A Survey of Educators and Parents of Students with Disabilities on Utilizing IPTV Media in Special Education in Korea

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I. INTRODUCTION

IPTV (Internet Protocol Television) is one of the digital convergence media of a broadcast and communications. It is interactive television through broadcasting to provide multimedia contents such as various data, text, graphics, video and audio at a certain quality level using Internet Protocol that is high speed internet. IPTV is a new medium widely used in the world to provide users with individualized and customized contents for having many channels, interactive service and high quality video contents by television and remote control familiar and easy to users (Leem, et al., 2009, Mantzari, et al., 2008).

IPTV service began in earnest when Internet Multimedia Broadcast Services Enforcement Decree (2009) was completed in Korea. KT started IPTV service including real-time broadcast in Nov. 2008 and SKT and LGT began service in 2009. As of June, 2009, improvement of service quality and development of new products were needed for the number of houses using IPTV was low (228,000 houses with KT, 150,745 houses with LGT and 87,344 houses with SKT) (National Information Society Agency, 2009).

The features of IPTV such as contents by many channels, video with high quality screen and various individualized interaction types could be useful in education. That is, IPTV could provide learners with individualized and customized contents, video contents with high quality screen motivating them and interactive activities between instructors and learners. These aspects of the media could be utilized to improve the quality of public education and to provide with customer centered education service (Leem, et al., 2009).

The Korean government has been promoting to apply IPTV to education (National Information Society Agency, 2009). Korea Communications Commission and Ministry of Education, Science and Technology announced a ‘Provision Plan for IPTV Customized Education’ in Mar of 2009. This plan was to establish IPTV environments that any one could have easy, affordable, high quality and customized education. This would lead to expanding education opportunity and reducing private coaching expenses. National Information Society Agency undertook the task of school internet network enhancement to provide 240,000 classes in 11,200 elementary, middle and high schools with high quality video multimedia service as part of IPTV education service. To accomplish this project, 30 billion won from the Korea Communications Commission and 15 billion won from the Ministry of Education, Science and Technology were used. Chung (2008) pointed that the new media such as IPTV bring a possibility of making digital divide larger among broadcast viewers because of difficulty in payment of cost, installation and operation. The change from analog to
digital broadcast might exclude some groups unwittingly. The government should support the cost to purchase digital television or new set top box, develop screen interpretation, text captioning and various types of remote control devices and inform education system using digital broadcast for these groups.

In fact, the Korean government has put enormous budget and expenditure for developing and establishing Information and Communication Technology, digital text book, Educational Broadcasting System (EBS), etc. in general education whereas there is little consideration or budget for special education in this process. IPTV use in education should not be one more case that education of students with disabilities is left out in the government plan, deepening digital divide. To do so, the government needs to seriously include research and policy making process for education of students with disabilities, allocate budget and arrange responsible staff for IPTV use in special education at the level of general education.

Therefore, the purpose of the study was to investigate the awareness of and demands for introducing and utilizing IPTV in special education. Aspects of the findings that were similar to and different from general education reported in a previous study were discussed at the end. This study was part of research funded by the Korea National Institute of Special Education (Kang, et al., 2010).

II. METHODS

Online Survey System of the Korea National Institute of Special Education Homepage was used. An official document asking for the online survey response was sent to local education district offices, special education support centers, special education schools, and special education classes of general education schools through sixteen metropolitan & provincial education district offices.

1. Participants

Respondents to the online survey questionnaire were 1,287 district officers, administrators (principals and vice principals), teachers and parents of students with disabilities nationwide. The number of 1,074 teachers (83.4%), 135 parents (10.5%), 42 district administrators (3.0%) and 36 principals (including vice principals) answered the survey. The most teachers of 882 (76.6%) worked for special classes of general education schools, 128 teachers (11.1%) for special education schools, and 72 teachers (6.2%) for special education support centers. Teachers who worked for special schools replied that 118 (77.1%) of their schools were for students with mental retardation, 12 (7.8%) of them for emotional and behavioral disorder, 9 (5.9%) for physical disability, 8 (5.2%) for hearing disability, and 6 (3.9%) for visual disability.

Out of 1,287 respondents, 1,008 (78.3%) was female. The age of 463 repliers (36.0%) was 30s, that of 355 (27.6%) was 40s, that of 327 (25.4%) was 20s, and that of 142 (11.0%) was 50s and over. The survey participants' locations out of 16 metropolitan and provincial cities in Korea were spread out nationwide in three groups; national capital region (Seoul, Incheon & Gyeonggi), metropolitan cities (Busan, Daegu, Gwangju, Daejeon & Ulsan), and provincial cities (Gangwon, Chungbuk, Chungnam, Jeonbuk, Jeonnam, Gyeongbuk, Gyeongnam & Jeju). Four hundred and sixty seven teachers (40.5%) had under 5 years of education career and 310 had over 16 years of it.
2. Questionnaire

The researchers constructed the survey questionnaire, based on a questionnaire that Leem and his colleagues (2009) developed and used for general education teachers. The questionnaire was finalized after one special education teacher and one professor in Special Education Department at a university reviewed and their feedback was addressed.

3. Data Analysis

Descriptive and inferential statistics were used to analyze the answers from the survey. All analyses were completed using SPSS version 11.0. Frequencies, percentages and average points were presented by types of duties of the participants. Results of $\chi^2$-test and one-way ANOVA (F test) were reported to see if there were significant differences among the groups, statistically. Post hoc pair-wise Tukey test was performed when differences were significant statistically.

III. RESULTS

1. Awareness of IPTV

Overall, respondents who have ‘heard of IPTV (Yes)’ were 520 (40.4%) and who have ‘never heard of IPTV (No)’ were 767 (59.6%). This showed statistically significant difference among groups ($\chi^2=24.07, df=4, p<.01$). More administrators (60.0%) and teachers in special education schools (50.8%) have heard of IPTV while other groups showed more numbers of ‘never heard of IPTV’.

2. Awareness of IPTV Functions and Features

There was a significant difference between groups about the knowledge of the functions and features of IPTV ($\chi^2=54.27, df=12, p<.01$). More teachers in special education schools (35.9%) and administrators (32.8%) said that they ‘know some’ or ‘know well’ than other groups. Most of the participants (n=1,005, 78%) replied that they ‘do not know at all’ or do ‘not know well’. Just 279 participants (21.7%) answered that they ‘know some’ or ‘know well’ of the functions and features.

3. Intention of Using IPTV in Class

As the term of IPTV was defined and the usage in education was briefly explained at the first part of the survey, 687 participants (53.4%) answered that they would use it in class and at home if it is introduced in special education. Also, 43.7% of the participants (n=562) said that they would decide after using it. The answers indicated that administrators, teachers and parents in special education were positive towards IPTV use with no statistically significant difference among groups ($\chi^2=12.04, df=8, p>.1$).

4. Expectation of IPTV Effects in Special Education

Consequently, most of the participants (n=1,204, 93.7%) replied that they expect positive effects ‘greatly’ (n=202,
5. Awareness of IPTV Advantages

The participants recognized educational contents provided for distance learning such as hospital school, home school, etc. as the greatest advantage (4.14 points on average). ‘General education programs from the public Educational Broadcasting System (EBS) could be converted and provided by disability types (visual and hearing disabilities)’ (3.97 points on average) and ‘IPTV could make instructional contents accessible any time and any where for students with disabilities’ (3.91 points on average) were the next.

1) Inclusive Education for Students with Disabilities

Answers on ‘IPTV could be useful for inclusion of students with disabilities’ showed statistically significant differences among groups (F(4,1286)=2.938, p<.05). More parents (3.69 points) agreed than teachers in special classes (3.43 points) did, performing by post hoc pair-wise Tukey test.

2) Accessibility to Educational Contents

The answer for ‘IPTV could make instructional contents accessible any time and any where for students with disabilities’ was 3.47 points on average. No significant difference was shown statistically among groups (F(4,1282)=0.070, p>.1).

3) Reduction of Private Education Expenses

There was statistically significant difference among groups in answers of ‘Fees for private education, coaching, etc. could be reduced for students with disabilities’ (F(4,1286)=1.958, p<.1). More parents (3.50 points) agreed than administrators (3.14 points) did.

4) Provision of Abundant, Vivid, and Practical Learning Materials

The answer for ‘Abundant, vivid, and practical learning materials could be provided and utilized’ was 3.78 points on average. There was no statistically significant difference among groups (F(4,1282)=0.112, p>.1).

5) Educational Contents Provision for Distance Education

There was statistically significant difference among groups in answers of ‘Educational contents for distance learning such as hospital school, home school, etc. could be provided’ (F(4,1286)=3.168, p<.05). More teachers in special classes and special schools (4.18 points in both groups) agreed than parents (3.95) did, testing by post hoc pair-wise Tukey test.

6) Simulation for Independent Living and Vocational Education

‘It is more available to provide virtual reality (simulation) for independent learning and vocational education through IPTV’ was scored 3.84 points. There was no significant differences among groups statistically (F(4,1282)=0.625, p>.1).

7) Conversion of General Education Programs by Disability Types

Responses to ‘General education programs from the Public Educational Broadcasting System (EBS) could be converted and provided by disability types (visual and hearing disabilities)’ showed statistically significant difference among groups (F(4,1286)=2.364, p<.1). More teachers in special classes (4.02 points) agreed than parents (3.82 points) did.
6. Types of Classes for Using IPTV

Participants of 22.7% expected to use IPTV in educating with parents (home school), 19.1% in optional class, 16.2% after school class, and 11.8% in hospital school and regular class. This indicated that respondents considered IPTV as a complement to regular classes in school.

7. Types of Contents for Using IPTV

Participants replied that contents supported by learning levels (28.2%) and self-directed learning contents (26.3%) through IPTV were needed the most. That is, participants expected IPTV learning contents to be customizable and flexible.

8. Types of Input Devices for Operating IPTV

Types of appropriate input devices for IPTV were answered differently among groups at a statistically significant level ($\chi^2=57.748$, $df=16$, $p<.01$). ‘Various input devices should be provided for many types of users (teachers and students with disabilities)’ were selected by 57.3% of all respondents and 22.7% of them chose ‘Touch screen such as electronic board would be needed’. On the other hand, 8.9% of them responded that current remote control devices would be fine. Repliers of 9.3% answered that standard keyboards and mice would be fine to control IPTV, and 1.8% said that exclusive input devices just for IPTV should be developed.

IV. Discussion and Conclusion

The Korean government has made efforts to implement and use IPTV in education (National Information Society Agency, 2009) while IPTV is still new to educators in special education as well as those in general education. This is the first study that investigated the awareness of and demands for introducing and utilizing IPTV in special education in Korea. We surveyed 1,287 educators and parents nationwide.

The study found that about 40% of the participants have heard of IPTV and 21.7% of those knew some or knew well about its functions and features. Overall, the participants’ knowledge of IPTV was at a low level although more administrators and teachers in special education schools knew about IPTV. Most of the respondents said that they would use or try to use it for teaching students with special education needs and that educational contents by IPTV would have benefits for them with no statistically significant difference among groups. These results were similar to those from teachers in general education that they also have great expectation on the effects of this new media (Leem, et al., 2009).

Teachers and parents in special education reported that IPTV would be needed more in hospital school, home school, itinerant education, optional class and after school class than in regular class. They consistently said that the educational content from IPTV should be provided by learning levels and with self-directed format in those educational settings for supporting distance learning (Roesler, et al., 2009). Accessibility to operating IPTV also should be provided by disability types. These results were somewhat different in that more general education teachers would use IPTV in regular class and thus would need educational contents for teaching academic subjects developed by class levels (Leem, et al., 2009).
The study found that the awareness of and demands for IPTV implementation and use in special education. These needs of educational contents by and accessibility to IPTV for educating students with disabilities should be applied in the process of policy making, preventing digital divide from the beginning (Vlachogiannis, et al., 2008). Future study is needed to develop educational contents conveyed by IPTV and to establish infrastructure and service system to use IPTV in special education.

REFERENCES


