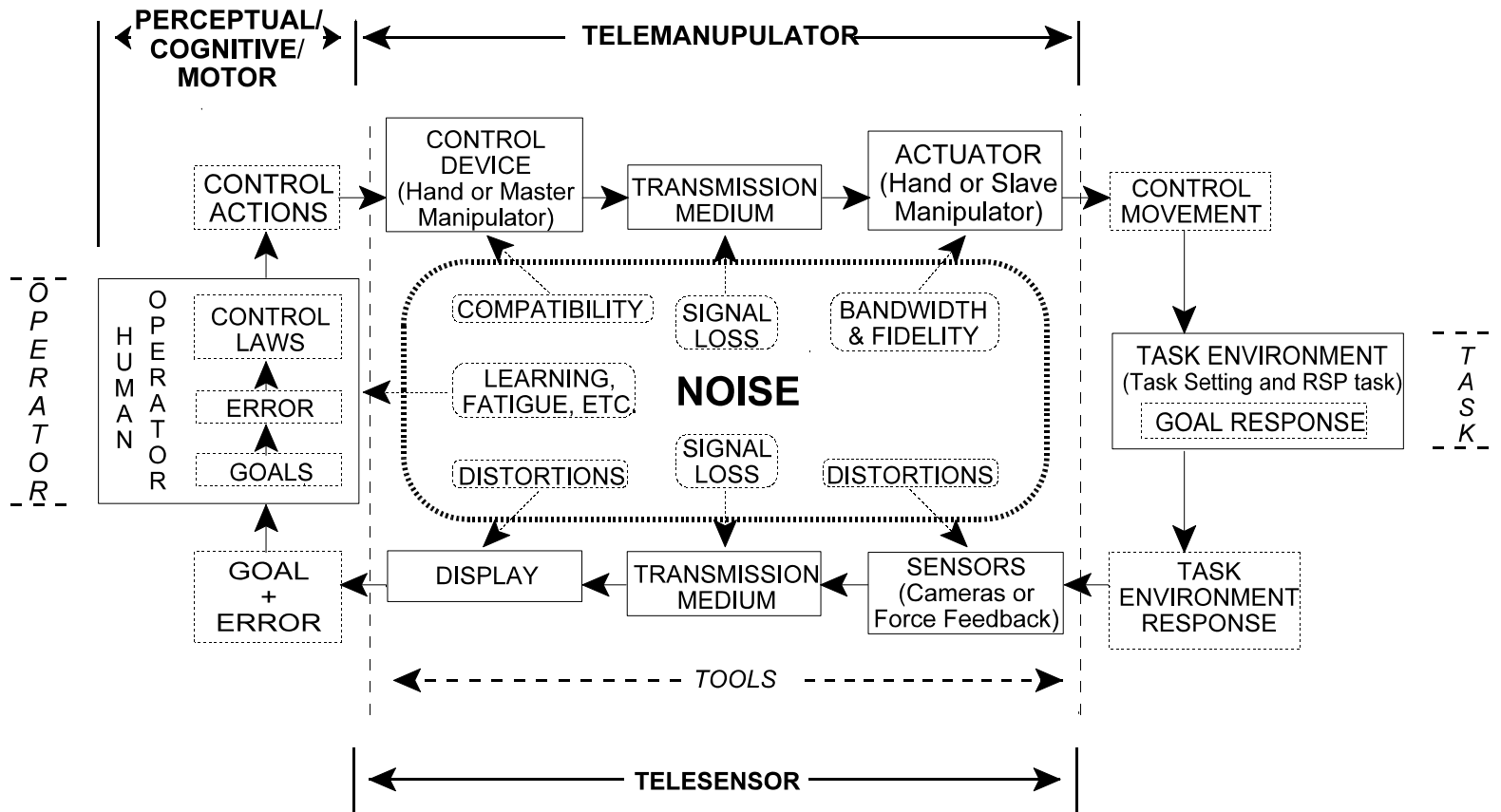


Abstract

The two objectives of this study are, to validate a generic teleoperator task and to compare actual results of this task to predicted results of a proposed model of teleoperator performance. In the model, it is hypothesized that human perceptual-motor performance can be predicted by quantifying the flow of information between the operator and the task and that changes to the flow caused by the insertion of a teleoperation system (i.e., viewing and manipulator system) can be used to predict teleoperator performance. Thirty-six university students were randomly assigned to three groups which performed the generic teleoperator task under various combinations of viewing and manipulator conditions. The generic teleoperator task was found to produce reliable and valid results, while the teleoperator performance model was able to predict results generated from the generic teleoperator task, supporting the model's hypothesis.



COMPONENTS OF THE MODEL HUMAN PROCESSOR

- 1. PERCEPTUAL
- 2. COGNITIVE
- 3. MOTOR

CONSTRUCTS

PHYSICAL ENTITIES

MAJOR COMPONENTS OF TELEOPERATION TASK PERFORMANCE

- 1. OPERATOR
- 2. TOOLS
- 3. TASK

Teleoperator System. The diagram combines features of the classical closed loop system, Wickens' human dynamic tracking (1986) and Sheridan's teleoperator (1992) diagram. Also diagrammed are the boundaries of the major components of task performance and the components of the Model Human Processor model (Card, Moran & Newell, 1983).