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Identifying the Components of a Comprehensive and Local Model for Evaluation of the Education Effectiveness (Case Study)

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Abstract

Purpose: The aim of this study was to identify the components of a comprehensive and local model for evaluation of the education effectiveness in Students working in Iran Khodro. **Methodology**: This research was applied in terms of purpose, an exploratory (qualitative) one in terms of collecting data, and the foundation data (qualitative stage) type in terms of research methodology; because the aim of an applied research is to solve the problem and eventually access information to make decisions and to meet immediate needs and problems. The statistical population of the study consisted of the students, managers and experts of Iran Khodro education as well as the experts in the field of evaluation of the education effectiveness. 11 people were selected using snowball purposive sampling method as a statistical sample. The data collection instrument was the semi-structured interview. **Findings**: data obtained from the interview. The findings of this study showed that the model of education effectiveness evaluation in Iran Khodro Company includes the field dimensions (including components of period appropriateness and organizational support), input (including comprehensive components, curriculum, lecturer, facilities, equipment, and budget), process (including component of teaching-learning), and individual output (including components of reaction, learning, and behavior), organizational output (including financial and non-financial components), and social outputs (including customer satisfaction component). **Discussion:** The evaluation model of organizational education effectiveness of Iran Khodro Company leads to its employees' awareness and development and ultimately leads to improvement of individual and organizational performance.

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1. Introduction

Education is one of the most important factors in the development of countries (Puukka et al., 2013; Mayer-Foulkes, 2013). The organizations and companies invest millions of dollars in the curriculum in order to gain competitive advantage. Education refers to an organization's planned efforts to facilitate learning in relation to their abilities. These capabilities include knowledge, skills, or behavior that are critical to the success of job performance (Noeh et al., 2014). Companies invest in education because they believe that learning creates knowledge, and often it is the knowledge that distinguishes successful companies and employees from those who are not successful (Noah, Translated by Shams Morkani and Daneshmandi, 2017).

The failure of most organizations is due to lack of education and staff development, and the main goal of education is to improve the individual and organizational performance (Shoja et al., 2017). Evaluating the effects of education and development (education effectiveness) provides valuable feedback to the stakeholders including the educational institutions, learners, etc. (Ariadoost, 2017). Previous studies have indicated that the evaluation of the educational process is an instrument for designing and measuring the characteristics of the curriculum, and helps to identify the reasons for the failure of an educational program (Viacava et al., 2017). Education will be useful when provides the credible evidence about the effect of education on improving learners' behavior and performance and, of course, organizational benefits. This refers to an important aspect of education and its evaluation; often referred as the "education effectiveness". The concept of effectiveness in management of the educational processes is the extent to which the organization's goals are realized (Khorasani and Doosti, 2012).

According to some experts, many of the current instruments for evaluation of the education effectiveness are either ambiguous or focus on the satisfaction of participating companies rather than focusing on plans and outcomes. Some of the reasons are the difficult evaluation of education to achieve the effective evaluation results (Tan et al., 2010), to calculate the differences in education and culture, as well as differences in competencies and experiences (Ramachandran, 2010). Of course, according to Eliot et al. (2009), the main factor influencing organizational success is applying the educational goals of the staff at the workplace and transmitting the learned skills to the workplace (Perkins & Salomon, 2012).

The limitations and deterrent factors that limit evaluation of the education effectiveness of programs, however there are some other rational and acceptable reasons for implementing the educational evaluation programs in organizations including considering education as a valuable thing rather than considering it as a cost; creating objective criteria whose stability and validity are more than mental judgments; minimizing the educational expenditures; direction of educational programs of the organization, considering their strengths and weaknesses in evaluations; adapting the knowledge, skills, and behavioral needs of the staff to the existing education courses in the organization; the decision on the continuity and having or not having an educational program (Azizi, 2007).

According to the multiplicity of evaluation models of education effectiveness, not only in Iran Khodro but also in subsidiary companies, only the 4-level Kirkpatrick model (reaction, learning, behavior, and results) is used in this paper. Evidence suggests that the use of this model has also caused a number of problems. Since this pattern is consistent with the notions of World War II, the insistence on using this model in all periods, whether internal or expeditions, worker or managerial levels, and all areas of learning, can be indicative of staying in the bureaucratic system of the same course. Iran Khodro should look for creativity and initiative, and at the same time pay attention to the organization and individual at all stages. This necessity in the field of evaluation of the education effectiveness indicates the need for a systemic view of education. Researches indicate that Iran Khodro considers evaluation of the education effectiveness as a separate activity from the other educational measures. A systematic approach to evaluation of the education effectiveness in the automotive industry focuses on the education platform, the

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inputs of education, actions and activities to produce and deliver the output, as well as the products and services. In this regard, in order to prevent the possible errors in each sector, monitoring each of these sections is considered as a requirement for the evaluation of effectiveness. Observations and studies indicate that Iran Khodro is far from this approach and the non-systemic look is prevailing on the education. What is clear is that these companies lack a proper model in the field of evaluation of the education effectiveness. Therefore, the need for a template for this industry is a priority of the actions, because the results can provide credible evidence and lead to the prosperity of education and ultimately achieve the goals of the organization.

2. literature Review

In a study, Reidan (2018) found that the educational programs based on the four levels of Kirkpatrick model, i.e. reaction, learning, behavior, and results, are in a good situation.

Lynn and Cantoni (2017), in a study titled "Assessing the Performance of Tourism Online Learning Courses (Mock) Using the Crack Patrick Model: Provider's View" found these courses (mock) have been successful in four levels of Kirkpatrick effectiveness evaluation model.

The results of the study, Cairover Anwar Elias et al. (2017), titled "The Impact of Workplace Factors on the Effectiveness of Education among Malaysian Services Staff", indicated that three elements of manager support, opportunity to do, and organizational learning culture had a positive and significant impact on the education effectiveness. In particular, this research confirms the impact of the environmental factors on educational outcomes and its effect on improving the education effectiveness; the findings of this study can be helpful for government departments, agencies or organizations to create a supportive work environment.

Ponia and Kant (2013), also did a study titled "An overview on the effective factors of the education effectiveness with the concept of management and guidance for future research". Findings of the research suggested many factors such as motivation, attitude, emotional intelligence, management support and co-workers, teaching method and environment, comprehensive pre-preparedness, factors related to job, competency and basic ability that have been effective in the education effectiveness.

The results of research by Shoja et al. (2017), titled "Evaluation of the Effectiveness of In-Service Education Programs for Staff at Ferdowsi University of Mashhad", indicated that learners have a favorable response to general and specialized courses. The level of learning was effective in the specialized and general courses, and the learners acquired the necessary knowledge. In terms of changes in the behavior of learners, the results showed that the specialized courses did not have a significant level of effectiveness. Regarding the difference in learner behavior change according to three groups (self-learners, supra and colleagues), the results indicated that there was no significant difference between three groups except in one case.

Rezaei (2015) also studied on "Reviewing the Effectiveness Pattern of Kirkpatrick Education and Implementing the Improved Model at National Iranian Oil Refining and Distribution Company". The findings of the qualitative section showed that the most experts were agreed on the modification of the levels and components of the main pattern for effectiveness of Kirkpatrick in determining the variables and qualitative components in order to categorize the levels. Also, the results of the research in the quantitative section indicated that the effectiveness of the education courses in the company was based on the improved pattern of Kirk Patrick at all levels was relatively favorable.

According to the materials presented, the researcher attempts to design a suitable model for evaluating the effectiveness of education for Iran Khodro Company. Therefore, the main question of the research can be as follows: What are the components of the optimal model for evaluating the effectiveness of organizational education in Iran Khodro?

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3. Methodology

This research was applied in terms of purpose and exploratory (qualitative) in terms of how to collect data and foundation data (qualitative stage) in terms of research methodology. The purpose of an applied research is to solve the problem and, finally, to obtain information for decision making and to meet immediate needs and problems. The statistical population of the study consisted of Iranian Khodro students, managers and experts in the field of evaluation of the education effectiveness. 11 people were selected through a targeted sampling method as the statistical sample. In this technique, the researcher selects individuals and places that help to understand the phenomenon and is the criteria of the choice of "information richness or theoretical saturation" (Krsul, 2012), which in this research, the researcher reached to the theoretical saturation in the 11th issue. In this regard, a snowball strategy was used to identify the individuals.

4. Findings

Table 1. Indices of identifying the interviewees

Interviewees	index
Experts and students in Iran Khodro Company	Experience in the industry: At least 5 years Expertise or experience related to education Career related to the topic of research
Experts	Busy in the field of education, especially the discussion of the education effectiveness Major: Teaching (Educational Administration, Curriculum, Educational Psychology, Technology of Education, Education and Organization Improvement)

Finally, 5 faculty members were involved with the industry and 6 people were interviewed in the field of education in Iran Khodro Company. The general profile of the interviewees was presented in table 2.

Table 2. General characteristics of the interviewees

row	Interviewer's Code	Organizational position	Duration of the interview
1	A	Director of Iran Khodro Education	80minutes
2	B	Officer of the need evaluation of Iran Khodro	60minutes
3	C	Director of Iran Khodro Development Partnership	60minutes
4	D	Officer of manufacturing education of Iran Khodro	60minutes
5	E	Academic personnel of Allameh Tabataba'i University	70minutes
6	F	Academic personnel of Allameh Tabataba'i University	60minutes
7	G	Education Planning Officer of Iran Khodro	155minutes
8	H	Academic personnel of Shahid Beheshti University	60minutes
9	I	Academic personnel of Allameh Tabataba'i University	100minutes
10	J	Academic personnel of Shahid Beheshti University	65minutes
11	K	Director of Education of Mehr Cam Pars Company	62minutes

The data collection instrument was semi-structured in this research. The process of conducting the interview is also presented in the following steps: coordination with the person selected by email or

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telephone; sending the interview protocol consisting of the title and purpose of the research, how the interviewee was selected, and the confidentiality of the information.

During the interview, all the interviews were recorded with the permission of the interviewees, as well as notes were taken from the key points of each interview in order to record the qualitative data and focus the interviewer on the interview process. A reliability method between two coders was used to determine the reliability of the interviews. A PhD student was requested to participate in the research as a research collaborator (coder) in the research in order to calculate the reliability of the interview with the intra-subject agreement between two coders. The percentage of intra-subject agreement (agreement between two coders) was calculated using the following formula.

$$\text{Percentage of agreement between two encoders} = \frac{\text{Number of agreements} \times 2}{\text{Total number of codes}} *100\%$$

The results of these codifications in table 3 showed that the total number of codes registered by the researcher and research colleagues of the research was 125, the total number of agreements between these codes was 54, and the total number of disagreements between these codes was 27. The reliability of the coders for the interviews conducted in this study was 86% using the formula mentioned. Given the fact that this reliability was more than 60% (Croswell, 2012), the reliability of coding was confirmed and it could be claimed that the reliability of the analysis of the interviews was appropriate.

Table 3. Calculate the reliability between two encoders

row	Interviewer's Code	Total codes of two encoders	Number of codes agreed	Number of codes non-agreed	retest reliability (Percentage)
1	2nd	35	15	9	86%
2	th4	42	16	10	76%
3	th7	48	23	12	96%
	Total	125	54	27	86%

$$\text{Percentage of agreement between two encoders} = \frac{54*2}{125} *100\% = 86\%$$

11 experts in the field of organizational education evaluation and organizational education were interviewed in order to answer the research question. After analyzing the data using the Auerbach & Silverstein six-step technique (2003), 512 codes or repetitive ideas were identified and categorized into 14 themes. Finally, these 14 themes were grouped in the form of theoretical structures of the field, inputs, processes, individual output, organizational output, and social output. Table 4 presents theoretical structures, themes, and duplicate ideas.

Table 4. Theoretical constructs, themes, and samples of duplicate ideas related to the evaluation system of education effectiveness

Theoretical structure	Theme	Sample of duplicate ideas
fields	Proportion of course	Transparency of the Course Objectives, Relationship of the Course with Universal Need, Consideration to Knowledge Change in the Course, Attention to Technological Change in the Course, Suitability of the Program's Duration
	Organizational support	Assignment of position to the educational certificates, awarding privileges to educational certificates, encouraging employees to attend courses, determining the functional expectations of employees based on course objectives

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Input	Inclusive	Paying attention to the general interest in the course, the relationship between the course and its content with the previous comprehensive learning
	Curriculum	The proportion of the course material with the time scheduled for the course, the consistency between the content of the course with the course heading, the adaptation of the content to the course objectives, the attention to the needs of the curriculum
	professor	The relevance of the lecturer's major with the course, the lecturer's teaching abilities, the mastery of the teacher to the topic of the course
	Facilities and equipment	The proportion between educational facilities of the organization with the educational needs of the course, the appropriate education space, the modern and rich library resources
	budget	Sufficiency of the course resources, welfare funds for the course, fees allocated with the degree and grade of the curriculum lecturer, paying attention to timely payment
Process	Teaching = learning	The use of new scientific resources during the course, the attention to the individual differences of the learners at the time of teaching, the application of diverse methods adapted to the educational needs of the course, the involvement of the learners in the classroom, the existence of post-course consultation, the use of proportional evaluation methods
Individual output	Reaction	The satisfaction with course facilities, the satisfaction with the course lecturer, the satisfaction with teaching methods
	Learning	The effect of course on comprehensive knowledge, the effect of the course on creating a positive attitude toward the course, the impact of course on improving inclusive skills
	Behavior	The effect of course on the precise performance of occupations, the effect of the course on reducing work errors, the effect of the course on the efficiency of work
Organizational Output	Non-financial	The effect of course on organizational innovation and creativity, the effect of course on the organizational commitment of the members, the effect of course on the job satisfaction of learners, the impact of course on improving organizational communication between employees
	financial	The effect of course on company profitability, the effect of course on the company's products, the effect of the course on the company's stock price
Social Output	Customer satisfaction	The impact of course on customer satisfaction, the impact of course on maintaining key company customers, improving the response to the customer complaints, the impact of course on attracting new customers

According to the results of the interviews analysis, the components and conceptual model of the organizational education evaluation system of Iran Khodro Company can be illustrated as follows.

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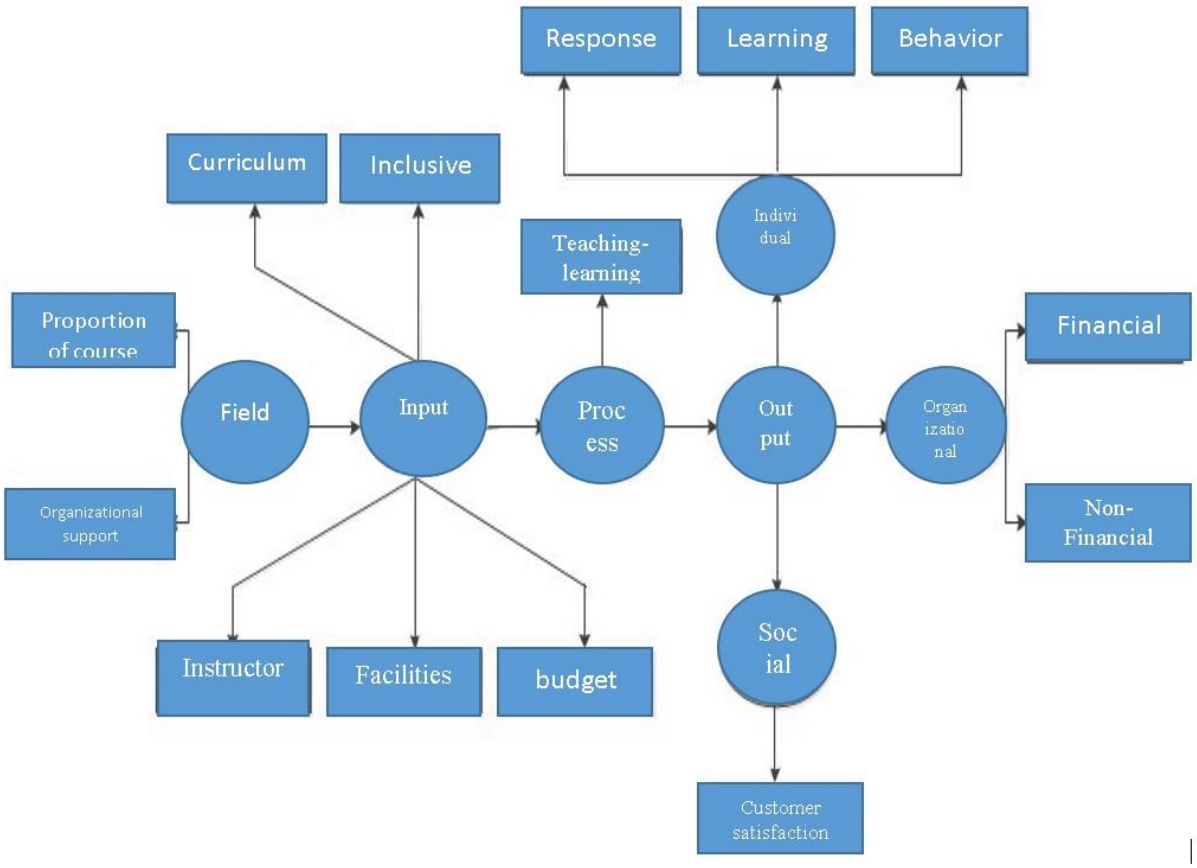

Fig. 1. The model of organizational education evaluation system of Iran Khodro Company

Dimensions and Components: 1. "theoretical structure of the field": i.e. "proportion of the course" and "organizational support". The proportion of the course means its relationship with the learner's learning needs and the ability to cover the changes in the field of knowledge and technology in a job. Organizational support means the purpose, support and positive look of managers and colleagues and the organizational structure of the courses. 2- "Input theoretical structure" includes "comprehensive", "lecturer", "curriculum", "educational equipment", and "budget". Comprehensive means amount of interest and desire of the person to participate in the course as well as his prior knowledge of the course topics. Lecturer refers to the abilities, interests and specialization of the course lecturer. Curriculum is coherence and transparency of the curriculum. Educational facilities include rich library resources, educational technologies, etc. Budget: The proportion of fees to the lecturer and how to pay the fee. 3. "Theoretical structure of the process": the purpose is the teaching-learning activities that occur during the course. Teaching-learning process: As a proper teaching method with the subject of the course, the appropriate evaluation methods, and the active participation of learners during the course.

4- Theoretical structure of individual output: The individual effects of organizational education include reaction, learning, and individual behavior. Response: Students' viewpoints on the various dimensions of the course including the lecturer, content, and educational environment. Learning: The curriculum should deepen the previous learners' knowledge and add to their previous learning. According to interviewees, changes in the cognitive domain of learners should be considered as one of the achievements of the education course. Behavior: The purpose is to apply learning and skills in the workplace. 5. "Theoretical structure of organizational output" refers to the impact of the education course on the financial and non-

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financial aspects of the company. Non-financial dimension means the words, creativity, organizational communication, job satisfaction, and organizational commitment. According to interviewees, these components have been neglected when evaluating the effectiveness of education courses and should be taken into consideration. The financial output of education courses, which are consistent with the concept of "return on investment" of Philips, are the financial profitability of education courses that are obtained through cost-benefit analysis. 6. "Theoretical structure of social output": Social output of the organizational education of Iran Khodro Company is focused on its customers and in fact considers the extra- organizational effects of educational activities. Customers: It can be said that determining the impact of organizational education on attracting, retaining and satisfying customers is the final factor and completing the process of effectiveness evaluation of the organizational education in Iran Khodro Company.

5. Discussion

The research findings showed that the evaluation system of the organizational education effectiveness in Iran Khodro Company should always consider four main dimensions of the field, input, process, and output (individual, organizational, and social) as the main dimensions of its system. The purpose of the field dimension is to consider the context in which the effectiveness evaluation is to be conducted. In assessing the fields, the need-evaluation and description of needs, the determination of educational objectives and their prioritization are addressed. General evaluation of the aspects of educational performance and determining the strengths and weaknesses of the program, are the main characteristics of the field evaluation. Also, the field evaluation provides the necessary conditions for designing the program and judging the outcomes (Stufflebeam, 2007). The input dimension is the evaluation model of the education effectiveness of Iran Khodro Company including 5 components, inclusive, curriculum, lecturer, facilities, and budget. In fact, input includes all the elements that enter into any educational system, such as professor, student, budget, and facilities. Each educational system can use its inputs to meet its predetermined goals and the needs identified in the stage of evaluation process (McLemore, 2009). The overall goal of input evaluation is to help the decision makers to examine the various ways to achieve goals and evolve the plans (Hakan & Seval, 2011). As mentioned, the inputs of the model for evaluation of the education effectiveness of Iran Khodro Company include learners, lecturers, programs, facilities, and budgets.

The third dimension of the evaluation model of organizational education effectiveness for Iran Khodro Company is the process, which includes the component of teaching-learning. Process evaluation is used to identify or predict the executive problems during the conduct of educational activities and the desirability of the implementation process of these activities (Makarem et al., 2014) and therefore it is the most important instrument for improving the educational performance (Tseng et al., 2010). The purpose of the component of teaching-learning as the only component of the process dimension, is the attention to individual differences of learners at the time of teaching, the application of diverse methods adapted to the educational needs of the course, the involvement of inclusive in the class, the use of proportional evaluation methods, etc.

The fourth dimension of the evaluation of the organizational education effectiveness for Iran Khodro Company, is the output evaluation. Output evaluation is done to judge the utility of the performance of educational activities. In fact, the results of the program are compared with the objectives of the program and the relationship between expectations and actual results is determined (Makarem et al., 2014). Output includes three individual, organizational, and social outcomes, each with its own components. Individual output is in fact the type of output that affects the individual. The purpose of the organizational output is the results that affect the organization and are related to the organization, which includes both financial and

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non-financial components. The non-financial component is the effects that the course has on the creativity and innovation of the organization, the commitment of the members of the organization, the employee's job satisfaction, and so on. The financial component of organizational output is like the non-financial component and refers to the effect that the course can have on the profitability of the organization, production, and so on. Social output is also the third output model for evaluation the organizational education effectiveness of Iran Khodro Company. It refers to the results that education can bring for the society, which its only component is customer satisfaction. That is, the education courses make it possible to change how employees respond to customer complaints, attract customers, and more.

According to the results, the following suggestions are presented: designing proper and local tools of Iran Khodro Company to evaluate each dimension and component of the proposed model, allocate sufficient funds for education, provide the necessary conditions and facilities, etc. in order to implement effective education courses; consideration of all dimensions and decision making in the field of education is based on these dimensions.

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