Assessing mental workload in the return to work process: a question of perspective.

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What do you see?

http://www.uncommondescent.com/intelligent-design/expelled-as-a-perceptual-exercise/

In the 1950s-1960s

- “Telephonists’ nevrosis”

1 Le Guillant et al. (1956)

Work transformation

- Rapid evolution of technologies
- Growth of the services sector

Emergence of mental workload

1 Megaw (2003); 2 Vaïna et al. (2008); 3 Cooper & Harper (1969)

What is mental workload (MWL)?

What we DO know:

- Factor implicated in work disability
- Obstacle to return to work after common mental disorders
- Multitude of measurement techniques
- Challenge for the work rehabilitation practitioners
- Needs for a more suited measurement tool

1 St-Arnaud et al. (2006); 2 Durand et al. (2010); 3 van Oostrom et al. (2009); 4 ISO (2004); 5 Barbat et Coulombe (2008); 6 Stanton et al. (2008); 7 ISO (1991)

One thing we DO NOT know:

- How to define it!
- No consensus

How to measure mental workload in the return to work process?

How to define it?
Walker & Avant’s concept analysis

- Identify the concept
- Determine the purpose
- Identify the different uses
- Identify the attributes
- Identify a model case
- Identify other cases
- Identify antecedents and consequences
- Identify the empirical referents

**METHODOLOGY**


**RESULTS**

Step 3: Identification of different uses

- Two main perspectives emerged:
  - Work condition
    - "Sum of the mental demands placed upon the operator" — Bridger (2009)
  - Work consequence
    - "Operator strain or effort of performing a task" — Megaw (2005)

ISO 10075 supports both perspectives


**RESULTS**

Step 4: Identification of attributes

**WORK CONSEQUENCE PERSPECTIVE**

- Mental state related to the effort or the cost from accomplishing work at a given level of performance

- Continuum

- Underload
- Comfortable MWL
- Overload

- Effects (cognitive and emotive) on the worker

**RESULTS**

Focus on some of the results:

- ISO 10075 supports both perspectives

**METHODOLOGY**

- Literature review
  - 2000 – 2010
  - French and English
  - Keywords searched for in various sources

- Dictionaries
- Multiple databases
- Reference books
- Specialized websites
- Scanning of references

RESULTS

Step 8: Identification of empirical referents

1. Performance measures
   - Time or quantity
   - Well documented
   - Limited to overload

2. Physiological measures
   - HR, HRV, EEG
   - Continuous
   - Not specific
   - Require a controlled env.

3. Indicators from work analysis
   - Postural indices, strategy changes
   - Substantial information
   - Time consuming and expertise level required

4. Subjective measures
   - NASA-TLX (score)
   - Fast and low cost
   - Memory bias

RESULTS

A conceptual definition of MWL

“A hypothetical construct reflecting an individual’s mental state (affective and cognitive), related to the effort or cost resulting from accomplishing the work at a given level of performance. The mental state can be seen as a continuum varying from mental underload to mental overload, with a comfortable mental workload existing between. Both extremes are associated with negative effects and positive effects are associated with comfortable mental workload.”

DISCUSSION

A question of perspective

- Work consequence:
  - Not as commonly used compared to the work condition perspective
  - Takes into account human variability
  - Broader than cognitive load (emotional component)
  - Related to stress at work or psychological distress (overload) but a comfortable MWL is also important

1. Bridger (2009); 2 ISO (1991); 3 Coutu et al. (2011); 4 Karasek and Theorell (1990); 5 Kessner (2006)

DISCUSSION

Advancement of knowledge

- No available empirical referents to fully address the continuum of MWL in the return to work process.
- A conceptual definition could be proposed using the identified attributes.
- The results of a concept analysis are useful to:
  - Define and understand the structure of a concept
  - Guide tool selection
  - Orientate tool development

CONCLUSION

Take-home messages

- Mental workload is a complex but important construct to assess.

- Subjective measures and the work consequence perspective are promising avenues to consider variability between individuals in the assessment of MWL in the work rehabilitation process.

- Results from this concept analysis can be used to develop a tool that will cover the continuum of MWL.
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