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Skill Education in Pre-service Teacher Education for Elementary School Teacher

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Abstract. In elementary school teacher education in Japan, pre-service students are expected to gain an understanding of sewing, basic practical sewing skills, and the ability to explain, for teaching, these skills. In this study, the perceptions of the students of their abilities in these skills were surveyed and compared to the actual evaluations of their results by instructors in the subject contents classes for pre-service teacher education course for elementary school teachers. The practicum helped to raise some of the skills to a sufficient level, although not all skills were sufficient, in spite of the students' beliefs. The students had lower perceptions of their ability for "explanation" of the skills than "understanding" and "practice" of the skills.

Keywords: sewing skill education; pre-service teacher education; students' perception; skill evaluation

Introduction

Basic sewing skills in home economics education are mandated by the Ministry of Education, Culture, Science, Sports and Technology (Abb. MEXT) for all fifth and sixth grade elementary school students in Japan (MEXT, 2008). Since home economics is usually taught by the regular classroom teachers, rather than teachers specializing in home economics (MEXT, 2014), all pre-service elementary school teacher education students (hereafter pre-service students) are expected to develop basic sewing skills. The National Standard for Teacher Education and Licensing Law has determined that in elementary school teacher education for home economics, the subject pedagogy unit is required unit, while the subject content unit is elective unit (MEXT, 1998). Pre-service students are expected to master the broad and diverse content of home economics in only one pedagogy unit and one subject content unit. A unit is comprised of 15 classes (90 min). For sewing skill education, the pre-service students are expected to have i) an understanding of sewing technique, ii) practical skill in sewing, and iii) ability to explain sewing skills to elementary school students.

In this study, the perceptions of pre-service students' mastery of these 3 key aspects of sewing were surveyed before taking the elective subject content unit (pre-test), and resurveyed after completion (post-test). Their perceptions (pre

and post tests) were and compared to evaluations of their practical skill by university instructors in pre-service subject content unit. According to the results, the issues for the implication for skill education for pre-service students were discussed.

Literature Review

The content of school subjects for elementary school students are determined by the MEXT Curriculum Standard (The Course of Study) and are revised every ten years. For home economics education, revisions are made in accordance with the perceived utility of the home economic skills, and as such the sewing skill education for elementary school students has become easier (Yoshino et al., 2007). The importance of sewing skill education for home economics education has been widely discussed and there are basically two opposing positions. Montgomery (2006) stated that learning sewing skills are not as relevant today as they were in the past and proposed that a critical science approach is more relevant for today's individuals and families. Whereas, Norm (2013) suggested the skills had an important influence on changes in behavior toward more sustainable clothing practices, and one way to achieve greater sustainability in clothing consumption was through clothing repair. Pendergast et al. (2013) claimed that skill education, such as teaching sewing skills, was one role that could be and should be fulfilled by schools based upon text analysis of 130 public comments to a website forum in response to the published article, "Bring back home ec! Parents don't have time to teach kids basic cooking and housekeeping, so schools must do it instead".

In Japan, many researchers have identified sewing skill as one of life skills that attracts children's attention and interest while also serving to foster originality and ingenuity in their daily lives (Fuseya et al., 2003). Classroom research in Japan supports this contention (Okawa et al, 1976, Nishimura et al, 1978, Muto et al, 1986a, b, 1987a, b, Fujiwara et al, 1987a, b). Japanese elementary students have demonstrated a positive awareness about sewing skill education (Nakama et al. 1981, Fuseya et al., 2003), and participated actively in sewing activities (Tatano & Takeyoshi, 2006, Takeyoshi & Tatano, 2005). In a survey of new junior high school students, home economics was chosen as the second most liked subject and students wanted to study through practice and experience (Abe et al., 2006).

In addition to being enjoyable for the students, home economics education also has practical benefits, as students may use these skills through their lives. Interestingly, Kashiwazaki et al. (2009) in a survey of students from 5th grade of elementary school to university students, found that knowledge and skill for sewing skills were higher among elementary school students than among high school and university students. Furthermore, in a survey of college students, Fuseya and Takabu (2001) found that the number of sewing projects that the students had done in schools directly affected their knowledge and sewing skills, which supports the effect of practice based learning in home economics.

While it is clear that home economics education for sewing skill has had a positive impact, there have also been problems and challenges**.** The relationship between study materials and the students' practical needs has been one area of

concern. Takamori (1992) and Nakama et al (1981) found that the pre-service students did not use the items that they made in sewing skill study courses. A survey of 6th grade students found that students wanted to study sewing skills by making things that they chose themselves and wanted to make them for their own purposes (Takeyoshi and Tatano, 2005). Nakama et al. (1981) found that the satisfaction and willingness to actively participate in sewing skill education was directly related to the materials used and what was made. Therefore, one major challenge faced by home economics teachers is how to make the materials relevant to the students by allowing the students the freedom to choose their own projects when the teachers themselves may not have the practical skills to support these students. Independent projects would require more sewing skill and knowledge, than one predetermined project for the entire class. Sewing skill level of teachers seems to have a strong effect on the relevancy of the class to the learners.

Similarly, the impact of the skill level of the home economics teachers a continuing area of concern because as the basic skill level of home economic teachers has decreased, the problem of a teaching ability has been repeatedly raised by home economics researchers and educators (Watanabe & Nishimura, 1978a, 1978b, Tokida & Komatsu, 1984a, 1984b, Takamori, 1986, Hamashima & Makuta, 1994). The lack of teachers with high practical skills in elementary school may be a reflection of the low number of elementary school teachers teaching home economics that were home economics majors in university. In 2013, only 27.8% of 5th grade elementary school home economics classes, and 29.6% of 6th grade classes were taught by teachers that had majored in home economics (MEXT, 2014). In the other approximately 70% of elementary school classes, the regular classroom teachers teach home economics. Since most teachers majored in other subjects in university, it is not surprizing that a survey of elementary school teachers found that teachers felt that teaching sewing skill was difficult (Tatano, 1994, Takamori, 1985). However, since the students' interests and motivation for sewing skill education were directly dependent on the home economics teacher's skill (Hamashima & Makuta, 1994), the impact on the elementary school experience is profound. Takamori (1985) found that the attitude of their elementary school teachers continued to influence the opinions of university students in pre-service education of home economics education. Furthermore, Kimura (2014) reported that the pre-service students had more skill learning experience in elementary school than in junior high school and high school. These findings spotlight the importance of a positive learning experience in elementary school.

In a survey of pre-service students for elementary school, Kobayashi & Yanagi (2007) found that pre-service students lacked basic knowledge and skills for skill teaching in elementary school. Kobayashi & Yanagi (2008) also reported that there was a gap between the students' self-evaluation of their skills and their actual skills; pre-service students believe that they had good skills when in fact they did not. Fujii et al. (2014) pointed out that the pre-service students could not design an appropriate curriculum for elementary school class when they did not have sufficient skills. This means that these teachers would not be able to design, nor teach lessons that would give the students the freedom to choose their own projects. Nagayama (2011) found that the pre-service students'

motivation for learning and self-evaluation of their skills in machine sewing class could be improved by having pre-service students consider and understand their future teaching responsibilities at elementary school.

Objectives

Many studies have pointed out the importance of and identified difficulties of skill education for pre-service students. There are several underlying areas of concern that are addressed in this paper. While it is commonly thought that pre-service teacher overestimate their abilities, there has been no research to date. So, firstly, the belief of pre-service teachers that they have sufficient practical skill to teach sewing was examined. Then, their actual skill level was evaluated by their university instructors. Secondly, implications on home economics education given the difference in perceptions of skill level and actual skill level are discussed.

Results and Discussion

The students' perceptions in pre-test and in post-test are listed in Table 1. In pre-test, the students' perceptions for "understanding" and "practice" of "starting knot", "finishing knot", and "running stitch" were high, although for "back stitch", "half back stitch", "over casting", and "name embroidery" were low. In post-test, their perception for all skills increased from those in the pre-test.

For all skills in pre- and post-test, the perceptions of "understanding" were highest, and followed by "practice" and "explanation". In post-test, the perceptions became greater than 2; namely they have some confidence for the ability of the every skills.

Table 2 shows the T test results for the students' perception of their skills between in pre-test and in post-test in Table 1. The students' perceptions had significant increase in post-test from those in pre-test for all skills. These results suggest that this skill education course made the students to have their better perceptions for all skills.

Table 3 shows the T test results for the students' perception of their skills among for "understanding", for "practice", and for "explanation". The significant differences between "understanding" and "practice" were not observed for all skills in pre-test and post-test, although some differences between "understanding" and "explanation", and between "practice" and "explanation" were evident in pre-test and post-test. This means the students' perceptions for "explanation" were significantly lower than for "understanding" and "practice".

Even for the skills that the students had high perceptions in pre-test, such as "starting knot" (2.47 for "understanding" and 2.35 for "practice"), finishing knot (2.47 for "understanding" and 2.29 for "practice"), and "running stitch" (2.53 for "understanding" and 2.38 for "practice"), the difference were observed in post-test according to the lower perceptions for "explanation". In this research, the students couldn't get sufficient "explanation" ability for the skill.

Table 4 shows the correlation coefficients among "understanding", "practice", and "explanation" in pre-test and post-test. For every pairs, significant correlation was observed. The values between "undrestanding" and "practice"

were higher than the coefficients between "understanding" and "explanation" and between "practice" and "explanation". The coefficients in post-test decreased from those in pre-test.

Table 1: Students' perception of their skills in pre-test and post-test.

	pre-test		post-test	
	average [a]	SD	average [a]	SD
starting knot				
understanding	2.47	± 0.79	2.88	± 0.33
practice	2.35	± 0.81	2.85	± 0.44
explanation	1.76	± 0.82	2.59	± 0.66
finishing knot				
understanding	2.47	± 0.79	2.88	± 0.33
practice	2.29	± 0.87	2.76	± 0.65
explanation	1.74	± 0.83	2.47	± 0.75
running stitch				
understanding	2.53	± 0.75	2.88	± 0.33
practice	2.38	± 0.82	2.85	± 0.36
explanation	2.00	± 0.89	2.59	± 0.74
back stitch				
understanding	1.29	± 1.03	2.82	± 0.46
practice	1.18	± 1.06	2.79	± 0.48
explanation	1.03	± 1.00	2.56	± 0.70
half back stitch				
understanding	1.41	± 0.99	2.85	± 0.36
practice	1.32	± 1.07	2.82	± 0.39
explanation	1.15	± 1.02	2.56	± 0.70
over casting				
understanding	0.91	± 0.97	2.36	± 0.82
practice	0.71	± 0.91	2.30	± 0.85
explanation	0.56	± 0.86	2.15	± 0.80
name embroidery				
understanding	0.91	± 0.71	2.65	± 0.49
practice	0.82	± 0.72	2.59	± 0.56
explanation	0.65	± 0.81	2.35	± 0.77
button				
understanding	1.94	± 0.81	2.82	± 0.46
practice	1.76	± 0.89	2.68	± 0.64
explanation	1.35	± 0.92	2.47	± 0.71

a 0:disagree 1:slightly disagree, 2:slightly agree, 3: agree to understanding: I can understand how to do it, practice: I can do it, and explanation: I can explain how to do it.

[b] T test between pre-and post-test

* $p<0.05$, ** $p<0.01$, *** $p<0.001$

Table 2: T-test of students' perception of their skills between in pre-test and in post-test.

	understanding	Practice	explanation
starting knot	***	***	***
finishing knot	**	***	***
running stitch	*	**	***
back stitch	***	***	***
half back stitch	***	***	***
over casting	***	***	***
name embroidery	***	***	***
button	***	***	***

* $p<0.05$, ** $p<0.01$, *** $p<0.001$

Table 3: T-test of students' perception of their skills among "understanding", "practice", and "explanation".

	pre-test			post-test		
	understanding /practice	understanding /explanation	practice/ explanation	understanding /practice	understanding /explanation	practice/ explanation
starting knot		***	***		**	*
finishing knot		***	**		***	*
running stitch		**	*		*	*
back stitch					*	*
half back stitch					**	*
over casting		*				
name embroidery					*	
button		**	*		**	

* p<0.05, ** p<0.01, *** p<0.001

Table 4: Correlation coefficients of students' perceptions among "understanding", "practice", and "explanation".

	pre-test						post-test					
	understanding / practice		understanding / explanation		practice / explanation		understanding / practice		understanding / explanation		practice / explanation	
starting knot	0.917	***	0.647	***	0.676	***	0.726	***	0.614	***	0.523	**
finishing knot	0.896	***	0.662	***	0.699	***	0.858	***	0.481	**	0.357	*
running stitch	0.849	***	0.730	***	0.794	***	0.879	***	0.667	***	0.674	***
back stitch	0.951	***	0.844	***	0.912	***	0.934	***	0.690	***	0.621	***
half back stitch	0.906	***	0.811	***	0.876	***	0.897	***	0.693	***	0.595	***
over casting	0.906	***	0.828	***	0.918	***	0.779	***	0.534	**	0.625	***
name embroidery	0.859	***	0.626	***	0.723	***	0.904	***	0.745	***	0.769	***
button	0.859	***	0.759	***	0.810	***	0.731	***	0.732	***	0.751	***

* p<0.05, ** p<0.01, *** p<0.001

The results of testers' evaluation for each skill are listed in Table 5. The results of "starting knot" and "finishing not" were low, even though these were the most basic skills and the students had high perceptions for their skills. On the contrary, the results of "back stitch" and "half back stitch" were high, although the students had had low perceptions in pre-test. Provably the students didn't have correct perceptions for their actual skills.

Table 5. Testers evaluation for the students' skills.

	average	±	SD [a]
starting knot	2.24	±	0.61
finishing knot	2.68	±	0.53
running stitch	2.59	±	0.56
back stitch	2.71	±	0.52
half back stitch	2.71	±	0.52
over casting	2.30	±	0.70
name embroidery	2.71	±	0.46
button	2.32	±	0.73

[a] 0: bad 1:poor, 2:acceptable, 3: good.

In Table 6, the correlation coefficient values between the students' perception in post-test and testers' evaluation of the students' skills were listed. For "starting knot", "finishing knot", "running stitch", the correlation coefficients were low: -0.209 to 0.296. For these three skills, the students had high perceptions for "understanding", "practice", and "explanation". For "back stitch", "half back

stitch", and "button sewing", the co-efficient values were high. These skills were the skills that the students had low perception in pre-test; namely these skills were the new skills for the students.

Table 6. Correlation coefficients between students' perceptions in post-test and tester's evaluation of the students' skills.

	understanding		practice		explanation	
starting knot	-0.162		-0.209		-0.054	
finishing knot	0.122		0.296		0.013	
running stitch	0.225		0.294		0.164	
back stitch	0.534	***	0.476	***	0.541	***
half back stitch	0.568	***	0.484	***	0.541	***
over casting	0.241		0.581	***	0.302	
name embroidery	0.334		0.339		0.383	*
Button	0.449	**	0.690	***	0.580	***

* $p<0.05$, ** $p<0.01$, *** $p<0.001$

From these results, two issues for skill training in the pre-service teacher education were pointed out. One is the students' mistaken perception for their abilities of the skills. The students' perceptions were different from their actual ability. Although the students had high perception for the abilities of "understanding", "practice", and "explanation" for "starting knot", "finishing knot", "running stitch", the most basic skills for sewing. They believed that they already had a thorough understanding and practical skills. But the testers' evaluation did not agree with them. The testers' evaluation had significant correlations for "back stitch", "half back stitch", and "button sewing" and somehow for "over casting", "name embroidery". These skills were the skills of the students' perceptions were low in pre-test. The students had known that their lack of knowledge and skills for "back stitch", "half back stitch", "over casting", "name embroidery", and "button sewing", therefore they studied the skills substantially in the course. These results suggest that the students' perceptions affected directly on their skill learning. The students should have the real perception for their skills at first.

The second issue is the low perception values for "explanation" of all skills. Even in post-test, their perceptions of "explanation" were significantly lower than of "understanding" and "practice" for almost of all skills. In teacher education, the "explanation" ability is the most essential ability for skill education. To improve this, the future

Conclusion

In pre-service elementary school teacher education, the students are expected to have an understanding of sewing, basic practical sewing skills, and the ability to explain for teaching these skills for home economics education. In this study, the perceptions of the students of their abilities in sewing skills were surveyed and compared to the evaluations of their results by testers in the subject contents classes for pre-service teacher education course for elementary school teacher. The sewing skills surveyed were "starting knot", "finishing knot", "running stitch", "back stitch", "half back stitch", "over casting", "name embroidery", and

"button sewing" that covered in home economics education for elementary school students.

The perceptions of the students surveyed were of their abilities for "understanding", "practice", and "explanation" of sewing skills, and they were compared to the testers' evaluations of their results in a practical sewing class. Students' perceptions of all skills increased in the post-test. Students indicated that they had less ability to explain. The testers evaluation did not correspond with the students' perceptions for the basic skills, such as "starting knot", "finishing knot", "running stitch", and "name embroidery", because the students over estimated their abilities. The evaluation of the testers corresponded with the students' perceptions for "back stitch", "half back stitch", "over casting", and "button sewing". These are new skills for them.

Therefore, while it is clear that the practicum helped raised some of the skills to a sufficient level, but not of all skills in spite of the students' beliefs. Only for the skills that the students recognized their insufficiency of their ability, they wore the skills. It is suggested that the skill education would be effective when the students recognized the level of their skills definitely in pre-service teacher education.

Limitations

The size of the sample in this study was small and the participants belonged to one university education department. Because of the size of the sample, the findings cannot be generalized to all skill education. However the authors thought that the results of this study could make some suggestions for the improvement of skill education for arts and craft or music as well as home economics in pre-service education. For example, the students should re-examine their easy and basic skills, and they should have explanation ability as well as knowledge and practice for skills.

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