SYDE 543 Course Notes

Cognitive Ergonomics

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**Winter 2021**

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# Why Cognitive Ergonomics?

## What is Cognitive Ergonomics?

* Cognitive ergonomics is the field of study that focuses on how well the use of a product matches the cognitive capabilities of users
* Mainly focuses on work activities which have an emphasized cognitive component, are in safety-critical environments, and are in a complex, changeable environment
* Domain: Environment where the system operates, presents constraints and opportunities
* Operates with two underlying theories: a theory about domain and about human cognition

## The Descriptive Model of Human Information Processing

* Short Term Sensory Store (STSS): Events first processed by sight, sound, touch, etc.
* Perception: Determining meaning of events, long term memory of events
* Response Selection: A decision made based on either perception or working memory

Diagram

Description automatically generated

## Kind vs. Wicked Learning Environment

* Kind learning environments have next steps and goals that are clear, have rules that are clear and never change, get feedback that is quick and accurate (golf, chess, etc.)
* Wicked learning environments have next steps and goals that may not be clear, have rules that may change, may or may not get feedback
* The work world is a wicked environment, where hyper specialization can backfire
* In a wicked world, we need people who generalize first then specialize later on
* We need both frogs and birds, frogs to see the details up close, and birds to integrate the knowledge together, to succeed in a wicked world