Research Article

Development and Evaluation of a Computerized Multimedia Approach to Educate Older Adults about Safe Medication

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A R T I C L E   I N F O

Article history:
Received 2 April 2013
Received in revised form
8 November 2013
Accepted 19 March 2014

Keywords:
aged
computers
education
medication

S U M M A R Y

Purpose: Interactive multimedia education using computer technology is increasing in the area of health education. The purpose of this study was to examine the effects of interactive multimedia education on community dwelling older adults' self-efficacy and knowledge for medication and level of satisfaction with the education program.

Methods: A nonequivalent control group pretest and post-test design was used in this study. The multimedia education was designed to enhance safe medication of older adults. Education consisted of seven modules which contained the medication name, usage, side effects, interactions, and storage requirements. Computerized interactive learning activities consisted of multimedia animations and games. A total of 60 older adults from two local senior centers were recruited and assigned to the experimental and control group. Twenty-six participants in experimental group used the interactive multimedia education on laptop computers.

Results: Participants receiving interactive multimedia education had significantly higher self-efficacy ($F = 20.03, p < .001$) and knowledge ($F = 36.26, p < .001$) scores than the control group did at post-intervention. The experimental group indicated a high degree of satisfaction with the interactive multimedia education.

Conclusion: The study results suggest that the interactive multimedia education is an effective teaching method that empowers older adults to facilitate individual learning using computer technology.

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Introduction

Multiple medications such as over-the-counter medicines, nutritional supplements, and prescription medicines can result in adverse drug interactions and pose major barriers to optimal health in older adults who have chronic multiple diseases (Korea Food & Drug Administration, 2009). An older adult's drug metabolism is more variable than a younger adult's (Park, 2008) and older adults often report impaired ability in terms of hearing, reading, and understanding of written and oral medication instructions (DiMatteo, 2004; Lee & Park, 2010). With a growing number of prescription medicines available and the population aging, the potential risk for medication problems is ever increasing. Safe medication means ensured safety of self-management on medication therapy (US Food and Drug Administration, 2013).

Previous studies reported that the health professionals’ workload put in doubt the feasibility of individual counseling and teaching of medication use for all patients (Jang, 2012). Verbal instruction and printed drug guides have been the main methods of public medication education (Hill, 2004; Lee & Park, 2007). More efficient and effective means of providing drug information is needed. Nurses have an important role in educating older adults about drug interaction and safe medication (Neafsey, Anderson, Coleman, Lin, M’Ian, & Walsh, 2009). A few studies in Korea have emphasized the role of the nurse in educating or helping older adults to develop appropriate knowledge and behaviors required for self-medication (Lee & Park, 2007; Park, 2011). However, education on the self-management of medication is typically delivered with written or verbal information and is more to be “one size fits all” rather than individualized (Fialova et al., 2005). For instance, traditional health education materials and contents are often designed and delivered at a population or group level (Sawhney & Reichert, 2005). In addition, the traditional method fails to consider the individual interactions that uniquely influence personal learning experiences about health-related behaviors. Failure
to consider individual learning experiences in health education likely results in a poor understanding of the contents and a low compliance by older adults, who have different health literacy levels and expectations. Older adults can benefit from traditional medication education, but traditional programs are labor-intensive and costly and they are not always successful in producing long-lasting changes in effective strategy use. Thus there is the pressing need to identify alternative modes of education for the elderly (Lee & Park, 2007; Lin & Effken, 2010).

Computer-mediated instruction has been proven to be an effective educational method for older adults, resulting in increased knowledge and self-efficacy of health behavior change (King et al., 2004). Interactive multimedia instruction using computer technology is one method that can be used to supplement or replace the traditional off-line and standardized education. Interactive multimedia is the use of content forms that include a combination of text, audio, still images, animation, video, and described as electronic media devices that are used to store and experience multimedia content (Dix, Finlay, Abowd, & Beale, 2004; Lim, Lee, & Ahn, 2009). In particular, health-related training for the vulnerable population is one area that could benefit from the use of interactive multimedia-based instruction to attract users including the elderly who have learning difficulties with text-based information. Interactive multimedia instruction using computer technology allows the user some control over the pace of learning; it provides an interactive learning environment in which materials can be specifically targeted or tailored, and provides a variety of multimedia formats including graphics, animation, and games (Kang, Yang, Ku, & Kim, 2009). Rich multimedia education using interactive technology was generally proved to be more effective in changing health behaviors than text-based conventional education (Oenema, Brug, & Lechner, 2001).

Knowledge and self-efficacy are one of the traditional outcome variables of educational interventions. These two concepts have been shown to frequently provide an explanation of behaviors. Self-efficacy is defined as the belief that a person can effectively perform an action required to attain a desired goal (Bandura, 1986). Studies suggest that cognitive abilities such as knowledge and self-efficacy can be strong predictors of safe medication behavior, and serve as valuable outcome indicators for education (Park, 2008; Risser, Jacobson, & Kripalani, 2007). Data from previous studies reported that older adults with little knowledge are at risk of medication misuse and abuse (Lee & Park, 2010). It has been suggested that self-efficacy is a strong predictor of adherence to knowledge-based intervention, and can serve as a useful basis for analysis (van Es, Nagelkerke, Collard, Scholten, & Bouter, 2001). The feasibility of the intervention needs to be tested by providers in a realistic setting and satisfaction with the system in particular is an important aspect of usability. In addition, increased level of patient satisfaction will promote self-efficacy and knowledge resulting in improved safe medication adherence (Neafsey et al., 2009).

This study describes the development and evaluation of an interactive multimedia medication education using computer technology for older adults living in the community. The web-based multimedia education was designed to be delivered to older adults to improve self-efficacy towards safe medication and knowledge of medication instruction. In this study, the program was developed to improve adherence to medication instructions, rather than specific drugs or disease. The program may provide a model for tailored program offering specific health information.

**Purpose**

In this study, the specific aims related to the outcomes of the interactive multimedia medication education were to show that the interactive multimedia education program increase self-efficacy for safe medication and knowledge of medication.

**Methods**

**Study design**

A nonequivalent control group pretest and post-test design was used to examine the effects of interactive multimedia education on community dwelling older adults’ self-efficacy and knowledge for safe medication.

**Setting and sample**

Sixty older adults, from two senior centers in a metropolitan city in Korea, were selected. Thirty older adults were selected from each center. One senior center was assigned to the experimental group and the other to the control group. The study was conducted from March 1st to May 7th, 2012. Participants were at least 65 years of age. Study participants met the following criteria: (a) were able to perform activities of daily living, (b) were cognitively aware, (c) understood education, (d) were taking one or more prescription or over-the-counter drugs, and (e) were willing to sign the consent form. Those who met the inclusion criteria were assigned to one of two groups, with the goal of retaining 26 subjects per group, to yield sufficient statistical power (.80) to detect differences between groups (effect size = .80) at an alpha of .05 (Cohen, 1988), estimating that standardized sizes (d) ranged from 0.60 to 1.30, depending on which participant outcome measure was considered. Thirty subjects per group were recruited to allow for a 20% attrition rate for the study.

Data were either anonymous (i.e., self-report instruments and surveys) or confidential (assessment of inclusion criteria) and posed no physical or psychological risk to participants. Individual participants were not identified in the analyses or in reporting of data and results. All study participants were asked to sign an informed consent form that was read to them and explained, if needed.

A total of 51 participants completed the study: 26 participants in the experimental group and 25 participants in the control group. Four participants from the experimental group and five from control group were unable to complete the study because of illness or personal reasons.

**Ethical consideration**

This study was approved by the institutional review board. The purpose and procedures of the study were explained to the director for approval, at each senior center. After approval was granted to conduct the study, the participants gave their written consent during the initial contact.

**Measurements**

**Self-efficacy for appropriate medication use**

Self-efficacy is defined as the confidence in the individual’s ability to perform a task and an important contributing factor to one’s behavior (Bandura, 1986). In this study, self-efficacy for appropriate medication use was defined as confidence in an older adult’s ability to use medication appropriately. The Self-Efficacy for Appropriately Medication Use Scale developed by Risser et al. (2007) and translated into Korean by Park (2011) was used in this study. The 13-item instrument consists of two dimensions. One dimension assesses the self-efficacy for taking medicines under challenging circumstances, such as when patients are busy, outside of
home, or have multiple medications. The second part is about assessing the self-efficacy for taking medications under uncertain or changing circumstances, such as when the patient is uncertain about how to take the medications or the therapeutic regimen is changed. Patients need to check their level of confidence in taking medications correctly, under various circumstances (i.e., 1 = not confident, 2 = somewhat confident, and 3 = very confident). Higher scores showed higher levels of self-efficacy for safe medication. The Cronbach’s alpha coefficient was .890 for the original study (Risser et al.) and .904 for previous study (Park, 2011), and .820 for this study.

Knowledge of medication instruction

Eight questions, with multiple possible answers, were developed by the researcher based on the outline of the education contents and on previously developed instrument (Lee & Park, 2010). Each question was formulated based on examples of actual medication instruction. The total number of correct answers was used in the analysis (i.e., correct = 1, incorrect or don’t know = 0) and total scores ranged from 0 to 8 with higher scores indicating a greater knowledge of medication instruction. The content validity was assessed and the items were pilot-tested on 10 volunteers recruited from senior centers that were not involved in the present study. The indices used to select the most content-valid set of items were then revised to improve clarity. Difficulty indices were between 0.30 and 0.60 and discrimination indices were all over 0.20 (Owen, 1993).

Satisfaction of education

The evaluation survey assessed the participants’ perception of the learning environment. Specifically, it consisted of 13 statements, with 7 statements for instructional values and 6 statements for instructional function. Learners were required to respond to each statement on a 5-point Likert-type scale where 5 indicates strongly agree and 1 indicates strongly disagree.

Procedure

The development of the program involved the coordinated actions of the researcher as a content expert, a web designer and database programmer for the website, a multimedia designer responsible for animation, and a game designer for game production. An adaptation of the model for developing interactive multimedia was used to guide program construction. During the initial planning stage, learners’ needs on interactive multimedia for medication education were investigated through reviewing previous research and surveying older adults in the community. Multimedia education programs, teaching materials, and websites related to medication were examined for content analysis. The educational content was developed by the researcher based on the review of related research and literature. The contents are parallel items for the self-efficacy and knowledge tests. Eight experts evaluated the education content. The expert group consisted of five professors of nursing, pharmacology, education, computer technology, and animation, two clinical nurses and one pharmacist. The contents addressed a wide range of topics such as understanding the medication label, calculating the dosage, keeping the medication regimen, identifying side effects, avoiding drug and food interaction, and keeping the medicine in a safe place.

Based on the result of the content, technical, and environmental need analysis, the following topics were selected for development using interactive multimedia. At the design phase, content was classified into texts, images, animations, and games. Links among webpages were also designed. Information on name and type of drug, its effect, usage and dosage, interaction, side effects, and storage were designed mainly using animations and games. The animations were of stories based on real life episodes related to medication behavior of an older adult character (Figure 1). The interface design was based on the learning styles of older adults. The following guidelines by the National Institute on Aging were used to develop the senior-friendly websites: using sans serif typeface to display information content because they were not condensed, 12-point or greater font size to improve legibility of information content such as text body, buttons, links, and other textual objects, mixed-case letters for body text, left justification to space letters consistently, monotone background to improve the legibility of text, and text effects only in headlines (Becker, 2004).

The introductory page was designed to show the site map and provide accesses to interactive learning, discussions, bulletin boards, and links. A pictorial map method has been proven as an effective teaching method for older adults in a previous study (Park, 2011). The navigation arrow and humanoid characters on the pictorial map guided the direction of education. Post-learning games were designed to solicit older adults’ impressions of the virtual experience and facilitate interaction.

In the production phase, the structure of the program was organized into a sequence of modules and was user-friendly after considering the difficulties of content, and the technological possibility of implementation. The program was developed in Windows environment using HTML, JavaScript, Flash action, Photoshop, and so on (Figure 2). The interactive interface displays educational animations designed to virtually demonstrate each component of medication instruction (Figure 3), followed by interactive questions and answers. Interactive questions were designed as games in a way to facilitate learning; the system was designed for older adults with no previous experience using computers. By clicking large graphic object or a large letter (20 point size Arial Black font), participants began interaction with the program. Focus groups of older adults evaluated the education components and interactive interface in a formative manner during development of the instrument. Seven older adults were recruited to participate in the focus group which consisted of 3 male and 4 female older adults; 80% of them were aged 75 and over. Based on the focus group feedback, the difficulty level of terminology, size of images, and speed of games were revised.

In the operation phase, the produced content was uploaded onto the website. Learners needed to login on the website and to be approved by the instructor to use the site and access educational modules and games. The interactive educational modules were guided by the guide map on the introduction page. When the users click the stop point on the map, a set of animation and games were played. Games were provided at the completion of each educational animation presenting potential self-medicating dilemmas. The answers were selected by users and each incorrect choice triggered a replay option, the user would then be directed to “try others”. If a correct answer was selected, positive feedback was provided which directed the user to the next level. During the evaluative phase, the evaluation survey assessed the users’ self-efficacy toward safe medication and knowledge of medication instruction.

Education was delivered individually over seven modules once a week. Each module took about 15 minutes. Two modules were delivered on a weekly basis (Table 1). The researcher and the trained research assistants provided an orientation to participants regarding how to operate the system in a computer room at the senior center. Most participants have no experiences with computers. The research assistants helped the participants during the education process. The control group received the intervention after completion of the study.
The study outcomes were measured before and after the intervention. The pre-test was measured 1 week before the first module and the post-test was measured 1 week after the last module. Instruments were administered on the web for the experimental group and printed instruments were administered for the control group.

Data analysis

SPSS version 20.0 (SPSS Inc., Chicago, Illinois, USA) was used. Descriptive statistics were used to analyze the general and medication-related characteristics of subjects. Homogeneity of the experimental and control group was verified using Chi-square test, Fisher’s exact test, and independent t test. Paired t test and analysis of covariance were performed to compare self-efficacy and knowledge scores before and after the intervention.

Results

General characteristics and outcome characteristics of participants

Baseline characteristics of the participants are shown in Table 2. There were no initial differences between the two groups in gender, age, educational level income (literacy), marital status, income, and health condition and medication-related characteristics. The baseline self-efficacy score was 24.69 ± 5.18 for the experimental group and 25.20 ± 4.21 for the control group. The baseline knowledge scores were 4.88 ± 1.14 and 3.84 ± 0.55. At baseline, there were no differences between the groups in self-efficacy and knowledge (Table 3).

Effects on self-efficacy and knowledge

Mean score of self-efficacy measured with the experimental group increased significantly from 24.69 ± 5.18 before the intervention to 28.65 ± 3.07 after the intervention ($t = -4.07, p < .001$) while it did not increase significantly for the control group ($t = -0.56, p = .582$). The difference between two groups at post intervention showed a significant difference when pretest score was controlled as a covariate ($F = 20.03, p < .001$). Mean score of knowledge measured with the experimental group increased significantly from 4.88 ± 1.14 before the intervention to 7.15 ± 0.93 at post intervention ($t = -4.50, p < .001$) while it did not increase significantly for the control group ($t = -0.68, p = .504$). The difference between the two groups at post intervention showed a significant difference when pretest score was controlled as a covariate ($F = 36.26, p < .001$) (Table 4).
Satisfaction of multimedia education

The participants believed that the multimedia education was useful. They agreed the program was easy and fun to use. They responded that much of the information was new for them and they would recommend the program to their friends and choose another like it in the future. However, they showed relatively lower satisfaction over the speed to follow the instruction and navigation function (Table 5).

Discussion

This study evaluated the effects of interactive multimedia education using computer technology on self-efficacy towards safe medication and knowledge of medication instruction for community dwelling older adults in Korea. It tested an innovative approach using the multimedia information and interactive games to facilitate older adults’ participation in and comprehension of education. The recipients of interactive multimedia education showed greater...
self-efficacy and knowledge than the control group did. The improvement in self-efficacy and knowledge with the intervention suggests that older adults benefit from interactive technology tailored to their learning style and physical limitations.

### Table 1: Content for Education Module.

<table>
<thead>
<tr>
<th>Module</th>
<th>Objective</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>Pre-evaluation</td>
<td>Demographic information</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Health and disease characteristics</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medication characteristics</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Knowledge, self-efficacy level</td>
</tr>
<tr>
<td>1 Type of drug</td>
<td>Prescription and nonprescription medication, health supplements</td>
<td>Components of a prescribed or nonprescribed medication and health supplements</td>
</tr>
<tr>
<td>2 Name of drug</td>
<td>Terms used in medication instructions</td>
<td>Generic names and brand names</td>
</tr>
<tr>
<td>3 Effects</td>
<td>Age-related physical changes</td>
<td>- Reduced body water, decreased</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Changes in the autonomic nervous system</td>
</tr>
<tr>
<td>4 Usage &amp; dosage</td>
<td>- Changes in gastrointestinal system with aging</td>
<td>Types, causes and results of drug administration</td>
</tr>
<tr>
<td>5 Side effects</td>
<td>Meaning of drug side effects and drug toxicity</td>
<td>Symptoms: nausea, dizziness, drowsiness, confusion</td>
</tr>
<tr>
<td>6 Interaction</td>
<td>Drug-food interaction &amp; drug-drug interaction</td>
<td>Results of drug interaction</td>
</tr>
<tr>
<td>7 Storage</td>
<td>Precautions in drug storage</td>
<td>Ways to minimize the risk of drug interaction</td>
</tr>
<tr>
<td>Post test</td>
<td>Post evaluation</td>
<td>Knowledge, self-efficacy level</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Satisfaction level</td>
</tr>
</tbody>
</table>

### Table 3: Homogeneity Test for Scores of Self-efficacy and Knowledge (N = 51).

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Experimental (n = 26)</th>
<th>Control (n = 25)</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M ± SD</td>
<td>M ± SD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>24.69 ± 5.18</td>
<td>25.20 ± 4.21</td>
<td>-0.383</td>
<td>.703</td>
</tr>
<tr>
<td>Knowledge</td>
<td>4.88 ± 1.14</td>
<td>3.84 ± 0.55</td>
<td>1.810</td>
<td>.084</td>
</tr>
</tbody>
</table>

Significant improvement in self-efficacy and knowledge was reported in previous studies using multimedia information with interaction (Neafsey et al., 2009; Tarraga et al., 2006). The findings of this study supported those of previous studies. A systematic review on a multimedia, computer-based nutrition education program found that older adults received interactive multimedia education well and showed improved knowledge of and behavior related to nutrition. The overall satisfaction with learning was higher with computer-assisted instruction when compared to the written material and lecture method given to a control group (Aldridge, 2006). The utilization of computer-assisted education programs designed for older adults offers older adults the opportunity to proceed at their own pace and level effective for learning without being overwhelmed by extraneous textual or verbal information (Spittaels, Bourdeaudhuij, Brug, & Vandenbergue, 2007). The developed program is a self-directed computer-mediated education program that provides a means for older adults to become aware of their own medication behaviors and learn in order to modify behavior for improving their own health.

The self-directed multimedia education in this study can be effective in providing a standardized education interactively, while saving cost and time at the same time, even though it requires an initial development cost. Studies have described the potential of interactive health technologies to save time and effort of health care providers, while increasing knowledge about and actions toward healthy behaviors to prevent disease or manage chronic conditions (Kang et al., 2009; Neafsey, Strickler, Shellyman, & Chartier, 2002). In the trends of rising health care costs and increasing needs of health promotion, interactive multimedia education technology can be a cost-effective supplement to conventional health education, helping to encourage client and health care provider interactions when the health care provider’s time is constrained or knowledge of a particular area is limited (Lee & Park, 2007; Treweek, Glenton, Oxman, & Penrose, 2002). Previous studies commented that active participation of users and the individual learning experience are important factors for successful education for older adults. Park (2011) facilitated the small group based education using pictorial education materials, allowing active interaction between the instructor and the participants for medication education. However, the instructor-guided approach incurs time and cost for the instructor and can be affected by the competence of the instructor (Sawhney & Reicherter, 2005).

In this study, animation based on a life story about safe medication use of an older adult character helped to immerse and create empathy from the user for the animated story and contributed to enhancing the self-efficacy of the participants. In addition, after watching the animation, users completed games which matched the contents of the animation. This enhanced their problem-solving ability for safe medication.

This study also evaluated the satisfaction of medication education based on computer-assisted interactive multimedia systems. Users indicated a high degree of satisfaction with instructional value and function of the program. Some of the participants were hesitant at first, feeling that they lacked the skill to use a computer. After some initial prompting and encouragement, these older
adults found operating the program by only clicking mouse was easy to use. They simply had to click on the area of the screen that showed what they were interested in exploring. There was no need to use keyboard to input anything. Almost all of the participants reported that the interface was easy to use and said they would use it in the future if it was available. Several studies focused on the attitude of older adults toward computers before and after direct experience with them and found that, with experience, the elderly did develop a positive attitude toward computers (Mercer, Chiriboga, & Sweeney, 1997; Neafsey, Lutkus, Newcomb, & Anderson, 2009; Tárraga et al., 2006). This research shows support for the idea that technology can be accepted by older adults, even if there is initial resistance to it (Neafsey et al., 2002).

This study had several limitations that can be addressed in future research. First, this study utilized only an experimental group (interactive multimedia) and a control group (no intervention). The study design could be expanded to include the conventional group (verbal education with written material). This study used general medication instruction, rather than real drugs prescribed to the study participants. Because older people with chronic disease usually take multiple medications, exploration of the effects of tailored education, according to the older adults’ health condition and medication-related characteristics is required in future study. In addition, future research is needed to test the functionality of the interactive multimedia education with touch screen technologies in promoting more senior-friendly interface and home-based program.

### Conclusion

The interactive multimedia education provides an effective means for older adults to become aware of their own medication behaviors and learn safe medication use. In this study, the effectiveness of the intervention was compared with the control group receiving no intervention. A direct comparison with conventional method based on verbal instruction or written material in a future study may reveal that health education presented in this manner can be a cost effective way for benefiting older adults in improving knowledge and self-efficacy. The participants for this study were recruited from senior centers in a city in Korea. Therefore, the results of this study are limited in its generalizability to both rural and urban older population. Moreover, future research that includes a study in home care settings or clinical settings, to support the efficacy of this innovative approach across different settings is needed.

The implications for future practice are related to the delivery of more senior-friendly type of health information to older adults using interactive multimedia such as animation and interactive serious game. Interactive multimedia education can be adapted to cover various healthcare topics. In addition, individualized education using interactive multimedia has the potential to provide both timely and personalized interventions for older adults with multiple diseases and various health information needs.

### Conflict of interest

There is no conflict of interest with the result of this study.

### Acknowledgment

This work was supported by Basic Science Research Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Education, Science and Technology (No. 2009-0067767).

### References


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<table>
<thead>
<tr>
<th>Variables</th>
<th>Group</th>
<th>Pretest M ± SD</th>
<th>Post test M ± SD</th>
<th>Paired t</th>
<th>p</th>
<th>P*</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-efficacy</td>
<td>Experimental</td>
<td>24.69 ± 5.18</td>
<td>28.65 ± 3.07</td>
<td>−4.07</td>
<td>&lt;.001</td>
<td>20.03</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Control</td>
<td>25.20 ± 4.21</td>
<td>25.30 ± 4.17</td>
<td>25.30 ± 4.17</td>
<td>−0.56</td>
<td>.582</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge</td>
<td>Experimental</td>
<td>4.88 ± 1.14</td>
<td>7.15 ± 0.93</td>
<td>4.50</td>
<td>&lt;.001</td>
<td>36.26</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Control</td>
<td>3.84 ± 0.55</td>
<td>4.00 ± 0.76</td>
<td>4.00 ± 0.76</td>
<td>−0.68</td>
<td>.504</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. *F* scores are analysis of covariance with pretest scores as covariates.

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### Table 4 Effects of Multimedia Education on Self-efficacy and Knowledge (N = 51).

### Table 5 Satisfaction of Interactive Multimedia Education (N = 26).

<table>
<thead>
<tr>
<th>Category</th>
<th>Item</th>
<th>M ± SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructional value</td>
<td>Entertaining</td>
<td>4.41 ± 0.71</td>
</tr>
<tr>
<td></td>
<td>Easy to understand</td>
<td>4.03 ± 0.76</td>
</tr>
<tr>
<td></td>
<td>Satisfied</td>
<td>4.32 ± 0.82</td>
</tr>
<tr>
<td></td>
<td>Useful</td>
<td>4.25 ± 0.78</td>
</tr>
<tr>
<td></td>
<td>New</td>
<td>4.33 ± 0.92</td>
</tr>
<tr>
<td></td>
<td>Recommendable</td>
<td>4.20 ± 0.85</td>
</tr>
<tr>
<td></td>
<td>Want to use again</td>
<td>4.30 ± 0.85</td>
</tr>
<tr>
<td></td>
<td>Appropriate letter size</td>
<td>4.15 ± 0.77</td>
</tr>
<tr>
<td></td>
<td>Speed to follow</td>
<td>3.95 ± 0.90</td>
</tr>
<tr>
<td></td>
<td>Attractive graphic</td>
<td>4.13 ± 0.88</td>
</tr>
<tr>
<td></td>
<td>Variety of multimedia</td>
<td>4.21 ± 0.75</td>
</tr>
<tr>
<td></td>
<td>Easy navigation</td>
<td>3.84 ± 0.83</td>
</tr>
<tr>
<td></td>
<td>Hold attention</td>
<td>4.24 ± 0.61</td>
</tr>
</tbody>
</table>

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