

THE EFFECTIVE USE OF FLOWCHARTS IN CORPORATE TRAINING

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Abstract

The paper discusses training methodologies associated with the introduction of a corporate management IT (Information Technology) system and it analyses corporate training efficiency through a multinational company use-case. The application of flowcharts in the novel IT system-related company trainings, and in the tutorial materials are evaluated. After the training for learning the new modules, the employees filled out a questionnaire in which they pointed out their experiences concerning the flowchart extended training material. Based on this comprehensive evaluation, it was analyzed whether the flowchart or the training description is more effective. Results confirmed the assumptions that flowcharts facilitate, speed up and significantly help the understanding and fixation of the training material.

1 Introduction

Education, training, advanced studies and development programs are substantial parts of human resource management. Training is a personnel development action that ensures the balance between the job requirements and the characteristics of the job holder, not only in the present time, but also taking into account the future development of the organization. Continuing *education* is used more for the training of lower-educated workers (the purpose of which is to perform the current task more effectively), while *development* mainly means the future-oriented training of managers and specialists. The larger the company, the more formalized the organization's approach to education is. Awareness of the planning of training activities increases with the size of the company. At the same time, the behavior of companies regarding training is differentiated depending on the size of the company: The training behavior of Small-, and Medium Size companies (SMEs) is quite spontaneous and low-level. The company only supports mandatory and indispensable (e.g. due to new machines, techniques, technology) educations, and among the individual educational aspirations, it tolerates the learning aspirations of the owner(s), senior managers and employees belonging to their informal relationship system away. Checking the effectiveness of the training is not even considered. In the case of medium companies, the training behavior is more conscious, but by no means more planned. In addition to the mandatory new technology training and induction training for new hires, the company primarily supports the training efforts of managers and graduate employees. In essence, it plans the training needs of the employees, the purpose of the planning is to satisfy the needs. The basic motivation of training efforts is to retain employees, so training is a part of the incentive system as well. The effectiveness of the training is not tested. In the case of

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large and multinational companies, the training behavior is conscious and planned. In addition to the mandatory training courses, due to the new technology and the integration of new recruits, the trainings have only a relatively limited purpose of supporting the training efforts of managers and graduates for motivational purposes. Here, corporate adaptation and strategic goals appear in the planning of training activities, as well as an examination of the effectiveness of the training [1]. The paper aims to analyze the efficiency of flow charts included in the training materials.

2 Measuring the effectiveness of training

The most common way to measure success in training is to simply check the results of an employee's work [2]. Why is a measurement strategy necessary? Because financial and personal resources are not abundant enough to measure all aspects. The strategy outlines what should be measured, what framework should be used, what measures should be applied and what resources should be used. Finally, the company must be prepared to accept and implement the measurement results. The strategy may not specify whether e-learning should be measured in the same way as instructor-led training, but it should guarantee that both are assessed. In general, three main drivers motivate organizations to evaluate training: compliance requirements established by industry regulators, information needs of students and business managers, or a combination of the two [3].

3 Application of flowcharts in business

The flowchart method is useful e.g. for identifying process risks during the transformation of the organizational system. Flowcharts simplify communications and provide effective analysis of the process; it is used for many purposes. The flow diagram allows to design process that is appropriate for the targeted results. The method of flowcharts provides efficient coding and system analysis, and the program development phase also serves as a guide for finding errors. Thus, in order to achieve the corporate goals of the transformation and reorganization process and to increase the company's performance with optimal use of resources, it is possible to make improvements [4]. In a corporate environment, flowcharts are also used to support business decisions. With this, it is possible to support also "what if..." scenarios. A flow chart can be made of both bad and good business steps, which helps the management to decide which path to take [5]. Value-added processes have increasingly become the basic principle of business acquisition, rather than the perspective of functional hierarchy. Using the right process model includes taking into account the purpose of the analysis by knowing the available process modelling techniques and tools. The number of references on business modelling is huge [6].

4 Research methodology & results

The training carried out at the chosen production company is primarily necessary for the introduction of the daily working time register (by checks) of the employees. There are even more functions associated with this IT system. The absence and time data registration module were introduced as a new system having two modules. A distinction must be made between Time Tracking and Absence, as one is responsible for presence, which means working, and the other for absence when the colleague is not working for some reason. The modules consist of various functions and menus, employees are trained in how to use these individual functionalities.

The number of employees in the analyzed company is approx. 250-300 people, but not all of them were trained in the analyzed period, so there are around 150 employees' records describing the success of their training. Based on the available training materials, process flowcharts were prepared by the first author and these flowcharts were included into the company's education materials. The goal is to measure whether flowcharts are at all useful for the company to use as a tool in education or even in other areas. The sequential/linear process representation style was applied due to the sequence of successive steps (Figure 1.).

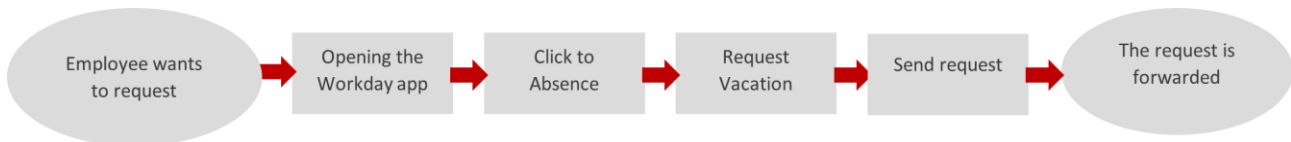


Figure 1. The applied sequential flowchart representing the company's business processes

To measure the usefulness of the flowcharts the questionnaire method was selected. During the training, employees shall go through the IT system functions using the available training documents containing the related business process flowcharts as well.

At the end of the training, they were asked to fill in the printed questionnaire asking for their opinion about the accessible training speed (how difficult is to perform the training), how easy is to understand the training material and the degree of fixation. The employees appointed also a priority sequence from which aspect the flowcharts were most useful in the training process.

Based on the answers, transparency appears clearly, it was analyzed through various evaluation diagrams [7]. With the embedded flowcharts the summary of the training is easier to interpret, and it can be understood faster than a long text document with software screens together. Based on the answers, it was recognized that the flowcharts facilitate, speed up and help the understanding and remembering of the training material.

Regarding the number of attempts to complete the modules, most of the answers revealed that the trained personnel mostly succeeded the first time, but a smaller portion of them managed to complete the modules for the second time only. For the same question, only if there was no flowchart, most of the answers did not change, however, it would be difficult for the employees to judge this, since many of them have just encountered a flowchart for the first time, however, it can be seen from the answers that the flowchart helped them in completing the modules.

On the contrary, there were several answers to the question of whether the flowchart was not forward-looking and what it was lacking compared to the textual description. The most common one was that the flow chart did not have that much explanation, rather just headlines that made it slightly difficult to understand. Someone wrote that this was just a shorter version of the description, and it was unnecessary to use both the text and the flowchart when preparing the training material. From the point of view that they were able to complete the modules with the help of the flowchart or the description, they surprisingly voted for the flowchart. Probably, the reason is that they did not want to read the description and instead tried to complete the modules using the flowchart.

The application of flowcharts or descriptions can be applied to both traditional education and e-learning. In both types of education, the curriculum is the same, but the teaching method and style are different. As a result, a company can use this principle in both types of training, in the case of manual workers in traditional training, and in the case of white-collar workers in e-learning materials.

5 Conclusions

The paper discussed the application of flowcharts in company training materials. Their effect was measured in a manufacturing company situation where a novel IT system was introduced and related, comprehensive training took place. Beyond the classical screen and textual form, all the basic training materials were extended with a simple flowchart representing the introduced IT system functionality. Significantly more than a hundred employees were trained to apply such a comprehensive document and all of them filled in a short questionnaire measuring the effectiveness of the included flowcharts. Based on this comprehensive evaluation, it was analyzed whether the flowchart or the training description is more effective. Results confirmed the assumptions that flowcharts facilitate, speed up and significantly help the understanding and fixation of the training material.

The flowchart can also be understood as a summary of an education, in which the entire material can be found in the form of headings. *Comprehensive conclusions can be drawn:*

1. *Flowcharts significantly help in understanding corporate education.*
2. *In addition to speed and lightness, fixation/remembering is the third aspect and also the most significant advance in the case of flowcharts used in educational materials.*
3. *Flow charts can greatly increase the transparency of educational documents.*

4. *Regarding the usefulness of the flowchart, transparency, interest and ease of understanding are typical.*

Further research can be carried out in the future. Beyond assessing the given company case several additional companies can be involved, to expand their training and to assess how efficient are the flowcharts' inclusions. An examination of 5 or even 10 companies and their training is meant here. This would be a challenge, but it would also be useful for companies to improve their future education. It would be useful for the company not only in the field of education but also in other areas of the company. Another direction could be the extension of flowcharts to further company processes, not only to education but also to work processes. This would also make learning easier, as such a "crutch" would speed up and facilitate the learning process. Employers still find it difficult to change jobs, because of the integration and learning from the start.

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