# Human Cognitive Behavior and Its Effects in Production and Quality Control Activities

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## Abstract

To provide an exceptional product or service to the consumer on time, a production and regular quality control process are essential to avoid errors that could compromise the timeliness and quality of an entire batch. This is where the human aspect intervenes in relation to the machine, to ensure that all parameters are respected. And with such industrial development of the new generation that is aimed to facilitate even more the task of production and quality control. The role of the operator and the inspector is to define, scan and visually search the process in progress, so at the end decide to accept or reject the product / service. The decision making depends initially on human reliability in performing this task with a significant error rate. Human error is an inappropriate reaction that leads to anomalies and defects in the organization, it is considered a major factor in reliability and the cause of loss of human performance. Several factors influence human reliability and lead to errors, and by the same effect they generate human cognitive behavior. The cognitive-behavioral approach aims to help operators to cope with the external environment and to better integrate into industrial environments of any kind. In this regard, we study human cognitive behavior in order to better understand its features, weaknesses and potentials. With this neuropsychological knowledge, we propose the best methodologies to optimize the performance of human reliability and achieve the required productive and qualitative aspect.

## Keywords
Humain Riability, Human Error, Cognitive Behavior, Industrial Environement, Quality Control.

## Biographies
**Hanan Majri:** PhD, engineer in industrial systems management, at the École de Technologie Supérieure, Université de Montréal, Canada. In 2021, she had her master degree with continuous improvement project at Amballage Altium Canada. In 2017, she got her diploma of master research in an automatic and information processing at the School of Engineering of Tunis, Tunisia. In 2016, she obtained her professional master's degree in industrial systems management at the School of Engineering of Carthage, Tunisia. She has 10 years of experience in industrial production and pharmaceutical quality control between Tunisia and Canada. Passionate about digital production, quality control in all types of industries, inventory management, human integration, human reliability, continuous improvement.

**Jean-Pierre Kenné** is a professor in the Department of Mechanical Engineering at ETS, University of Quebec since 2000. He obtained a PhD and a Master's degree in mechanical engineering from École Polytechnique de Montréal in 1997 and 1990 respectively. He has been working on the modeling of dynamic systems and the development of control laws since 1995. He proposed various control strategies for such systems and validated the latter in real time on prototypes. He has also developed a new method of controlling flexible production systems, a method he has applied to production planning and maintenance. Over the past decade, he developed expertise in integrating the fundamental

concepts of stochastic optimal control theory with simulation-based optimization models, experimental design and surface methodology.