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E-learning and motivation of the management staff of a polish chemical company in expanding knowledge

E-learning, a motywacja kadry menadżerskiej polskiego przedsiębiorstwa chemicznego w poszerzaniu wiedzy

ABSTRACT

In times of dynamic development of the economy, knowledge becomes the main factor determining the advantage on the market. More and more often the company's know-how contributes to the development of innovative products, services or solutions. In the era of ubiquitous cataclysms, diseases, unpredictable weather anomalies or even war, the economy must be prepared for a situation in which the normal cultivation of vegetables and plants is difficult or impossible. The key and essential question is what knowledge and food have in common. Knowledge is an inseparable element of improving fertilizers and plant protection products, as well as improving their production processes. According to the strategy of companies representing the chemical industry, the direction of green and sustainable action for the climate and the environment remains unchanged. The European Union introduces further restrictions that make the fertilizer industry in Europe less and less profitable. Material capital alone is no longer a determinant of success, in order to meet the expectations of customers, as well as to meet the ever newer environmental, ecological or legal requirements, solutions tailored to the green and sustainable world, adapted to legal regulations that will be profitable, are needed.

Keywords: E-learning, chemical company, knowledge, management staff.

STRESZCZENIE

W czasach dynamicznego rozwoju gospodarki, wiedza staje się głównym czynnikiem determinującym przewagę na rynku. Coraz częściej Know-how firmy przyczynia się do rozwoju innowacyjnych produktów, usług czy rozwiązań. W dobie wszechobecných kataklizmów, chorób, nieprzewidywalnych anomalii pogodowych czy chociażby wojny, gospodarka musi być przygotowana na sytuację w której normalna uprawa warzyw i roślin jest utrudniona lub niemożliwa. Kluczowym i zasadniczym pytaniem jest zatem co wspólnego ma wiedza i żywność? Wiedza stanowi nierozłączny element doskonalenia nawozów i środków ochrony roślin, jak również doskonalenia procesów ich produkcji. Zgodnie ze strategią przedsiębiorstw z branży chemicznej kierunek zielonego i zrównoważonego działania na rzecz klimatu i otoczenia jest niezmienny. Unia Europejska wprowadza kolejne obostrzenia które powodują że branża nawozowa w Europie zaczyna być coraz mniej opłacalna. Sam kapitał materialny nie jest już wyznacznikiem sukcesu, aby sprostać oczekiwaniom klientów, a także spełnić coraz to nowsze wymagania środowiskowe, ekologiczne czy prawne trzeba rozwiązań szytych na miarę zielonego i zrównoważonego świata dostosowanego do regulacji prawnych które będą rentowne.

Słowa kluczowe: E-learning, przedsiębiorstwo chemiczne, wiedza, kadra menadżerska.

INTRODUCTION

Chemical companies are becoming increasingly technologically advanced and must constantly adapt to changing market conditions. To ensure high product quality, companies must have access to knowledge and new technologies. One of the most effective ways to manage knowledge in a chemical company is industrial e-learning. It is a process of continuous, conscious, and active learning in which information technology is used to facilitate the acquisition of knowledge, the search for answers to questions, the transfer of knowledge in a nutshell, and knowledge of the work context. Thus, knowledge can be considered a fundamental resource of a company, allowing it to set new directions for development, strategy or mission and vision. Knowledge ensures that we are able to create newer and newer solutions, such as replacing synthetic fertilizer casings with biodegradable ones which, as the active ingredients are released into the plants, decompose without polluting the environment. Ideas for new solutions largely arise in the minds of employees, managers and executives, so it can be considered that educated and developing employees and executives constitute the most important intellectual capital of a company, creating new opportunities for the world of science and business. The aim of the research is to understand how e-learning affects the motivation of managers in expanding their knowledge in a Polish chemical company. The answer to this question will allow for the implementation of solutions adequate to the needs, as well as creating space for further research allowing for a broader understanding of the above phenomenon.

Research problem:

- How does e-learning affect the motivation of managers in expanding their knowledge in a Polish chemical company?
- Does e-learning have a greater impact on managerial involvement than traditional schooling?
- Which elements of e-learning are particularly motivating for managers, and which may be more demotivating?
- What personal factors affect managers' motivation in e-learning, such as level of engagement, self-efficacy and expectations of training?

1. LITERATURE REVIEW

Literature research indicates that scientific publications on the issue of e-learning in an industrial environment are incomplete, and most of the research focuses on e-learning in the academic (Ayu, 2020; Grabowska, 2018; Syarif et al., 2020), corporation (Beamish et al., 2002; Beinicke & Kyndt, 2020), medical (Huynh, 2017; Masic, 2008; Ruiz et al., 2006) or sports (Celik, 2020; Dasheva et al., 2020; Gumantan et al., 2021) subject matter. Research to date has mainly focused on evaluating the implementation of e-learning (Pokojski et al., 2011; Wawrzynkiewicz et al., 2004), e-learning design methodology (Maciejewski, 2016). Among the most numerous articles examining e-learning in corporate environments, we can find numerous publications on the factors determining

the effective implementation of the platform, the reception of the implemented tool, e-learning as an integral element of personnel policy (Żołędziewski, 2011), as well as the effectiveness of e-learning (Bizon, 2011). Narrowing down the research due to the vast number of articles available on e-learning, focusing on keywords such as "e-learning" and "chemistry," one finds articles on the effectiveness in creating innovative educational initiatives promoted by the chemical industry sector to young people (Jarocki & Gałaj, 2014), using the synergy of e-learning in process and chemical engineering education (Gauss et al., 2004), or learning based on project (Karmila et al., 2022). Among the publications, you can also find a study of accidents in a chemical company at work, before and after the implementation of e-learning indicating a reduction in accidents up to 32% (Aragão et al., 2020). Which means that e-learning has a real impact on processes in organizations. A critical analysis of the literature related to e-learning by Mishra et al. (2021) indicates that the most cited articles include interdisciplinary publications, only 13.33% of studies use qualitative methods, and 33% of published articles did not demonstrate research methodology. Therefore, it is worth supplementing research in the topic of e-learning using qualitative methods that would address the impact of e-learning on the motivation of managers to expand their knowledge, which is an essential element due to the creative nature of their work. Managerial staff and their competencies are the foundation of the potential of any enterprise (Ratalewska & Szymańska, 2013).

2. RESEARCH METHOD

The study used a qualitative approach, due to the nature of the research, which aims to collect data in the form of free and objective statements. For this purpose, the research question and supporting questions were defined. The purpose of the conducted research was to understand how e-learning influences the motivation in expanding knowledge by the managerial staff of a Polish chemical company. The main assumption of the conducted research was to understand the phenomenon, so the presented research results are descriptive in nature, aiming at finding answers to questions rather than numbers. In order to find answers to the above questions, the following research methods were used:

- systematic literature review,
- content analysis,
- free interviews with selected managers of the company under study.

The research was conducted in January 2023 and February 2023 at a chemical company located in Poland. Interviews were conducted with 10 managers employed at the surveyed enterprise. The selection of the research sample was purposive due to the important role played by expanding knowledge among managers. In order to preserve the full picture and guarantee the freedom of expression in the study, no data will

be given that would allow the identification of the statements of individual managers. Therefore, each respondent has been assigned a number from 1 to 10, which will be the only form of distinguishing the statements of individual respondents. The research can be used to obtain similar results in other industries.

3. RESULTS OF RESEARCH

Conducted interviews indicate that in the surveyed organization e-learning is a desirable form of training among managers due to the possibility of completing courses at any time, the possibility of returning to selected elements, quick access to data without having to waste time searching for information. Thus, respondents indicated that e-learning influences their engagement more than traditional training due to the nature of their work. Online training does not restrict learning opportunities to a selected period of time as in the case of traditional training, and at the same time allows for any number of repetitions of the material.

Particularly motivating elements of e-learning for the executives surveyed are:

- Temporal and spatial flexibility,
- Interactivity,
- Personalization of courses,
- Short form of delivery,
- Fast access to professional knowledge.

Among the personal factors influencing the motivation of managers, we can point out:

- Sense of self-efficacy,
- Increasing the level of commitment,

- Consciousness of achieving personal goals set,
- Continuous improvement of self-competence,
- Self-discipline.

Summarizing the results of the interviews, we can conclude that in the surveyed enterprise, managers value the time and space flexibility that industrial e-learning provides. At the same time, on the basis of the conducted research, it can be concluded that e-learning influences the motivation of managerial staff in a Polish enterprise of the chemistry industry, thus building and strengthening the acquisition of new competencies. The conducted research should be extended and analyzed among a larger number of companies to indicate which of the mentioned factors have the greatest impact on the motivation of managerial staff.

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Table 1. Respondents' Statements

Research question	Selected responses of respondents
Does e-learning have a greater impact on managerial engagement than traditional training?	<p>Respondent 1: "...yes, because it allows me to get involved at a time that is convenient for me."</p> <p>Respondent 2: "...traditional training has its advantages because you can get away from your day-to-day work, however, when occupying a managerial position, participation in training is usually interrupted by an urgent phone call or an urgent email – in the case of e-learning, this does not matter much."</p> <p>Respondent 7: "...being able to go back to the data contained in the online courses allows me to be more involved in expanding my knowledge because I don't have to waste time searching, the knowledge is available when I need it."</p>
What elements of e-learning are particularly motivating for managers, and which might be more demotivating?	<p>Respondent 2: "... the ability to use the training materials anytime and from anywhere would increase my motivation to expand my knowledge through the implementation of e-learning courses due to the enormity of duties that I perform during my work, it is difficult for me to adjust my schedule to stationary courses. Access to online materials would allow me more freedom to expand my competencies, and at the same time would allow me to cede knowledge lower among my employees... it would certainly be demotivating for me if the courses offered were long and monotonous."</p> <p>Respondent 4: "...The inability to get quick and specific information on trivial matters is demotivating for me."</p> <p>Respondent 5: "... personalized courses tailored to my needs would have been useful in my learning, which cannot be said of long studies that lack specific information..."</p> <p>Respondent 8: "...What motivates me the most is the quick access to courses and their availability. Nothing motivates me more than access to professional materials that allow me to increase my knowledge and better understand what I am currently working on."</p> <p>Respondent 10: "...implementation of courses in the form of entertainment such as VR training."</p>
What individual factors influence the motivation of managerial staff in e-learning process? Suggested e.g. commitment, awareness of success and progress, expectations of training	<p>Respondent 3: "Self-efficacy affects my motivation to expand my knowledge."</p> <p>Respondent 6: "... rapid access to knowledge is able to ensure both the improvement of competence as well as motivate to further increase the level of commitment by excluding wasting time on unnecessary activities."</p> <p>Respondent 8: "... The level of commitment and awareness of the achievement of set personal goals..."</p> <p>Respondent 10: "...continuous improvement of one's own competence, self-discipline."</p>

Source: Own elaboration (Łukaszczykiewicz, 2022)

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