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Analysis of Mental Work Load Using NASA TLX Method in Inclusion Teachers

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ABSTRACT

This research was conducted on inclusive teachers in a private junior high school in the Cibinong area, Bogor. The number of research respondents was 4 respondents consisting of women and men with the latest education ranging from high school / equivalent, Bachelor, and Master Degree. The results of this study 2 female respondents with the latest Master Degree education have a high mental workload category, 1 woman with the latest Bachelor education has a low mental workload category and 1 male respondent with high school / equivalent education gets a moderate category.

The government establishes a policy in the education system that regular schools organize inclusive learning. Inclusive school learning requires teachers to have special performance in carrying out learning activities. One of the factors that influence the success rate of children with special needs in their development is the performance of educators / teachers. Johnson (2005) in Mohammadian (2014) states that teaching activities are one of the most stressful jobs. Teaching inclusive students is a challenge for inclusive teachers. Starting from the limited

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understanding of students in receiving learning material, the feelings of inclusion students who are mostly more sensitive so that they need special patience in communicating, the demands of the creativity of inclusive teachers in creating comprehensive learning materials that are easily understood and accepted by inclusive children and so forth. Teachers are required not only to be able to teach a number of knowledge and skills in line with the potential and characteristics of their students, but also to be able to act like paramedics, therapists, social workers, counselors, and administrators (Kusumadewi, 2013). These things are triggers for the emergence of mental workload on inclusive teachers. Mental workload is defined by Meshkati & Hancock (1988) as an evaluation of the differences in capacity a person has when doing certain mental activities. To find out the mental workload experienced by inclusive teachers, it can be done by measuring the mental workload.

METHOD

This study measured the mental workload of inclusive teachers using the NASA TLX method. Measurement of mental workload using the NASA TLX method in the form of a questionnaire that will be filled in by respondents in this study, namely the inclusion teacher. In NASA TLX, there are 6 dimensions of mental workload measurement, namely Mental Demand, Physical Demand, Temporal Demand, Performance, Effort and Frustration Level.

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The questionnaire is designed in two parts, the first part is filling in weights, containing 15 questions about which indicator choice is the most dominant from the paired indicators being compared. The fifteen paired indicators were obtained from a combination of 6 NASA-TLX variables. Meanwhile, the second part contains workload rating. The rating for each indicator starts from a scale of 0 to 100. The workload calculation is based on the results of the questionnaire that was filled in by the teacher. The first stage is to calculate the frequency and weighting resulting from the proportion of the assessment of the importance of the paired variables. While the second stage is to calculate the amount of workload by multiplying the weighted results from the first stage with the results of the workload rating of the six NASA-TLX indicators.

RESULTS AND DISCUSSION

1. The ranking stage

At this stage the inclusive teacher gives a rating in 6 categories according to the factors that are more dominating in carrying out work. Each factor has a scale of 0 - 100 or low to high. The six categories are as follows:

a. Mental Demands (MD)

How much mental effort would it take to get this job done?

b. Physical Demands (PD)

How much physical effort would it take to complete this job?

c. Temporal Demands (TD)

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How much pressure did you feel with the time to get this job done?

d. Own Performance (OP)

What is the level of success required to complete this job?

e. Effort (EF)

How much mental and physical work is required to complete this job?

f. Frustation (FR)

How much anxiety, pressure and stress do you feel about completing this work?

2.The weights stage

At this stage, a comparison is made of each factor. Choosing a partner category that is more influential or dominant becomes a source of mental workload for the work being done. At the time of work of each existing descriptor pair there are 15 descriptor pairs. The descriptor choices are then processed to calculate the weight of each descriptor and this weight will be used in the second stage.

3. Mental workload data processing

The stages in processing mental workload data are as follows

a. Calculating ranking comparisons between paired descriptors then summing the results of the comparisons.

b. Calculating the workload generated by each WWL (Weighted Workload) descriptor with the equation WWL = Σ (rating x weight)

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c. Calculate the average WWL by dividing the WWL by the total weight, which is 15.

d. Interpreting the results into categories divided into 4 (Meshkati, 1988), namely: low (10-33), moderate (34-56), high (57-79) and very high (80-100).

The following are the results of mental workload categories for inclusive teachers

Respondent	Gender	Education	WWL	WWL Means	Category
1	Woman	Master Degree	1010	67, 3	High
2	Woman	Master Degree	1140	76	High
3	Woman	Bachelor	650	43,3	Moderate
4	Man	Senior High School	750	50	Moderate

CONCLUSION

Based on the research data, it is known that inclusion teachers with the gender of women and the last education Master Degree have a high mental workload category. Respondents of female teachers with the latest education of S1 have a moderate mental workload category and male inclusion teachers with the last education of high school have a moderate category.

SUGGESTION

The use of the NASA TLX method in measuring mental workloads can be applied to a wider and more diverse range of research objects and research locations

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because this study cannot represent the level of mental workload on inclusion teachers in general. It is hoped that the results of this study can be used as a reference in developing further studies related to measuring mental workload.

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