive a certificate that you have achieved the training objectives. The training program will require about eight hours of your time.