



# **Gamification in the industry**

**Learning through play seriously**

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## **Everyone needs someone to watch their back**

"Hey, newbie, get me the pipe stretcher, on the double!" the apprentice usually heard in the workshop of an industrial plant. Today, older colleagues also send "freshmen" for other imaginary tools. The beginning of professional training is invariably the same. Moreover, such jokes do not have to be a symptom of disinterested malice of more experienced employees, but rather constitute a natural, though often unconscious, element of the competency verification system. After all, everyone wants to work with people they can rely on, especially in such dangerous environments like industrial plants. For this reason, staff training, which is quick, effective, and tailored to local conditions poses one of the key issues related not only to OHS but also to process safety of a plant. Modern technologies of virtual reality offer unique opportunities in this aspect until now associated rather with science-fiction.

## **Field operators from the "head-down" generation**

Training a qualified employee is a big challenge for companies in every industry. Staff turnover, caused by the natural change of generations or the situation in the labor market, makes this challenge linger. The training process can be long, costly, and is usually perceived - especially by employees - as an unpleasant necessity. The industrial environment has its specific limitations in this matter, for instance, the fact that it is impossible to stop a production plant for a few hours so the young staff can practice starting it up or other procedures. In industrial plants, training must be based on solid theoretical background, and the practical part, inevitably, takes place during factory operation and involves inherent risks.

As we can imagine, the entire training process, starting with a site or plant tour, reading the documentation, i.e. procedures, instructions, safety rules, and ending with practical training under the supervision of a specialist, may take months or even years.

An additional difficulty is a fact that contemporary young field workers, starting their professional careers at the age of 20 to 30, often have very poor general knowledge. It may be hard to believe, but older generations do complain that their younger colleagues are "millennials", "head-down generation" keen on phones, games, and computers, who often don't even know what a valve is. Instead of complaining, we can turn these weaknesses into success. Training simulator systems (gamification) based on virtual reality (VR) come to the rescue here. This type of training is not only completely safe, allows practicing various scenarios - including catastrophic ones - but also is additionally attractive by its nature, as it resembles a computer game.

## **Better and more thoroughly trained employees**

The training is supervised by a system that collects data on the number and time of training sessions, the number of mistakes made, and the learning curve. The training systems can also be integrated with the existing e-learning platforms in the SCORM standard. The undoubted advantage of VR computer training is the fact that they can be run by the users themselves, without the need to involve additional staff needed for constant supervision, can take place at any time and last as long as it is needed, without generating additional and increasing costs. Better and more thoroughly trained employees mean increased safety, less downtime caused by human error, reduced chance of an accident or serious failure of the plant, and thus contributes to an increased rating by insurance companies and lower premiums.

## **Innovative VR | 3D training for real people and businesses**

Until recently, the introduction of innovative 3D training solutions in the industrial and chemical sector was problematic, mostly due to the need to purchase expensive, dedicated computer equipment. Today, training courses and plant operation simulators can be run even on standard computers. It is worth noting that VR training does not necessarily have to be associated with the use of virtual headsets. In practice, this technology, although it has been on the market for several years, does not yet provide yet the appropriate comfort of use. Fortunately, an alternative that provides very good learning results is controlling a virtual character with a traditional mouse and keyboard - a solution friendly to all age groups.

Training based on virtual plants and facilities as 3D digital twins is quickly becoming a very important element in improving the safety of human resources and the process. A good example can be OTS class solutions (Operator Training System - training for control room operators), which allow simulation and practicing of various scenarios on a virtual DCS system. Since the Gulf of Mexico incident in 2010, DCS simulators have been an integral part of training of plant operators in the oil sector. Virtual reality, which consists of meticulously recreated plants and machines (so-called digital twins), high-quality 3D graphics, natural sounds, various simulated weather conditions, and multi-person training, allow making a leap towards a complete immersion and the possibility of training the entire plant staff, including field operators, maintenance service and the on-site fire brigade all at the same time.

## **Permanent element of the safety strategy**

Safety has no price. Therefore, eliminating the risk by introducing training and simulations in the virtual world for the crew, should be a permanent element of the safety strategy of every large industrial company. Such solutions do not belong to the world of science-fiction anymore. Even today, the largest Polish entities from the oil and chemical industries are introducing VR training solutions into their daily routines. The real and virtual worlds do not necessarily have to be antagonists, on the contrary, they can complement each other for the benefit of people and the business.

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