

Training Program Evaluation on Batik Micro Small Medium Enterprises (MSMEs): An Analytical Hierarchy Process (AHP) Method

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Abstract: The aims of this study to evaluate the batik MSMEs training program. Respondents in this study was craftsmen of batik MSMEs who have attended several training programs. Data was collected using in-depth interviews, questionnaires and Focus Group Discussion (FGD). Data analysis using descriptive qualitative and Analytical Hierarchy Process (AHP). Based on the analysis concluded that several factors lead to non optimal of batik MSMEs training programs sequences was a trainer quality, training methods, training materials, motivation of trainees, facilities and infrastructure, environment and time of training. In order to optimal, batik MSMEs training programs should be conducted to use participatory training model.

Key words: Training program evaluation, Analytical Hierarchy Process (AHP), batik MSMEs, quality, factor

INTRODUCTION

Now-a-days global business environments are characterized as unprecedented competitive pressure and sophisticated customers who demand innovative and speedy solutions (Dorobat and Nastase, 2010). Thus, government provides learning opportunities for MSMEs by conducting training programs to update and improve their knowledge, skill. Now-a-days government invests more funds in training for MSMEs, hence the evaluation of training outcome is importance to assess the effectiveness of training program more precisely. It is important to evaluate the effectiveness of the governmental assistance (Hartsenko and Sauga, 2013). Akinyele (2007) said that effective training leads to increase in knowledge of employee for performing right way in particular job.

One of MSMEs that received the training program from government, university and NGOs in Indonesia is batik MSMEs. Batik MSMEs is creative industry of textile artwork based on wisdom and unique experiences to spread almost throughout the territory of Indonesia. Unfortunately, the various efforts that have been made are not been able to give the optimal results batik MSMEs had gained a wide range of training programs but not significant effect on the performance improvement to batik MSMEs, it is seen from the level of creativity, innovation, business management and its sales growth are still low, therefore, it is necessary to evaluate training programs for batik MSMEs.

Analytical Hierarchy Process (AHP) is multi-criteria decision support system that allows a decision maker to

structure a complex problem in the form of hierarchy (Hogan *et al.*, 2009), so that AHP can be used as one method to evaluate the training program. There are very little publishing of applying AHP in evaluation of training programs, especially in MSMEs training program. Based on these problems, it is necessary to research to evaluate training programs for batik MSMEs using Analytical Hierarchy Process (AHP).

Literature review

Batik MSMEs in Indonesia: In recent years, Small and Medium Enterprises (MSMEs) have attracted the attention of policymakers and scholars alike (Troilo, 2012). Seyal and Rahman (2003), distinct characteristics imbedded in MSMEs consist of small management teams, strong owner influence, lack of staff in specialized areas such as information technology, multi-functional management, limited control over their business environment, limited market shares, low employee turnovers, a reluctance to take risks and avoidance of sophisticated software or applications. One of the MSMEs are widely spread in Indonesia is batik MSMEs. Some of the famous centers of batik in Indonesia is Pekalongan Batik, Solo Batik, Cirebon Batik, Yogyakarta Batik, Madura Batik and Purbalingga Batik.

Batik is textile artwork, one of creative industries that have high valued and has become the Indonesian culture for generations. Batik often became a national symbol of Indonesia. At October 2nd, 2009 batik has officially recognized as a representative of UNESCO cultural heritage of non-human objects owned by the Indonesian people. UNESCO assessed Indonesian Batik as a culticon

and a symbol that has a unique and profound philosophy that includes the human life cycle. Since then, the use of batik is increasingly being used by all levels of society both material and formal wear everyday clothes. The uniqueness of batik is in the manufacturing process.

Challenges faced in the development and preservation of batik as Indonesia's cultural heritage is enormous. Most industrial batik in Indonesia is facing a serious problem of the development and regeneration of craftsmen. Majority batik craftsman in Indonesia is women, aged between 40 and 60 years and the production process is done in homes. The continuity of MSMEs Batik in Indonesia is very dependent on the regeneration of batik craftsmans, in fact the number of MSMEs Batik current continues to decrease. The entry of Chinese Batik to Indonesia would threaten the existence of MSMEs Batik in Indonesia. This is because the Chinese batik has a cheaper price and more attractive style. Market share of Chinese batik in Indonesian has reached 25-30% now and continues to increase.

Training and evaluation program: Training is a planned learning experience designed to bring about permanent change in an individual's knowledge, attitudes or skills (Campbell *et al.*, 1970). Training is a key element for improved performance; it can increase the level of individual and organizational competency. It helps to reconcile the gap between what should happen and what is happening between desired targets or standards and actual levels of work performance (Sultana *et al.*, 2012). According to De Cenzo and Robbins (2005), training is basically a learning experience which seeks a relatively permanent change in an individual's skills, knowledge, attitudes or social behavior. The primary goal of any training programs is to impart to employees a new set of KSAs (Knowledge, Skills and Abilities), behavior or attitudes (Jayawardana and Prasanna, 2008).

Training is an educational process. People can learn new information, relearn and reinforce existing knowledge and skills and most importantly have time to think and consider what new options can help them to improve their effectiveness and performance at work. McBain (2004) concluded training activities as one of the most pervasive methods for enhancing the productivity of individuals and communicating organizational goals to new personnel. Training, thus, consists of planned programs designed to improve performance at the individual, group or organizational levels (Cascio, 1992). According to Ivancevich (2010), training and development is a process that attempts to provide employees with information, skills and understanding of the organization and its goals. Additionally, training and development aids an employee

to continue to make the necessary positive contribution to the success of employing organization in terms of his/her good performance on the job.

Training programs in MSMEs provides a variety of benefits. The purpose of firms training programs is to improve employees job performance by changing their skills, knowledge, abilities and behavior in their work environment (De Cenzo and Robbins, 2005). Training programs that are effective have significant impact on the participants with regard to these 3 aspects of learning: Attitude, skills and knowledge. Training is therefore, necessary to ensure an adequate supply of employees that are technically and socially competent for both departmental and management positions (Mullins, 2007). According to Cole (2004), benefits to organizations from systematic training and development include:

- The provision of a pool of skilled personnel for the organization (same as Mullins fourth point)
- Greater commitment of staffs
- Improved service to customers
- Improvement in job performance with its resulting increase in productivity overall

Implementation of formal training and development programs offers several potential advantages to quality job performance in business organizations. Training and development are inevitable for organizations that are very serious about winning the competition or at least being the leader in the industry (Beardwell and Holden, 1998). It is obvious that training plays an important role in the development of organization, improving performance as well as increasing productivity and eventually putting companies in the best position to face competition and stay at the top. This means that, there is a significant difference between the organizations that train their employees and that organizations that do not (Appiah, 2010). Based on these opinions, the purpose of the MSMEs Batik Training Program is to improve skills, knowledge and behavior of batik artisans in order to improve the competitiveness of products. According to Dessler (2008), training and development must consist of five steps:

- Step 1: needs analysis
- Step 2: instruction design
- Step 3: validation
- Step 4: implementation
- Step 5: evaluation

Here, management assesses success or failure of the programs. Dessler (2008) lists the following types:

on-the-job, off-the-job, apprenticeship, job rotation, lectures, job instruction training and orientation. Training in an organization can be mainly of two types; internal and external training sessions.

Many factors that affected on the effectiveness training programs. Several studies have tested the factors that influenced the effectiveness of training program were training design and work environment (Velada *et al.*, 2007; Burke and Hutchins, 2008; Scaduto *et al.*, 2008). Many factors that influence the effectiveness of training are categorized as individual factors (locus of control, self efficacy), motivation factor (career and job attitudes, organizational commitment, decision/reaction to training, post training interventions) and organizational or environmental factors such as supervisor and peer support, continuous learning culture and task constraints (Jayawardana and Prasanna, 2008).

Training evaluation is the systematic collection of data regarding the success of training program (Goldstein, 1986). Evaluation was the best criteria to evaluate employees after training (Kaur and Mittal, 2013). Training evaluation is regarded as an important human resource development strategy. Some of the major arguments in favor of evaluating training are (Singh, 2013):

- To validate training as a business tool which an organization can use to improve its performance and profitability
- To justify the costs incurred in training through quantitative analysis, so as to avoid training budget cuts when cash flows are scarce in an organization
- To help improves the design of training programs to provide better value and increased benefits for an organization
- To help in selecting alternative approaches, including a variety of classrooms, on-job and self-study methods, using comparative evaluation techniques

In evaluating the effectiveness of training programs, the most commonly used model is a framework of Kirkpatrick (1998), introduced four steps of evaluation:

- Reaction to measures the feelings of the attendees
- Learning, referred to principles, facts and techniques learned
- Behaviour, referred to changes in job behavior have resulted from the programs
- Results, referred to result for the organization

There are many aspects of training that could be evaluated: content of training, method of training, amount of learning, trainer skills, omissions, learning transfer,

accommodation, relevance, application of learning, efficiency, hindsight, length and pace of the training (Rae, 1991).

Arthur *et al.* (2003) concluded that effectiveness of training programs is related to the training method used, the skill or task characteristic trained and the choice of training evaluation criteria. However, time intervals between ends of training programs and evaluation done is not related to the observed effectiveness. The evaluation process is very important because the training had at it on set some objectives to achieve and thus, the evaluation process at the end of the training programs. The evaluation gives an opportunity to take a look and make a cost benefit analysis of the training programs.

Analytical Hierarchy Process (AHP) Method: The Analytical Hierarchy Process (AHP) is a decision support method developed by Saaty (1980). The Analytical Hierarchy Process (AHP) is a powerful and flexible decision-making tool for complex, multi-criteria problems where both qualitative and quantitative aspects of a problem need to be incorporated (Ahmad and Laplante, 2009). AHP addresses subjective issues by using Fuzzy Set Theory based on the idea that decisions are usually not absolutes but are often made up of concepts that are defined only in fuzzy or relative terms (Saaty, 1980). The major advantage of the model is its ability to accommodate complex qualitative and quantitative information into the decision making process. Other advantages, include its simplicity of use and ability to apply consistency to the decision making process (Hogan *et al.*, 2009).

AHP simplifies the decision-making process of breaking the problem into three basic steps:

- Problem decomposition
- Comparative judgments
- Synthesizing the result (Ahmad, 2005)

Hogan *et al.* (2009) said there are four general steps required to implement the AHP. First, the decision maker identifies the criteria and determines their relative importance in achieving the goal and identifies the sub-criteria and determines their relative importance in achieving the related criterion. Second, the decision maker determines the relative importance of the ratings categories for each of the sub-criterias. Third, the alternatives are evaluated in the context of each of the ratings categories. Finally, the results are synthesized to compute the relative contribution of the alternatives in achieving the goal.

Table 1: Saaty 9 point scale used in Analytical Hierarchy Process (AHP)

Weights	Interpretation
1	Equally preferred
2	Equally to moderately preferred
3	Moderately preferred
4	Moderately to strongly preferred
5	Strongly preferred
6	Strongly to very strongly preferred
7	Very strongly preferred
8	Very to extremely strongly preferred
9	Extremely strongly preferred

Pair wise comparisons must be made to determine the relative importance of the criteria in achieving the goal. Saaty (1990) recommends a 9 point scale used in AHP as Table 1.

The strength of the AHP method is that is to organizes tangible and intangible factors in a systematic way and provides a structured yet restively simple solution to the decision making problems (Skibniewski and Chao, 1992). The weakness of (for) AHP are AHP Model dependence on the main input. AHP Model dependence on the main input. The main input is the perception of an expert who are subjective, so the model becomes meaningless if the experts give the wrong assessment. AHP is a mathematical method only without any statistical test, so that no confidence limits of truth model formed.

MATERIALS AND METHODS

The research was conducted in Purbalinga regency, Central Java, Indonesia because batik MSMEs in Purbalingga has received a variety of training programs but the performance of batik MSMEs in Purbalingga is still less than its batik MSMEs from other regions. Respondents in this study was craftsmen of batik MSMEs that incorporated in (into) Batik Craftsmen Forum of Purbalingga (BCF) and employee of industry, trade and cooperative Purbalingga office. The sampling technique using a purposive sampling method. Sample size to identify the constraints of (on) non optimal batik MSMEs training programs used Snowball Sampling Method whereas sample size to determine the weight the each of constraints was 20 respondents who representing all centers of Purbalingga batik. Data was collected using in-depth interviews, questionnaires and Focus Group Discussion (FGD). Data analysis using qualitative descriptive analysis and Analytical Hierarchy Process (AHP).

RESULTS AND DISCUSSION

Weighting with the Analytical Hierarchy Process (AHP): Constraints on not optimal batik MSMEs training programs obtained through in-depth interviews with batik MSMEs and Focus Group Discussion (FGD) with in Batik Craftsmen Forum of Purbalingga (BCF), employee of

industry, trade and cooperative Purbalingga office. Based on Focus Group Discussion (FGD) and in-depth interviews, researchers distill into a few general types of barriers encountered. Specifically, these constraints are grouped into seven factors as follows:

Trainers quality: Batik industry is an industry that requires skill, perseverance and artistic soul, so to get a batik trainers who has the qualities is difficult. One way to get a quality batik trainer were to invite trainers from other areas but to invite batik trainers from other areas require a lot of costs that are not in accordance with the training budget. Quality of batik trainers is determined by the mastery of material, experience of trainers and how to delivery the material.

Training method: Batik Training Methods generally using theoretical and practices methods. Theoretical methods used in marketing management training and financial management while the practical training is given on technical training such as coloring and make patterns. The training has been done often seen less planning, improper training methods, the lack of evaluation of training and lack of follow-up training.

Training material: Training materials for batik are divided into two, namely training in management and technical materials of batik. Constraints, include training materials were suitability of the training material, completeness of the training material and variability of training material.

Motivations of trainees: The more highly motivated a trainee, the more quickly and systematically a new skill or knowledge is acquired. Most of the trainees in batik MSMEs training programs were old while the younger generation as the successor of batik were still limited. Some of the barriers to the success of the training program, training lack of motivations to joint training, lack of participation in training, lack of confidence to practice training results and lack of motivations to practice the training results.

Facilities and infrastructure: To organize batik MSMEs training programs needed some facilities and infrastructure including materials and equipment mainly for training using practical methods. Budgets of training programs sometimes was limited that can not meet the needs of facilities and infrastructures to conduct training optimally. Some of the problems that led to the training programs are not optimal in terms of facilities and infrastructures were: inadequate of training equipment, inadequate training material, inadequate place of training and the location of the training is too far.

Time of training: Most of the batik craftsmen has other business besides of batik, so the selection of training time often constrain the success of the training program. Some problems are caused not optimal in terms of time training programs are timeliness of training, inadequacy of training, unbalanced time allocation between theoretical and practices method.

Environment: Environment is one of the factors that will determine the success of batik MSMEs training programs. Some of the environmental issues which contribute to the non optimal training programs are decreased of batik culture, other job opportunities and lack of local government support.

Constrains factors in training of batik MSMES: Based on surveys and interviews, the respondents have perceived constraint factors not optimal batik MSMEs training programs were a trainer quality, training methods, training materials, motivation of trainees, facilities and infrastructure, environment and time of training. Based on the results of the AHP analysis obtained sequentially constraint factors ranging from the most dominant to the least as given in Fig. 1.

Based on Fig. 1, the biggest constrain for not optimal of batik MSMEs training programs were quality of trainers, followed by training materials, training method, trainee motivation, environmental, infrastructure and time of training. Dominant factor quality of trainers due to the batik trainers was very limited, in fact there were few craftsmen who have the good skills and knowledge of

batik but still weak in providing training materials. To get a quality trainer were to invite batik trainers from the other but often the training budget is limited, so it is not able to cover the cost of accommodation of trainers. The training material was also a major constrains for not optimal on batik MSMEs training programs, this is due to the given training materials often do not fit the needs of the participants. Training material non-conformance with requirements due prior to the implementation of the training is not preceded by the identification of problems and needs training first. In addition to training materials, training method used are also a dominant factor of the non-optimal batik MSMEs training programs. This training method is relatively balanced between theory and practice but the craftsmen were more like the method more practical and routinely implemented. Of the seven factors existing constraints, they break down into sub-factors that are part of the constraint factors at Table 2.

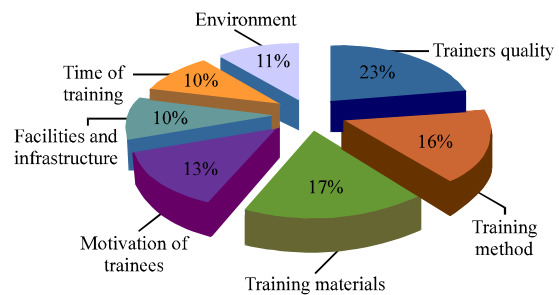


Fig. 1: Constraints factors for non-optimal in Batik MSMEs Training Programs

Table 2: Weight factors and sub factors constraints in batik MSMEs Training Program

First level	Weight of first level	Second level	Weights	Weight of second level
Trainers quality	22.74	Mastery of material	34.56	7.86
		Experience of trainers	34.15	7.76
		Delivery of material	31.30	7.12
		Planning of training	33.07	5.45
Training method	16.49	Method of delivery materials	27.71	4.57
		Training evaluation	25.92	4.27
		Follow up of training	13.30	2.19
		Suitability of the training material	38.64	6.64
Training materials	17.20	Completeness of the training material	33.73	5.80
		Variations of training material	27.64	4.75
		Motivation to joint training	30.19	3.96
Motivation of trainees	13.11	Participation in training	31.14	4.08
		Confidence to practice the training results	22.04	2.89
		Motivation to practice the training results	16.63	2.18
		Training equipment	23.71	2.27
Facilities and infrastructure	9.58	Training materials	28.01	2.68
		Place of training	28.95	2.77
		Location of training	19.32	1.85
		Timeliness of training	39.77	4.02
Time of training	10.11	Adequacy of training	26.17	2.65
		Balance of theory and practice	34.05	3.44
		Decreased batik culture	30.99	3.34
Environment	10.78	Other job opportunities	28.25	3.04
		Lack of government support	40.77	4.39
		Total	100.00	

Based on Table 2, it is known that the five sub-factors constraint the most dominant for non-optimal at Batik MSMEs Training Programs were mastery of the material, experience of trainers, delivery of material, suitability of materials and completeness of the training materials.

Mastery of the material, experience of trainers, delivery of materials into sub-dominant factor for non-optimal Batik MSMEs Training Program, it is because the trainers of technical material is not a special batik trainer but only a batik craftsmen that able to produce better batiks than the other craftsmen while the coach on the management material delivered by (to/into) academics who have knowledge of management but does not have the experience in managing the batik business, it making mastery of the material, experience of trainers, delivery of materials has not met with the expectations of trainees. Suitability of materials and completeness of the training materials is also a dominant sub-factor for training program because Batik MSMEs Training Programs generally is not preceded by need training analysis to potential trainees.

CONCLUSION

Evaluation of the training program is a complex decision making process that requires decision making method that can decompose a complex problem of multi factors of a hierarchy, the method is AHP. Based on the AHP analysis, we concluded that non optimal training programs on MSMEs Batik sequentially due to factor the quality of trainers, training materials, training methods, participants, environment, training and infrastructure. While the five sub-factors that form the most dominant non optimal constraints of Batik MSMEs Training Program is an experience coach, mastery of the material, the suitability of the material, method of delivery and completeness of the training materials.

RECOMMENDATIONS

Based on analysis of the training for Batik MSMEs should pay attention to the needs and wishes of participants in the quality factor of trainers, training materials, training methods, participants, environment, training and infrastructure. One way that the training program in accordance with the needs and desires of the participants is to develop a training model that is participatory training model that emphasizes the process of training where the training builds upon the trainee's participation in all aspects of training, ranging from planning, carrying out to the evaluation phase of training activities.

REFERENCES

- Ahmad, N., 2005. The Design, Development and Analysis of a Multi Criteria Decision Support System Model: Performance Benchmarking of Small to Medium-Sized Manufacturing Enterprise (SME). Polytechnic Institute Troy, New York, pp: 2-3.
- Ahmad, N. and P.A. Laplante, 2009. Using the analytical hierarchy process in selecting commercial real-time operating systems. *Int. J. Inform. Technol. Decis. Making*, 8: 151-168.
- Akinyele, S.T., 2007. The impacts of Nigerian training programmes on employees performance. *Res. J. Bus. Manage.*, 1: 11-19.
- Appiah, B., 2010. The impact of training on employee performance: A case study of HFC Bank (GHANA) Limited. Ph.D. Thesis, Ashesi University College.
- Arthur, Jr. W., W. Bennett Jr., P.S. Edens and S.T. Bell, 2003. Effectiveness of training in organizations: a meta-analysis of design and evaluation features. *J. Applied Psychol.*, 88: 234-245.
- Beardwell, I. and L. Holden, 1998. *Human Resource Management: A Contemporary Perspective*. Macmillan India Ltd., New Delhi.
- Burke, L.A. and H.M. Hutchins, 2008. A study of best practices in training transfer and proposed model of transfer. *Human Resour. Dev. Q.*, 19: 107-128.
- Campbell, J.P., M.D. Dunnette, E.E. Lawler III and K.R. Weick Jr., 1970. *Managerial Behavior, Performance and Effectiveness*. McGraw-Hill, New York, Pages: 546.
- Cascio, W.C., 1992. *Managing Human Resources: Productivity, Quality of Work Life, Profits*. McGraw-Hill, New York.
- Cole, G.A., 2004. *Management Theory and Practice*. 6th Edn., Cengage Learning, Hampshire, UK.
- De Cenzo, D.A. and S.P. Robbins, 2005. *Human Resource Management*. John Wiley and Sons, New York, USA.
- Dessler, G., 2008. *Human Resource Management*. 11th Edn., Upper Saddle River, New Jersey.
- Dorobat, I. and F. Nastase, 2010. Personalized training in romanian SME's ERP implementation projects. *Informatica Econ.*, 14: 116-127.
- Goldstein, I.L., 1986. *Training in Organizations: Need Assessment, Design and Evaluation*. Brooks/Cole, Monterey, CA.
- Hartsenko, J. and A. Sauga, 2013. The role of financial support in SME and economic development in Estonia. *Bus. Econ. Horizons*, 9: 10-22.
- Hogan, K., G. Olson and G. Sillup, 2009. Helping the self insured company select the right Pharmacy Benefits Manager (PBM)-An AHP based method. *Res. Healthcare Financial Manage.*, 12: 59-75.

- Ivancevich, J.M., 2010. Human Resource Management. 8th Edn., Irwin McGraw-Hill, Boston.
- Jayawardana, A.K.L. and H.A.D. Prasanna, 2008. Factors affecting the effectiveness of training provided to merchandisers of Garment Industry in Sri Lanka. *Sri Lankan J. Manage.*, 13: 163-184.
- Kaur, M. and A. Mittal, 2013. Evaluating training programs for women employees in public sector enterprises: A case study of DLW. *BVIMR Manage. Edge*, 6: 51-56.
- Kirkpatrick, D.L., 1998. *Evaluating Training Programs: The Four Levels*. Berrett-Koehler, San Francisco.
- McBain, R., 2004. Training effectiveness and evaluation. *Manager Update*, 15: 23-34.
- Mullins, J.L., 2007. *Management and Organizational Behavior*. 8th Edn., Prentice Hall, Pearson Education, New Jersey.
- Rae, L., 1991. *How to Measure Training Effectiveness*. 2nd Edn., Hants, Gower Peninsula.
- Saaty, T.L., 1980. *The Analytic Hierarchy Process*. McGraw-Hill, New York, USA.
- Saaty, T.L., 1990. How to make a decision: The analytic hierarchy process. *Eur. J. Oper. Res.*, 48: 9-26.
- Scaduto, A., D. Lindsay and D.S. Chiaburu, 2008. Leader influences on training effectiveness: Motivation and outcome expectation processes. *Int. J. Training Dev.*, 12: 158-170.
- Seyal, A. and A. Rahman, 2003. A preliminary investigation of e-commerce adoption in small and medium enterprises in Brunei. *J. Global Inform. Technol. Manage.*, 6: 6-26.
- Singh, M., 2013. Training evaluation: Various approaches and applications. *IUP J. Soft Skills*, 7: 27-34.
- Skibniewski, M. and L. Chao, 1992. Evaluation of advanced construction technology with AHP Method. *J. Constr. Eng. Manage.*, 118: 577-593.
- Sultana, A., S. Irum, K. Ahmed and N. Mehmood, 2012. Impact of training on employee performance: A study of telecommunication sector in Pakistan. *Interdiscip. J. Contemp. Res. Bus.*, 4: 646-661.
- Troilo, M.L., 2012. Market orientation of SMEs in Southeast Asia: An empirical analysis. *Copenhagen J. Asian Stud.*, 30: 53-79.
- Velada, R., A. Caetano, J.W. Michel, B.D. Lyons and M.J. Kavanagh, 2007. The effects of training design, individual characteristics and work environment on transfer of training. *Int. J. Training Dev.*, 11: 282-294.