



Report on the Development of a Vocational Rehabilitation Support Tool for the various types of disabilities

- Task revision and development of new tasks on Makuhari Work Sample (MWS) -

(Research Reports No.130) Summary

[Keywords]

Assessment and training tools, Makuhari Work Sample (MWS), criterion

[Usage of this report]

The Makuhari Work Sample (MWS) is a core tool composed within the “Integrated Support Tools for Assessment and Training (Total Package to promote work adjustment)” and it is used to efficiently carry out the vocational rehabilitation.

Based on the results of the basic survey for active users of MWS, the expansion of evaluation and training function was planned by “task revision and development of new tasks.” Its purpose is to fulfill the support for various types of disabilities. This report was organized and analyzed for the current status and establishment of the criterion of revised work samples.

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2 Research Period FY 2013 to 2015

3 Composition of the Research Report

Memorandum:

Prologue:

Section 1: The current status of revision and development of MWS

Prologue:

Chapter 1: Task revision

Chapter 2: Development of new tasks

Section 2: The criterion of revised tasks

Chapter 1: The current status of data collection

Chapter 2: Operating manual revision

Chapter 3: Future tasks regarding the criterion and operating manual

Summary

Documents

4 Background and Purpose of Research

The Makuhari Work Sample (MWS) is a core tool composing the “Integrated Support Tools for Assessment and Training (Total Package) to promote work adjustment” and it has been sold commercially for more than ten years. During this period, clients base for vocational rehabilitation has been broadened including mental disabilities and developmental disabilities.

From the result of the basic survey (“Basic Survey for the Revision of Makuhari Work Sample (MWS) in response to the Diversification of Disabilities,” material series No. 72, National Institute of Vocational Rehabilitation (2013)) for active users of MWS undertaken in 2012, “the needs for a level change in current tasks (increase in difficulty levels) and the needs for a change of the number of blocks (number of questions),” and “development of new tasks,” were confirmed.

Thereafter a revision and the development of new tasks were conducted in order to expand the evaluation and training functions of MWS and to efficiently carry out the vocational rehabilitation services for a variety of disabilities.

5 Method

(1) A trial run with adults and persons with disabilities

Firstly a trial run was conducted with adults to confirm task details, consistency of difficulty levels and exhaustion levels due to workload. After considering these results, a trial run was conducted with persons with disabilities at the research cooperation institutions.

Research participants for the trial run were clients at the research cooperation institutions with disabilities, including developmental disabilities, mental disabilities (schizophrenia and mood disorders), higher brain dysfunction and intellectual disabilities.

The aim of the trial run for the revised tasks was to confirm task details, consistency of difficulty levels and exhaustion levels and comprehend the effect depending on the type of disability. For the new development tasks, a trial run was conducted to identify task

details, difficulty level settings and exhaustion levels.

(2) Data collection on adults for the criterion

The criterion for the revised tasks (average of time required, average percentage of correct answers and percentile rank) were set based on the statistical analysis from the data collection on adults.

6 Research Contents

(1) Revision of the current tasks

A. Aim of the revision

Based on the three requirements as shown in the following, the function of MWS is enhanced and strengthened.

- (A) Some clients were able to finish all the levels and all the blocks without any difficulties. However some of them had a disability which was not identified during the process of the evaluation and was revealed at their workplaces. It is necessary to evaluate aptitude for work and employability of the clients appropriately and establish appropriate support.
- (B) For some clients, the intellectual, cognitive and mental loads imposed by the current MWS (level and block setting) were not adequate and they lost their motivation for MWS. In order to smoothly carry out the training to improve the work performance, it is necessary to expand the variety of task experiences within the appropriate loads, suitable for the characteristics of the persons, to master the compensatory strategy.
- (C) For persons with mild intellectual disabilities who want to engage in a simple office task and for persons with higher brain dysfunction who are aiming to return to work, it is necessary to appropriately evaluate the office task that is able to be fulfilled by them which leads to their efficient training.

B. Revision details

With the result from the basic survey, five tasks were selected as the revised tasks considering the “usage rate,” “requests for revision,” and “the consistency with the concept of MWS.” “Levels (increase in difficulty levels),” and “a number of blocks (increase in a number of questions),” were revised as for the five tasks (Table 1).

Table 1: Revision details of the five tasks for MWS

Scope	Name of work samples	Level (establishment of higher difficulty levels)	Blocks in each level (increase in the number of questions)	
OAWork	Data entry	6 → 8	10 → 20	
	Searching and updating data	5 → 6	20 → 40	
Office work	Verifying numbers	6 → 8	12 → 40	
	Creating goods' invoices	5 → 6	10 → 40	
Practical tasks	Collecting material	5 → 7	Level	Number of blocks
			1~3	15 → 20
			4~5	16 → 20
			6	20
			7	15

C. Conducting the trial runs

After the trial runs with adults, trial runs with persons with disabilities were conducted at the research cooperation institutions. The percentage of correct answers, time required and error details depending on disabilities (developmental disability, mental disability, intellectual disability and higher brain dysfunction) were qualitatively analyzed. As a result, the following knowledge was obtained as an effect from the revisions.

- (A) By increasing the level to higher difficulties, depending on the type of disabilities, the characteristics of disabilities were revealed and the possibility of the appropriate planning of support has been expanded.
- (B) Having more opportunities to learn the compensatory strategy for their disabilities during the training process, it helps to maintain motivations towards MWS.

(C) By increasing the number of blocks, it helps repetition training in order to improve the performance for simple office tasks.

(2) Development of new tasks

A. Aim of the development

Even after the revision of five tasks, there are still a certain number of persons (it is assumed that mainly persons with mild developmental disabilities and persons with mood disorders) who are not provided with appropriate loads. In order to expand further function of MWS, it is necessary to develop new tasks which require higher intellectual, cognitive and mental loads compared to the current tasks.

Three tasks were developed based on the result from the basic survey and the following five points. Three tasks are 1) "salary calculation," for OAWork, 2) "proof-reading," for Office work, and 3) "mail sorting" for Practical tasks.

- (A) To set up a higher difficulty level than the current tasks to accommodate the usage needs for persons with mild developmental disabilities and persons with mood disorders who are aiming to return to work.
- (B) To be consistent with the concept of MWS.
- (C) To consider an applicable possibility for the persons with intellectual disability, schizophrenia, higher brain dysfunction, etc..
- (D) To provide the criterion (average of time required and average percentage of correct answers for adults).
- (E) To save cost (manufacturing and usage cost).

Table 2: Details of the new tasks

	Name of work samples	Details of new tasks
OAWork	Salary calculation	<p>(Details)</p> <ul style="list-style-type: none"> Performing the salary calculation for employees. Questions (employee information) will be displayed on the computer screen, answers should be calculated according to the supplementary books and input on the computer screen. <p>(Ability to be comprehended)</p> <ul style="list-style-type: none"> It is required to apply the calculation rule according to the supplementary books correctly depending on the condition of every employee, as well as specify the numerical value in the table. <p>(Level setting)</p> <ul style="list-style-type: none"> 1 level: expected to be 30 blocks Level 1-4
Office work	Proof-reading	<p>(Details)</p> <ul style="list-style-type: none"> Proof-reading of documents using the photocopied work documents and reports, etc. Correcting errors using the proof-reader's mark by comparing letters, etc., between manuscripts and proofs. <p>(Ability to be comprehended)</p> <ul style="list-style-type: none"> It is required to correct by carefully checking incorrect letters, missing letters and form of documents. <p>(Level setting)</p> <ul style="list-style-type: none"> 1 level: expected to be 2-4 blocks Level 1-5
Practical tasks	Mail sorting	<p>(Details)</p> <ul style="list-style-type: none"> Sorting postcards and letters posted to the corporation, by department written on the address. <p>(Ability to be comprehended)</p> <ul style="list-style-type: none"> It is required to sort accurately by each department and section according to the rules provided. <p>(Level setting)</p> <ul style="list-style-type: none"> 1 Level: expected to be 30 blocks Level 1-5

B. Development details

The details of the new tasks are as follows. Since the use of "supplementary books (necessary charts and documents are attached in order to carry out tasks)," is a prerequisite, each task consists of characteristics which are not included in the current MWS.

C. Conducting the trial runs

After a trial run with adults, trial run was conducted with persons with disabilities at the research cooperation institutions. At this current stage, because of using a prototype during the process of development, the usage effect will be analyzed in the next research (2016-2018).

The results from the trial run at the current stage are summarized below.

(A) "Salary calculation"

Since salary calculation require high intellectual, cognitive and mental loads, it is presumed that persons with mild developmental disabilities and persons with mood disorders who are aiming to return to work will be the main target.

(B) "Proof-reading"

In order to gradually increase the intellectual and cognitive loads, a phased level setting was considered. For the level with high difficulties, some participants started to show a clear sign of exhaustion as the time became longer. Therefore, it is necessary to rethink about the difficulty levels.

(C) "Mail sorting"

It was confirmed that as the levels went up, the time required equally increased and the percentage of correct answers equally decreased. Therefore it is assumed that the difficulty level has been consistent.

However, since it was pointed out that it took a long time to mark, the automatic marking system, which uses barcode readers and computers, was introduced and as a result it showed a certain number of time cut effects. It is aimed to reduce the amount of time for marking by reviewing the error categories.

(3) Revised tasks

A. The method of data collection and policy criterion

For the collection of adult data, a temporary employment agency was used to collect research participants (with experiences of being employed) providing data of revised tasks (gender and age range of participants are shown in Table 3). However, it was difficult to collect the number of male participants because of the specific regulation based on the current Worker Dispatching Act (applicable to the prohibition of daily employment and exception regulations).

Because the specific age range data was collected, the criterion by age range (average of time required and average percentage of correct answers depending on the level) was set.

Table 3: The number of research participants by gender and age range (preliminary figures at the end of October, 2015)

		Age range				Total (persons)
		20~	30~	40~	50~	
Gender	Male	8	17	12	8	45
	Female	31	37	37	35	140
Total		39	54	49	43	185

Note) breakdown of students within the age range of their twenties
(male 2/female 4)

B. Notes concerning the criterion

In this report, the criterion based on the data that was collected at the end of October, 2015 is considered to be the "preliminary figure." Because the additional data continued to be collected until March, 2016, the criterion ("definitive value") will be released in the "MWS Operating Manual (revised version)".

(4) The revision of the operating manual

With the revision of the five tasks, the operating manual was also revised. Revised sections are as follows, 1) the number of blocks and levels, 2) error categories, 3) the instruction method and 4) the criterion.

7 Tasks for the Future

In this report, the revision and development of MWS and the criterion have been reported.

Regarding the revised tasks, as shown in the results of the trial runs with the persons with disabilities, both the evaluation function and training function have been improved.

On the other hand, among the persons with mild developmental disabilities and persons with mood disorders, there are still a certain number of persons whose characteristics of the disabilities are not able to be identified with the revised five tasks. Therefore it is planned to improve the functions by the development of new three tasks which will be useful for these clients.

The revised MWS (five tasks) will be provided (selling commercially) next year. In the next research (2016 - 2018), the details of the new three tasks will be confirmed and the usage effect per type of disabilities will be analyzed and the criterion will be set.