

The Harms of Effective Training Process by Three Ramifications Model (Case Study: The Employees in Ilam Gas Treating Company)

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Abstract

Better and more effectiveness is one of the important objectives of employee training. Thus, studying the results and efficiency of employees requires the training process to continue the training loop. The present study aimed at investigating the harms of effective training process by Three Ramifications model among the employees in Ilam Gas Treating Company. The method was mixed (qualitative-quantitative methods). The opinions of experts were used to elicit the conceptual model. Snowball method was used for determining the sample size in the qualitative method. 11 experts were identified and interviewed with while in the quantitative part, 154 subjects were selected by using Cronbach's formula. A questionnaire that was developed based on the conceptualization of qualitative part was used for data collection. The identified factors were developed in the quantitative part by using the confirmatory factor analysis. Finally, the research questions were answered by appropriate statistical tests. The research findings showed that the harms of the education system can be introduced in form of three categories and seven concepts including the process-structural factors (including the concepts of technique and technology, organizational structure, and organizational strategy), content factors (including the concepts of human resources and organizational culture), and environmental factors (including the concepts of outsourcing and policy-making).

Keywords: Training, pathology, Three Ramifications model, Ilam Gas Treating Company

Introduction:

Training is cost-saving when it guides us towards the predetermined objectives, modifies the skills, knowledge, and attitude deficits, and leads to the qualitative and quantitative improvement of performance and efficiency level. Since the high costs of the organizations' budget are spent on these training courses, evaluating the effectiveness of such courses is essential. The significance and necessity of holding more and better courses can be considered when it is emphasized through evaluating their effectiveness and obtained results. Organizations spend a lot of money on specific skills every year without measuring their effectiveness appropriately or creating any suitable feedback system in the organization. Unfortunately, the effectiveness system does not often exist at all or is very unorganized and scattered. On the other hand, neglecting the evaluation of training courses makes them a fun action for employees or only leads to the use of advantages.

Today, professional development is one of the concerns of managers in employee training and development, evaluation of effectiveness in training courses, and how to implement it. Ensuring the effectiveness of training courses is one of the important objectives of any training unit. For this purpose, the weaknesses and threatening harms of these courses must be identified and removed. Comprehensive studies on the pathology of training courses were conducted less than any other field. On the other hand, the weaknesses of training courses can be identified and improved only through the educational evaluation. Thus, the present study dealt with the pathology of employee training in Ilam Gas Treating Company with an emphasis on the effectiveness of such courses. In this study, firstly the different models of pathology were introduced to identify the harms in the field of employee training in the gas treating companies of the country and particularly in Ilam Gas Treating Company as the case study. Then, the harms of this field were identified and analyzed with a specialized look at evaluating the effectiveness of training programs. Finally, some suggestions were presented for improving the effectiveness of training programs and their evaluation method.

Literature Survey:

Paris and White (1986) studied the lack of effectiveness at in-service courses. Their study results indicated that in-service trainings are not effective due to high costs, time-consuming, and inefficiency.

Ballot et al (2001) in a study in France showed that effectiveness increased during 1986-1992 due to the increase of trained employees in the area of industry. In other words, effectiveness increased 2% with 1% increase of trained employees.

Organizational pathology is the process of using the concepts and methods of behavioral sciences to define and describe the current status of organizations and find some methods to increase their effective (AFUAH, 2004).

Education has certainly a special and unique place in the development of personal life, social life, and changing the human and his life. It can be a motive force throughout the whole life of humans (Bats, 2004:52).

Human resource training is not only favorable but is an activity that each organization must consider some resources for it to have always the effective and updated human” (Mismer, 2010).

Every organization requires the skilled human resources for fulfilling its activities and achieving its predetermined goals. Training the human resources must be in such a way to prepare them for entering the organizational hierarchy (Marland, 2010: 26).

Smith et al (2010) conducted 166 training programs with 2700 employees for the advancement of employees. Most of these in-service programs were held at the university in the downtown. Since the spent time and cost on participating at the in-service trainings are relatively high, all classes of society require trainings for achieving the development and excellence. In this regard, the employees, as the main brokers of organizations, require the continuous training for adapting to the continuous changes in the increasing needs of society (Faxon, 2013).

Research methodology:

The Data

The present study was applied in terms of research classification based on objective. On the other hand, it was descriptive-survey in terms of research nature and use of questionnaire. Since the researcher could not control the effect of all involved variables in the study, thus the present study was of non-experimental research. Mixed method was used in this study. The statistical population of this research included all employees of Ilam Gas Treating Company. Simple random sampling method was used to select statistical samples from the statistical population of the study. The Cochran formula was also used to determine the sample size of the research. Due to the limited statistical population, the Cochran sampling formula with the limited size of 154 was used. The statistical population of the qualitative part included all experts of planning and operating the training programs in Ilam Gas Treating Company. In this part, 11 managers and experts in education were identified by using snowball method and then were interviewed directly. In this study, the questionnaire was made by the researcher. After collecting the raw data in the qualitative part and encoding them for achieving the shared concepts, the Likert scale was used in designing the questionnaire to measure the concepts. Five-option Likert was used to answer the questions. In this study, a 33-item questionnaire was used.

Table 1: The reliability coefficient of the questionnaire scales

variable	dimensions	item	reliability coefficient
process-structural factors	technical and technological	5	0.723
	organizational structure	6	0.746
	organizational strategy	4	0.728
content factors	human resource	6	0.811
	organizational culture	4	0.837
underlying factors	outsourcing	4	0.816
process-structural factors	strategy and policy making	4	0.781

Research questions

- Which are the harms related to employee training in Ilam Gas Treating Company from the structural dimension?
- Which are the harms related to employee training in Ilam Gas Treating Company from the underlying dimension?
- Which are the harms related to employee training in Ilam Gas Treating Company from the behavioral dimension?
- How is the ranking of each factor related to the harms of employee training in Ilam Gas Treating Company?

Results:

In the qualitative part of the study after interviewing with the experts, collecting, and implementing the conducted interviews, finally 140 parameters were categorized in form of 28 shared codes and seven concepts.

Table 2 : An example of open encoding in the qualitative steps of the research

raw data	shared codes	interviewee number
• Resistance to change from teacher-student education to e-learning • Disregard for the principle of cost-benefit • no belief in e-learning • Computer Knowledge Weakness and ICDL • Internet-based computer systems have weak	Dissatisfaction with e-learning	1,2,3,5,8,9 10,11
• Lack of knowledge management structures • Hard access to information • Mistrust of information • Lack of information transparency	Unordered data base	2,3,4,5,7 8,11

After the steps of open encoding, 28 shared codes were identified and after the conceptualization, they were categorized in form of seven main concepts.

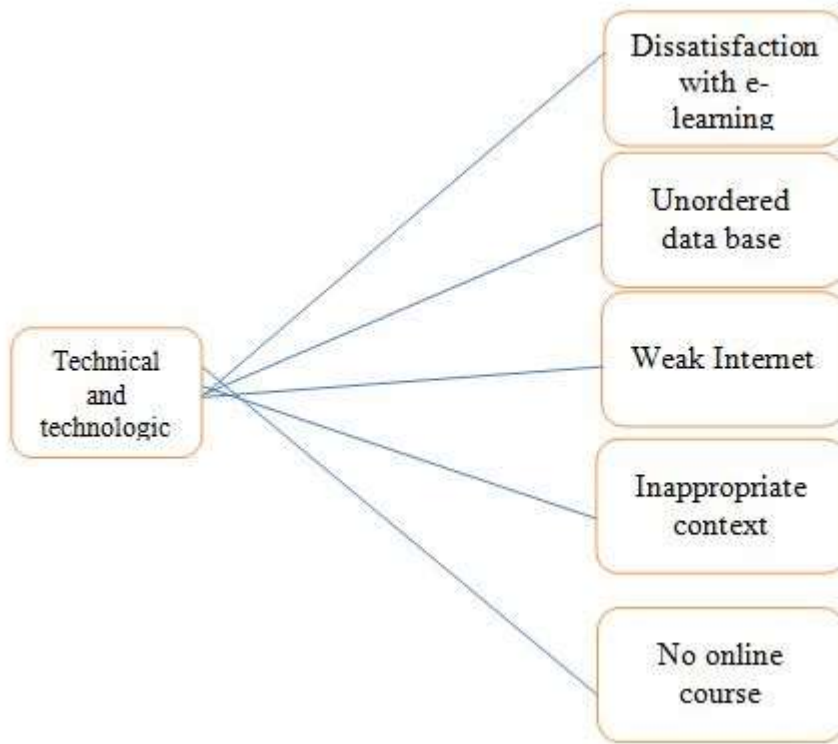


Figure 1: An example of shared codes conceptualization

After the encoding steps in the qualitative part, the proposed model of the study was as follows:

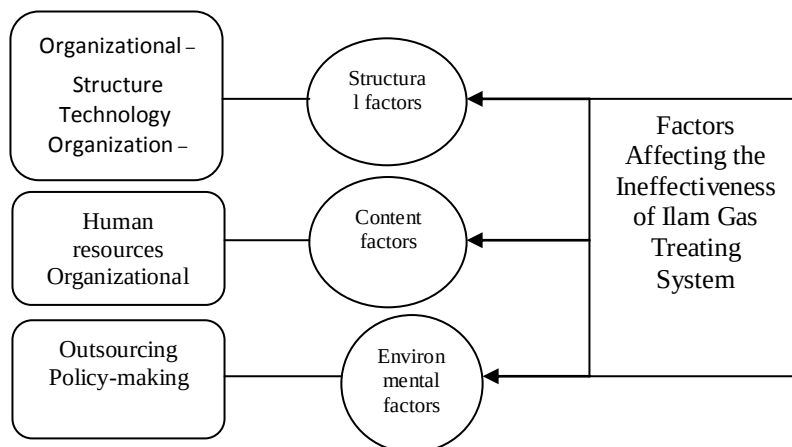


Figure 2: The research conceptual model

Testing the proposed model

At this step, the main variables included process-structural factors, content factors, and environmental factors. The elicited concepts have the role of questions for these three variables, so that three concepts which constitute the process-structural factors at this step are three questions for measuring the process-structural factors. Meanwhile, two concepts constitute the environmental factors and two other factors constitute the content factors.

factors constitute the content factors.

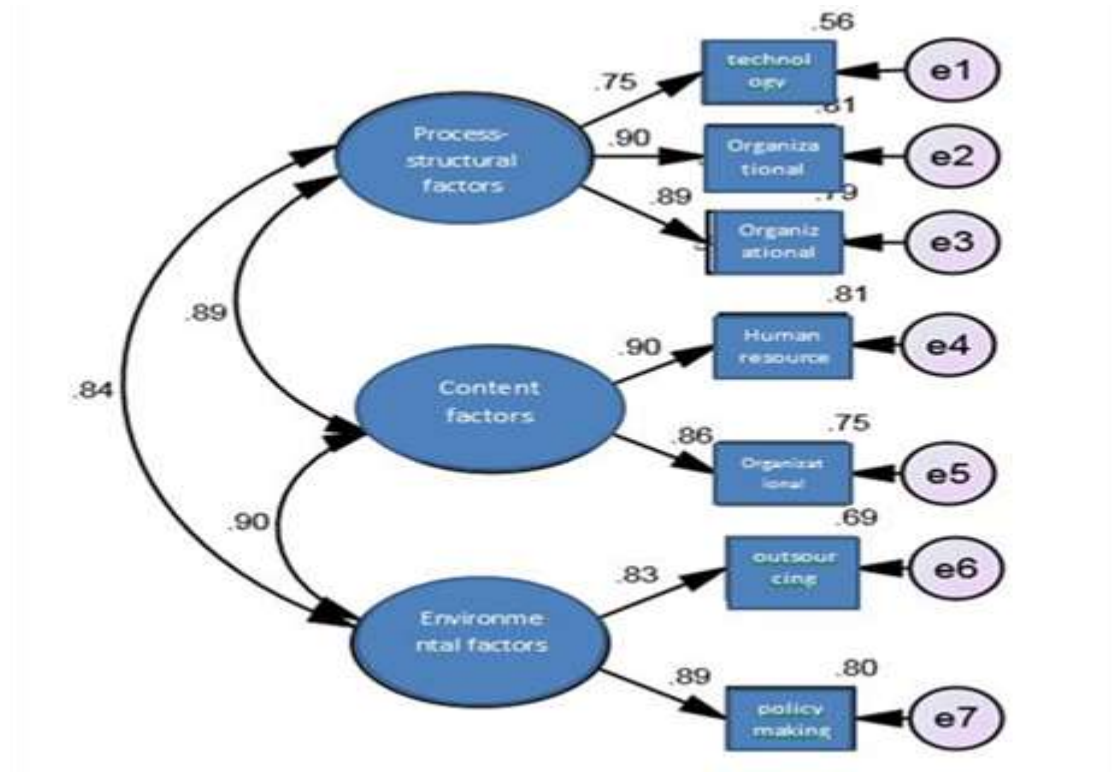


Figure 3.: Testing the proposed model at the first step- at the standard estimate mode

Table 3: Fit index (1)

Fit index	optimum	result
X ² /df	3>	1.78
GFI(Goodness of Fit Index)	0.90<	0.966
CFI	0.90<	0.990
RMSEA(Root Means Square Error of Approximation)	0.80>	0.072

Table 4: The model at the significant coefficients mode

			Estimate	C.R.	P
technology	<---	process-structural factors	0.748		
organizational structure	<---	process-structural factors	0.901	11.517	***
organizational strategy	<---	process-structural factors	0.892	11.326	***
human resources	<---	content factors	0.900		
organizational culture	<---	content factors	0.863	14.619	***
outsourcing	<---	environmental factors	0.828		
polycymaking	<---	environmental factors	0.748	11.517	***

As the above Table indicated, all factors loads were bigger than 0.3 and confirmed. In addition, all significant numbers were bigger than 1.96 confirming the confirmatory factor analysis and the proposed model of the study.

At this step, the effect of process-structural factors, content factors, and environmental factors on the final dependent factors (the harms of employee training) were studied.

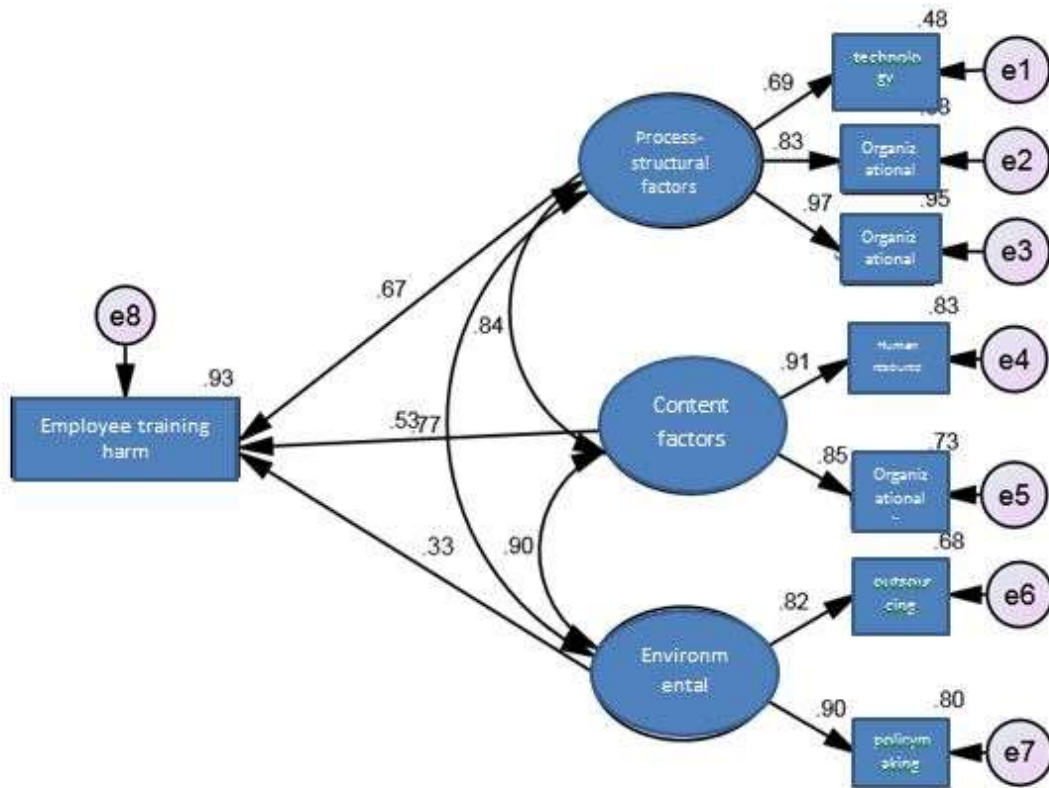


Figure 4: Testing the proposed model at the second step- at the standard estimate mode

Table 4: Fit index (2)

result	optimum	Fit index
1.62	3>	χ^2/df
0.985	0.90<	GFI(Goodness of Fit Index)
0.938	0.90<	CFI
0.064	0.08>	RMSEA(Root Means Square Error of Approximation)

Table 5: the significant coefficients mode

	1.		Estimate	C.R.	P
technology	<---	process-structural factors	.694		
organizational structure	<---	process-structural factors	.826	9.800	***
organizational strategy	<---	process-structural factors	.973	11.049	***
human resources	<---	content factors	.912		
organizational culture	<---	content factors	.852	15.015	***
outsourcing	<---	environmental factors	.824		
polycymaking	<---	environmental factors	.897	12.531	***
employee training harm	--->	process-structural factors	.675	7.117	***
employee training harm	--->	content factors	.528	3.507	***
employee training harm	--->	environmental factors	.329	2.915	0.036

Main question: which are the harms related to employee training in Ilam Gas Treating Company?

One sample T-test was used to test the first question. Since the questions of the questionnaire were ranked based on Likert scale, 3 was considered as the acceptable limit point. It was assumed that if the average of an activity or service is bigger than 3, that case will be introduced as a harmful factor to employee training in Ilam Gas Treating Company (H1), otherwise the factor will not be harmful (H0). In which, μ indicated the studied average variable. Based on the above term, the research questions are studied here.

H.: $\mu \leq 3$

H₁: $\mu > 3$

Table 6: The results of T-test for the factors affecting the training harms

variable	mean	standard deviation	degree of freedom	T value	sig	lower limit	upper limit
process-structural factors	3.5896	0.621	153	11.784	0.000	0.4908	0.6885
content factors	3.7974	0.650	153	15.515	0.000	0.6939	0.9009

environmental factors	3.644	0.659	153	12.128	0.000	0.5395	0.7495
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The above table showed that the average opinions of the respondents in relation to the harms of employee training in Ilam Gas Treating Company was bigger than 3. Regarding the estimated significance level less than 0.05 that was significant at 0.95 confidence level, it can be claimed that the process-structural factors, content factors, and environmental factors affect the harms related to employee training in the treating company. On the other hand, the mean value was bigger than the test value by considering the one-way feature of the test and positive upper and lower limits. Thus, H0 was rejected. In fact, the above-mentioned factors can affect the training harms because the obtained values for (T) was bigger than 1.96.

The first question: Which are the harms related to employee training in Ilam Gas Treating Company from the structural dimension?

Table 7: The results of the T-test for the effective factors of structural dimension in training harms

variable	mean	standard deviation	degree of freedom	T value	sig	lower limit	upper limit
technical/technological	3.5221	0.646	153	10.034	0.000	0.4193	0.6249
organizational structure	3.5818	0.686	153	10.523	0.000	0.4726	0.6910
organizational strategy	3.6649	0.736	153	11.212	0.000	0.5478	0.7821

The above table showed that the average opinions of the respondents in relation to the harms of employee training in Ilam Gas Treating Company was bigger than 3 from the structural dimension. Regarding the estimated significance level less than 0.05 that was significant at 0.95 confidence level, it can be claimed that the technical/technological factors, organizational structure, and organizational strategy affect the harms related to employee training in the treating company. On the other hand, the mean value was bigger than the test value by considering the one-way feature of the test and positive upper and lower limits. Thus, H0 was rejected. In fact, the above-mentioned factors can affect the training harms because the obtained values for (T) was bigger than 1.96.

The second question: Which are the harms related to employee training in Ilam Gas Treating Company from the underlying dimension?

Table 8: The results of the T-test for the effective factors of underlying dimension in training harms

variable	mean	standard deviation	degree of freedom	T value	sig	lower limit	upper limit
outsourcing	3.5794	0.699	153	10.612	0.000	0.4862	0.7086
policymaking	3.6919	0.716	153	11.993	0.000	0.5776	0.8055

The above table showed that the average opinions of the respondents in relation to the harms of employee training in Ilam Gas Treating Company were bigger than 3 from the underlying dimension. Regarding the estimated significance level less than 0.05 that was significant at 0.95 confidence level, it can be claimed that the outsourcing and polic-making affect the harms related to employee training in the treating company. On the other hand, the mean value was bigger than the test value by considering the one-way feature of the test and positive upper and lower limits. Thus, H₀ was rejected. In fact, the above-mentioned factors can affect the training harms because the obtained values for (T) was bigger than 1.96.

The third question: Which are the harms related to employee training in Ilam Gas Treating Company from the behavioral dimension?

Table 9: The results of the T-test for the effective factors of behavioral dimension in training harms

variable	mean	standard deviation	degree of freedom	T value	sig	lower limit	upper limit
human resources	3.7749	0.689	153	13.951	0.000	0.6652	0.8846
organizational culture	3.8312	0.687	153	15.024	0.000	0.7219	0.9405

The above table showed that the average opinions of the respondents in relation to the harms of employee training in Ilam Gas Treating Company was bigger than 3 from the behavioral dimension. Regarding the estimated significance level less than 0.05 that was significant at 0.95 confidence level, it can be claimed that the human resources and organizational culture affect the harms related to employee training in the treating company. On the other hand, the mean value was bigger than the test value by considering the one-way feature of the test and positive upper and lower limits. Thus, H₀ was rejected. In fact, the above-mentioned factors can affect the training harms because the obtained values for (T) was bigger than 1.96.

The fourth question: How is the ranking of each factor related to the harms of employee training in Ilam Gas Treating Company?

In order to prioritize and determine the value and weight of each factor, the Friedman test was used.

Table 10: The content of the test results

number	154
Chi-Square	32.140
degree of freedom	2
Asymp. Sig.	.000

As the above table showed, the Chi-square statistics value with 2 degrees of freedom as well as the significance level of 0.000 significance test can be observed indicating the rejection of H0.

Table 11: Ranking the factors

activities	Average rank	rank
structural factors	1.75	3
content (behavioral) factors	2.35	1
Environmental (underlying) factors	2.9	2

Based on the outputs of the above table, the factors related to the harms of employee training in Ilam Gas Treating Company were different from the perspective of respondents. Accordingly, the content (behavioral) factors with the numerical value of 2.35 had the highest rank while the structural factors with the value of 1.75 had the lowest rank.

Table 12: the content of Friedman test result for the dimensions of variables

number	154
Chi-Square	58.814
degree of freedom	6
Asymp. Sig.	.000

As the table showed, the Chi-square statistics value with 6 degrees of freedom as well as the significance level of 0.000 significance test can be observed indicating the rejection of H0.

Table 13: Ranking the dimensions of variables

activities	Average rank	rank
technical/technological	3.37	7
organizational structure	3.62	6
organizational strategy *	3.94	4
human resources	4.52	2
organizational culture	4.85	1
outsourcing	3.64	5
policmaking	4.06	3

Based on the outputs of the above table, the factors related to the harms of employee training in Ilam Gas Treating Company were different from the perspective of respondents. Accordingly, the organizational culture with the numerical value of 4.85 had the highest rank while the structural factors with the value of 1.75 have the lowest rank and technical/technological factors with the numerical value of 3.37 had the lowest rank.

Conclusion:

The present study aimed at identifying the harms related to employee training in Ilam Gas Treating Company by exploratory-analytical method. For this purpose, the mixed method was used as described in previous chapters. Firstly, the main research question was used in form of interview; the factors which could cause harm to training were identified. Then, the interviews were collected and the components and activities, which were commonly mentioned, were elicited. After that, the second questionnaire was distributed among all experts of the organization to identify the degree of significance and possibility of assigning each other. In the first part, the factors affecting the training harms including the structural factors, content (behavioral) factors, and environmental (underlying) factors were identified by using one sample T-test. In the second part, the Friedman test was used to rank the factors affecting the training harms. The results of the test showed that the content factors with mean value of 2.35 were in the first rank. Finally, the above-mentioned factors were prioritized by using the Friedman test and the rank of each one was specified. The study results showed that organizational culture, human resources, policy-making, organizational strategy, outsourcing, organizational structure, and technical/technological factors affect the harms related to employee training in Ilam Gas Treating Company.

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