



CANCÚN, MÉXICO

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

1



What do you see?


2

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


3 INTRODUCTION

In the 1950s-1960s

- « Telephonists' neurosis »¹




1 Le Guillant et al. (1956)



4 INTRODUCTION

Work transformation ^{1, 2}

- Rapid evolution of technologies
- Growth of the services sector



Emergence of mental workload ³

1 Megaw (2005); 2 Vézina et al. (2008); 3 Cooper & Harper (1969)

5 INTRODUCTION


What is mental workload (MWL)?

What we DO know:

- Factor implicated in work disability ^{1,2}
- Obstacle to return to work after common mental disorders ³
- Multitude of measurement techniques ⁴
- Challenge for the work rehabilitation practitioners⁵
 - Needs for a more suited measurement tool

One thing we DO NOT know:


- How to define it!
 - No consensus ^{6,7}



1St-Amaud et al. (2004); 2 Durand et al. (2010); 3 van Oostrom et al. (2009); 4 ISO (2004); 5 Barabat et Coulombe (2008); 6 Stanton et al.(2005); 7 ISO (1991)

6 OBJECTIVE

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



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

7 **METHODOLOGY**

Walker & Avant's concept analysis ¹

- Step 1 • Identify the concept
- Step 2 • Determine the purpose
- Step 3 • Identify the different uses
- Step 4 • Identify the attributes
- Step 5 • Identify a model case
- Step 6 • Identify other cases
- Step 7 • Identify antecedents and consequences
- Step 8 • Identify the empirical referents

¹ Walker & Avant (2005)

8 **METHODOLOGY**

Walker & Avant's concept analysis ¹

- o **Literature review**
 - o 2000 – 2010
 - o French and English
 - o Keywords searched for in various sources
- Dictionaries
- Multiple databases
- Reference books
- Specialized websites
- Scanning of references

¹ Walker & Avant (2005)

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RESULTS

10 **RESULTS**

Focus on some of the results:

- Step 1 • Identify the concept
- Step 2 • Determine the purpose
- Step 3 • Identify the different uses
- Step 4 • Identify the attributes
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11 **RESULTS**

Step 3: Identification of different uses

- o Two main perspectives emerged:
 - o Work condition
 - o Work consequence

Ex: "Sum of the mental demands placed upon the operator"

Bridger (2009)

Ex: "Operator strain or effort of performing a task".

Megaw (2005)

ISO 10075 supports both perspectives ¹

¹ ISO (1991 and 2004)

12 **RESULTS**

Step 4: Identification of attributes

WORK CONSEQUENCE PERSPECTIVE

ATTRIBUTES

- **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

13 RESULTS

Step 8: Identification of empirical referents

Ex:

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

14 RESULTS

Step 8: Identification of empirical referents

- Attributes of MWL
 - Effort
 - Cognitive effects
 - Emotive effects
- NASA Task Load Index¹
 - Mental constraints
 - Physical constraints
 - Temporal constraints

- Good!
 - Effort
 - Frustration
- Very limited and no cognitive evaluation
- Performance

1 Hart & Staveland (1988)

15 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."

16 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

17 DISCUSSION

A question of perspective

- Work consequence:
 - Not as commonly used compared to the work condition perspective¹
 - Takes into account human variability
 - Broader than cognitive load (emotional component)^{2, 3}
 - Related to stress at work or psychological distress (overload)^{4, 5} but a comfortable MWL is also important²

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

18 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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