Developing Organizational Training Impact Scale for Workplace Training: Testing the Malaysian Sample to Determine the Impact of Training on Organizational Effectiveness

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ABSTRACT

The aim of this paper is to report the development of organizational training impact scale (OTIS) for workplace training using the intangible results of training effectiveness. The reason is because instrument that can measure the impact of training on organizational effectiveness is very limited. The OTIS was developed using theories in human resource development, and tested for face validity, content validity, exploratory factor analysis, and reliability. The first version of OTIS comprises of 70 items; however, only 33 items left in the final version. The impact of training before and after training completion was tested using OTIS among the Malaysian civil servant officers; findings indicated a significant different. This has shown that training has impact on organizational effectiveness and can be measured using intangible results.

Keywords: Organizational Training Impact Scale, Malaysia, Civil servant officers, Employee training

JEL Classifications: L84, M53, M54

1. INTRODUCTION

Training program is provided to prepare employees with the competency in achieving organizational goals and effectiveness (Noe, 2012; Cascio, 2015). However, research reported the impact of training on organizational effectiveness is very limited because of the difficulties in assessing tangible data, especially data related to monetary increment (Becker and Gerhart, 1996; Brinkerhoff, 2006; Siti, 2015). This confidential issues regarding data accessibility has thwarted researchers to examine the impact of training on organizational effectiveness (Siti, 2015). Interestingly, some researchers argue that the impact of training on organizational effectiveness can be determined using intangible results; intangible result refers to the results of training outcome that cannot be measured directly, such as the human resource performance (Kirkpatrick and Kirkpatrick, 2010). Hence, there is a need to develop a general instrument to determine the impact of training on organizational effectiveness using the intangible results.

An organization is formed by the quality of its employees (Daft, 2014; Cascio, 2015); hence, training is a serious matter to
prepare and provide them with appropriate competencies (Noe, 2012; Weiner et al., 2013). These competencies are needed by organization to face with the demand in global economic changes, organizational management, making decision in policy, and challenges for sustainable advantages (Salas et al., 2012; Abu et al., 2012). To this end, training was given to enhance the employees’ competencies (Noe, 2012; Cascio, 2015). Consistently, previous research has proven that training can improve organizational effectiveness (Becker and Gerhart, 1996; Salas et al., 2012). However, Arthur et al. (2003) and Siti (2015) indicated that research reported the impact of training on organizational effectiveness is very limited because of the complexity in accessing the tangible data of organization performance.

Further, Giangreco et al. (2008) reported that researchers and practitioner prefer to evaluate training effectiveness using reaction evaluation as suggested by Kirkpatrick (1959/1996) as compared to results or organizational effectiveness because it is easier to collect the data. Chong (2005) also reported that organization in the Malaysian context also prefer to use reaction evaluation as compared to other measurement. Meanwhile, Siti (2015) argues that the tangible data of organizational performance including records on profits, income, and customer complaints are very difficult to access because of its confidential aspect. This has thwarted researchers from doing research as well as explaining why research reported the impact of training on organizational effectiveness is very limited (Arthur et al., 2003). Ironically, Becker and Gerhart (1996) and Salas et al. (2012) argue that research that can prove the effect of training on organizational effectiveness is indeed needed to give signal for organizational managers and stakeholders in appreciating the value of training. Interestingly, the effect of training on organizational effectiveness can be determined based on intangible result (Kirkpatrick and Kirkpatrick, 2010). Hence, the purpose of this study has twofold, which are to determine the impact of training on organizational effectiveness, and to develop a general instrument in measuring the impact of training on organizational effectiveness using the intangible results.

To achieve the purpose of this study, the impact of training on organizational effectiveness was explained using theories and literature in human resource development field of study. Then, the organization of this article was divided into four sections. The first section explains item generation to test for face validity; in which, two focus group discussions were organized to generate and refine items in OTIS. The second section was questionnaire administration to test for content validity; in which, a jury validation involving 12 juries were selected among human resource subject matter experts, practitioners, and students. The third section was initial item reduction; in which, a purposive sampling involving 450 respondents were done to determine appropriate items in each components of OTIS using SPSS version 21. Finally, section four discusses a pilot study involving 211 respondents working as the civil servant officers in Malaysia to determine the reliability of OTIS as well as to determine the impact of training on organizational effectiveness.

2. ASSESSING THE IMPACT OF TRAINING ON ORGANIZATIONAL EFFECTIVENESS

Aguinis and Kraiger (2009) argue that training can have impact on organizational effectiveness. Meanwhile, Lado and Wilson (1994) argue that organization competencies can demonstrate the impact of training on organizational effectiveness; in which, competencies can be measured based on its cognitive, skill, and affective (Kraiger et al., 1993). Interestingly, the impact of training on organizational effectiveness can be demonstrated by the intangible results of training (Kirkpatrick and Kirkpatrick, 2010). This is supported by the Model of Human Resource Development within the Organization and Environment by Swanson and Holton (2001). Hence, the assessment of training impact on organizational effectiveness can be conceptually and operationally defined using these perceptions.

According to Aguinis and Kraiger (2009), training will have impact on organizational effectiveness in a chain-linkage relationship; in which, training will have impact on the individual, followed by group, organization and society. The impact of training on organization should be seen as improving the organization competencies (Lado and Wilson, 1994). Meanwhile, Kraiger et al. (1993), and Noe (2012) argue that individual competencies should comprise of cognitive, skill, and affective; hence, organization competencies should also have these knowledge, skill, and attitude components. Nonetheless, Lado and Wilson (1994) explain that training can have impact on organization competencies through managerial-, input-, transformation-, and output-based competencies. Consistently, Swanson and Holton (2001) explain that organizational performance is a process of transforming the organization competencies with the idea of input-process-output; in which, the “… performance are reflected in people, their ideas, and the material resources …” and “performance cannot be described or improved without specifying its determinants” (p. 90). This reflects the intangible results of training that can be seen through human resource performance including improvements in productivity, work quality, work motivation, innovation, and readiness to change (McLagan, 1989; Kirkpatrick and Kirkpatrick, 2010). Hence, organization should have appropriate competencies to improve organizational effectiveness in the system of input-process-output.

Further, transformation-based competencies describe the organizational capabilities to process the input into output including “… innovation and entrepreneurship, organizational culture, and organizational learning” (Lado and Wilson, 1994, p. 705). Hence, the transformation-based competencies should be seen as the knowledge components of organization because it shows the organizational learning that use updated knowledge to improve the organizational performance. Hence, this organization knowledge can be measured using organizational learning. Chiva et al. (2007) explain that organizational learning can tell us the capability of organization in processing the input into output, such as by determining organizational changes to the positive trend in coping with global economic demand; this include the changes in technology, system, and work process. Hence, it can be measured through employees’ ability to experiment, taking risk, interaction
with outside environment, dialog, and participation in decision making (Chiva et al., 2007).

In addition, Lado and Wilson (1994, p. 704) explain that the “input-based competencies encompass the physical resources, organizational capital resources, human resources, knowledge, skills, and capabilities that enable a firm’s transformational processes to create and deliver products and services that are valued by customers.” Meanwhile, output-based competencies include all knowledge-based, invisible strategic assets, such as corporate reputation or image, product or service quality, and customer loyalty (Lado and Wilson, 1994, p. 708). Hence, the input- and output-based competencies should be seen as the skill components of organization because it shows the organization skill to process the input into output. These organization’s skills can be measured using human resource performance. According to Arago ‘n-Sa’nchez et al. (2003), the level of human resource performance, including human resource commitment, managerial effectiveness, productivity and service quality can inform us the capability of input and output in achieving the organizational effectiveness. In addition, Parasuraman et al. (1988), and Lumanaj and Lesha (2016) indicated that service quality can inform us the organizational performance that represent the customer satisfaction and it is essential especially for organization that have service as their core business.

Furthermore, Lado and Wilson (1994, p. 703) explain that managerial competencies is referred to the “unique capabilities of the organization’s strategic leaders to articulate a strategic vision, communicate the vision throughout the organization, and empower organizational members to realize that vision …” as well as “… unique ability to enact a beneficial firm-environment relationship …” Hence, the managerial competencies should be seen as the attitude components of organization because it shows the vision and standpoint of an organization. This organization attitude can be measured using the employees’ readiness to change. According to Barho (2011), employees’ readiness to change can show the level of obedience among employees in following the vision proposed by their upper management.

Taken together, the impact of training on organizational effectiveness can be measured based on the level of organization competencies. Hence, organization competencies is defined as the combination of knowledge, skills and attitude of an organization that can be seen through its knowledge utilization (organizational learning), habit (human resource performance), and new belief (organizational readiness to change); it can be assessed using organizational learning, employees’ readiness to change, and human resource performance. Therefore, Table 1 shows the operational definition for organization competencies.

### 3. METHODS

To construct organizational training impact scale (OTIS) and determine the impact of training on organizational effectiveness, suggestions by Hinkin (1998) and Neuman (2010) were followed; meanwhile, Holton’s (2005) steps in constructing an instrument were also followed. Hinkin (1998) suggests six steps to develop an instrument; however only three steps were followed including organizing item generation, questionnaire administration, and initial item reduction through exploratory factor analysis (EFA). This is because OTIS is still in the early phase of instrument development; in fact, Holton (2005) suggests that EFA can be used to determine the initial item reduction in the early phase of item construction. Meanwhile, Neuman (2010) suggests that an instrument should be tested for its reliability and validity; hence, the Cronbach’s Alpha reliability and some validity tests were analysed including the face and content validity.

### 4. FINDINGS AND DISCUSSIONS

#### 4.1. Item Generation

To construct OTIS, the impact of training on organizational effectiveness was conceptually and operationally defined; then, the face validity was verified. This is shown in Table 1. The impact of training on organizational effectiveness was conceptually defined as organization competencies that comprise of organization knowledge, skill, and attitude. Fifteen items were developed to measure organization knowledge; an instrument of organizational learning developed by Chiva et al. (2007) that consist of 14 items were adapted. To measure organization skill, 35 items were developed. These items were adapted from 14 items measuring organizational performance by Arago ‘n-Sa’nchez et al. (2003) and 5 items developed by Agwu and Ogiriki (2014); meanwhile, 20 items to measure service quality by Parasuraman et al. (1988) were also adapted. To measure organization attitude, 20 items were developed; instrument developed by Barho (2011) to measure organizational readiness to change that consists of 19 items was adapted. In sum, there were 70 items in the early development of OTIS. Items were developed in Bahasa Melayu and English versions.

A focus group involving the research team members was organized on 30 October 2014 to adapt and generate items for OTIS. There were six members in the research team with each holding a PhD; two of them were specialized in Human Resource Development.
and others were specialized in each Human Resource Management, Psychology of Industrial and Organization, Information System, and Community Development respectively. Then, on 18 to 19 March 2015 another focus group was organized to refine these items; a group of postgraduate students specializing in Psychology of Industrial and Organization from Universiti Kebangsaan Malaysia that consist of 20 students were involved in the focus group. During these focus group discussions, the face validity was verified. Sample question for organization knowledge was “We are willing to take challenges to finish job.” Sample question for organization skill was “As government officers, our behaviour instils confidence in public.” Sample question for organization attitude was “It is easy for me to take the department’s change seriously.”

4.2. Questionnaire Administration
The OTIS was then administered in jury validation for validating its content validity. Twelve juries were selected to verify the content validity using a given conceptual and operational definition; these juries have consented to participate in the research. Five juries were the subject matter experts that hold PhD in Human Resource Management and Development from Universiti Putra Malaysia. Another three juries were practitioners that hold management positions in the Universiti Teknologi MARA, Malaysia; another four juries were postgraduate students specializing in Human Resource Development at Universiti Putra Malaysia. These juries were asked to rate their agreeableness for each item using scale 1 to 10; scale 1 represents “strongly disagreed” and 10 represents “strongly agreed.” According to Hair et al. (2013), the level of reliability that can be accepted is more than 0.7; however, “…it may decrease to 0.6 in exploratory research” (p. 137). Hence, items that have the average score percentage more than 0.6 were included in the next stage of OTIS development; all the 70 items remained at this stage. The average score percentage for each construct were >0.7; this is shown in Table 2.

4.3. Initial Item Reduction
A survey was organized among government’s civil servants that work at the same organization with those working postgraduate students registered with the subject of Training Evaluation (DCE5232) at Universiti Putra Malaysia during November to December 2015. Samples were taken using purposive sampling because the purpose of this study was to develop an instrument and not to make generalization for a population. A total of 450 respondents were involved; data were analysed using EFA.

The EFA analysis indicated three factors in OTIS; this can be seen as the components of knowledge, skill, and attitude in the organization competencies. Table 3 presents the EFA result; only 33 items left in this analysis. The Kaiser-Meyer-Olkin value was 0.917 and the Bartlett’s Test of Sphericity was significant (P = 0.0001), which is consistent with the value recommended by Pallant (2011). Meanwhile, the Maximum likelihood analysis revealed the presence of three components with eigenvalues exceeding 3, explaining 40.77%, 8.93%, and 7.17% of the variance respectively. In addition, the oblimin rotation was performed and the pattern matrix indicated that each item shows strong loading in only one component. Additionally, the correlation matrix indicated that most items have positive correlation with 0.3 and above. At this stage, only 33 items remained in OTIS; in which, there

Table 2: Results for jury validation to verify content validity in OTIS

<table>
<thead>
<tr>
<th>Components</th>
<th>Number of items</th>
<th>Type of juries</th>
<th>Average score percentage</th>
<th>Total average percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organization knowledge</td>
<td>15</td>
<td>Subject matter expert</td>
<td>0.76</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Practitioner</td>
<td>0.84</td>
<td></td>
</tr>
<tr>
<td>Organization skill</td>
<td>35</td>
<td>Postgraduate student</td>
<td>0.77</td>
<td>0.79</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Subject matter expert</td>
<td>0.78</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Practitioner</td>
<td>0.76</td>
<td></td>
</tr>
<tr>
<td>Organization attitude</td>
<td>20</td>
<td>Postgraduate student</td>
<td>0.77</td>
<td>0.77</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Subject matter expert</td>
<td>0.73</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Practitioner</td>
<td>0.77</td>
<td></td>
</tr>
</tbody>
</table>

OTIS: Organizational training impact scale

Table 3: Results for exploratory factor analysis

<table>
<thead>
<tr>
<th>Items for factor 1 (organization skill)</th>
<th>Factor loading</th>
<th>Items for factor 2 (organization attitude)</th>
<th>Factor loading</th>
<th>Items for factor 3 (organization knowledge)</th>
<th>Factor loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>OKA31</td>
<td>0.901</td>
<td>OSA6</td>
<td>0.877</td>
<td>OPA1</td>
<td>0.886</td>
</tr>
<tr>
<td>OKA28</td>
<td>0.856</td>
<td>OSA5</td>
<td>0.832</td>
<td>OPA9</td>
<td>0.852</td>
</tr>
<tr>
<td>OKA32</td>
<td>0.837</td>
<td>OSA4</td>
<td>0.809</td>
<td>OPA4</td>
<td>0.795</td>
</tr>
<tr>
<td>OKA29</td>
<td>0.829</td>
<td>OSA3</td>
<td>0.794</td>
<td>OPA5</td>
<td>0.790</td>
</tr>
<tr>
<td>OKA33</td>
<td>0.821</td>
<td>OSA7</td>
<td>0.790</td>
<td>OPA11</td>
<td>0.783</td>
</tr>
<tr>
<td>OKA27</td>
<td>0.819</td>
<td>OSA8</td>
<td>0.778</td>
<td>OPA3</td>
<td>0.781</td>
</tr>
<tr>
<td>OKA30</td>
<td>0.807</td>
<td>OSA9</td>
<td>0.760</td>
<td>OPA2</td>
<td>0.774</td>
</tr>
<tr>
<td>OKA35</td>
<td>0.790</td>
<td>OSA12</td>
<td>0.728</td>
<td>OPA7</td>
<td>0.762</td>
</tr>
<tr>
<td>OKA34</td>
<td>0.702</td>
<td>OSA13</td>
<td>0.710</td>
<td>OPA10</td>
<td>0.750</td>
</tr>
<tr>
<td>OKA25</td>
<td>0.681</td>
<td>OSA2</td>
<td>0.702</td>
<td>OPA6</td>
<td>0.719</td>
</tr>
<tr>
<td>OKA26</td>
<td>0.670</td>
<td>OSA10</td>
<td>0.689</td>
<td>OPA8</td>
<td>0.692</td>
</tr>
</tbody>
</table>

OKA: Human resource performance, OSA: Employees’ readiness to change, OPA: Organization learning
were 11 items measuring organization skill, 11 items measuring organization knowledge, and 11 items measuring organization attitude.

4.4. Impact of Training on Organizational Effectiveness

The impact of training on organizational effectiveness was measured using OTIS in a pilot study. Samples were taken among the government civil servant officers at multiple government agencies at Putrajaya, Malaysia. A total number of 221 respondents were involved; however, only 211 respondents were selected due to outliers. Respondents have to answer the questionnaire based on 5 Likert scale; they also have to remember their perception before and after the completion of any training organized by the Public Administration Institute of Malaysia (INTAN) that they have attended previously; INTAN provides training programs for the civil servant officers. A paired sample t-test was used to determine the impact of training on organizational effectiveness.

Using OTIS, the Cronbach Alpha reliability tests have shown a high value for each organization skill (Cronbach Alpha = 0.950), organization attitude (Cronbach Alpha = 0.932), and organization knowledge (Cronbach Alpha = 0.946). Meanwhile, a correlation test was organized using Pearson correlation between organization knowledge, organization skill, and organization attitude using the mean score for their perception after training completion. Findings indicated significant relationship; this is presented in Table 4. This indicated that organization competencies comprise of organization knowledge, skill and attitude, and can be measured using OTIS. These competencies have a significant relationship and can be used to determine the impact of training on organizational effectiveness.

Further, the mean score for before and after training that were measured using OTIS was then tested using paired sample t-test; the results are presented in Table 5. Findings indicated significant difference in the scores for after (M = 4.24, SD = 0.45) and before (M = 3.32, SD = 0.68) training completion for organization skill \( t (210) = 18.58 \); after (M = 4.10, SD = 0.56) and before (M = 3.23, SD = 0.67) training completion for organization attitude \( t (210) = 17.08 \); and that after (M = 4.33, SD = 0.49) and before (M = 3.41, SD = 0.76) training completion for organization knowledge \( t (210) = 16.23 \). The magnitude of the differences in the mean score for each organization knowledge (\( \eta^2 = 0.08 \)), organization skill (\( \eta^2 = 0.07 \)), and organization attitude (\( \eta^2 = 0.06 \)) was moderate. In fact, the paired samples correlations shows a significant correlation between the mean score for before and after for each organization skill (r = 0.239, P = 0.0001), organization attitude (r = 0.299, P = 0.0001), and organization knowledge (r = 0.200, P = 0.004).

Taken together, it is demonstrated that the training that respondents have attended had improved their organization competencies. This is proven by the significant increase in the mean score for organization competencies before and after training completion. Hence, the impact of training on organizational effectiveness can be measured using OTIS; in which, OTIS is an instrument that can measure the level of organization competencies which comprise of organization knowledge, skill and attitude. At this stage, the 33 items remained in OTIS.

Findings is consistent with previous research that focussing on the impact of training on organizational effectiveness. For example, Lumanaj and Lesha (2016) found that the students which play role as the library’s customer can determine the organizational skill through service quality; in which, the service quality can be improved by providing staff training in helping students to enhance their information usage. Meanwhile, Chiva et al. (2007) demonstrated that previous researchers find organizational learning as the knowledge capability of an organization to sustain in global economic changes, organization effectiveness, and challenges for modernized technology; the organizational learning can also be improved through employees’ training and development.

Table 4: Results for Pearson correlation between components of organization competencies

<table>
<thead>
<tr>
<th>Components</th>
<th>Organization skill</th>
<th>Organization attitude</th>
<th>Organization knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organization skill</td>
<td>1</td>
<td>0.562**</td>
<td>0.593**</td>
</tr>
<tr>
<td>Organization attitude</td>
<td>0.562**</td>
<td>1</td>
<td>0.471**</td>
</tr>
<tr>
<td>Organization knowledge</td>
<td>0.593**</td>
<td>0.471**</td>
<td>1</td>
</tr>
</tbody>
</table>

***Significance two tails at 0.0 level of significant

Table 5: Results for Paired sample t-tests

<table>
<thead>
<tr>
<th>T-test for pre- and post-assessment</th>
<th>Paired differences</th>
<th>95% confidence interval of the difference</th>
<th>t</th>
<th>df</th>
<th>Significant (two-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean±SD</td>
<td>Standard error mean</td>
<td>Lower</td>
<td>Upper</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pair 1 Organization skill after - Organization skill before</td>
<td>0.91896±0.71829</td>
<td>0.04945</td>
<td>0.82148</td>
<td>1.01645</td>
<td>18.584</td>
</tr>
<tr>
<td>Pair 2 Organization attitude after - Organization attitude before</td>
<td>0.86213±0.73342</td>
<td>0.05049</td>
<td>0.76260</td>
<td>0.96167</td>
<td>17.075</td>
</tr>
<tr>
<td>Pair 3 Organization knowledge after - Organization knowledge before</td>
<td>0.91982±0.82311</td>
<td>0.05667</td>
<td>0.80811</td>
<td>1.03153</td>
<td>16.233</td>
</tr>
</tbody>
</table>
Additionally, Armenakis et al. (1993), and Barho (2011) found that organizational readiness to change present the organization positive attitude towards the changes in organization in order to improve organizational effectiveness; it can also be guided through training and development activities.

5. CONCLUSION AND RECOMMENDATIONS

The purpose of this article was to determine the impact of training on organizational effectiveness as well as to develop an instrument that can measure it; the instrument is named as OTIS. To this end, a few studies were organized to develop OTIS including focus group discussions to verify the face validity in the item generation, jury validation process to verify the content validity in the questionnaire administration, a survey to verify factor loadings using EFA in the initial item reduction, and a pilot study to verify the reliability test in determining the impact of training on organizational effectiveness.

Data were analysed using SPSS; findings indicated that training had a significant impact on organizational effectiveness based on the increase in the mean score of organization competencies after training completion. Findings also indicated that OTIS can measure organization competencies that comprise of organization knowledge, skill and attitude to determine the impact of training on organizational effectiveness. Hence, OTIS can be used for practitioner since previous researchers including Becker and Gerhart (1996) and Salas et al. (2012) argue that it is essential to exhibit the impact of training on organizational effectiveness especially for organizational managers and stakeholders that have the ultimate decision in training policy. The OTIS can also be used by researchers to examine the impact of training on organizational effectiveness since the tangible data of organizational performance are usually inaccessible, such as data related to profits and monetary increment. However, future research is needed to verify OTIS using other types of validity including the construct and concurrent validity based on other samples.

6. ACKNOWLEDGMENTS

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