

# Training Program in the Construction projects



Suha Falih, Sawsan Rasheed Mohammed

**Abstract:** Construction is questionably a main part in relative to comprehensive development . It plays an important part in the role in the economy as and in people's survives over influencing and preserving the environment of the city-region's constructed, and it is a rising sector. To provide an efficient performance and more development of the economic, there is emphases on optimizing the employees contribution to the goals and areas of the governments. The training significance as a management central part has long been documented by principal writers. This paper aim to find the impact of training in the construction industry and how the training is been underestimate lead in increase the cost by using the simulation technique system dynamic. The research methodology include designing of questionnaire that consist of three items , the first item include , general Training (Training Program), evaluation of on-the-job training and evaluation of training after establishing work and the second part include building the model using system dynamic to show the effect of training on the cost of construction. the results the authors made the following conclusions .The absence of training program has very strong effect as the absence of such program is caused by the finance absence , this is common problem with Iraqi construction industry. The most environment of the Iraqi industry is the absence of the finance from both owner and contractor as they ignore this part and consider unnecessary expenses and this will lead to unqualified engineering or worker in the wrong job .The absence of management mean that , usually the contractor and his staff are working without the supervise or represented from the owner side , which some time mean unskilled workers may be hired which lead to delay of the work and cost overruns .

**Key Word:** Training , System Dynamic , Construction Projects

## I. INTRODUCTION

Construction is questionably a main part in relative to comprehensive development . It plays an important part in the role in the economy as and in people's survives over influencing and preserving the environment of the city-region's constructed, and it is a rising sector.[1] The success of failure of providing the physical growth of the oner is with the hand of the project managers inside the restrictions of charge, timetable, feature and safety necessities. A Project Manager that has competence is energetic to project achievement, and numerous lessons have emphasized serious skill. The focus of the projects and organization success is made on ensuring that the managers of the project obtain the core capabilities compulsory to be effective in their projects.

[2] To provide an efficient performance and more development of the economic, there is emphases on optimizing the employees contribution to the goals and areas of the governments. The training significance as a management central part has long been documented by principal writers. For example according to Drucker (1998), the one influence a manager is exclusively predictable to mark is to give others idea and capability to achieve[3] The development of the construction industry and ability to procure and innovative delivery, is determined by participation of highly well-informed and expert managers of the site. one of the main process in the construction industry is training to support organizations' encounter the site managers need with these qualities.[4] Construction problems connected to and the workforce of the construction is diverse and periodic. Abdul Aziz et al (2008) annotation that the construction quality issues are a ongoing issue. Likewise, Sambasivan and Wen Soon (2006) detect that delay issues are periodic. MBAM (2010) emphasizes that the performance bury alia issues , overruns of cost and time and quality lacks, and those that connected to the workforce of the construction has directed to economy leak. This has caused in the earnings by foreign labour deportation and various resultant social and health harms, numerous main catastrophes, and the low output of the construction industry.[5] Ineffective training of the manpower in the work force construction industry, in both amounts and necessary skills, has offered ongoing issues for Indonesian industry companies and clients for several years (Alwi et al. 2001). This paper aim to find the impact of training in the construction industry and how the training is been underestimate lead in increase the cost by using the simulation technique system dynamic.

## II. RESEARCH METHODOLOGY

The research methodology include designing of questionnaire that consist of three items , the first item include , general Training (Training Program), evaluation of on-the-job training and evaluation of training after establishing work , the results of questionnaire used the Lickert scale as follow:

Revised Manuscript Received on May 15, 2020.

\* Correspondence Author

**Suha Falih\***, Phd student. Civil Engineering Department, University of Baghdad/Baghdad. Iraq.

**Sawsan Rasheed** Mohammed, Prof. Civil Engineering Department, University of Baghdad/Baghdad.

© The Authors. Published by Blue Eyes Intelligence Engineering and Sciences Publication (BEIESP). This is an [open access](http://creativecommons.org/licenses/by-nc-nd/4.0/) article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>)

<b>Five scale</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly Agree</b>
-------------------	--------------------------	-----------------	----------------	--------------	-----------------------

**Q1: How training needs are identified in your organization**

Items	Mean	Std. Deviation	Evolution
By performance review appraisal of individual	3.2432	1.55287	Agree
Through assessment center of Through individuals target group request	3.1622	1.64170	Agree
Through internal survey questionnaire	2.8108	1.43058	Agree
Through upcoming updating methods	3.0541	1.56251	Agree

**Q2: What kind of training methods are being followed in your organization?**

On site	2.0270	.89711
---------	--------	--------

**Q3: What are the barriers for conducting training in your organization. Give your opinion:-**

Items	N	Mean	Std. Deviation	Evolution
No-management initiation	37	2.6216	1.25502	Agree
non-availibility of funds	37	3.9459	1.31119	Agree
non-availibility of expert trainers in the filed	37	3.2703	1.34678	Agree
poor understanding of correct training engineering system	37	3.2432	1.34175	Agree
absence of training climate	37	3.2703	1.38742	Agree

**Q 5:How does your organization evaluate individuals after imparting training?**

	Mean	Std. Deviation	Evolution
Change in behavior	3.4595	1.57400	Agree
Change in functional results	2.7838	1.37710	Agree
Improvement in communication skills	4.0811	1.01046	Agree
Knowledge enhancement	3.5676	1.53732	Agree



**Q6: Please give your opinion on the following statement:**

Items	Mean	Std. Deviation	Evolution
Effectiveness of training can be enhanced by systematic Tes of construction engineers	4.3514	.85687	Agree
TES of construction engineers helps to achieve overall objective of the organization	3.9189	1.27755	Agree
TES of construction engineers is useful for the career development of individuals	4.3243	1.05552	Agree
Delay in construction projects can be minimised through TES	4.4054	1.03975	Agree
Work efficiency of construction engineers can be improved through TES	3.9459	1.31119	Agree
TES of construction engineers is useful for improving cost effectiveness while performing construction activities	4.2162	1.05765	Agree
TES can motivate construction engineers for a safe and environmental friendly job execution	5.5135	6.58965	strongly Agree
TES of construction engineers can help organization to adopt latest technologies and to keep the pace with time	4.1081	1.19684	Agree
TES can help in improving knowledge skill and attitude of construction engineers	4.3514	.85687	Agree

The second part include building the model using system dynamic to show the effect of training on the cost of construction , System dynamics is a methodology of dynamically complex systems studying and management simulation model building (Ford etl., 2002) System dynamics (SD) development was in the late of 1950s for industrial systems analysis (Forrester,1961). SD has been applied successfully to problems, ranging from social, environmental and industrial project management systems.

View of the world of an event-oriented or linear causal thinking cannot solve complicated problems adequately ( Sterman, 2000). Figure (3.10) shows the paradigm of the unidirectional thinking, that is grounded on the conjectural hypothesis which is the effect of collective of series causes or inputs that shape the outputs or events sequentially (Sterman, 2000). This kind of thinking tool that used for many problems, has the ability to show the variation of the current state and the state that desired or expected, then it can select and handled the problem by separating it from the environment that surrounds the problem.

the methodology as shown in the figure below

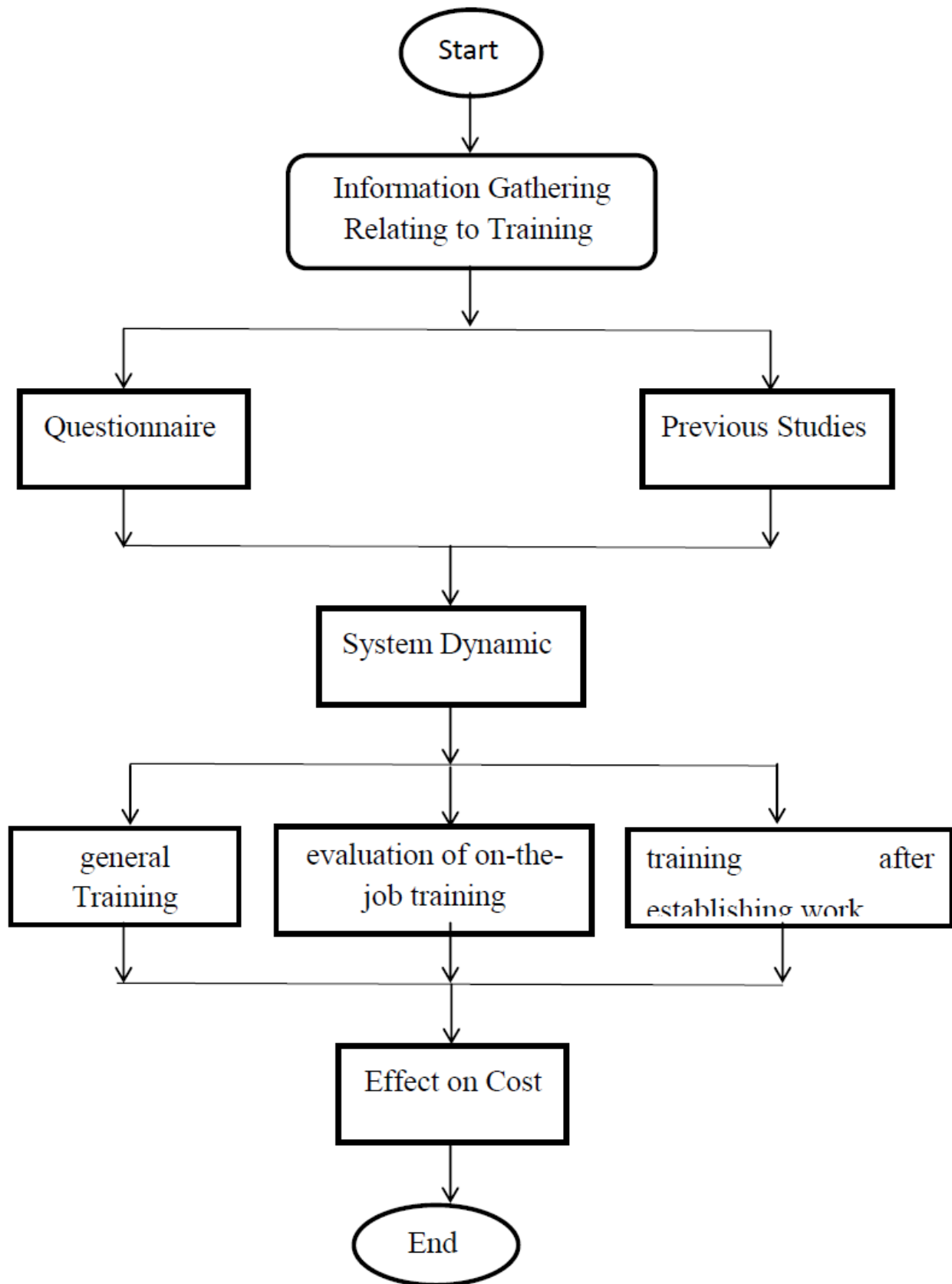


Figure (1) Flowchart of the Work

III. RESULTS AND DISCUSSIONS

The results of the system was first by taking the ideal project without any problem as shown below

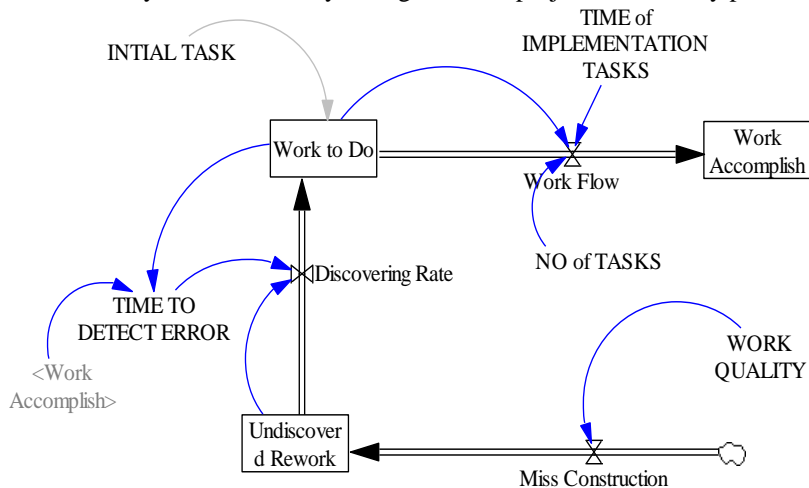


Figure (2) Ideal Project

The initial tasks is about 11 tasks that include the tasks that must be performed in the construction projects which from the earthworks to finishing and represent the work that must be accomplish. With time the work that actually performed is may be increased depending on the project conditions.

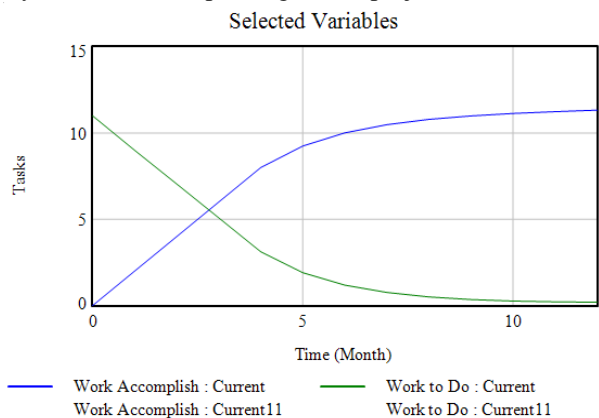


Figure (3) The Work Accomplish of Ideal Project

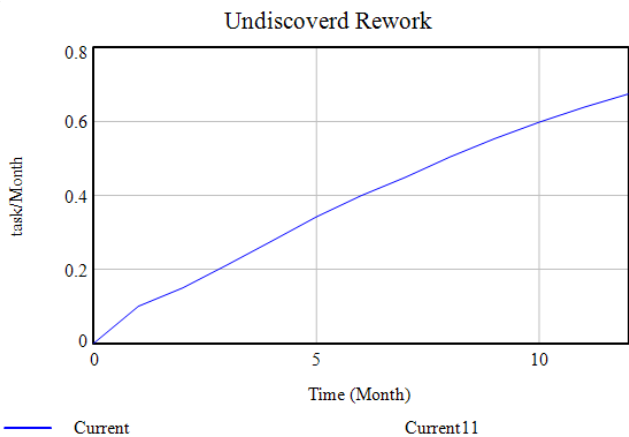


Figure (4) The Undiscovered Rework of Ideal Project

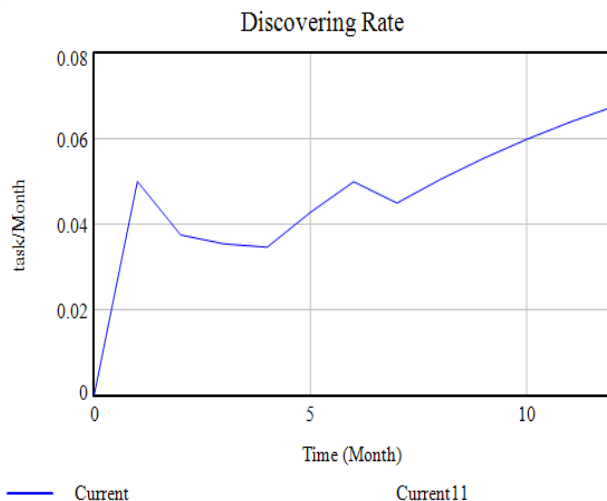


Figure (5) The Discovering Rate of Ideal Project

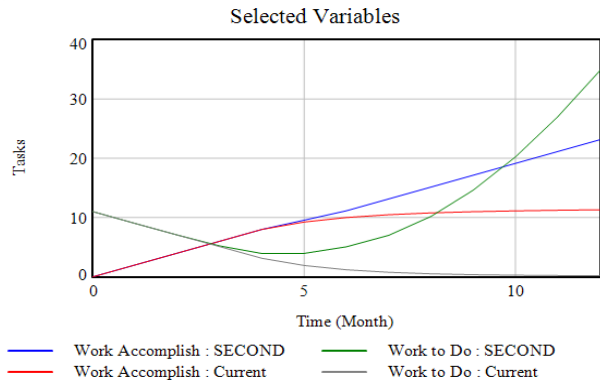
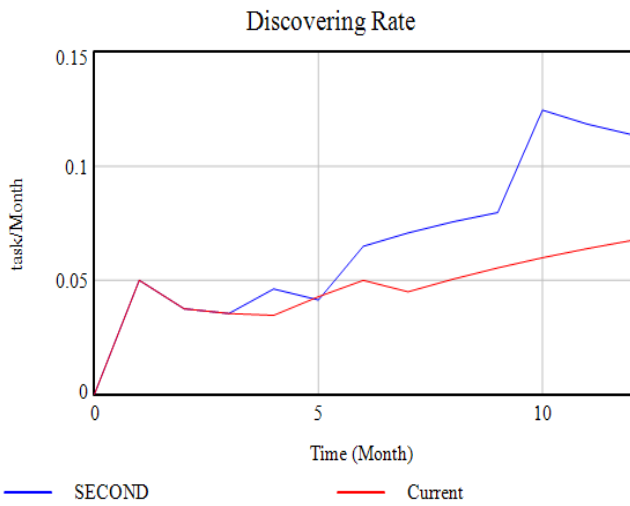
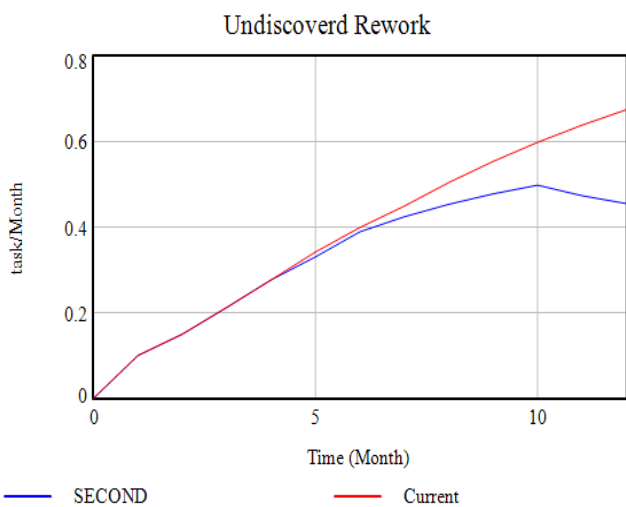


Figure (6) The Work Accomplish of Project with Problems



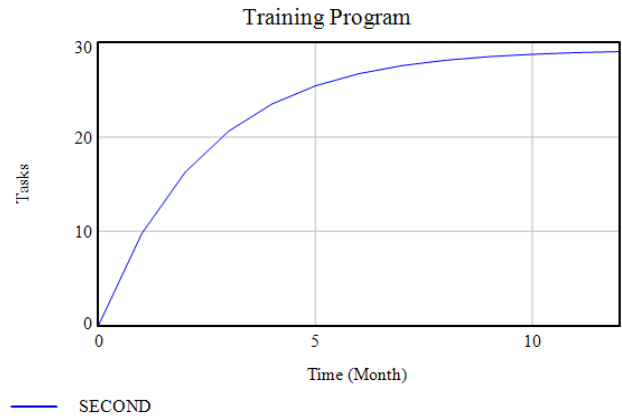
**Figure (7) The Discovering Rate of Project with Problems**



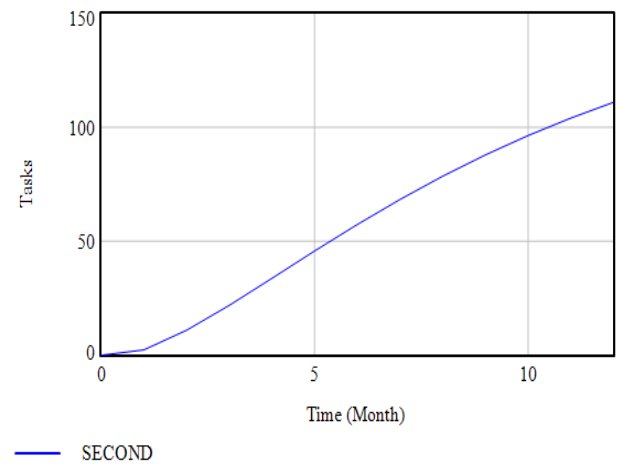
**Figure (8) The Undiscovered Rate of Project with Problems**



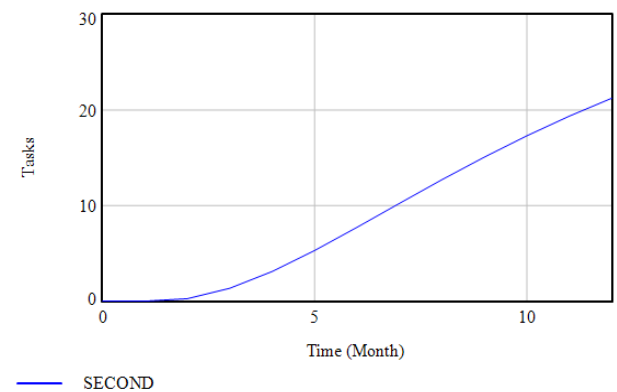
**Figure (9) The Training Evaluation**



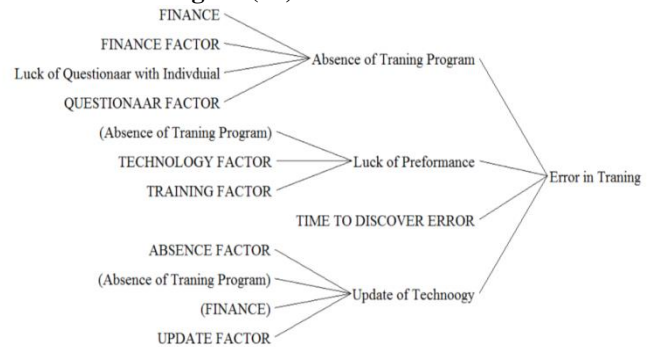
**Figure (10) The Training Program Miss in Trianing**



**Figure (11) The Miss in Training Cost Overrunse**



**Figure (12) The Cost Overruns**



**Figure (13) Cause Tree of Error in Training**

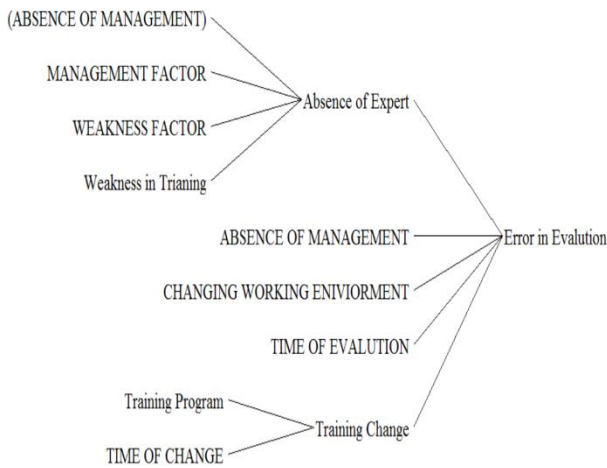


Figure (14) Cause Tree of Error in Evaluation

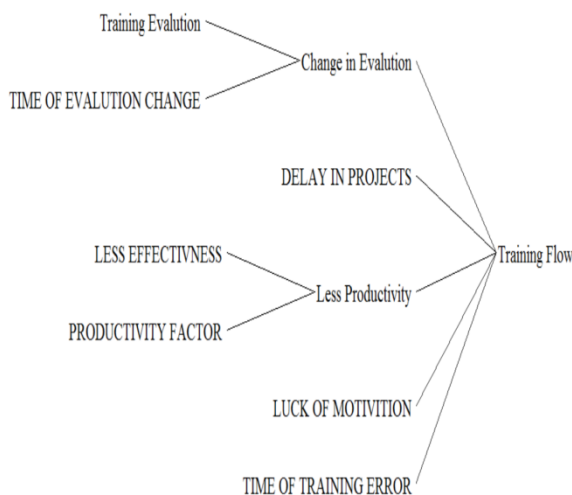


Figure (15) Cause Tree of Training Flow

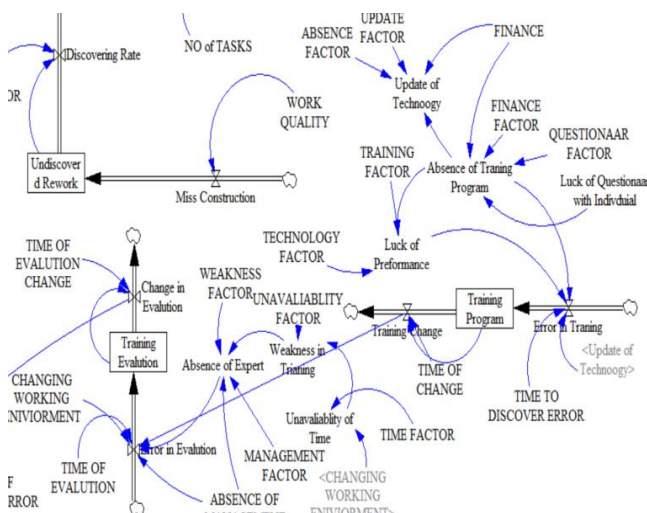


Figure (16) System Dynamic for the Two Items

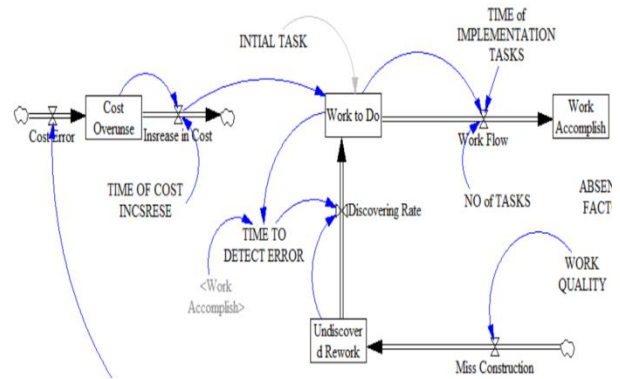


Figure (16) System Dynamic with cost overruns

The results show that the training in construction projects has very significant effect on both cost and time

#### IV. CONCLUSIONS

Based on the results the authors made the following conclusions

- 1- The absence of training program has very strong effect as the absence of such program is caused by the finance absence , this is common problem with Iraqi construction industry. The most environment of the Iraqi industry is the absence of the finance from both owner and contractor as they ignore this part and consider unnecessary expenses and this will lead to unqualified engineering or worker in the wrong job
- 2- The absence of management mean that , usually the contractor and his staff are working without the supervise or represented from the owner side , which some time mean unskilled workers may be hired which lead to delay of the work and cost overruns
- 3- Both of the above will lead to error in the evolution of the training and hence increase in the cost , as of the employ a skilled worker and engineering they would not have to face this problem
- 4- In some case the training program is given , however it not given on the right time or to the right persons which result to waste of training and hence increased cost
- 5- The luck of time or absence in motivation , some consider important reason for the training.
- 6- One of the main cause that is not taken into consideration, the few experts that available in the field and that due to the system that used to select the employees and the engineering

#### REFERENCES

- 1- The number of construction firms in Great Britain reached its highest level on record (296,093 registrations).
- 2- ONS (2017) Construction Statistics. Number 18 2017 Edition, October
- 3- Hwang, B. and Ng, W. (2013). Project management knowledge and skills for green construction: Overcoming challenges. International Journal of Project Management 31 (2013). pp.272-284. Available at: [http://www.nus.edu.sg/dpr/files/research\\_highlights/2013\\_10Oct\\_ProjectManagementKnowledge\\_Skills\\_green\\_Construction.pdf](http://www.nus.edu.sg/dpr/files/research_highlights/2013_10Oct_ProjectManagementKnowledge_Skills_green_Construction.pdf) (Accessed: 26 July 2014)
- 4- Drucker, P. F. (1998). The discipline of innovation. *Leader to Leader*, 1998(9), 13-15.

- 5- NIOSH (2010). Construction Safety. National Institute for Occupational Safety and Health (NIOSH), (available online <http://www.cdc.gov/niosh/topics/constructionsafety>, [assessed Jan 2010])
- 6- Hassan, F. , Mohd Fadhil Mohd, Masran, S., Zuhairusse Md-Derus, Takim, R. (2009). “ A Framework for Designing Training for Construction Site Managers”. Proceedings of the 3rd WSEAS International Conference on Energy Saving and Environmental Education, Tenerife, Spain.
- 7- Sambasivan, M. and Wen Soon, Y. (2007). Causes and Effects of Delays in the Malaysian Construction Industry, International Journal of Project Management, 25: 517-526.
- 8- Alwi, S; Hampson, K. and Mohamed, S. (2001). "Effect of Quality Supervision on Rework in the Indonesian Context." Asia Pacific Building and Construction Management Journal, 6 ( ) 2-6.