Virtual Reality Technology To Embrace Information Gap In Industrial Hygiene

Hygienists can manipulate information in three-dimensional exploration of hazards

By P.A. Hancock and Jill Lai

Safety professionals have witnessed a radical evolution in the changing nature of work in just decades. Work no longer awards dealing exclusively with physical materials, information is the currency of work today. Information manipulation has replaced materials handling as the manufacturing process for many modern workers. Consequently, the physical demands on workers have greatly diminished, but mental demands have escalated to replace them.

This article examines how these changes influence the contemporary industrial hygienist and how projected changes will sway future industrial hygiene practice.

The major change in industrial hygiene during the next decade will be a shift from physics and physiology to psychology and sociology.

INDUSTRIAL HYGIENE'S CYCLE

Early industrial hygiene concerns focused on acute physical injury. The majority of these problems came from heavy manufacturing industries. More recently, industrial hygiene has concerned itself with the recognition, evaluation and control of workplace hazards. Of particular concern are chronic diseases resulting from cumulative exposure to toxic substances and trauma as a result of repetitive physical activity.
and manipulate such electronic environments.

Data entry, file transfer, spreadsheet manipulation and data integration are common activities that information workers currently perform. However, the way this work is performed (via two-dimensional video display units with keyboard entry) will rapidly change in the near future. The agent of that change will be virtual reality.

VIRTUAL REALITY

Virtual reality is an approach to human-computer interaction which presents a three-dimensional, wrapped-around graphical "world." Typically, this world is projected on some head-mounted display as that to which the individual moves and turns, the graphics world moves and turns exactly the same as the real world.

The individual wears a glove which appears as a hand in the virtual reality world. The glove can grab, manipulate and "move" objects presented. The advantage of virtual reality worlds is that they are not bound by the same constraints as the real world. Objects can represent an infinity of possibilities and need not be constrained to real-world objects.

Interesting in a virtual reality world should be easier since it approximates what humans do in a normal environment anyway. One can take advantage of intrinsic perception and natural abilitis developed in everyday use.

However, much work is needed before the capability can match the hype.

Nevertheless, virtual reality interaction is the clear avenue for future electronic work. Future industrial hygienists will

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Industrial hygiene has always attempted to reduce or even eliminate hazards posed by physical and chemical agents. In the electronic workplace, information itself may become the hazard. An example of a workplace hazard in the electronic workplace is a computer virus. Most of these viruses are made with either benevolent or malevolent intent, and they travel through e-mail, floppy disks, and computer networks. As a result, computer users must be aware of the potential dangers and take appropriate precautions to protect their systems and data.

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