Application of Holstat model in evaluating the quality of education: Evidence from Vietnam

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CHRONICLE	ABSTRACT
	Lack of tool to assess the quality of education and training can lead to mistakes in building educational and training programs. A good educational and training program has to meet employers' requirements. Thus, this study aims to assess the quality of education and training program through the ability to apply theory into practice for graduates from the recruiter's point of view in banking and finance sector in Vietnam. The study is conducted by setting up a hypothesis of the relationship between the employer's satisfaction levels and quality of education and training program, and then using HOLSAT as a qualitative model, the study evaluates the ability of graduates to apply theory into practice. The result of empirical analysis indicates that the ability of graduates to apply theory into practice in banking and finance sector in Vietnam in 2017 did not meet the employers' needs.

1. Introduction

For the past several decades, assessing graduates' abilities to apply theory into practice has attracted significant interest from educational managers and scholars in many different fields worldwide (Whiteford, 2007; Hawe, 2003). This is because its results can provide a solid base for educational managers to enhance the quality of training and curriculum design consistent with the needs of society, and contribute to accelerating economic development as well as to enhance the brand value of training institutions. Becker *et al*. (1968) evaluated the ability of graduates to apply theory into practice through practical tests in the laboratory for nursing students and suggested that practice tests should become an indispensable part in the training and instructional programs. They argued that in order to strengthen the ability of graduates to apply theory into practice, it is necessary to enhance the practical abilities of students before graduation. However, Lankshear (1990) observed students' attitude towards the practice test and found that many students did not endorse it. Most of them said it was unnecessary to perform the practice test in the laboratory, because the laboratory is very different from the real work environment. Moreover, this form of test faces

many more obstacles in the social field, where laboratory practice exams cannot be implemented. Some solutions to this problem have been offered by Delament (1992), and Denzin (1994). They suggested that in order to enhance the practical ability, students need to experience the actual working environment right before finishing their courses. Additionally, they claimed that assessment of students' ability to apply theory into practice should rely on both practical testing results in a laboratory and feedbacks of the organizations where students do internship.

Today, the market economy and international integration create high competitive pressure. Each organization has to master scientific knowledge in order to create highly competitive products and services to survive in the market. Therefore, each organization not only needs to be equipped with modern facilities, but also needs a labor force with good theoretical knowledge, creative thinking, good ability to apply theory into practice, and quality professional skills and behavior. Therefore, evaluation of education, training, and curriculum design based on assessing the student's ability to apply theory into practice through criteria may not be an accurate measure (Rajacic *et al*., 2010; Krause, 2010; Mattaini, 1998; Kalaldeh *et al*., 2009). According to Vare and Scott (2008), and Kalaldeh et al. (2009), students' abilities to apply the theory into practice must be seen after they have graduated and their employers have assigned specific professional tasks. This is because of the gap between laboratory environment and reality. Additionally, feedbacks from organizations where interns worked sometimes lack of objectivity due to low requirements for interns, and low impact of interns' working result on the organization's benefits. Therefore, the ability to work after graduation becomes a reliable measurement for the ability to apply theory into practice of students, of which the results have implications on the quality of education and the design of curriculum.

Thus, the student's work performance after graduation as viewed by employers is the best measurement for his or her ability to apply theory into practice. Yet previous scholars have come up with few hypotheses. This study introduces a new hypothesis of the relationship between the quality of education, curriculum, the student's ability to apply theory into practice, working capacity of employees, and employer's satisfaction. It contributes to the existing literature and offers education administrators a new qualitative method for analyzing and evaluating the student's ability to apply theory into practice after a training program, using the HOLSAT model. Data on graduates in finance and banking at some Vietnamese universities are used for empirical analysis.

2. Literature Review and Hypothesis

Although knowledge and skills of an individuals are two distinct categories, they have a close relationship. Together they represent two sides of the learning process, which not only requires knowledge - what students know, but also skills - what students do. According to Beder (2000), theoretical knowledge is a system of concepts formed through observing, contemplating, summarizing, and experimenting for a long time. It provides the foundational framework for interpreting natural and social phenomena as well as exploring the nature and rules of phenomena arising in specific contexts (Payne, 1977). The system builds on results of systematic and critical thinking on observations that are made and is tested through experimentation (Gitterman, 1988). Theoretical knowledge enables the identification of core components in the phenomena that appear. In a systematic way (Mattani, 1998), it helps people explain the nature of phenomena and shows what they should do in specific contexts to achieve certain goals (Siegrist, 1998). Whilst theoretical knowledge provides guidance for human on the most effective course of action depending on the particular context, practice helps with carrying out the actual activities in the order suggested by theory (Turner, 1966). On the other hand, to achieve good work results, people have to not only master the rules and nature of the phenomenon to build an efficient and creative chain of actions, but also own a competent skill set to carry out the specific activities (Greene, 1999). Thus, an individual's working ability can be evaluated by their abilities to apply theory into practice, which is influenced by the amount of theoretical knowledge and professional skills, as well as external factors like biomedical conditions, living, working environment, *etc.* (Soric et al, 2013). Depending on the location and type of job, the requirements for work ability are also different.

Additionally, when examining the relationship between the quality of education and the working abilities of graduates, it is important to review the overall role of participants in the supply chain of human resource and their relationship with one another. According to Peters (1967), the labor supply chain system consists of three main actors: educational institutions, human resources involved in education and training programs, and those who use that human resource. If the working ability of human resources is defined as the products generated by the institution, the employer acts as the consumer of the products. Therefore, the quality of the output depends on the education institution, which is evaluated by the employer. The level of employer's satisfaction depends on employee's knowledge, professional skills, complementary skills, working style, and initiative in their work. If all these factors converge at a high level, it means the needs of employers are well satisfied and vice versa. Besides, in the modern societies, educational institutions do not convey theoretical knowledge solely through teachers, training programs, and facility support for training and education. They also offer vocational training which stimulates creative thinking in the process of applying lessons into reality, further helping human resources meet the employer's demands. Therefore, if an educational institution has graduates whose work performance receives high employer satisfaction, it can be identified as a quality training institution. This means the quality of an academic institution can be assessed through the graduate's ability to apply knowledge into practice after a training program which, in turn, can be determined by the level of employer satisfaction. This relationship is described in Fig. 1.
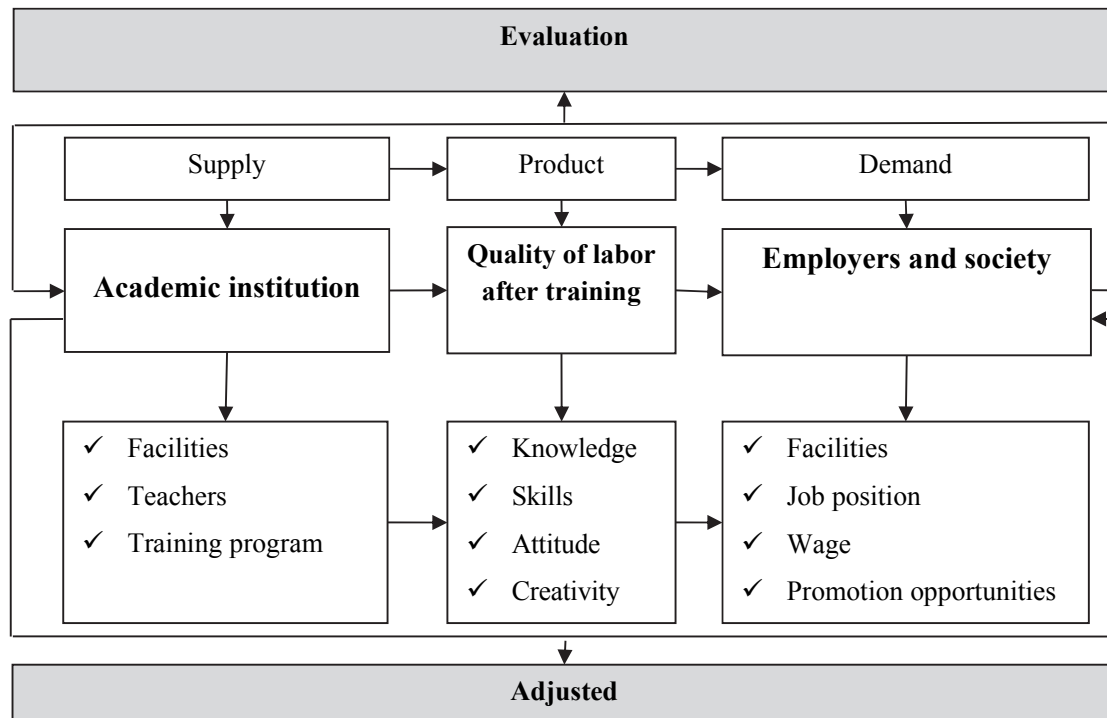

Fig. 1 The relationship between institution, student and employer

3. Material and methods

3.1. Analytical model

To implement the HOLSAT model for assessing graduates' ability to apply theory into practice, it is necessary to consider two issues; (i) the nature of the HOLSAT model and (ii) the role of the components in the supply chain of quality of human resources.
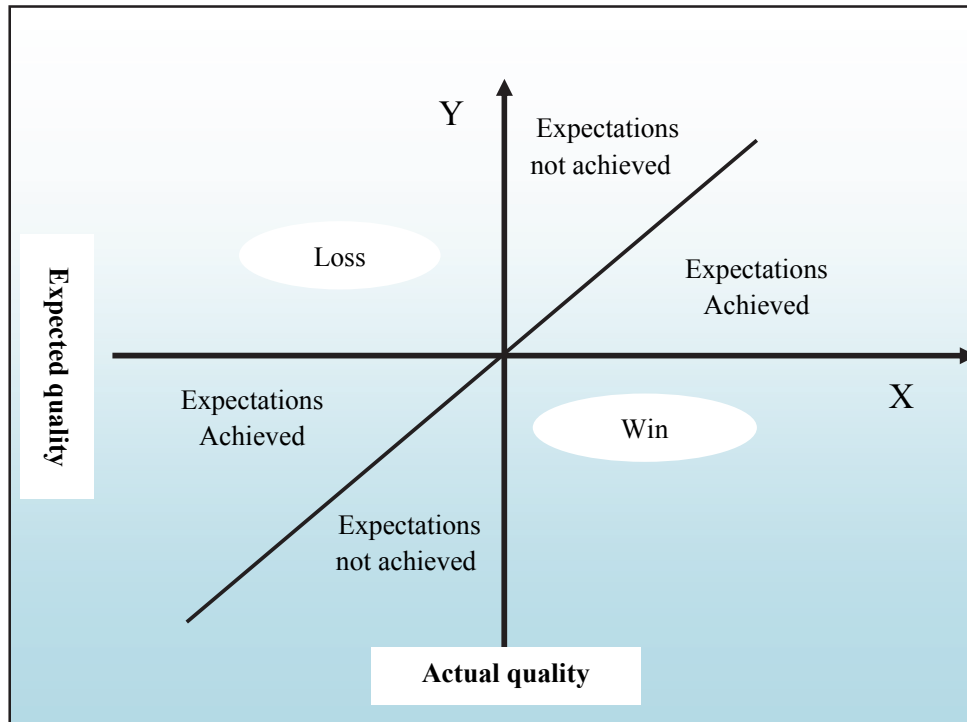
Fig. 2. HOLSAT matrix

i. In a hypothetical scenario, attributes of the product are listed in a questionnaire distributed to customers, which asks about the expected quality of each attribute, while simultaneously asks about their actual quality after the consumer has experienced the product. Each attribute of the product is assigned a Likert scale to evaluate the quality of customer expectations and the actual quality that the customer has experienced. The satisfaction level of customer on each attribute of the product is determined by the gap between expected quality and actual quality. If the actual quality of each attribute equals the expected quality, that attribute meets the customer's expectations. Otherwise, if the actual quality of the attribute is lower than the expected quality, that attribute of the product does not meet the customer's expectations. Conversely, if the actual quality of that attribute is greater than the quality of the customer expectations, then the customer is more satisfied with the product's attributes. This result can be described in a HOLSAT model (see Fig. 2). In the model, the vertical axis represents the level of customer's expectation for each attribute of the product. The horizontal axis represents the actual quality of the attribute that the consumer experiences. The straight line dividing the first quadrant into two 45^0 angles represents the degree of match between the expected and actual quality of each attribute. If the attribute is above the line of 45^0 in the first quadrant or below the 45^0 in the third quadrant, actual quality does not meet expectations and the quality of that attribute does not receive customer's satisfaction. In contrast, if the attribute is on or below the line of 45^0 in the first quadrant, or on or above the line of 45^0 in the third quadrant, then the actual quality achieves the expected quality and customers achieve high levels of satisfaction. Additionally, Fig. 2 shows two regions of win and loss. The win region contains attributes whose actual quality is greater than the expected quality, and the loss contains attributes whose actual quality does not meet the expected quality. Thus, the nature of the HOLSAT model is to measure the consumer satisfaction of product attributes through measuring the distance between the expected quality of each attribute of the product and the actual quality of each attribute of the product as evaluated by the customer after using (Woodside et al., 1989).

ii. The supply chain of the quality of human resources consists of three basic components: training facilities, trained employees and employers. If the ability to apply theory into practice is defined as the output of a training program, which has been ingrained into students by the time of their graduation and the output defined as a product, then the enterprises play the role of the user of

that product. Also, if product attributes take shape in the outputs of a training program, which is reflected on work ability, these attributes can be assessed through the student's level of knowledge, professional attitudes, and work skills. Therefore, the satisfaction level of the employer can be a good measure of their abilities to apply theory into practice after graduation, which has implications on the quality of education. This satisfaction level is determined by the distance between "the employer's requirements or expectations regarding the level of knowledge, professional conduct, and work skills of the student", and "the actual level of knowledge, professional behavior, and work skills of the student who the employer evaluates after using".

Thus, the HOLSAT model offers a tool to measure the student's ability to apply theory into practice after graduating through a measure of employer's satisfaction of a student's work ability.

3.2. Data collection

The data used for this study was collected from a survey of 26 enterprises with a questionnaire. The questionnaire is divided into two main sections; (i) The level of expectations about knowledge, professional attitude, work skills which businesses need; and (ii) the current level of knowledge, professional attitude, working skills of graduates in finance and banking sector. Each answer is designed on a Likert scale of 1 to 5 for each item, in which 5 is associated with the highest level and 1 represents the lowest level of knowledge, professional attitude, the skills required by the business or the level of knowledge, attitudes, work skills that students achieved. Knowledge is divided into two groups: (i) "*basic knowledge*" – a set of attributes that reflect the level of knowledge of the discipline established through theoretical lectures from general education, and (ii) "*specialized knowledge*" – a set of attributes that reflect the level of specialized knowledge through specialized lectures and practical exercises in specialized training programs. For "*soft skills*", we also split into two groups: (i) "*social skills*" –a set of attributes that reflect perceptions formed by society and the training environment; and (ii) "*personal skills*" – a set of attributes that reflect mannerism and intellectual capacity. Finally, "*professional attitude*" of graduates is a set of attributes that reflect motivation, creativity, perceptions of the profession. The HOLSAT model and SPSS.18 software are used to measure intervals between business expectations and the status of professional knowledge, work skills and professional attitudes of banking and financial graduates.

4. Results and discussion

Results of the survey data are shown in Table 1 and Table 2.

Table 1
The gap between reality and expectation

Items	Reality (1)		Expectation (2)		Gap (3)	
	Mean	SD	Mea	SD	Difference	Sig. t
Basic knowledge of Banking and Finance						
1. Basic knowledge of economics	3.27	0.67	3.80	0.83	-0.53	0.01
2. Basic knowledge of law	3.68	0.73	4.29	0.76	-0.61	0.00
3. Basic knowledge of monetary finance	3.74	0.72	4.48	0.64	-0.74	0.00
4. Basic knowledge of marketing	3.70	0.93	4.24	0.77	-0.55	0.02
5. Basic knowledge of econometric	3.26	1.01	3.38	0.87	-0.12	0.00
6. Basic knowledge of accounting	3.41	0.94	3.76	0.99	-0.35	0.00
7. Knowledge of methods of collecting, processing and analyzing data	3.29	1.06	4.03	0.84	-0.74	0.00
8. Knowledge of the handling and maintenance of information systems	3.24	1.17	3.86	0.86	-0.62	0.00
Knowledge and skills in banking and finance						
9. Knowledge of finance and finance analysis	3.65	0.92	4.14	0.93	-0.48	0.06
10. Knowledge of stock market and stock investment analysis	3.32	0.96	3.65	1.07	-0.33	0.25
11. Understand and apply knowledge of the central bank	3.24	0.97	3.88	0.95	-0.64	0.02
12. Understand and apply knowledge of commercial banks	3.47	0.86	4.42	0.75	-0.95	0.00
13. Understand and apply knowledge of international finance	3.20	1.02	3.65	0.92	-0.45	0.10
14. Understand and apply knowledge of public finance	3.00	0.88	3.32	0.95	-0.32	0.21
15. Understand and apply knowledge of international payment	3.20	0.98	3.73	0.97	-0.53	0.05
16. Understand and apply knowledge of insurance economics	3.20	0.93	3.44	1.02	-0.24	0.37
17. Understand and apply knowledge about property valuation	2.98	1.00	3.98	0.98	-1.00	0.00
18. Understand and apply knowledge of project formulation and analysis	3.11	0.86	4.00	1.05	-0.89	0.00

Table 2
Distance between practical skills and soft skills expectations

Items	Reality (1)		Expectation (2)		Gap (3)	
	Mean	SD	Mean	SD	Difference	Sig t
1. Communication - Behavior	4.07	0.73	4.68	0.59	-0.61	0.00
2. Presentation	3.84	0.84	4.38	0.86	-0.54	0.02
3. Working group	4.15	1.03	4.42	0.82	-0.28	0.30
4. Persuasion and influence	3.57	1.05	4.52	0.68	-0.95	0.00
5. Negotiation	3.60	0.94	4.52	0.75	-0.92	0.00
6. Problem solving	3.81	0.89	4.52	0.73	-0.70	0.00
7. Time management	3.68	0.84	4.52	0.73	-0.83	0.00
8. Embrace emotion	3.48	0.92	4.58	0.63	-1.09	0.00
9. Persistence against pressure	3.56	0.91	4.29	0.67	-0.73	0.00
10. Flexibility	3.56	0.89	4.53	0.59	-0.97	0.00
11. Collect, process information and write reports	3.77	0.97	4.45	0.68	-0.68	0.00
12. Compose common text	4.11	1.01	4.41	0.66	-0.30	0.21
13. Use basic English	3.98	1.15	4.53	0.61	-0.55	0.03
14. Use applied Informatics	4.18	1.05	4.36	0.80	-0.18	0.49

The intervals between business expectations and the status of professional knowledge, work skills and professional attitudes of banking and financial graduates measured by HOLSAT model are presented in Fig. 3, Fig. 4 and Fig. 5.
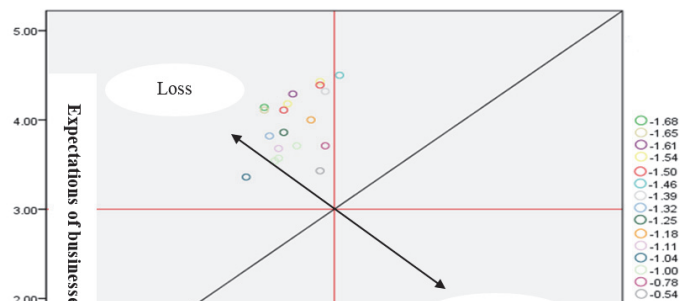

Fig. 3. Business satisfaction on professional knowledge

Results in Fig. 3 indicate that the disparity between *"expectation"* and *"reality"* is statistically significant at 1% and all items are negative, ranging from -1.79 to -0.54 (see Table 1). This implies that the quality of students in finance and banking sector after graduation could not meet the employers' requirements, in terms of professional knowledge, work skills, and professional attitude. More specifically:

i. The distance between "expectation" and "reality" of expertise is found to be the biggest. Most types of knowledge on the subject of graduates are located in the loss area, except for *"basic knowledge of business ethics"* (see Fig. 3). As discussed above, basic knowledge significantly influences whether business needs are satisfied, and is the output of a training program. It depends not only on facility, but also curriculum design, instructional level, and imparting skill of lecturers. Therefore, to improve the level of professional knowledge for students to meet the needs of businesses, it is also necessary to improve the curriculum, instructor's ability and imparting skills.

ii. Similar to professional knowledge, most of the working skills of students are found to be not reaching the expectations of businesses, especially some important skills to succeed in the job such as negotiation (-1.79), persuasion and influence (-1.75), time management (-1.72), persistence against pressure (-1.53), flexibility (-1,46) (see Table 2 and Fig. 4). In reality, the forces of market economy and international integration today intensify competition among enterprises. Their survival not only depends on technology, business strategy, administration, *etc.* but also it depends on the quality of human

resources. Here, the quality of human resources is made up of professional knowledge and work skills. While professional knowledge plays a central role in determining productivity and product quality, skills contribute to improving efficiency and success in the job. Therefore, to meet the demands of enterprises, training institutions should not only pay attention to transferring professional knowledge to students, but also they need to focus on developing a training program incorporating the training of basic skills for students through practical exercises and group discussions, *etc*.
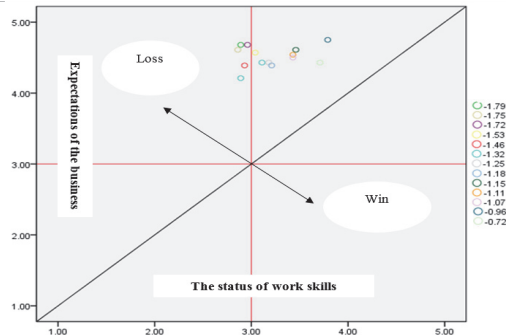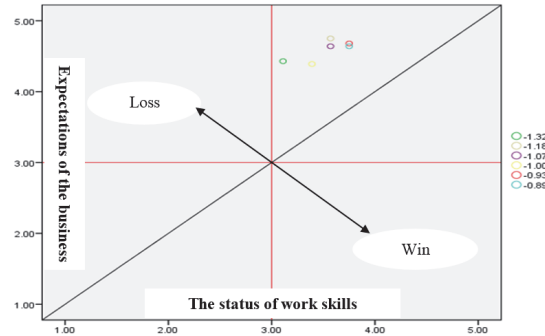

Fig. 4. Business satisfaction on work skills　　**Fig. 5.** Business's satisfaction of working attitudes

iii.　Although most of the gap between the expectations of the business and the status of professional behavior of students is outside of the loss area and in the first quadrant of the HOLSAT matrix plot, most of it is above the 45^0 straight line (see Fig. 5). This implies that the attitude of graduates does not meet the needs of business. A professional attitude is one of the important elements in deciding the success of the work of each individual. It is formed through life experience, education, working environment, and long-term training. Therefore, to help students achieve an appropriate professional attitude that meets the needs of businesses, in addition to education and training from the school, students need to be instructed by their families and workplaces. Therefore, training institutions play an essential role in helping students improve their understanding of professional ethics, practice professional behavior in communication, and become disciplined and serious in the work.

5. Conclusion

Assessing the student's ability to apply theory into practice after a training program is an integral part of the education and training process, and an issue capturing interest from education managers and scientists alike. It helps managers evaluate and improve the quality of their training in order to meet the needs of society. Most assessment methods in the past have been based only on qualitative methods and synthesized subjective opinions of experts in the field of education. This has sometimes led to a lack of objectivity and accuracy. This study uses the employers' viewpoint to compensate for shortcomings in traditional assessment methods. We introduce a new hypothesis on the relationship between employer's satisfaction and quality of training. Simultaneously, the HOLSAT model is applied as a new quantitative method that ensures reliability and accuracy in assessing the applicability of theory into the practice of graduates.

The empirical result indicates that graduates in financial and banking sector did not meet the demands of enterprises in terms of professional knowledge, skills and professional attitude. Therefore, to improve the quality of training to meet the needs of enterprises, it is necessary to refine the curriculum to suit the actual needs of the business, improve the professionalism and ability to transfer the knowledge of teachers, enhance working skills of students through practice exercises. Simultaneously, it is important to raise awareness of students about work attitudes, professional orientation through discussions. Also, combining schools, families, and businesses to build an educational environment that ensures both professional knowledge and attitudes is needed for better education results.

Acknowledgement

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