

The impact that 'connection to agriculture' has on children's motivation to engage in an agricultural learning

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Introduction

Despite Society for the Promotion of National Rural Youth Education (2009) reported that about 80% of the elementary school in Japan engages in an agricultural learning experience, there is no sufficient research about that.

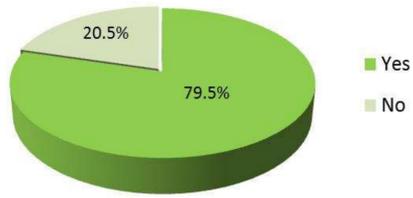


Figure 1. Implementation of agricultural learning experience in elementary schools in Japan (n = 527)
Source: Society for the Promotion of National Rural Youth Education (2009)

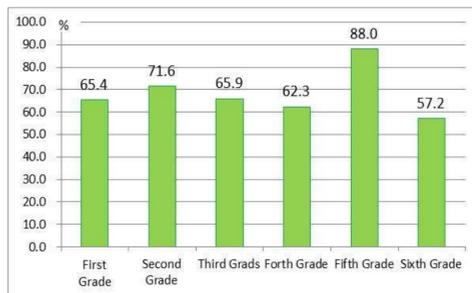


Figure 2. Implementation of agricultural learning experience in each grade in elementary schools in Japan (n = 527)
Source: Society for the Promotion of National Rural Youth Education (2009)

Objection

The objective of this study was to investigate how children's motivation to engage in an agricultural learning experience of rice farming changed before and after this learning experience, as well as what effects their 'connection to agriculture' had on their engagement with it.

Methods

The research subjects were 883 fifth graders (542 valid responses) at an elementary school that provides experience of rice farming for its students in an agricultural area in Japan. The surveys were conducted twice, before and after the experience of rice farming in April to May and in September to October, 2012.



Figure 3. Flow of rice farming lesson (Image).

Results

The results of the surveys, variables of 'connection to agriculture' (created by applying the 'connection to nature' of Cheng & Monroe(2011)) showed a significant positive correlation with intrinsic motivation and high autonomous extrinsic motivation to experience of rice farming ('motivation to experience of rice farming' created by applying the 'motivation to learn' of Andou et al.(2008)), in both of pre-test and post-test of experience of rice farming. From these results, the mixed-model analysis of variance was applied to 'connection to agriculture' which was divided into three groups of low, middle, high group, and each variable of motivation to experience of rice farming in pre-test and post-test. A significant improvement was shown in intrinsic motivation ($F(1,539)=29.96, p<.001, \eta_G^2=.053, F(1,539)=4.41, p<.05, \eta_G^2=.008$) (η_G^2 was calculated using the method of Bakeman(2005)) and high autonomous extrinsic motivation ($F(1,539)=24.24, p<.001, \eta_G^2=.043, F(1,539)=4.23, p<.05, \eta_G^2=.008$) to experience of rice farming to post-test from pre-test among the groups of children with low and medium 'connections to agriculture'. Furthermore, the group with a high 'connection to agriculture' maintained their high levels of intrinsic motivation and high autonomous motivation, while their low autonomous extrinsic motivation significantly decreased ($F(1,539)=16.39, p<.001, \eta_G^2=.030$).

Table 1. Confirmatory factor analysis of connection to agriculture

Factor	loadings
Enjoyment of agriculture	
Being in a rice field or vegetable garden makes me happy.	.82
I like to be in a rice field or vegetable garden.	.81
I like to see rice fields or vegetable gardens.	.80
I like to hear the wind in the rice field or vegetable garden.	.74
When I feel sad, I like to go to a rice field or vegetable garden.	.73
I like to garden.	.72
I enjoy seeing crops grow.	.72
Empathy for creatures	
I like to see creatures in the rice field.	.86
I want to catch the creatures in the rice field.	.71
I feel sad when creatures in the rice field die.	.74
I enjoy touching creatures and plants in the rice field.	.82
Sense of oneness	
People cannot live without farmers.	.49
Humans are part of the natural world.	.59
Sense of responsibility	
We have a responsibility to maintain the rice fields and vegetable gardens in our area for the next generation.	.70
Eating agricultural products from our region leads to supporting the local agriculture.	.74

GFI= .91, AGFI= .88, CFI= .93, TLI= .91, RMSEA= .08

Table 2. Measure of motivation to experience rice farming

Intrinsic motivation	
Because I like learning new things.	
Because I am happy when I learn something new.	
Because I think rice farming is interesting.	
Because it is interesting to learn new things through the experience of rice farming.	
Because I enjoy the experience of rice farming.	
High autonomous extrinsic motivation	
Because I think the experience of rice farming is important to maintain life.	
Because I think the experience of rice farming will be useful in the future.	
Because we could be in trouble in the future if we don't gain experience in rice farming now.	
Low autonomous extrinsic motivation	
Because I will be scolded if I don't take the experience of rice farming seriously.	
Because I would like to be thought of as doing my best for my classmates.	
Because I don't want to be scolded by my parents or teacher.	
Because I will be praised if I excel at rice farming.	

Table 3. Descriptive statistics and α of motivation to experience rice farming

		Mean	SD	α
pretest	Intrinsic motivation	3.02	0.86	0.87
	Hing autonomous extrinsic motivation	2.80	0.89	0.76
	Low autonomous extrinsic motivation	1.46	0.53	0.62
posttest	Intrinsic motivation	3.20	0.82	0.88
	Hing autonomous extrinsic motivation	2.95	0.86	0.77
	Low autonomous extrinsic motivation	1.41	0.53	0.64

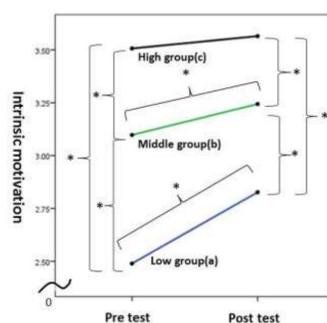


Figure 4. Changes in intrinsic motivation to experience rice farming at each level of connection to agriculture

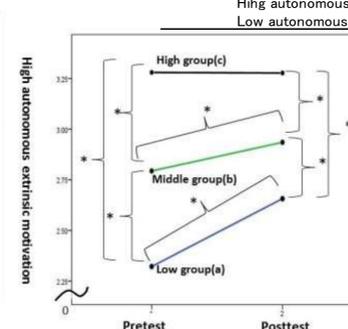


Figure 5. Changes in high autonomous extrinsic motivation to experience rice farming at each level of connection to agriculture

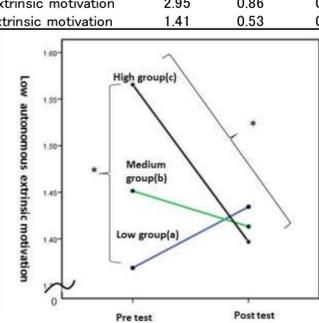


Figure 6. Changes in low autonomous extrinsic motivation to experience rice farming at each level of connection to agriculture

Discussion

These results suggest that the children's motivation of the experience of rice farming was increased by the experience of rice farming and that their connection to agriculture affected their willingness to engage in this experience.

Acknowledgments

Thanks to students, teachers, farmers, and all others who have cooperated in this study.