Mental Workload and Peer Review

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IN SCIENCE AND TECHNOLOGY

PRESENTATION

- Mental workload and peer review
- Research design and methods of Croatian Research
- Limitations of the research
- In future..

MENTAL WORKLOAD DEFINITION

- There is no clearly defined, universally accepted definition of human mental workload (Cain, 2007).
- The literature suggests it is hard to define due to its multifaceted and multidimensional nature which is dependent on the capabilities and effort of the operators in the context of specific situations.
- A general intuitive definition is that **mental workload is the amount of mental or cognitive work necessary for a person to complete a task over a period of time.**

MENTAL WORKLOAD

- Mental workload is
  - complex psychological construct which involves the interaction of two principal components: a task and a person and this interaction might be mediated by several elements.
  - this interaction might be mediated by several other elements

available cognitive resources, the ability and skill of a person, the effort exerted as well as time, context and external factors.

- The main reason to measure MWL is to predict performance.

RESEARCH DESIGN- QUANTITATIVE

- To explore how the MLW imposed on the reviewer by the reviewing process impact the acceptance status of a journal paper?
- To test if the mental workload assessments might be considered as a form of validation for the peer-review process of journal papers.
  - If correlation coefficients (Pearson/Spearman) confirm hypothesis then mental workload assessments might be considered as a form of validation for the peer-review process of conference and journal papers
- Idea was to give every Journal feedback useful for improvement of their reviewing and editorial process

RESEARCH PROPOSAL - QUANTITATIVE

1. survey link in peer review report (http://lucalongo.eu/ASW/)
2. data will go into a password protected database
3. after data collection a correlation study will be performed

QUESTIONNAIRE

13 questions – Likert scale

1. Mental workload: How much mental workload did the peer-review process impose on you?
2. Mental demand: How much mental and perceptual activity was required by the peer-review process? In other words, was the peer review easy or demanding (simple or complex)?
3. Effort: How hard did you have to work (mentally) to accomplish your level of performance during the peer-review process?

QUESTIONNAIRE

4. Parallelism: Did you perform just this task (peer-review) or were you engaged in other parallel tasks (mobile browsing/social networks, chatting, reading, conversations etc.) during the entire peer-review process?
5. Past knowledge and expertise: How much experience/knowledge do you have with peer-review process in general?
6. Context bias: How often were you interrupted during the peer-review process occurred? In other words, were distractions (mobile, interruptions, noise, questions, other activities, etc.) not influential or did they negatively influence your attention towards the peer-review process?

QUESTIONNAIRE

7. Motivation: Were you motivated by the peer-review process and the paper under review? In other words were you keen to review the paper and provide feedback or was this a bit of an onerous task?
8. Solving and deciding: How much attention was required by the peer-review for activities like remembering, problem-solving, decision-making and perceiving (eg. consulting literature review, recognising and identifying relevant papers, mathematical calculations)?
9. Skill: Did your skills, in the specific domain of the paper you reviewed, have no influence or did they help your peer-review?

QUESTIONNAIRE

10. Frustration: How irritated, stressed and annoyed versus content, relaxed, and complacent did you feel during the peer-review? In other words, what was your state of mind while conducting peer review: were you generally feeling quite irritated, stressed and annoyed or were you quite content and relaxed during the actual peer review process?
11. Performance: How successful were you in the peer-review process? In other words, how satisfied were you with your level of performance?
12. Alertness: Were you alerted during the peer-review process? In other words, were you sleepy/tired or fully activated/awake?
13. Temporal demand: How much time pressure did you feel due to the pace at which the peer-review process or its elements occurred? In other words, was the pace slow or rapid?

RESEARCH DESIGN- QUALITATIVE

- Research included one qualitative question to explore the reviewers approach to review task on the specific article.

  Describe your reviewing experience related to this article

- Data analysis: qualitative thematic analysis to give deeper insight and explanation of the reviewer experience with review task.

RESEARCH PROPOSAL - QUALITATIVE

1. one open question in survey link in peer review report

2. data will go into a password protected database

3. after data collection a qualitative analysis of the data will be performed

RESEARCH ETICHS

The research included ethical standards:

- informed consent
- confidentiality
- data protection

Data will go into a password protected database with access only for researches

RESEARCH PROCEDURE

Research procedure included posting the survey link in peer review report and collecting results through online database.

When and how?

1. after reviewer submit the review
2. within few days through OJS we sent personalized e-mail about acceptance of review and inquiry with the link to participate in the research

Response rate was extremely low !

CROATIAN RESEARCH

- 3 journals confirms participation
- In 2 journals still **NO DATA**
- 1 journal start to collect data in June 2016

Low response rate: over 40 e- mails with links for participating at the research were sent to reviewers

Only 3 answers in 3 months !!!

RESULTS – STILL EXPECTING ?!?!?

- We still don’t have any quantitative data or analyzes
- But we did thematic analysis on 3 short qualitative answers
- Only preliminary results- 3 answers are not nearly enough for theoretical saturation

THEMATIC ANALYSIS

- Thematic analysis is flexible and simple qualitative method of data processing
- We can define it as a method of identification, analysis and reporting of samples (themes) among the collected data.
- Using thematic analysis data can be organize and describe in detail, and interpret the various aspects of the topic studied (Boyatzis, 1998, Braun and Clarke, 2006).

THEMATIC ANALYSIS- 6 STEPS

1. Step. 1 Familiarise yourself with the data
2. Step 2 Generate initial codes
3. Step 3.Discovering themes/searching for themes
4. Step 4. Reviewing Themes
5. Step 5 Defining and naming themes
6. Step 6 Writing the Analysis

THEMATIC ANALYSIS

- Inductive, bottom up approach (data driven coding)
- Code validation – To ensure the integrity of the codes—that is, that they have not been misinterpreted and are free of researcher bias—they should be developed and reviewed by more than one person. The researcher(s) read and re-read the data, double-checking the codes for consistency and validation. The integration of the codes from the data becomes the codebook from which themes emerge.

THEMATIC ANALYSIS- EXAMPLE

quote	category	theme
goal and main topics were not clear..1		Focus on article deficiency
quality of results and interpretation was poor…3	Insufficient methodology data	
Lack of methodological clarity …3	Insufficient results and interpretation	
Extremly confusing style of writing...1	Inefficient style of writing	
It was hard to review this article…1	Negative feelings	Negative review experiences
I had lots of dilemmas with final assessment of article…3	Problematic assessment	
My reviewing experience was fine…2	Positive feelings	Positive review experiences
The theme of paper was very interesting…3	Interesting content	
this experience was instructive…3	educational component	
journal editors did not facilitate any specific quality evaluation criteria…2	Lack of evaluation criteria	Insufficient editor support
(editor) comment only that the paper was not an academic one, but a professional experience…2	Lack of editorial guidelines for the review	

LIMITATIONS & CHALLENGES

- Time of the year- summer holidays
- Lack of motivation for the reviewers for accepting the reviews and participating in the research- perceived as extra work
- Time limits- Does reminders works? In what period of time? Would it differ in answers?
- Lack of technical and administration support in Journal Editing – focus on the editorial processes which are crucial for the journal publishing, research is marginal activity
- Technical problems- domain and server from Zagreb University (intra university level)

HOW CAN WE GO ON…

- And to be more efficient?!
- To change time of sending a survey link? Maybe to send it at the same time when we send review?
- To include the note in review invitation that the participation in the research is integral part of submitting the review and announce that link will be sent after the review is submitted
- Any other ideas?

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THANK YOU ON YOUR FEEDBACK!

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