

SIMULATION OF THE EXPERIENCE TEACHING METHOD FOR FINANCE MARKET

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Abstract: *Research on experimental teaching method of David Kolb integrates the effective teaching method of Main University using Monte Carlo simulation model with the help of Oracle Crystall Ball data analysis software to simulate teaching method Experimental learning for the financial market according to output standards helps teachers, training institutions and policy makers have an analytical tool that predicts experimental teaching results, thereby adjusting the teaching method corresponding expectation to build an education and training strategy.*

• Keywords: *effective teaching, experimental teaching, financial market, teaching simulation.*

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1. Introduction

The world has gone a long way in the development of teaching methods, including experiential teaching methods that show the interaction between teacher and student which is one of the widely applied theories. On the basis of training programs and curriculum at the university level which have been developed according to output standards, teachers need to choose teaching methods, but what to teach is not important, but must be taught as how. Therefore, teachers need to be trained and equipped with knowledge and skills on experiential teaching methods before teaching.

2. Theoretical background/literature review

In the world, there are many opinions of authors on teaching methods for each case, subjects learn about negativity and positivity as follows:

Victor Weisskop (1930), human being cannot learn by injecting information into their brains, so we can only teach by generating the motivation of understanding.

Wilbert Mc Keachie (1957), in terms of learner concentration, shows that teaching in experiential method, the concentration rate accounts for 75% during 45 minutes of study. Conversely, teaching according to traditional theoretical teaching method, the concentration level reaches 75% within the first 25 minutes, then decreases rapidly within the last 20 minutes. Thus, with traditional teaching methods, the teacher is going against the goal of the training program because talking too much makes learners absorb too little.

John Goodland (1967), academic learning is too abstract for most learners, so to learn well, learners need to see, hear, smell and touch what they read and write.

Lewis and Woodward (1984), in large classes, teachers talk more than 88% of class time, silence accounts for more than 6% and time spent on learners is just over 5%. This shows that teachers need to quickly implement the experiential teaching method that says more or less.

Russell, Hendricson and Herbert (1984), the learner will retain better lecture information when the density of information provided is low compared to medium and high. The implication here is that the amount of new information the learner can learn over a period of time is limited and the instructor himself breaks his own purpose when exceeding that limit.

Chickering and Gamson (1987), to learn well, learners need to do more than just listen passively, namely to listen, read, see, do or participate in problem solving.

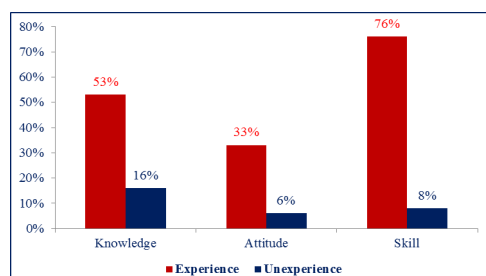
Ruhl, Hughes and Schloss (1987), have come to the unexpected conclusion that if the teacher talks less, the learners can learn more. This finding is in stark contrast to most teachers who think learners will be more receptive to talking a lot and providing more information.

Freire (1998), studying all levels of learning, found that learners and acquired knowledge more when they play a real role in the learning process and have the opportunity to speak, share, interact, feedback, etc.

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Nacy Tobler (2009), shows that the results of surveying the effectiveness of the experimental training programs in terms of knowledge, thinking and attitude in the experience programs have drastic changes compared to the program is not experienced, especially in terms of skills (see Fig 1).

Fig 1. Effectiveness of the experimental training program



Source: Nacy Tobler (2009)

Some studies on the retention rate of knowledge from learning methods have obtained very impressive results on the effectiveness of experimental teaching methods. With the passive learning style of listening, reading, seeing and doing, it is at most 50% of knowledge. In which, if there are only theoretical lectures, the level of knowledge absorption is very low. This partly explains why the traditional teaching methods are not highly effective. At the University of Michigan, the majority of learners tend to think that having a high GPA and a degree in hand guarantees career success, but practical work proves that only experience and new styles ensure success. More and more people realize the importance of knowledge, skills and experience both to the job and to the success of each individual, especially in the new development trend of the 21st century that soft skills are gaining great attention because it has a decisive effect on success but goes unnoticed in training programs by only promoting hard skills. Meanwhile, traditional teaching methods provide only hard skills, with absolutely no regard for soft skills. On the contrary, in the experiential teaching method, thanks to activities, learners can develop very well soft skills. Apparently, experimental teaching methods bring much higher learning efficiency than traditional teaching methods. Lecturers talk less, spend more time engaging students in diverse activities in the classroom and outside the classroom. On the student side, only on the basis of participation and experience can they truly understand and build awareness for themselves.

Howard Hendricks (2013), perhaps thus asserts that maximizing learning is always the result of maximizing teaching. Harvard University, there are

many teaching methods, many different approaches, basically there are two methods are active teaching method and experiential teaching method, namely: Active teaching methods include: Brainstorming (Osborn, 1963); Couples share their thoughts (Lyman, 1987); Theme (Hmelo-Silver, 2004); Group and role-play (Kritzerow, 1990). Experimental teaching methods include: Projects (Bransford and Stein, 1993); Situation (Scholz and Olaf, 2002), Community (Jacoby, 1996) and Simulation (Robert and Casella, 2004). With the experiential teaching method, which emphasizes the participation of learners in the process in many forms, attracts learners to take the initiative in learning such as essay, practice, and teaching, the results are very clearly different attainment of up to 90% knowledge acquisition. With experiential teaching methods, emphasizing the participation of learners in the process in many forms, attracting learners to take initiative in learning such as essay, practice and teaching. The results show that the very obvious difference can reach up to 90% levels of knowledge acquisition. Through the above mentioned content about the advantages and disadvantages of many different teaching methods in the world, the author chooses experiential teaching method for the financial market because of the advantages of the method for research. In this study, it is the experimental teaching method of David Kolb integrated with the method of determining teaching results of Main USA University.

3. Methodology

3.1. Method of experimental teaching of David Kolb

David Kolb (1939) and psychologists and educators have proposed the theory of Experimental Teaching Methods with the view that learning is the process of creating new knowledge on the basis of experience. The actual experiment inherits the knowledge, skills, analysis, evaluation and experience that were previously available. Experimental teaching is often thought of as the opposite of Academic learning, which is the process of gaining information through researching a problem without having direct experience. David Kolb (2013), experiential teaching theory is applied in many disciplines and fields such as professional training programs (Reese, 1998; Kolb, 1995) and higher education (Mentkowski, 2000). The main content of the study refers to the role of the teacher, the relationship between the teacher and the student in implementing the theory of experiential teaching method is a process that contains many

complex relationships gives learners the ability to analyze the profound meanings of concepts with the skills to apply them that the teacher needs to perform in 4 ways, namely:

(1) Facilitator: Teachers help learners stick to their personal experience and analyze themselves. Use assertive but friendly, warm way to appeal to learners' interest, inner motivation and self-knowledge with small group conversation, forging personal relationships with learner;

(2) Subject Expert: In this role, the instructor helps learners organize and match their analysis of knowledge based on subject matter. The teacher's way here is to be competent, reflecting that it is the teacher, teach by example, model and encourage learners to think critically when organizing and systematically analyzing subject knowledge. This knowledge is passed on through lectures and curriculum;

(3) Evaluator: As an evaluator, the instructor helps learners master the knowledge and skills to meet the learning requirements by precisely identifying the goals to be achieved, create activities for learners to evaluate learning;

(4) Coach: In the role of a trainer, the instructor helps learners apply knowledge to achieve their goals. They use incentives, cooperation, often working with individuals to help learn from real-world experiences as well as assist learners in making personal development plans and providing strategies. Received the response from the part just performed.

Experimental teaching requires instructors to follow a non-directive facilitator way to help learners gain knowledge from practical experience, at the same time suitable with the way of learners. So, the question is how to learn? The learning style is not fixed but similar to learning habits, formed from experience and selection.

David Kolb (2013), learners can adapt 8 ways of learning to the requirements of each situation, specifically:

(1) Initialization: The capacity to initiate actions to resolve situations;

(2) Experience: The ability to seek meaning when engaging in an experience;

(3) Imagination: The ability to imagine possibilities by observing;

(4) Reality: The ability to find meaning when engaging in reality;

(5) Thinking: The capacity to engage in logical

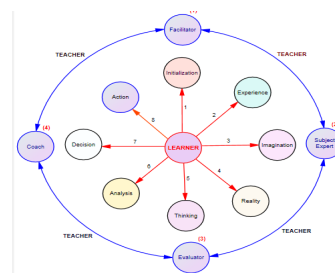
and abstract debate;

(6) Analysis: The capacity to integrate and systematize ideas;

(7) Decision: The ability to apply theory and model to make decisions to choose solutions and actions;

(8) Action: The ability to create strong motivations towards goal oriented actions for the integration of people and work.

Fig 2. The experiential teaching model



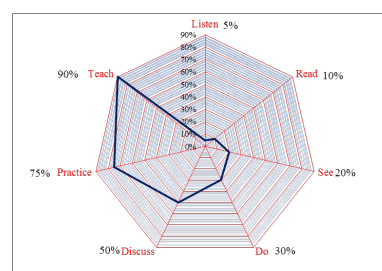
Source: David Kolb (2013)

Thus, with the author's point of view, the teacher must take the learner as the center, the subject of all creativity in teaching to meet the output standards so that the learners have the ability to adapt balance of discrete experiences, abstract concepts, positive experiments and observations nested into 4 ways of teaching and 8 ways of learning called the experimental teaching model in framework (see figure 2).

The above information shows the limitations of traditional teaching methods, so the need to convert to experiential teaching methods is inevitable. Thus, the experiential teaching method shows that in fact, many teachers mistakenly learn through experience as a free way in which learners have to discover, self-think, draw and draw by themselves. New knowledge with the role of very limited participation of teachers, on the contrary, shows that the roles, functions and duties of teachers have a great impact on the results achieved by learners.

3.2. Methods of determining teaching results of Main USA University

Fig 3. Learning Outcome Model



Source: Main USA University (2013)

From the learning results model, we calculate the forecast of future experiential teaching results into the present time of the learners and integrate with the teacher on a 10 point scale with the significance level of 5% for the teaching results. The average score is 7,45 points as follows:

Table 1. Spreadsheet of experimental teaching result

Explain		Listen	Read	See	Do	Discuss	Practice	Teach
Significance	5%	5%	10%	20%	30%	50%	75%	90%
Point	10	2	3	4,5	1,5	2,5	1,5	6,5
Result	7,4	1,9	2,7	3,9	1,2	2,0	1,1	4,6

Source: Author (2024)

Statistics of 6,4 points input results, 8,5 points study process and 6,6 points for the final exam scores of 108 students in the financial market module training program on average 7,2 points compared with the result 7,4 points is relatively suitable.

4. Results

4.1. Principles of analyzing predictive teaching experience

Unlike deterministic analysis model, predefined values or situations to answer the question "if, then" in simulation analysis also known as probabilistic analysis, everything will be completely random. course. Uncertainty analysis is also called probabilistic or simulation, the values of the risk factor will appear uncertain and at random.

And of course the estimation results in the form of value are just as random as the casino lottery game which is the simulation method of Monte Carlo which is commonly used in predictive analysis. socio-economic phenomena.

Applying this simulation method to predict the results of experimental teaching according to output standards under the simultaneous impact of factors in different situations taking into account the distribution of probabilities and possible values.

The factor variables are more advantageous than other methods, considering the combination of the factors and taking into account their relationship. Therefore, this is a rather complicated method that requires the analyst to have experience in econometric statistical probability theory and good execution skills with computer engineering help conducted in sequence, as follows:

(1) Selection of important variables into the analytical model based on sensitivity analysis to include factors that have a great influence on teaching.

(2) Determine the variation pattern of the influencing factors in their relationship with the random variable.

(3) Determine the probabilities.

(4) Using simulation model to determine the analytical results to help predict teaching results accurately.

(5) Based on the results of predictive teaching, conduct reverse determination of variables.

However, this method has a number of drawbacks: it is difficult to estimate the probability of occurrence, which results in the use of subjective probabilities that cannot be avoided and the relationship between Variables can be very complicated.

Although this is a good method, it requires a huge amount of information from teachers, learners and other related subjects. Therefore, if using this method, it takes a lot of money and time. However, choosing an effective teaching method needs to use Monte Carlo simulation model to create scenarios for the optimal method. After many attempts, the applied researchers found the laws of probability distribution.

Accordingly, what percentage of the outcome falls within the same range as in econometrics called the $1 - \alpha$ confidence interval with the significance level α often chosen as 5%. In the framework of this study, the basic knowledge of math statistics implies that teachers, learners and readers already know.

Therefore, only need to identify the risk variables and the outcome variables, the rest will be done by Oracle Crystal Ball_OCB data analysis software in MS Excel to help consider the variables to make decisions on choosing a good teaching method than.

4.2. Analytical simulation model predicts experimental teaching results

Transfer Table 1 data into an Excel spreadsheet, you can use the function to determine the output standard according to the experimental teaching method, giving the result also equal to 7,4 points.

Table 2. Spreadsheet simulating the experimental teaching result

	A	B	C	D	E	F	G	H	K
1	Significance	5%	Listen	Read	See	Do	Discuss	Practice	Teach
3	Observe	0	1	2	3	4	5	6	7
4	Point	(10)	2	3	4,5	1,5	2,5	1,5	6,5
5	Result	7,4	1,9	2,7	3,9	1,2	2,0	1,1	4,6

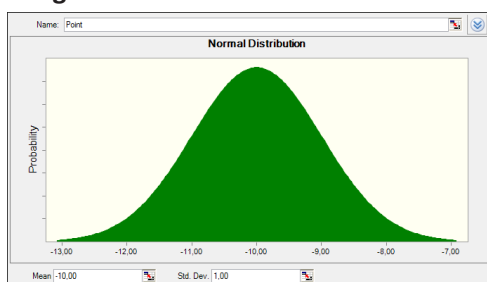
Source: Author (2024)

Analytical order for predicting experimental teaching results through Monte Carlo model

combined with OCB data analysis software in Excel is simulated as follows:

Simulation 1. Declare a risk variable 10 points by placing the mouse in the cell containing the risk variable, namely cell B4. Then select Define Assumption. The table above has many probability distributions. The most common, however, is to choose a normal distribution or a normal distribution | OK.

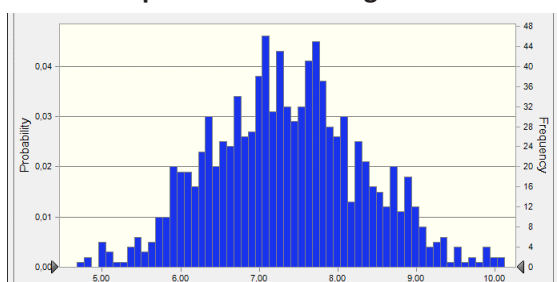
Fig 4. Normal distribution simulation



Source: Author (2024)

Simulation 2. Declare the result variable 7,4 points by placing the mouse in the cell containing the predictor variable, namely cell B5. Then select Define forecast | OK. Select Run Preferences, select the number of simulations runs of 1,000 with a confidence interval of $1 - \alpha = 95\%$ with significance level $\alpha = 5\%$ | OK. Press the Start button. OCB software starts to run a Monte Carlo simulation model. For each simulation, a value of the hypothesis variable will appear randomly corresponding to a teaching result. The program does 1,000 such times.

Fig 5. Simulation model predicts standardized experimental teaching results



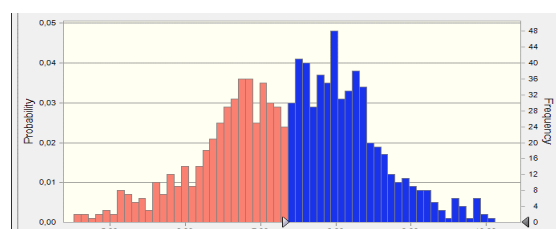
Source: Author (2024)

This is a standardized learning experience analysis model after performing 1,000 trials. In the last row, the range of variation ($-\infty; +\infty$) from infinity subtraction ($-\infty$) to plus infinity ($+\infty$), namely: The lowest teaching experience result is 5 points and the highest is 10 points. Of course, the probability of teaching outcomes falling between (5;10) is definitely 100% (see cell: Certainly).

5. Discussion

(1) Want to analyze and predict experimental teaching results of 7,4 points or more on average. Just moving the left triangle to the right until the right edge is 7,4 gives a corresponding probability of 52,86%.

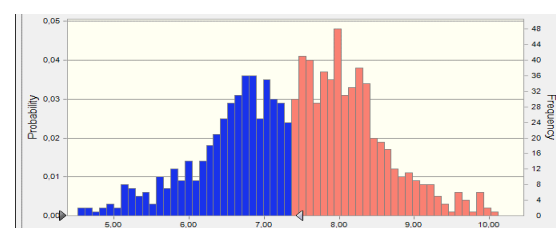
Fig 6. Simulation model predicts standardized experimental teaching result 1



Source: Author (2024)

(2) Want to analyze and predict experimental teaching results of 7,4 points or less on average. Just moving the right triangle to the left until the left edge is 7,4 gives a corresponding probability of 47,14%.

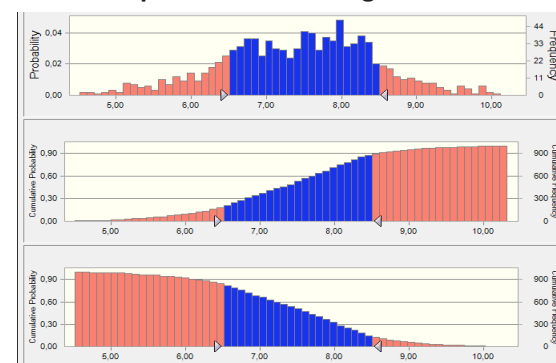
Fig 7. Simulation model predicts standardized experimental teaching result 2



Source: Author (2024)

(3) To analyze and predict the results of experimental teaching in the average range from 6,5 points to 8,5 points. Just move the left triangle to the right until the left edge is 6,5 and the right triangle to the left until the right side is 8,5 gives a corresponding probability of 69,77%.

Fig 8. Simulation model predicts standardized experimental teaching result 3

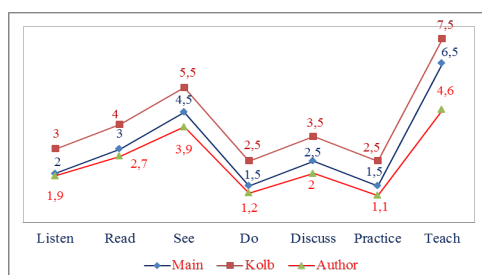


Source: Author (2024)

(4) Compared with the research results of Main University and David Kolb with the research results of the author, it is quite similar. However, there are still a few poor and weak teaching and learning approaches that have not achieved the desired results of the teachers and learners as well as the expectations of the training institutions set according to the output standards built on Bloom scale basis expands.

Thus, in order to achieve the expectation of experiential teaching, the teacher must choose appropriate teaching methods for each specific training program and for different learning subjects. In fact, after all, all teaching methods can hide its positive activities as well as its negative. To overcome these disadvantages, it is necessary to have some useful solutions with feasibility, specifically:

Fig 9. Comparison of analytical simulation and prediction of experimental teaching results



Source: Author (2024)

(1) It is necessary to dynamically create a high interaction between teacher and student, and between learners.

(2) It is necessary to actively encourage independent and creative thinking, and eliminate the dogmatic style of imposing knowledge.

(3) It is necessary to regularly focus on developing skills and building positive working attitudes for learners.

(4) It is necessary to focus on the development of high-level awareness for learners, that is, the ability to analyze, synthesize, evaluate and create.

6. Conclusion

(1) Research shows that teaching is not doing work to learners through implementing a variety of techniques, but it is work that teachers do with learners in the context. The port has a meaningful relationship and a sharing of experiences.

(2) Research shows that from a teacher's perspective, planning and experiencing the learners' experiences are an extremely important factor in the learning process. In fact, to a certain extent, if learners

do not believe in themselves that they can learn, self-study, or self-study, they will never learn.

(3) Research shows that from a learner perspective, it takes efforts to learn to pay close attention to listening to lectures, self-improvement, whereas teachers need to invest time in teaching methods, using only 10% of the time of theory. The remaining 90% of the time to guide learners and finally diversify teaching methods combined with modern technology of the 21st century.

(4) The author's research hopes to apply a Monte Carlo simulation model of David Kolb's experiential teaching method integrated with Main University's experiential learning results has been conducted predictive analysis with the help of OCB data analysis software can contribute to supporting education and training non-business units to have a more scientific method for teaching to create high quality human resources for Vietnam.

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