The Analysis on Primary School Teachers' Attitudes towards E-Schoolbag

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Abstract: This study focuses on elementary school teachers' perceptions of and attitudes towards the use of the E-Schoolbag for instruction. We analyzed and collected instructional problems based on the results of focus-group interviews with teachers. In addition, a questionnaire and focus-group interviews were implemented in order to better understand teachers' attitudes towards using E-Schoolbag. It has been found that there are some problems with teachers using E-Schoolbag for classroom-instruction, i.e. problems of instruction and teachers' perception. Problems of instruction refer to such issues as information technology literacy, academic teaching, classroom management and lesson planning, and instructional design.

The teachers participating in the pilot program includes the adaption of new technology and new teaching mode as well as the suspicion of the pilot effect. The results of the questionnaire show that the teachers have the highest degree of satisfaction for E-Schoolbag management at the school and the lowest for resources and functions of E-Schoolbag. Besides, we analyze such factors as gender, subjects and teaching age and found that the male teachers obtained higher expectations in the education system and management of school, since it is expected that E-Schoolbag should have more functions to meet their needs, while younger teachers pay more attention to the pilot. Through this study, we hope to provide a reference to the schools or teachers who plan to use E-Schoolbag for instruction in the future.

***Keywords**: E-Schoolbag, teachers' attitudes*

1. Introduction

Traditional examination-oriented education system leads to heavier students' schoolbags and higher learning pressure. The school, teachers, parents and students are desirable to reduce the weight of schoolbag during study. In this context, scholars begin to explore how to use e-learning materials and technology media tools to replace traditional textbooks and schoolbags. We all know that Technology equipment and mobile carrier in classroom instruction and training institutions have begun around the world. Previous studies have also pointed out that after being trained would help produce effect in the environment of instruction, and E-Schoolbag would promote the quality of teaching (Schmid, 2008; Hennessy et al, 2007). With the constant construct of the electronic resources and development of information technology, based on the use of E-Schoolbag, a series of reform and exploration in teaching in future is launched. The definition of E-Schoolbag has not yet made an agreement. Scholars think that E-Schoolbag is a kind of interaction and communication tools to promote the teaching efficiency. Its core is the design of electronic teaching materials. E-Schoolbag is not only a kind of teaching tools, but it also should be equal to the teaching subject to build the ubiquitous learning platform. At the same time its instruction can adjust structure through automatic tracking and learning, so as to provide personalized learning for students (Zhu, 2011; Li, 2012; Ling, 2012). E-Schoolbag does not simply the electronic teaching materials, but an integration of new technology and teaching resource. So teachers should have new educational ideas and the systematic instructional design abilities. The occasions of using E-Schoolbag are diversified in the education environment, including traditional classroom teaching, outdoor learning, and after-school tutoring, remedial outdoor learning, teaching and distance education, etc., which all can expand the essential barriers of the teaching and learning (Lai, 2003). In the past, there were studies related to E-Schoolbag, such as electronic system design and construction (Chang & Sheu, 2002), the comparison between the different carriers of E-Schoolbag

(Alvarez et al, 2011; Chabert, et al, 2006), development and design of E-Schoolbag system (Simon et al, 2004), the exploration of teaching application mode, the instructional design of using E-Schoolbag (Siozos et al, 2009), but rarely for teachers' Attitude towards the use of the E-Schoolbag for instruction. This study wants to find out teachers' attitudes towards the use of the E-Schoolbag for instruction through the focus-group interviews so as to facilitate the follow-up development of E-Schoolbag subject.

2. Research methods

2.1. Research design

34 teachers from the subjects of literature, mathematic, English and science of four primary schools in Longgang District of Shenzhen participate in the pilot. During the period from April to June in 2012, the teachers had teaching and technical training, seminars, Analog on-line and retraining. During September 2012 to January 2013, E-Schoolbag was applied into classroom teaching. Before the beginning of the semester, the pilot teachers had two special trainings and focus-group interviews. The training mainly covered how to use E-Schoolbag, classroom management, ideas and innovation in teaching. This study implemented the focus-group interviews three times and concentrated on teachers' attitudes towards the pilot of E-Schoolbag and the problems they confronted in the pilot teaching.

2.2 Qualitative Data collection

This study adopts the focus-group interviews to collect the attitude of teachers who use the E-Schoolbag for instruction. Researchers designed the outlines of the three focus-group interviews based on the status of different stages so as to obtain the corresponding information. The whole process of the focus-group interviews use recorded audio and video and transcribed and coded the conception of teachers into transcripts. At last, this study made the transcripts into the concept map and analyzes the factors of it.

2.3 Quantitative Survey tool

The items in the questionnaire were designed to represent the concepts identified in the concept factors of twice teachers' group interviews. The questionnaire contained three parts. Part 1 of the survey instrument consisted of background information. Part 2 of the survey instrument consisted of 33 questions which are divided into seven factors as follows: educational system, management of school, teachers' professional development, classroom teaching, students' learning, restriction on use, function and recourse of E-Schoolbag. Each factor was evaluated using a 5-point Likert-type scale; 5 strongly agree; 4 agree, 3 neutral, 2 disagree, 1 strongly disagree. Part 3 of the survey instrument consisted of four open-ended questions exploring teachers' thought about integrating E-schoolbag into instruction. SPSS 18.0 was used for quantitative data. In addition, Likert-style five-point scale is implemented in final-term to survey the overall attitude of teachers. SPSS will be used to analyze the differences.

3. Findings

3.1. Qualitative analysis

Through information of two focuses, researchers summarize the corresponding problems that pilot teachers apply E-Schoolbag to the classroom teaching, and find the following six dimensions: the current education system, schools, teachers, students, paterfamilias and electronic resources and functions. Pilot teachers raise two issues for their own using E-Schoolbag to teach. The first is the problem of teaching. E-Schoolbag requires the pilot teachers with higher teaching information literacy, information operations capability, teachers using the E-Schoolbag to give lessons, classroom teaching and classroom management. The vast majority of pilot teachers reflect their own information technology literacy is not enough, and can't control the class with such new type of high-tech educational products like the e-book package. In addition, some pilot teachers need to face E-Schoolbag classes and traditional classes at the same time. They need to prepare two kinds of courses, which will undoubtedly increase the preparation time, adds extra

workload of teachers. The second is the teacher mentality. There are concerns that the pilot teachers need to adapt to new technology and new teaching mode. Through the two times of the focus-group interviews, the researchers found that the attitude of the teachers towards the application of new technology is divided into three emotional reactions, like positive, negative, and mixed. In addition, teachers also point out the problems of the new teaching model, including work and life stress, the increases of students' achievement in the pilot class, the hinder of traditional teaching inertia etc. These all make teachers increase the psychological pressure virtually.

3.2. Questionnaire analysis

3.2.1The overall analysis

The researchers design the questionnaire based on the conception map from seven dimensions as below: education system, school management, teachers' professional development, classroom teaching, student learning, restrictions on use, function and recourse of E-Schoolbag. Total are 15 teachers who filled out the questionnaire; there are 6 males and 9 females. Results are shown as below.

Table 1. The average of overall

Factors	Education system	Management of school	Teachers professional development	Classroom teaching	Students' learning	Restriction on use	Function and recourse of E-Schoolbag
MEAN	3.19	**3.52**	3.47	3.39	3.30	3.29	**3.06**
SD	0.65	1.27	0.90	0.82	0.82	1.14	1.42

From the table 1, we know the management of school has the highest score (M=3.52). Therefore, the school has a good strategy for the management of E-Schoolbag, leaders' high approval of pilot class and full communication with parents, and evaluates the pilot class with diversified assessment. The second highest score is the score of teachers processional development (M=3.47). In general, E-Schoolbag can improve the information literacy of teachers, promote the integration of information technology and subject teaching, and make the teachers have a positive attitude. The lowest score is the function of E-Schoolbag (M=3.06). Therefore, we think the functions of E-Schoolbag for instruction need be completed.

3.2.2 Analysis between genders

Researchers analyze the factors like the gender, subject, and teaching age as follows. From the table 2, the female's attitudes all are lower than male teachers. In addition, we take the U-test to analyze different between genders. According to the table 3, males are higher in classroom teaching and students' learning, and the difference between them is significant difference. It seems that females are more critical in the education system and management of school, or they have higher expectations. The male teachers have higher satisfied and positive thinking for above these factors, especially in classroom teaching and student learning. Male teachers usually can accept new technology tools easier than female based on our observation.

Table 2. The gender

Teachers		Education system	Management of school	Teachers professional development	Classroom teaching	Students' learning	Restriction on use	Function and recourse of E-Schoolbag
MEAN	Male	3.39	3.75	3.63	3.89	3.65	3.37	3.11

Female	3.04	3.36	3.36	3.06	3.06	3.24	3.02

Table 3. The U-test of gender

Factors	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig. (2-sided)	Exact Sig. [2*(1-tailed Sig.)]
Education system	16.5	52.5	-0.979	0.328	.345[a]
Management of school	15	60	-1.432	0.152	.181[a]
Teachers professional development	20	65	-0.847	0.397	.456[a]
Classroom teaching	5	50	-2.6	0.009**	.008[a]
Students' learning	8	53	-2.259	0.024**	.026[a]
Restriction on use	24	69	-0.355	0.723	.776[a]
Function and recourse of E-Schoolbag	23	68	-0.473	0.636	.689[a]

3.2.3 Analysis between different subjects

Researchers divided all teachers into Liberal arts (Literal, English) teachers and Science teachers (Mathematics, Science). According to the table 4, we can see that liberal arts have higher attitudes in classroom teaching, students' learning and restriction on use, and function and recourse; however, they don't have significant difference with Science teachers based on the table 5. Science teachers have higher attitudes in education system, management of school, and teachers' professional development, than in instruction.

Table 4. The Mean between Liberal and Science teachers

Teachers		Education system	Management of school	Teachers professional development	Classroom teaching	Students' learning	Restriction on use	Function and recourse
MEAN	Liberal arts	3.13	2.95	3.24	**3.63**	**3.44**	**3.80**	**3.20**
	Science	**3.22**	**3.80**	**3.64**	3.27	3.21	3.04	2.98

Table 5. The U-test of subject

	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig. (2-sided)	Exact Sig. [2*(1-tailed Sig.)]
Education system	22	37	-0.067	0.946	1.000[a]
Management of school	15.5	30.5	-1.178	0.239	.254[a]
Teachers professional development	20.5	35.5	-0.566	0.571	.594[a]
Classroom teaching	16.5	71.5	-1.044	0.297	.310[a]
Students' learning	11.5	47.5	-1.262	0.207	.222[a]
Restriction on use	15	70	-1.229	0.219	.254[a]
Function and recourse	19.5	74.5	-0.676	0.499	.513[a]

3.2.3 Analysis among different teaching age

Researchers divided all teachers into three groups, including 1-5 years, 6-15 years, and over 16 years teaching age. According to the table 6, we find that over 16 years teachers have positive attitudes (total mean is 3.53), the 1-5 years youngest teachers also have higher attitudes (total mean is 3.41), and they would like to accept new technology and innovative instruction. However, the 6-15 years teachers have lowest attitudes (total mean is 3.09) towards using E-schoolbag. That's why 6-15 years teachers usually have themselves instructional design pattern.

In addition, in order to understand whether the teaching ages have significant difference or not, the Kruskal-Wallis test was used to analyze these factors. According to the table 7, only the" **restriction on use"** has the significant difference. 1-5 years younger teachers concerned about the negative effects of E-schoolbag'.

Table 6. The mean among different teaching age

Teaching age(year)		Education system	Management of school	Teachers professional development	Classroom teaching	Students' learning	Restriction on use	Function and recourse	Total Mean
MEAN	1-5	**2.83**	3.00	3.38	3.46	3.40	**4.35**	3.46	**3.41**
	6-15	3.11	**3.38**	3.29	3.22	3.07	**2.77**	2.78	**3.09**
	⩾16	3.64	**4.10**	3.75	3.53	3.52	3.08	**3.07**	**3.53**

Table 7. The Kruskal-Wallis test of the teaching age

	Education system	Management of school	Teachers professional development	Classroom teaching	Students' learning	**Restriction on use**	Function and recourse
Chi-Square	2.845	2.006	2.279	.785	1.894	**6.685**	1.122
df	2	2	2	2	2	**2**	2
Asymp. Sig.	.241	.367	.320	.675	.388	**.035****	.571

4. Conclusion

Through the focus of pilot teachers, the researchers summarize the issues related to teachers using E-Schoolbag for instruction. The six aspects include the current education system, schools, teachers, students, paterfamilias, and resources and functions of E-Schoolbag. Therefore, in the process of promoting E-Schoolbag pilot, the six categories should be noticed and considered by education-related institutes and polices. The results of the questionnaire reveal that the management of school is the positive attitudes in all these factors; the function and recourse of E-Schoolbag need to be improved in the future. Female teachers' attitudes are lower than male teachers toward using E-schoolbag. The male teachers are more likely to accept new instructional tools and teaching methods. Science teachers hope that E-Schoolbag should have more functions to meet their need. Moreover, younger teachers need more care for their concern about achievement of students and lack of experience.

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