The Functions of Vocational Rehabilitation Using Agriculture in Japan

Kazuaki Maebara[1*], Yukiko Goto[2], Jun Yaeda[3]

1. Akita University, Japan
2. Tsukuba University of Technology, Japan
3. University of Tsukuba, Japan

ABSTRACT

Purpose: *Vocational horticultural therapy seems effective in the recovery of individuals with psychiatric disabilities; however, few studies have explored the factors underlying the effectiveness of such therapeutic intervention in the context of psychosocial vocational rehabilitation. While many jobs are available in metropolitan areas such as Tokyo, agricultural jobs are often limited, especially at sheltered workshops for individuals with disabilities (Type B Support Centres) in Japan.*

Methods: *A mail survey was conducted with 119 administrators of Type B Support Centres in Akita Prefecture, a northern area of Japan. Respondents were asked to complete the "Efficacy of Agricultural Vocational Rehabilitation" (EAVR) questionnaire which was developed by the authors of this article.*

Results: *The results of exploratory factor analysis revealed two factors: "Reassurance" and "Place of Exchange." There was no significant difference between the perceived effectiveness of vocational horticultural therapy in farming and non-farming job categories. Support Centres that offered farming opportunities seemed to provide more direct job opportunities, preferences, and possibilities. On the other hand, Centres that did not offer farming seemed to focus more on central administration, operational management, independent handling of matters, and collaboration with other support institutions.*

Conclusion: *While Type B Support Centres in Japan offer support in farming jobs, they do not provide enough support for horticultural therapy for people with psychiatric conditions. To promote collaboration between Type B Support Centres that offer farming jobs and social welfare centres that have expertise in horticultural therapy, it is necessary to disseminate knowledge about the benefits of horticultural therapy.*

* **Corresponding Author:** Kazuaki Maebara, Akita University, Japan. Email: maebara-kazuaki@ed.akita-u.ac.jp

Limitation: *As this study was an analysis of a survey within a limited range of the Type B Support Centres in Akita Prefecture, future studies should investigate whether the results are generalisable to other metropolitan areas and local regions nationwide.*

Key words: *horticultural therapy, employment support, vocational rehabilitation, farming*

INTRODUCTION

In recent years, many welfare institutions in Japan have focused on implementing collaboration between farming and social welfare. This type of collaboration is defined as follows: "An activity that fosters the development of farming businesses and confidence and sense of purpose among persons with disabilities, made possible through collaboration between the farming industry and the social welfare sector and with the ultimate aim to realise increased social contribution" (Council for the Promotion of Collaboration between Agriculture and Welfare, 2019). In fact, the number of welfare facilities implementing collaboration between the agricultural and welfare sectors is increasing. In addition, welfare service establishments for persons with disabilities that implement collaboration between the agricultural and welfare sectors reported positive effects in terms of physical/health, mental/emotional, and life/work attitudes (Nippon-kikin, 2018).

There are reports on the welfare-like power of agriculture (Hamada, 2016) and the benefits of cooperation between agriculture and welfare (Kanda, Yoshida, Tsuda & Imanishi, 2014), along with many practical studies on agricultural and welfare collaboration (Miyabe, 2020; Kikuchi, 2020).

This collaboration is said to be a win-win solution to issues that are faced by both the farming industry and the social welfare sector. Specifically, it theoretically may contribute to resolving the lack of manpower in farming in the country. Additionally, it may resolve some of the challenges of welfare centres in offering more adequate job training opportunities for persons with disabilities. These potential promises have led to a growing interest in Type B Support Centres for Continuous Employment which offer job support in Japan.

Japan's Type B Support Centres for Continuous Employment provide one way of offering job-related welfare support to persons with disabilities in accordance with the Act for the Comprehensive Support of Persons with Disabilities. This framework is in place to offer opportunities for employment for those people

who cannot be hired easily by regular mainstream companies. There are also Type A Support Centres specialised in employing persons with disabilities through employment contracts which are not offered by Type B Support Centres. There is no upper limit to the period one can make use of either type of Support Centre. In addition to these two types of sheltered workshops, there is another type of employment support system, namely the Transition Support System for Employment. This in fact is basically a private practice system. It offers a time-limited 2-year standard period of apprenticeship: offering skills training while working and enabling individuals with disabilities to work competitively.

Collaboration between the farming industry and the social welfare sector makes it possible to contribute to resolving issues faced by both fields in Japan. For this reason, attention paid to this development is growing. Meanwhile, to date, there have been no studies done in Japan which examine how agricultural initiatives function as vocational rehabilitation for persons with disabilities. Therefore, this study examined the impact of employment support to persons with disabilities in farming, with a focus on horticultural therapy as a way to offer employment for such persons.

Horticultural therapy is "the art and science of growing flowers, fruits, vegetables, and shrubs, resulting in the development of the minds and emotions of individuals, the enrichment and health of communities, and the integration of the 'garden' in the breadth of modern civilisation" (Relf, 1992). When offered through support programmes, the introduction of horticultural therapy is believed to promote the users' understanding of self-identity, develop their social interactions, physical activities, and learning skills, and improve their vocational habits (Relf, 1981). Additionally, reports show that this therapeutic method helps persons with psychiatric disabilities in finding employment (Grahn, Pálsdóttir, Ottosson & Jonsdottir, 2017). It also helps persons with intellectual disability to improve their dexterity, emotional reactions, and social skills (Joy, lee & Park, 2020). Participants in horticultural therapy can also derive a sense of positive meaning in their work (Pálsdóttir, Grahn & Persson, 2014), relieve stress (Hayashi, 2004), foster greater interest in others (Shibatani, Harada &Washio, 2009), make clinical improvements and enhance communication skills (Uehara, 2001). Horticultural therapy also reduces psychological stress and boosts positive feelings (Sugihara, Asano, Morishima & Aoyama, 2012). These outcomes of horticultural therapy suggest it would be efficacious in supporting persons with disabilities who seek jobs in farming.

Objective

The objective of this study was to clarify the features and functions of horticultural therapy and its role in offering employment support for individuals with disabilities at Type B Support Centres in Japan.

METHOD

Study Participants

The study participants were the directors and the managers of all 119 Type B Support Centres in Akita Prefecture, Japan, as of 1st October, 2019.

From 10th of January, 2019 to 20th February, 2020, self-administered questionnaires were sent to all 119 Type B Support Centres. The content included demographic information, functions of the Support Centres in providing employment support using horticultural therapy, and operational perspectives of the Centre.

Data Collection

Participants were asked to enter the number of registered users of the Type B Support Centres by disability category (intellectual, physical, psychiatric, and others), and the status of employment support in farming (if such farming-related jobs were offered).

Study Tool

To understand the features of employment support based on horticultural therapy, the "Efficacy of Agricultural Vocational Rehabilitation" (EAVR), which was developed by the authors, was used to determine the efficacy of support services using 11 items identified by Yamane and Sawada's discussion of the therapy's benefits (Yamane & Sawada, 2009). These include nurturing a sense of hope, exposure to universal experiences, exposure to passive experiences, experiencing compassionate acts, relaying information, assessing reality, learning by imitation and mistakes, catharsis through expression, a dense series of interactivity, shared experiences, and existential experiences. Based on discussions in the studied literature, the co-researchers created questions for each item based on their earlier research on vocational rehabilitation and practical experiences.

Each item was measured on a 5-point Likert scale: "Not achieved at all" (1 point), "Not achieved much" (2 points), "Neither" (3 points), "Partly achieved" (4 points), and "Adequately achieved" (5 points).

Views on the Operation of Type B Support Centres - Seven unique question items were created on the operation of Type B Support Centres. The importance of each item was gauged on 5 levels: "Do not consider important at all" (1 point), "Do not consider particularly important (2 points), "Neither important nor unimportant" (3 points), "Consider somewhat important" (4 points), and "Consider very important" (5 points).

Data Analysis

Using the responses obtained from the EAVR on the impact of support services, an exploratory factor analysis was conducted and the mean score for each factor was calculated. An unpaired t-test for each factor's mean score among farming and non-farming jobs was conducted. This was followed by a Pearson correlation analysis between views on the operation of the Type B Support Centres and scores of each factor.

Ethical Considerations

This research was approved by the Research Ethics Screening Committee targeting people in the Tegata region of Akita University (No. 1-10 on 14th December, 2019).

RESULTS

Respondents' Basic Attributes

Questionnaires were distributed to 119 Type B Support Centres and responses were received from 60 centres (50.4%). Table 1 shows the basic attributes of the respondents. While 29 Type B Support Centres (48.3%) were offering farming jobs, 31 (51.7%) were not.

Table 1: Basic Attributes of the Respondents

Item	Number of Persons
Number of Users	
Persons with Intellectual Disability	Mean: 14.1 persons (standard deviation: 10.07, range: 0-41 persons)
Persons with Physical Disability	Mean: 3.0 persons (standard deviation: 4.06, range: 0-21 persons)
Persons with Psychiatric Disability	Mean: 8.8 persons (standard deviation: 10.65, range: 0-61 persons)

Persons with Other Disability	Mean: 0.5 persons (standard deviation: 1.24, range: 0-6 persons)
Item	**Number of Centres**
Main Job	
Farming Jobs	29 Centres (48.3%)
Non-Farming Jobs	31 Centres (51.7%)

Farming Jobs: Farming tasks offered

Non-Farming Jobs: Farming tasks not offered

Exploratory Factor Analysis of EAVR for Support Services

The factors were analysed using the maximum likelihood method and the number of factors extracted were regulated using a scree plot. The factors were then extracted using the maximum likelihood method and a Promax rotation was conducted. Items with a factor loading below .35 were deleted and the factor scores determined using the final extracted factors. Table 2 shows the final factor patterns and the correlation among the factors after Promax rotation. The total distribution among eight items in two factors before the rotation was 50.1%.

Table 2: Results of Exploratory Factor Analysis (after Promax Rotation) (N=60)

Item		**1**	**2**
Factor 1: "Reassurance" (Cronbach's α=.85)			
4	The users can identify their abilities by feeling a sense of reassurance and human kindness.	**.91**	-.10
3	The user can derive a sense of acceptance.	**.77**	-.02
2	The user can derive a sense of relief by realising that s/he is "not alone" through exchange with others sharing the same disability.	**.63**	.12
1	The user can feel that s/he "feels at home by just coming here" or "can come and do the tasks again."	**.59**	.27
Factor 2: "Place of Exchange" (Cronbach's α=.70)			
5	The user can have a free and casual place of exchange where many topics, like everyday life and hobbies, can be shared.	-.13	**.98**
11	The user can spend time in comfort to accept himself/herself.	.05	**.49**
7	The user can learn the skills necessary to lead a life as a member of society and respect social boundaries.	.14	**.45**
10	The users can share their physical experiences using their five senses with others.	.19	**.35**
Correlation Among Factors		1	2
1		—	.49
2			—

The first factor comprises four items. The items covered aspects reflecting how the users can derive a sense of reassurance, acceptance, positive feelings and comfort, and relief. Therefore, this factor was named "Reassurance." The second factor comprises four items. The items covered aspects on how the users can experience the Type B Support Centre as a place of exchange, derive a sense of reassurance, attain skills to respect social boundaries in professional settings, and share physical experiences. Therefore, this factor was named "Place of Exchange."

Next, to analyse factors in the EAVR for support services, the researchers achieved sufficient values for "Reassurance" at α=.85, and "Place of Exchange" at α=.70. This was done by calculating the mean of items with high factor loading, which then allowed for the determination of Cronbach's α to study the internal consistency between "Reassurance" (Factor 1; mean: 3.75; standard deviation: 0.61) and "Place of Exchange" (Factor 2; mean: 3.35; standard deviation: 0.56).

Differences in Factor Scores among Job Categories

An unpaired t-test was used to study whether there were differences between farming and non-farming tasks (Table 3). The mean values for each factor for Type B Support Centres that offer farming jobs were: "Reassurance" (mean: 3.64; standard deviation: 0.66) and "Place of Exchange" (mean: 3.38; standard deviation: 0.53). The mean values for each factor for Type B Support Centres that do not offer farming jobs were: "Reassurance" (mean: 3.86; standard deviation: 0.54) and "Place of Exchange" (mean: 3.32; standard deviation: 0.60). The differences in scores were analysed by the t-test. None of the scores showed a significant difference ("Reassurance": p=.165, n.s., "Place of Exchange": p=.686, n.s.).

Table 3: Comparison of Factor Scores among Job Categories

	Farming Jobs (n=29)		Non-Farming Jobs (n=30)		*p* Value
	Mean	Standard deviation	Mean	Standard deviation	
Reassurance	3.64	.66	3.86	.54	.165
Place of Exchange	3.38	.53	3.32	.6	.686

Relationship between Views on Support Offered and Factor Scores

Table 4 shows the scores for the importance of views on support offered. In descending order of mean scores, the items were "Improved staff awareness of disabilities and protecting the users' rights" (mean: 4.4); "A good Centre

environment that offers comfort and a place to have free conversations" (mean: 4.3); "Help users develop strength to be self-sufficient and motivated" (mean: 4.2); "Offer support so users can fulfil their hopes and pursue personal goals" (mean: 4.2); "Collaborate with other support institutions and leverage support systems" (mean: 4.1); "Centre support provides an opportunity for users to work" (mean: 4.0); and "Satisfactory support programme" (mean: 3.8).

Table 4: Views on Centre Operation

No.	Item	Mean	Standard deviation	Minimum	Maximum
1	Satisfactory support programme	3.8	.97	1	5
2	A good Centre environment that offers comfort and a place to have free conversations	4.3	.67	3	5
3	Help users to develop strength to be self-sufficient and motivated	4.2	.74	2	5
4	Improve staff awareness of disabilities and protecting the users' rights	4.4	.70	2	5
5	Offer support so users can fulfil their goals	4.2	.76	2	5
6	Centre support provides an opportunity for users to work	4.0	.85	2	5
7	Collaborate with other support institutions and leverage support systems	4.1	.90	2	5

Next, a Pearson correlation analysis between views on Centre operation and the factor scores was conducted (Table 5). Factor 1, "Reassurance", was significantly correlated with "Satisfactory support programme" (r =.449, p<.05), "Improve staff awareness of disabilities and protecting the users' rights" (r =.379, p<.05), "Offer support so users can fulfil their hopes and pursue personal goals" (r =.475, p<.01) and "Centre support provides an opportunity for users to work" (r =.509, p<.01) in Type B Support Centres that offer farming jobs. In Type B Support Centres that do not offer farming jobs, Factor 1 was significantly correlated with "A good centre environment that offers comfort and a place to have free conversations" (r =.443, p<.05), "Help users develop strength to be self-sufficient and motivated" (r =.506, p<.01), "Improve staff awareness of disabilities and protecting the users' rights" (r =.483, p<.01) and "Offer support so users can fulfil their hopes and pursue personal goals" (r =.455, p<.05). Factor 2, "Place of Exchange", was significantly correlated with "Offer support so users can fulfil their hopes and pursue personal goals" (r =.530, p<.01) in Type B Support Centres that offer

farming jobs. In Type B Support Centres that do not offer farming jobs, Factor 2 was significantly correlated with "Collaborate with other support institutions and leverage support systems" (r =.397, p<.05).

Table 5: Correlation Analysis of Views on Centre Operation and Factor Scores

		Factor 1		Factor 2	
		Farming	Non-Farming	Farming	Non-Farming
1	Satisfactory support programme	**.449** *	.271	.131	-.160
2	A good Centre environment that offers comfort and a place to have free conversations	.314	**.443** *	.096	.185
3	Help users to develop strength to be self-sufficient and motivated	.216	**.506** **	.314	.239
4	Improve staff awareness of disabilities and protecting the users' rights	**.379** *	**.483** **	.209	.278
5	Offer support so users can fulfil their hopes and pursue personal goals	**.475** **	**.455** *	**.530** **	.225
6	Centre support provides an opportunity for users to work	**.509** **	.060	.361	.195
7	Collaborate with other support institutions and leverage support systems	-.044	.168	.127	**.397** *

** p<.01 *p<.05

DISCUSSION

Features of Employment Support from the Perspective of Horticultural Therapy

The analysis of the EAVR for support services offered based on horticultural therapy showed that Type B Support Centres manifested the two pillars of "Reassurance" and "Place of Exchange" as their unique features from a methodological perspective. The sampling survey conducted by Matsumoto, Imaeda & Kanno (2019) on Type B Support Centres nationwide, reports that much of the production activities at such Centres focus on providing an everyday,

daytime place for users to spend time, and many of them give priority to offering users a sense of satisfaction and an emotionally stable experience.

In this way, Type B Support Centres have been thought to offer reassurance and a place of exchange for users with disabilities. Moreover, Nakao (2017) points out that Type B Support Centres tend to prioritise the welfare aspects of the operation over vocational skill development and higher compensation, such as teaching rules and manners required in everyday social life, making self-adjustments in human relationships, and giving psychological support. The reason seems to be that these facilities are premised on their role as a place that provides social welfare, regardless of the disability type. This aspect is also very similar to the support features of horticultural therapy and shares as an underlying principle in employment support.

Differences among Support Services by Job Type

Based on the results, the difference in the mean values for each factor for Type B Support Centres was analysed using the t-test. None of the scores showed a significant difference. No support service differences could be identified in horticultural therapy among farming and non-farming tasks. This may be due to inadequate understanding of the method by the Centres. Kanda et al. (2001a, 2001b) report that employment-focused welfare service centres catering to persons with disabilities lack full understanding of horticultural therapy. Another source (Toyoda & Ikeda, 2007) also argues for the need to disseminate knowledge and foster human resources about horticultural therapy. Horticultural therapy focuses on the relationship between humans and vegetation. Horticultural therapy promises to be effective by leveraging the positive aspects of vegetation in therapy. It is presumed that exposure to better knowledge of horticultural therapy would be beneficial in promoting collaboration between farming and social welfare in the future. In particular, there are only a few staff members with knowledge of the horticultural therapeutic method at Type B Support Centres in Japan.

While collaboration between farming and social welfare is moving forward, the authors of the current study believe it is necessary to build a training system to back up employment support systems that integrate farming to improve employment support, instead of simply linking the two. It is imperative to enhance initiatives to develop therapeutic skills for specialists to provide valid employment support for individuals with disabilities.

Relationship between Awareness of Centre Operation and Service Features

The results of a Pearson correlation analysis between views on Centre operation and factor scores suggest that awareness of how Centres operate relates to the consideration of job categories in employment support, such as the introduction of farming. Centres with farming jobs show that support services based on horticultural therapy correlate to the Centres' awareness of their role in providing satisfactory support programmes and work opportunities, as well as fostering the users' hopes and pursuit of personal goals.

At the same time, Centres that do not offer farming jobs show that support services based on horticultural therapy correlate to the Centres' awareness of their operation in terms of their environment, users' self-sufficiency, and collaboration with other support institutions. Maebara, Goto & Yaeda (2020a, 2020b) argue that Centres introduce farming jobs as they are aware that such an ongoing employment support system is evaluated satisfactorily. Moreover, they point out that these Centres must improve compensation and employment support programmes in running their services. These suggestions offer ways to resolve issues faced by Japan's Type B Support Centres in providing employment support. Horticultural therapy promises to offer a perspective to reinforce such support services as one of the solutions.

Implications

Sufficient wages may be one of the major outcomes when evaluating the effectiveness of employment support programmes, but this should not be the only outcome. More emphasis should be placed on the daily life aspects of workers with disabilities and the focus should be on assessing the degree of their happiness and peacefulness through work. To achieve this, employment support professionals must acquire sufficient knowledge and skills to adequately respond to such objectives. Utilising horticultural therapy as a professional tool to support employment could be one of the required competencies. How one has to incorporate agriculture into social welfare and vocational rehabilitation has not been specified and studied systematically. This paper focuses on agriculture and more specifically horticultural therapy as a means of providing employment support at Japan's Type B Support Centres. It is however recommended that future studies should examine the effectiveness of collaboration between agriculture and welfare into employment support in terms of achieving full self-actualisation of individuals with disabilities.

Limitations

The generalisability of the results is limited since the present study used a sample from Type B Support Centres only in Akita Prefecture of Japan. Further investigations, including a national study, are necessary to verify the construct of the factors found in this study and determine if the results are applicable to other Centres.

CONCLUSION

In this study, the function of employment support using agriculture in Type B Support Centres in Japan was examined from the perspective of horticultural therapy. Currently, employment support using agriculture is attracting attention in Japan, but few studies have examined the function of such support from the perspective of horticultural therapy. This study is expected to provide perspectives for practicing employment support using agriculture and contribute to the improvement of current support. In particular, there is a lack of knowledge about horticultural therapy among Japanese employment support practitioners. Therefore, considering the introduction of horticultural therapy would not only increase the effectiveness of employment support using agriculture, but also contribute to the transition to employment and as such contribute to the improvement of the quality of life of persons with disabilities who use Type B Support Centres.

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