

# Using Task-Technology Fit Model Evaluates Trainees' Learning Performance In Second Life

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## Abstract

3D virtual environment such as Second Life is very popular to assist trainees' learning. However, the effects of learning performance are very in different studies. Learning performance is the most important factor to decide how successful instruction is. This study not only uses task-technology fit model as foundation to evaluate trainee' learning performance but also provides the employer a point of management view to evaluate employee's performance. More factors such as interaction between trainers and trainees, attitude of trainee, and relevance of problem solving are also discussed in this issue.

**Key words:** Task-technology fit model, learning performance, second life.

## 1 Introduction

Second Life, which is a 3D virtual environment online, enable users to create avatars to communicate with each other. Because users have many social interactions in order to live in Second Life, currently many instructors use virtual environment such as Second Life to assist employees to learn the real cases through virtual social activities. However, the effects of learning performance are very in different studies [3].

E-training has grown up very fast in Chinese companies. Currently, many enterprises prefer applying to computer

simulated environments that can simulate real situation in the virtual world. It costs a little money compared to create the real classroom for trainees. Although recent advances in 3D virtual environment have enable various new learning approaches which situate students that combine different learning resources, researchers have indicated several problems when applying them to practical.[4] Students feel interested when using the 3D virtual environment to learn; however, the lack of proper strategies may not benefit their learning. To cope with this problem, the researcher investigated learning performance is an important factor to evaluate how successful instruction is.

## 2 Literature Review

### 2.1 Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) tries to explain and evaluate acceptance of information technology for people (Figure 1).

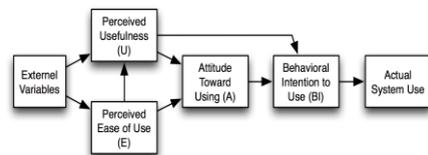


Figure 1. Technology Acceptance Model (TAM)

**Perceived usefulness (PU)** - Davis defined this as "the degree to which a person believes that using a particular system would enhance his or her job performance". [1]

**Perceived ease of use (PEOU)** - Davis defined this as "the degree to which a person believes that using a particular system would be free from effort". [1]  
 In TAM, perceived usefulness and perceived ease of use decide users' attitude toward using, and then affect their behavioral intention to use, and then determine actual system use. The relationships of this model have been validated empirically in many researches. TAM is the most important research model in evaluating usage of information technology recently.

**2.2 Task-technology fit model (TTF)**

Task-technology fit (TTF) model describes that information technology has a positive effect on individual performance. If the information technology match the tasks, user's performance will get better. This model also describes that task, technology, and individual affect task-technology fit. Moreover, performance affect by user evaluation and task-technology fit. Therefore, task-technology fit is the most important factor in this model. Task-technology fit consists of eight factors: quality, locatability, authorization, compatibility, ease of use/training, production timeliness, systems reliability, and relationship with users. [2] All factors of task-technology fit can be measured by questionnaires.

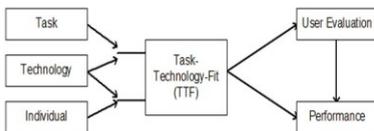


Figure 2. Task-technology fit model (TTF)

**3 Hypotheses**

This study combines TAM, TTF model and other factors such as interaction between trainers and trainees, attitude of trainee, and relevance of problem solving. Below is our research model.

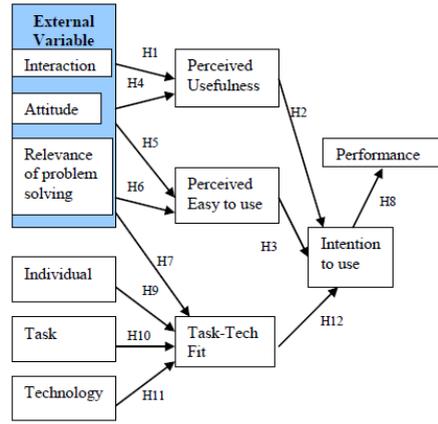


Figure 3. Research model

- H1: Interaction between trainers and trainees is positively related to Perceived Usefulness.
- H2: Perceived usefulness between trainers and trainees is positively related to intention to use.
- H3: Perceived easy to use between trainers and trainees is positively related to intention to use.
- H4: Attitude of trainee is positively related to Perceived Usefulness.
- H5: Attitude of trainee is positively related to Perceived Easy to Use.
- H6: Relevance of problem solving is positively related to Perceived Easy to Use.
- H7: Relevance of problem solving is positively related to Task-Technology fit.
- H8: Intention to use is positively related to Performance.
- H9: Individual is positively related to task-tech fit

- H10: Task is positively related to task-tech fit
- H11: Technology is positively related to task-tech fit
- H12: Task-tech fit is positively related to intention to use

**4 Methods**

**4.1 Sample**

The population of this study was employees who work in Chinese companies have experience using Second Life for their company social training. The primary target sample was employees working in Taiwan as the majority of these companies. These companies implemented training for new employee and use Second Life as a tool for the learning and development of their employees. A total of 39 samples were used in this study. All samples are randomly selected from new employees.

**4.2 Procedure**

All employees were doing their routine job in the company when this study was proceeding. In the first week, selected employees create their avatars and practiced to action and conversation in Second Life. In the second and third week, training activities which new employees had to learn were discussed between trainer and new employee in Second Life. In the second week, the training activities include orientation for new employee and instruction of company. In the third week, selected employee had to finish the assignment which the trainers gave such as deal with a customer complaint. In the fourth week, selected employees had to complete questionnaires in order to know their opinions regarding this research. This research used questionnaires to gather information from selected employees directly. The primary data collection method was used whereby

a survey was conducted using questionnaires. All selected employees who had to finish the process of the fourth weeks and complete questionnaires were successful sample in this study.



Figure 4 trainers' avatars in second life



Figure 4 trainers run activities in second life

Table 1 Procedure

Number	Assignment
Week1	Selected employees create their avatars and practiced to action and conversation in Second Life.
Week2	Training activities 1(including orientation for new employee and instruction of company)
Week3	Training activities 2 (Selected employees had to finish the assignment which the trainers gave such as deal with a customer complaint.)
Week4	Selected employees had to complete questionnaires

## 5 Result

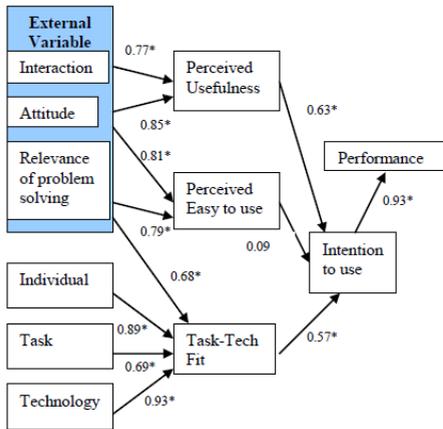


Figure 5 Result of model in second life

The data were analyzed using AMOS, which is a multivariate technique based on the structural equation modeling approach. The result of data analysis is showed in Figure 5. According to Figure 5, the results of hypotheses are listed below.

- H1: Interaction between trainers and trainees is positively related to Perceived Usefulness. (True)
- H2: Perceived usefulness between trainers and trainees is positively related to intention to use. (True)
- H3: Perceived easy to use between trainers and trainees is positively related to intention to use. (Wrong)
- H4: Attitude of trainee is positively related to Perceived Usefulness. (True)
- H5: Attitude of trainee is positively related to Perceived Easy to Use. (True)
- H6: Relevance of problem solving is positively related to Perceived Easy to Use. (True)
- H7: Relevance of problem solving is positively related to Task-Technology fit. (True)
- H8: Intention to use is positively related to Performance. (True)

H9: Individual is positively related to task-tech fit (True)

H10: Task is positively related to task-tech fit (True)

H11: Technology is positively related to task-tech fit (True)

H12: Task-tech fit is positively related to intention to use (True)

## 6 Conclusion

This study finds support for the use of a modified Technology Acceptance Model with business learning in Second Life. Moreover, this study also finds support for the use of a modified TTF to predict performance using intention to use. The study shows that delivering knowledge to and sharing knowledge with employee through the second life differs enormously from the long-established verbal knowledge sharing in traditional classroom lectures. In choosing to use the second life, it is making changes to the interaction between employee and employer. This conclusion supported by Chen et al.'s study [5], where compatibility affected perceptions of usefulness. Also, the environment of second life promoted and encouraged employee to discuss much more detail of issue happened in their real life. However, the functions of second life are not easy for new users to handle them very well. It shows that perceived easy to use between trainers and trainees is not positively related to performance.

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