



FIGURE 3-2 Human factors theory.

human errors identified into three categories: (1) overload, (2) inappropriate response, and (3) inappropriate activities.

In the category of *overload*, she found that the rush to complete contracts was pushing employees beyond their personal limits in some cases and beyond their capabilities in others. Stress, insufficient training of new employees, and fatigue all contributed to the overload. In the category of *inappropriate response*, the competent person determined that many of JCCC's carpenters had removed safeguards from their tools in an attempt to speed up construction. All of the tools and machines involved in accidents had safeguards removed.

In the category of *inappropriate activities*, the competent person found that new employees were being assigned duties for which they were not yet fully trained. As a result, they often misjudged the amount of risk associated with their work tasks.

With enough accident investigations completed to identify a pattern of human error, the competent person prepared a presentation containing a set of recommendations for corrective measures for JCCC's executive management team. Her recommendations were designed to prevent human error-oriented accidents without slowing down the work crews.

ACCIDENT/INCIDENT THEORY OF ACCIDENT CAUSATION

The accident/incident theory is an extension of the human factors theory. It was developed by Dan Petersen and is sometimes referred to as the Petersen accident/incident theory.⁸ Petersen introduced such new elements as **ergonomic traps**, the decision to err, and systems failures while retaining much of the human factor theory. A model based on his theory is shown in Figure 3-3.

In this model, overload, ergonomic traps, or a decision to err, or a combination of these, lead to human error. The decision to err may be conscious and based on logic, or it may be unconscious. A variety of pressures, such as deadlines, peer pressure, and budget factors, can make a person decide to behave in an unsafe manner. Another factor that can influence such a decision is the "it won't happen to me" syndrome.

The systems failure component is an important contribution of Petersen's theory. First, it shows the potential for a causal relationship between management decisions/management behavior and safety. Second, it establishes management's role in accident prevention as well as in the broader concepts of safety and health in the workplace.

Following are just some of the different ways that systems can fail, according to Petersen's theory:

1. Management does not establish a comprehensive safety policy.
2. Responsibility and authority with regard to safety are not clearly defined.
3. Safety procedures, such as measurement, inspection, correction, and investigation, are ignored or given insufficient attention.
4. Employees do not receive proper orientation.
5. Employees are not given sufficient safety training.

Accident/Incident Theory in Practice

Panhandle Precast Concrete (PPC) designs and constructs commercial buildings of precast and prestressed concrete. Over the years, PPC has earned a reputation as a "safe company." Consequently, the precast and prestressed concrete