The implementation of outcome-based education: Evidence from master program in economic management at Hanoi universities

Phan Trong Phuca, Nguyen Quang Vinhb and Quang Hung Doca*

aDai Nam University, Hanoi, Vietnam
bHanoi University of Business and Technology, Hanoi, Vietnam
cFaculty of Information Technology, University of Transport Technology, No 54, Trieu Khuc, Thanh Xuan Nam, Hanoi 100000, Vietnam

ABSTRACT

The objective of this study is to investigate the factors that affect the implementation of outcome-based education (OBE) in the master program in Economic Management. A research framework was proposed to investigate the relationship between the factors including professional knowledge, the ability to detect and solve problems, team work and communication skills, work attitude with students’ perceived value and these factors with practical application ability. A questionnaire was administered to a sample of 388 graduate students of economic management at different universities in Hanoi, Vietnam. The partial least squares structural equation modelling (PLS-SEM) method was utilized to test the hypotheses of this research. The study findings show that professional knowledge, the ability to detect and solve problems, team work and communication skills and work attitude had direct impacts on students’ perceived value; and students’ perceived value had a direct impact on practical application ability of Economic Management’s program in work. The findings also indicate that professional knowledge did not have any direct impact on practical application ability of Economic Management’s program in work and the ability to detect and solve problems only had indirect impact on practical application ability through the moderator of students’ perceived value. It is stressed the importance role of students' perceived value; and when students understand that the program benefits and they provide knowledge and skills effectively in practice.

1. Introduction

In country developing process, higher education is considered as a key to improvement the human resource quality. In Vietnam, the process of education and training reform has been setting new requirements for all levels of national education system. However, it is shown that in many Vietnamese universities, the program content is still heavy on theory, it has not been closely linked to the socio-economic life; not yet strongly shifting to training according to social needs; has not focused on life skills education, promoting the creativity and practical capacity of students. In fact, the development of training programs of universities in Vietnam has not been properly focused, there are not many schools investing in this work and the curriculum of the same sector often has the same subjects. The characteristics of some schools are based on teaching subjects which have nothing to do with society and learners’ need; some schools are too focused on theory; some schools are too focused on practical skills and no solid knowledge base. The training program does not keep up with the development, i.e., it does not meet the requirements of society and there is a shortage of people who have received intensive training on program development. Outcome-Based Education has become more important in recent years and it is indeed the key to a meaningful education and the focus on learning outcomes is essential to inform diagnosis and improve teaching processes and student learning. Biggs and Collis (2014) confirm that it has been viewed as a significant paradigm shift in educational philosophy and practice.
which underscores a learning based model focusing on what students know and can do as a result of a learning experience or acquiring a degree as opposed to a teacher centered model that emphasizes what is presented. Facing practical demands for developing an application-oriented training program to improve practical capacity, there is a need to apply economic theories into practice, especially in the context of Industry 4.0. It is necessary to improve the quality of training towards improving the practical performance of economic managers, especially senior economic managers. It must directly serve the country's economic development strategy in the long run and in the short run, ensuring a smooth transition and inheritance among economic management cadres, creating a source for economic management officials in the future, to ensure the country's economic development in the future. Outcome-Based Education in master’s program is not a new model. However, in Vietnam, there is only one general type of masters, which is neither research nor application. The Higher Education Law (HEL), which came into effect in January 2013, stipulates that research and application training programs are separate. However, master’s science will be very heavy, learners must focus on research and graduate thesis. The regulation states: For the research -oriented program, the program content consists of at least 60% of the time devoted to the knowledge block to improve scientific research capacity. At the application-oriented program, the volume of practical knowledge, improving practical activities accounts for at least 60%. The study is divided into two folds: the research orientation is a scientific work, making new contributions academically and theoretically, containing new and valuable knowledge for the increase of knowledge. Application-oriented is a technical, technological, or managerial report that addresses a practical issue in the field of research. Although OBE has been advocated for over 60 years and was revived in the 1980s; in Vietnam, it just advocated from 2013 after the Higher Education Law was implemented. However, there is a fact that the target trainees of Master of Economic Management Program are mostly civil servants, so training and retraining of professional qualifications and capacity for economic managers will give them the knowledge to solve the work, coordinate the activities of the junior staff and helps them have a general understanding about the development trend of society. At the same time, it will also help economic managers expand their awareness about modernization, directing to the world and directing to the future for economic management officials. Not only that, it also helps economic managers to analyze problems, generalize economic, political, and social issues to have solutions for all problems. In addition, it also makes economic management in professional, specialized, technical, and solid working experience. Being able to train good economic managers also means making them capable of managing including practical competencies in case analysis, decision making and problem solving, team competence. organization and command, capacity to sign and coordinate operations. There is, however, a substantial lack of research on Outcome-Based Education in higher education (Zlatkin-Troitschanskaia, Shavelson, & Kuhn, 2015). The purpose of this study is to analyze the factor that impact on the Outcome-Based Education in Master of Economic Management program in different Hanoi universities from the survey of student who graduated from this program.

2. Literature Review and Hypothesis Development

Higher education plays an important role in improving human resources for all nations and regions. Various studies on students' working capacity, university-business cooperation and how to provide training programs according to social needs have been conducted (Davies, Csete, & Poon, 1999; Jain, 2010; Sitko-Lutek & Jakubiak, 2012; Yen et al., 2009). In Vietnam, only 60% of students have jobs in accordance with their trained majors at universities. Many programs and syllabus are claimed as no longer appropriate, or even dangerous for the development of students in the contemporary society, especially at work and in life after graduation. Therefore, the gap between competencies required of graduates in organizations and knowledge traditionally transferred to students by universities in Vietnam should be measured in guiding educators and policy makers towards more efficient and effective education systems. Perceived value by the students refers to the overall evaluation of the utility of the service or learning tool and higher perceived value lead to satisfaction with the education (Ledden, Kalafatis, & Samouel, 2007). Given the characteristics of higher education service, in particular, the high level of individual involvement and its importance in current and future life of a student, it seems important to measure value perceived by the student through components (Alves, 2011). In this study, these components are professional knowledge, the ability to detect and solve problems (problem-solving ability), team work and communication skills and work attitude. Moreover, an outcome is a culminating demonstration of learning; it is what the student should be able to do at the end of a course. Outcome-based education is an approach to education in which decisions about the curriculum are driven by the exit learning outcomes that the students should display at the end of the course (Davis, 2003). The practical applicability of curriculum is reflected by professional knowledge, the ability to detect and solve problems (problem-solving ability), team work and communication skills, work attitude and perceived value (Lowden, Hall, Elliot, & Lewin, 2011). There is a broad understanding of what qualities, characteristics, skills and knowledge constitute employability for graduates. Employers expect graduates to have professional knowledge from their degrees but require graduates also to demonstrate a range of broader skills and attributes that include team-working, communication, leadership, critical thinking, problem solving and managerial abilities. Based on the above discussions, the following hypotheses are proposed.

**H1**: Professional knowledge (PK) has a direct impact on students’ perceived value (PV).

**H2**: The ability to detect and solve problems (DSP) has a direct impact on students’ perceived value (PV).

**H3**: Team work and communication skills (WCS) has a direct impact on students’ perceived value (PV).

**H4**: Work attitude (WA) has a direct impact on students’ perceived value (PV).

**H5**: Students’ perceived value (PV) has a direct impact on practical application ability of Economic Management’s program in work (PPA).
**H6:** Professional knowledge (PK) has a direct impact on practical application ability of Economic Management’s program in work (PPA).

**H7:** The ability to detect and solve problems (DSP) has a direct impact on practical application ability of Economic Management’s program in work (PPA).

**H8:** Team work and communication skills (WCS) has a direct impact on practical application ability of Economic Management’s program in work (PPA).

**H9:** Work attitude (WA) has a direct impact on practical application ability of Economic Management’s program in work (PPA).

---

### 3. Research Methodology

#### 3.1. Scales of Measurement

The data were collected in several successive steps. First, focus groups were conducted to explore the factors affecting students’ perceived value and practical application ability of Economic Management’s program among students that graduated from Economic Management’s program. Next, focus groups pre-tested the questionnaire, and identified additional variables (that could affect the dependent variable) not present in the original survey instrument. A pilot survey was conducted, and reached 20 professors and managers in different universities including Dai Nam University, Hanoi University of Business and Technology, Thongmai University, National Economics University in Hanoi, Vietnam. Then, the instrument was modified, once again, for the final survey (see Table 1). The questions were asked on a 5-point Likert scale: (1) Strongly disagree; (2) Disagree; (3) Neither agree nor disagree; (4) Agree; (5) Strongly agree.

#### 3.2. Sample and Data Collection

The research was conducted with quantitative descriptive approach and the type of research empirical study supported by survey. The participants were recruited at random from various Vietnamese universities offering the master program in Economic Management. The nature of this research is explanatory research (explanatory research) that aims to describe and explain the nature of an ongoing situation at the time of the study conducted and examined the causes of the symptoms. In order to get a high response rate, primary data were collected through two primary tools: online and offline. For online tool, data collection was accomplished through a questionnaire made available on the Google Forms platform. This enabled minimization of the costs on the part of the researcher and the company, and ease of reference and time convenience on the part of the management sample to which the survey was administered. The questionnaire in the survey has two parts. The first part was aimed at obtaining respondents’ opinions regarding professional knowledge (4 items), the ability to detect and solve problems (4 items), team work and communication skills (5 items), work attitude (5 items), students’ perceived value (3 items) and practical application ability of Economic Management’s program in work (3 items). The second part was designed to collect demographic information, including gender, school, family background and type of current working activity. In order to get a high response rate, the survey was conducted in class before the lecture started. The survey took no more than 30 minutes to complete.

#### 3.3. Data Analysis

Partial least squares structural equation modeling (PLS-SEM) method was adopted in the study. PLS-SEM is a statistical analysis of structural equation modelling which allows estimating complex cause-effect relationship models with latent variables. First, Cronbach alpha coefficients and item-total correlation were calculated. To be accepted, Cronbach’s Alpha were greater than 0.7 the item-total correlations were more than 0.3 (Hair, Anderson, Tatham, & Black, 1998; Nunnally & Bernstein, 1999). Then, Exploratory Factor Analysis (EFA) was used to ensure validity of the scale and to explore factor structure. KMO must be larger than 0.5. If KMO is lower than 0.5 is not suitable, exploratory factor analysis should not be performed. Total variance explained must be greater than 50% and the factor loading must be greater than or equal to 0.5 within a factor (Gerbig & Anderson, 1988). In order to test the research hypotheses, the OLS coefficients at the 5% significance level are used.
Table 1
The item measures

| Factor                                | Item       | Description                                                                 | Source                                                                 |
|---------------------------------------|------------|-----------------------------------------------------------------------------|------------------------------------------------------------------------|
| Professional knowledge (PK)           | PK1        | Having the ability to apply the knowledge of economic management effectively | (Baruch & Leeming, 1996; Louw et al., 2001; Murray & Robinson, 2001a; Neelankavil, 1994b) |
|                                       | PK2        | Having extensive knowledge and expertise in economic management              |                                                                        |
|                                       | PK3        | Having the Ability to inspect and control in work effectively               |                                                                        |
|                                       | PK4        | Proficiency in the work-related activities                                  |                                                                        |
| The ability to detect and solve problems (DSP) | DSP1      | The understanding, analyzing and evaluating of social and political issues |                                                                        |
|                                       | DSP2      | The ability to propose solutions to problems with high feasibility          |                                                                        |
|                                       | DSP3      | The ability to apply theory to practice                                     |                                                                        |
|                                       | DSP4      | Constantly being updated with new knowledge and ideas                       |                                                                        |
| Team work and communication skills (WCS) | WCS1      | Having good negotiation skills                                             |                                                                        |
|                                       | WCS2      | The ability to coordinate the activities within the organization            |                                                                        |
|                                       | WCS3      | Have good presentation and presentation skills                             |                                                                        |
|                                       | WCS4      | Knowledge and proficiency in foreign languages and IT skills in work     |                                                                        |
|                                       | WCS5      | Having self-confidence in the professional working environment            |                                                                        |
| Work attitude (WA)                    | WA1        | Obeying the laws of the state and the regulations of organization          |                                                                        |
|                                       | WA2        | Showing enthusiasm in the work                                              |                                                                        |
|                                       | WA3        | Willing to regularly learn from colleagues                                 |                                                                        |
|                                       | WA4        | Having high level of awareness                                              |                                                                        |
|                                       | WA5        | High and clear motivation                                                   |                                                                        |
| Students' perceived value (PV)        | PV1        | The program is worth with the time spent.                                  | (Akao et al., 1996; Davis et al., 2007; Neelankavil, 2001b)             |
|                                       | PV2        | Students' knowledge, skills and attitudes have had positive changes        |                                                                        |
|                                       | PV3        | Students have significantly contributed to the success of the organization |                                                                        |
| Practical application ability of Economic Management's program in work (PPA) | PPA1      | Students have successfully applied their knowledge to solving issues related to economic management. | (Dang Minh, 2018; Duoc & Metzger, 2007; Murray & Robinson, 2001b) |
|                                       | PPA2      | Students have made great progress in planning, organizing, directing, and controlling work activities |                                                                        |
|                                       | PPA3      | Student is the key member of the organization                              |                                                                        |

4. Results

4.1. Demographic Statistics

A total of 450 questionnaires were delivered from December 2019 to May 2020, and 406 responses were returned, representing a response rate of 90.2%. After removing the invalid questionnaire, 388 valid questionnaires (86.2%) were obtained. Table 2 shows the demographic statistics of the data.

Table 2
Student demographic information

| Student background     | Frequency | Percentage | Cumulative percentage |
|------------------------|-----------|------------|-----------------------|
| Gender                 |           |            |                       |
| Male                   | 221       | 65.4       | 65.4                  |
| Female                 | 117       | 34.6       | 100.0                 |
| Total                  | 338       | 100.0      |                       |
| Age                    |           |            |                       |
| Below 25               | 49        | 14.5       | 14.5                  |
| 26 - 35                | 146       | 43.2       | 57.7                  |
| 36 - 45                | 109       | 32.2       | 89.9                  |
| Above 45               | 34        | 10.1       | 100.0                 |
| Total                  | 338       | 100.0      |                       |
| Job position           |           |            |                       |
| Staff                  | 177       | 52.4       | 52.4                  |
| Manager                | 161       | 47.6       | 100.0                 |
| Total                  | 338       | 100.0      |                       |
| Experience (year)      |           |            |                       |
| Below 5                | 22        | 6.5        | 6.5                   |
| 5-10                   | 50        | 14.8       | 21.3                  |
| 11 -15                 | 152       | 45.0       | 66.3                  |
| Above 15               | 114       | 33.7       | 100.0                 |
| Total                  | 338       | 100.0      |                       |
| Type of work           |           |            |                       |
| Business               | 46        | 13.6       | 13.6                  |
| Public sector          | 253       | 74.9       | 88.5                  |
| Other                  | 39        | 11.5       | 100.0                 |
| Total                  | 338       | 100.0      |                       |
| Thesis grade (on a 10 scale) |         |            |                       |
| Above 9.0              | 87        | 25.7       | 74.6                  |
| 8.5 - 9.0              | 165       | 48.8       | 48.8                  |
| Below 8.5              | 86        | 25.4       | 100.0                 |
| Total                  | 338       | 100.0      |                       |
| Studying period        |           |            |                       |
| 2013-2015              | 60        | 17.8       | 17.8                  |
| 2014-2016              | 102       | 30.2       | 47.9                  |
| 2015-2017              | 93        | 27.5       | 75.4                  |
| 2016-2018              | 83        | 24.6       | 100.0                 |
| Total                  | 338       | 100.0      |                       |
4.2. Reliability and Validity Testing

In this study, the reflective model was utilized to ensure the reliability and validity of the construct measures and to provide support for the suitability of their inclusion in the path model. It is confirmed that manifest variables with outer loadings below 0.7 should be considered for elimination. If the elimination of these indicators increases the composite reliability, then they should be discarded. In this study, no observed variables were with outer loading below 0.7. Table 3 shows the results of reliability and validity test.

Table 3
The results of reliability and validity test

| Professional knowledge              | Cronbach's Alpha | rho_A  | Composite Reliability | Average Variance Extracted (AVE) |
|------------------------------------|------------------|--------|-----------------------|----------------------------------|
| The ability to detect and solve problems | 0.896            | 0.890  | 0.927                 | 0.762                            |
| Team work and communication skills  | 0.889            | 0.889  | 0.923                 | 0.750                            |
| Work attitude                      | 0.845            | 0.847  | 0.897                 | 0.685                            |
| Students' perceived value          | 0.835            | 0.836  | 0.890                 | 0.669                            |
| Practical application ability of Economic Management’s program in work | 0.853            | 0.860  | 0.913                 | 0.778                            |

To prove good reliability, the Cronbach’s alpha reliability coefficients and composite reliability should be greater than 0.7 and the coefficients from the extracted variance analysis (EVA) should be at least 0.5. Table 2 shows the questionnaire to reach acceptable reliability. In a reflective model, composite reliability is a preferred alternative to Cronbach’s alpha as a test of convergent validity. Composite reliability varies from 0 to 1, with 1 being perfect estimated reliability. In an exploratory model, composite reliabilities should be equal to or greater than 0.6. When modelling for confirmatory purposes, composite reliabilities should be equal or greater than 0.7, while 0.8 is considered good for confirmatory research. Table 3 also indicates that all composite reliability values are greater than 0.8. The convergent validity was evaluated from the measurement model by evaluating the factor loading greater than or equal to 0.7 which is preferred. Table 3 indicates that all factor loading values are greater than 0.7. Discriminant validity is the extent to which a construct is truly distinct from other constructs by empirical standards. The Fornell-Larcker criterion and the cross-loadings are checked for discriminant validity. According to the Fornell-Larcker criterion, the square root of the AVE of each construct should be higher than the construct’s highest correlation with any other construct in the model. Cross-loadings are an alternative to AVE as a method of assessing discriminant validity for reflective models. When analyzing cross-loadings, each indicator’s outer loading on a construct should be higher than all its cross-loadings with other constructs. Table 3 indicates that the square root of AVE is higher than the correlations among latent variables. Based on variance inflation factor (VIF) in Table 5, it is indicated that there is low correlation among variables under ideal conditions VIF<5. Moreover, the Heterotrait-Monotrait ratio of correlations (HTMT) are above 0.9.

Table 4
Reflective model analysis

| Professional knowledge              | The ability to detect and solve problems | Team work and communication skills | Work attitude | Students’ perceived value | Practical application ability of Economic Management’s program in work |
|------------------------------------|----------------------------------------|-----------------------------------|---------------|---------------------------|---------------------------------------------------------------|
| PK1                                | 0.843                                  | 0.512                             | 0.534         | 0.543                     | 0.520                                                         | 0.521                                                         |
| PK2                                | 0.902                                  | 0.530                             | 0.592         | 0.578                     | 0.511                                                         | 0.559                                                         |
| PK3                                | 0.867                                  | 0.580                             | 0.636         | 0.623                     | 0.501                                                         | 0.534                                                         |
| PK4                                | 0.878                                  | 0.569                             | 0.617         | 0.585                     | 0.520                                                         | 0.554                                                         |
| DSP4                               | 0.561                                  | 0.866                             | 0.582         | 0.528                     | 0.534                                                         | 0.545                                                         |
| DSP1                               | 0.544                                  | 0.877                             | 0.525         | 0.513                     | 0.537                                                         | 0.536                                                         |
| DSP3                               | 0.509                                  | 0.874                             | 0.532         | 0.530                     | 0.518                                                         | 0.525                                                         |
| DSP2                               | 0.526                                  | 0.457                             | 0.761         | 0.515                     | 0.472                                                         | 0.545                                                         |
| WCS1                               | 0.539                                  | 0.535                             | 0.858         | 0.549                     | 0.502                                                         | 0.507                                                         |
| WCS2                               | 0.612                                  | 0.600                             | 0.875         | 0.569                     | 0.536                                                         | 0.524                                                         |
| WCS4                               | 0.600                                  | 0.536                             | 0.812         | 0.552                     | 0.507                                                         | 0.535                                                         |
| WCS5                               | 0.599                                  | 0.527                             | 0.583         | 0.818                     | 0.505                                                         | 0.656                                                         |
| WA1                                | 0.584                                  | 0.546                             | 0.553         | 0.809                     | 0.506                                                         | 0.630                                                         |
| WA2                                | 0.580                                  | 0.581                             | 0.597         | 0.805                     | 0.538                                                         | 0.628                                                         |
| WA3                                | 0.632                                  | 0.531                             | 0.607         | 0.840                     | 0.479                                                         | 0.619                                                         |
| PV1                                | 0.509                                  | 0.564                             | 0.538         | 0.465                     | 0.903                                                         | 0.666                                                         |
| PV2                                | 0.504                                  | 0.509                             | 0.538         | 0.514                     | 0.918                                                         | 0.668                                                         |
| PV3                                | 0.591                                  | 0.613                             | 0.571         | 0.566                     | 0.893                                                         | 0.676                                                         |
| PPA1                               | 0.518                                  | 0.517                             | 0.524         | 0.610                     | 0.615                                                         | 0.869                                                         |
| PPA2                               | 0.586                                  | 0.560                             | 0.584         | 0.673                     | 0.664                                                         | 0.910                                                         |
| PPA3                               | 0.521                                  | 0.558                             | 0.541         | 0.568                     | 0.646                                                         | 0.866                                                         |

Table 4 shows that all factor loading values are above 0.7, hence indicating model fit.
Table 5
Discriminant validity of the model

| Professional knowledge | The ability to detect and solve problems | Team work and communication skills | Work attitude | Students' perceived value | Practical application ability |
|------------------------|----------------------------------------|----------------------------------|--------------|---------------------------|-----------------------------|
| Professional knowledge |                                        |                                  |              |                           |                             |
| The ability to detect and solve problems | 0.671                                   |                                  |              | 2.155*                    | 1.799*                      |
| Team work and communication skills | 0.730                                  | 0.682                            |              | 1.945*                    | 2.215*                      |
| Work attitude | 0.715                                   | 0.653                            | 0.700         | 1.877*                    | 1.973*                      |
| Students' perceived value | 0.627                                  | 0.659                            | 0.646         | 2.140*                    | 2.034*                      |
| Practical application ability | 0.664                                  | 0.668                            | 0.677         | 0.756*                    |                             |

* VIF (variance inflation factor)

Table 6
R² and f² of the model

| Professional knowledge | The ability to detect and solve problems | Team work and communication skills | Work attitude | Students' perceived value | Practical application ability |
|------------------------|----------------------------------------|----------------------------------|--------------|---------------------------|-----------------------------|
| Professional knowledge |                                        |                                  |              |                           |                             |
| The ability to detect and solve problems | 0.015                                   |                                  |              | 0.129                      |                             |
| Team work and communication skills | 0.084                                  |                                  |              | 0.029                      |                             |
| Work attitude | 0.028                                   |                                  |              | 0.023                      |                             |
| Students' perceived value | 0.208                                  |                                  |              |                            |                             |
| Practical application ability |                                      |                                  |              |                            |                             |

Table 7
Bootstrapping results

| Professional knowledge → Students' perceived value | Original Sample (O) | Sample Mean (M) | Standard Deviation (STDEV) | T Statistics (O/STDEV) | P Values |
|---------------------------------------------------|---------------------|-----------------|-----------------------------|------------------------|----------|
| Professional knowledge                           | 0.126               | 0.128           | 0.060                       | 2.095                  | 0.037    |
| The ability to detect and solve problems → Economic Management’s program in work | 0.359               | 0.357           | 0.057                       | 6.328                  | 0.000    |
| The ability to detect and solve problems → Students' perceived value | 0.183               | 0.176           | 0.075                       | 2.447                  | 0.015    |
| The ability to detect and solve problems → Practical application ability of Economic Management’s program in work | 0.102               | 0.102           | 0.060                       | 1.699                  | 0.090    |
| Team work and communication skills → Students' perceived value | 0.295               | 0.298           | 0.063                       | 4.683                  | 0.000    |
| Team work and communication skills → Practical application ability of Economic Management’s program in work | 0.234               | 0.232           | 0.055                       | 4.258                  | 0.000    |
| Work attitude → Students' perceived value | 0.184               | 0.186           | 0.061                       | 3.036                  | 0.003    |
| Work attitude → Practical application ability of Economic Management’s program in work | 0.234               | 0.232           | 0.055                       | 4.258                  | 0.000    |
| Students' perceived value → Practical application ability of Economic Management’s program in work | 0.174               | 0.178           | 0.060                       | 2.920                  | 0.004    |

In this research, all the relationships were tested at a 95% confidence level, which means that the P value of a relationship must not be higher than 0.05. It appears that all factors have effect on students’ perceived value and students’ perceived value has strong effect on practical application ability (t= 8.166; p<0.01) (Table 7). Among the factors effecting students’ perceived value, team work and communication skills has the strongest effect. However, among the relationship between factors and...
practical application ability of program, the result did not support the hypothesis that the ability to detect and solve problems (DSP) has a direct impact on practical application ability of Economic Management’s program in work (PPA) ($t = 1.699 < 1.96; p > 0.05$). All the other factors have a strong impact on Practical application ability of Economic Management’s program in work ($t > 1.96; p < 0.05$), in which professional knowledge has the strongest impact on practical application ability of Economic Management’s program in work ($t = 6.328 > 1.96; p < 0.05$).

### Table 8

|                  | Saturated Model | Estimated Model |
|------------------|-----------------|-----------------|
| SRMR             | 0.037           | 0.049           |
| NFI              | 0.909           | 0.916           |

As shown in Table 8, SRMR value is below 0.08 and NFI value is above 0.9, indicating that the model is enough fit to the experimental data and can be used to analyze the actual data. Fig. 2 shows the proposed structural model.

Fig. 2. Structural model

Fig. 2 presents the overall structural model. The beta coefficients shown on the links represent the strength of the effect of each factor to the outcome. It can be concluded that all four independent factors have significant impacts on students’ perceived value. Meanwhile, students’ perceived value as a moderator variable has also an impact on practical application ability of the program. This is a remarkable finding when compared with the previous studies that only independent factors (knowledge, skills and attitude) have a direct effect on practical application ability of the program (Boahin & Hofman, 2013). This model emphasizes the role of mediating variable students’ perceived value in the study of educational quality. However, the beta coefficients of direct relationships (without students’ perceived value as a mediating variable) show that the ability to detect and solve problems did not have any effect on practical application ability of the program ($\beta = 0.033, p > 0.05$). The other three factors including professional knowledge, team work and communication skills and work attitude have had significant effects on practical application ability. Among these factors, professional knowledge has the largest effect. The coefficients on the link also indicate that a unit increase score of professional knowledge will be associated with an increase of 0.311 units in practical application ability of the program in work. Similarly, a unit increase score of team work and communication skills and work attitude will be associated with an increase of 0.122 and 0.105 units in practical application ability of the program, respectively.

5. Conclusions

Outcome-based education is grounded in the idea that academic success is best measured by what students actually obtains. The study has examined the influence of different factors on effecting practical application ability of Economic Management’s master program in work at universities in Hanoi. The study findings indicate that professional knowledge, the ability to detect and solve problems, team work and communication skills and work attitude had direct impacts on students’ perceived value; and students’ perceived value had a direct impact on practical application ability of Economic Management’s master program in work. It has also shown that professional knowledge did not have any direct impact on practical application ability of Economic Management’s program in work and the ability to detect and solve problems only had indirect impact on practical application ability through the moderator of students’ perceived value. The study also highlighted the importance role of students’ perceived value. The study findings have several significant implications for educators. Developing graduate employability skills and attributes should be included in faculty and departmental level planning. Universities need to reflect the promotion of employability skills and attributes in their mission statements, learning and teaching strategies, course frameworks, strategic documents and practical guidance. Our study is not without limitation; i.e., the study was mainly based on quantitative method and data collection was done at a short period of time which does not provide insights over time. The study findings are expected to provide important insights to institutional managers, lecturers and other regulatory authorities in developing curriculum for master's program in Economic Management.
References

Akao, Y., Nagai, K., & Maki, N. (1996). QFD concept for improving higher education. *Annual Quality Congress Proceedings, American Society for Quality Control*, 12–20.

Alves, H. (2011). The measurement of perceived value in higher education: a unidimensional approach. *The Service Industries Journal, 31*(12), 1943-1960.

Baruch, Y., & Leeming, A. (1996). Programming the MBA programme-the quest for curriculum. *Journal of Management Development.*

Biggs, J. B., & Collis, K. F. (2014). *Evaluating the quality of learning: The SOLO taxonomy (Structure of the Observed Learning Outcome).* Academic Press.

Boahin, P., & Hofman, A. (2013). A disciplinary perspective of competency-based training on the acquisition of employability skills. *Journal of Vocational Education & Training, 63*(3), 385–401.

Minh, N. D. (2018). Building the training and self-training skill model for Vietnamese students to meet enterprises’ demands. *VNU Journal of Science: Economics and Business, 34*(1).

Davies, H. A., Csete, J., & Poon, L. K. (1999). Employers’ expectations of the performance of construction graduates. *International Journal of Engineering Education, 15*(3), 191–198.

Davis, M. H. (2003). Outcome-based education. *Journal of Veterinary Medical Education, 30*(3), 258-263.

Davis, M. H., Amin, Z., Grande, J. P., O’Neill, A. E., Pawlin a, W., Viggiano, T. R., & Zuberi, R. (2007). Case studies in outcome-based education. *Medical Teacher, 29*(7), 717-722.

Duoc, T. Q., & Metzger, C. (2007). Quality of business graduates in Vietnamese institutions: multiple perspectives. *Journal of Management Development.*

Gerbing, D. W., & Anderson, J. C. (1988). An updated paradigm for scale development incorporating unidimensionality and its assessment. *Journal of Marketing Research, 25*(2), 186–192.

Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). Multivariate data analysis (5th ed.). In *Upper Saddle River: Prentice Hall.*

Jain, V. (2010). Survival skills of business management graduates: A study with reference to retail and banking. *Far East Journal of Psychology and Business, 1*(4), 59–77.

Ledden, L., Kalafatis, S. P., & Samouel, P. (2007). The relationship between personal values and perceived value of education. *Journal of Business Research, 60*(9), 965–974.

Louw, L., Bosch, J. K., & Venter, D. J. L. (2001). Quality perceptions of MBA courses and required management competencies. *Quality Assurance in Education.*

Lowden, K., Hall, S., Elliot, D., & Lewin, J. (2011). Employers’ perceptions of the employability skills of new graduates. *London: Edge Foundation.*

Murray, S., & Robinson, H. (2001a). Graduates into sales–employer, student and university perspectives. *Education + Training.*

Murray, S., & Robinson, H. (2001b). Graduates into sales – employer, student and university perspectives. *Education + Training, https://doi.org/10.1108/030800601100000115.*

Neelankavil, J. P. (1994a). Corporate America’s Quest for an Ideal MBA. *Journal of Management Development.*

https://doi.org/10.1108/02621719410058374

Neelankavil, J. P. (1994b). Corporate America’s quest for an ideal MBA. *Journal of Management Development.*

Nunnally, J. C., & Bernstein, I. H. (1999). Psychometric theory (3rd Ed.). New York: McGraw-Hill. *Journal of Psychoeducational Assessment, https://doi.org/10.1037/018882.*

Sitko-Lutek, A., & Jakubiak, M. (2012). Competences of University Graduates from Economics and Management, as Perceived by University Students and Employers. *Knowledge and Learning: Global Empowerment: Proceedings of the Management, Knowledge and Learning International Conference 2012, 831–841.* International School for Social and Business Studies, Celje, Slovenia.

Yen, N. P., Kamariah, A. S., Hw, N. P., & Huong, T. N. (2009). Employers’ Feedback on Business Graduates and Curtin Graduate Attributes: An Exploratory Study in Curtin Sarawak. *Proceedings of Asian Business Research Conference.*

Zlatkin-Troitschanskaia, O., Shavelson, R. J., & Kuhn, C. (2015). The international state of research on measurement of competency in higher education. *Studies in Higher Education, 40*(3), 393–411.

© 2020 by the authors; licensee Growing Science, Canada. This is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC-BY) license (http://creativecommons.org/licenses/by/4.0/).