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Effects of multimedia instructional material on students' learning and their perceptions of the instruction

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Effects of multimedia instructional material on students' learning and

their perceptions of the instruction

by

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A thesis submitted to the graduate faculty

in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

Major: Foodservice and Lodging Management

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Iowa State University

Ames, Iowa

2008

UMI Number: 1453140

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ABSTRACT

The present study examined the effects of multimedia instructional material on students' learning and their perceptions of the instruction. A between-group quasi-experimental study design was used for the purpose of this study. One hundred eleven students enrolled in a Quantity Food Production laboratory class in two different semesters were designated to either the control or experimental group. Both groups received traditional instructor-led orientation sessions about table service and beverage preparation procedures. However, the experimental group was only allowed to access new instructional materials presented on DVD. A set of pretest and posttest was used to collect data. Test gain scores and students' class performance grades were computed and analyzed to compare students' learning outcomes between the two groups. Students' perceptions of instruction were measured with their opinions of instruction, their self-reported level of understanding of table and beverage service procedures, and their level of satisfaction.

Results of independent samples *t*-tests showed: (1) students in the experimental group had a significantly higher gain score than students in the control group; (2) no significant differences in students' performance grades between the two groups; (3) two out of seven questions about students' opinions about the instruction had more positive perception responses for students who watched the DVD than students of the control group; (4) no significant differences existed in students' self-reported level of understanding of table service and beverage preparation procedures between the two groups; and (5) students who watched the DVD had a higher level of overall satisfaction with the instruction than students

who did not. Limitations of this study are recognized, and suggestions for future research are

also provided.

CHAPTER I. INTRODUCTION

Instructors in higher education are under pressure to provide more effective and efficient learning environments and educational experiences to their students. In colleges and universities, teaching serves as an important vehicle for achieving institutional goals of enhancing students' knowledge and learning and engaging them in the learning community to prepare for future citizen. Therefore, educators always are looking for ways to make their educational initiatives more effective (Hsu, 1999). The learning experience in higher education has shifted paradigms from an instructor-focused approach to learner-centered pedagogical methods (Hsu & Wolfe, 2003).

Instructional systems and educational technology have been gaining great attention by educators in order to enhance students' learning. Hospitality educators have become aware of the benefits and shortcomings of various traditional methods used to provide instruction and training to hospitality students and practitioners (Feinstein, Raab, & Stefanelli, 2005a) and the possible benefits of educational technologies; thus educators have been adapting their curricular to take advantage of new instructional methods. Educational technologies such as multimedia presentations, simulation methods, online courses, and computer-assisted case-based instruction are becoming commonplace (Feinstein, Raab, & Stefanelli, 2005b).

Multimedia allows teachers to integrate text, graphics, animation, and other media into one package to present comprehensive information for their students to achieve specified course outcomes. Multimedia permits the demonstration of complicated processes in a highly interactive, animated fashion and that instructional material can be interconnected with other related topics in a more natural and intuitive way (Crosby & Stelovsky, 1995).

Multimedia-based instruction can be efficient and effective for three reasons (Issa, Cox, & Killingsworth, 1999): (1) it is *self-paced learning*: the individualized pace of the learning allows students to break down the group instructional setting, which often inhibits some people's natural progression (West & Crook, 1992); (2) it includes *video/audio production*: enhancing a learner's interaction with the course material through less bridging effort between the learner and the information being processed; and (3) it provides *autonomy in the learning process*: self-regulated instruction shifts the sense of responsibility from the instructor to the student. Bartlett and Strough (2003) stated that, besides potential advantages to students, multimedia formats may offer benefits to instructors teaching multi-section courses because this type of format ensures uniformity in the lecture content across the sections.

Multimedia has been one of the most well-known and effective training tools and was referred to as the technological wave of the future (Harris, 1993). Thus, the present study seeks to evaluate the effects of new multimedia instructional material on students' knowledge and on their perceptions of the instruction in a multi-section course. These effects were assessed on students in the laboratory component of the Quantity Food Production and Service Management Experience course at Iowa State University. In this laboratory setting, students manage, prepare, and serve lunch meals to the public. Students who complete the course are expected to understand technical procedures involved in the management, production, and service of high-quality foods in a real setting.

Students in this Quantity Food Production laboratory received service procedures and beverage preparation instructions in a traditional format (instructor-led) during orientation

sessions. Until the beginning of fall 2007, no additional material was provided to students to support the information they received during orientation sessions.

Purpose of the Study

The researcher of this study developed new multimedia material for students enrolled in the Quantity Food Production and Service Management Experience course, to provide them with additional instructional material to facilitate the review process when they performed their upcoming hands-on experiences as table and beverage servers.

The purpose of this study was to examine the effects of the newly-developed multimedia instructional material presented on Digital Video Disk (DVD) on students' learning and their perceptions of the instruction. These effects were measured by comparing control group and experimental group students. The control group was represented by students who received only traditional format of instruction and did not use DVD for their learning, while the experimental group was represented by students who used DVD and received traditional instruction.

Limitations

Two limitations are recognized for the present study. The first limitation is that the sample was not randomly selected. It was confined to undergraduate students enrolled in Quantity Food Production and Service Management Experience classes during spring and fall 2007 at Iowa State University and results may not generalize to other classes, group of students in a different academic year, or students in other educational programs.

The second limitation recognized in this study is that students' performance evaluation varied from one semester to the other because different and untrained teaching

assistants evaluated students in the two groups, affecting students' grades subjectively. Front-of-the-house teaching assistants were not trained about students' performance evaluation before being assigned to this position.

Justification of the Study

Multimedia techniques have been incorporated in all facets of instruction: conferences, class lectures, training, and distance education courses. However, there are very few empirical studies documenting the effectiveness of multimedia techniques in fields of teaching, training, and sales.

Based on literature reviews of hospitality information technology curricular, Kluge (1996) found that only 18 of 102 articles reviewed were empirically based and six were based on experimental designs testing alternative forms of instruction with students. He also pointed out several issues related to multimedia instructions: first, educators need to determine the skills students require objectively to ensure they are being properly prepared for future careers; second, researchers need to test empirically different instructional methods to continue to improve teaching and instructional delivery and be more active in examining the role of information technology; and finally, they need to make sure they are taking full advantage of this instructional medium and making better use of the literature in education and instructional design, applying those findings to the hospitality setting.

In their review of instructional systems, Feinstein et al. (2005a) indicated that there was an absence of studies that evaluated the effectiveness of instructional systems in hospitality education. Moreover, they concluded that much of what has been done was

conceptually and methodologically flawed, and noted that most of the problems in this area of research were related to the evaluation of the effectiveness of instructional systems.

This study contributes to the body of literature in hospitality education by analyzing the effectiveness of instructional material for student learning. The study used a quasi-experimental design to asses the effectiveness of new multimedia instructional material by measuring students' knowledge and their perceptions of the instruction.

Definition of Terms

The following terms were defined for use in the study:

Instruction. In this study, instruction was considered as the integration of both method and media. Samaras, Giouvanakis, Bonsiou, and Tarabanis (2006) stated that this definition leads to the need for careful consideration of media along with the instructional methods adopted when designing empirical studies on multimedia learning effectiveness. With the introduction of new media, the challenge is to use them effectively and transfer knowledge to the learner.

Multimedia is the combination of several media sources such as video, graphics, animation, audio, and text, accessed by a computer and attached peripherals driven by special programs (Harris, 1993). Another definition (Harris & West, 1993) stated that multimedia presentations are a combination of instructional resources controlled by a single operated system, usually computer-based. Schnotz and Lowe (2003) defined the term multimedia as the combination of multiple technical resources for the purpose of presenting information represented in multiple formats via multiple sensory modalities. The multimedia material used in this study

was presented on DVD and included a mix of resources such as text, audio, still pictures, and

motion video, controlled and manipulated through a computer program.

Traditional methods of instruction refer to instructor-led lectures without the inclusion of any

type of technology-based material such as PowerPoint slides, while *technology-based*

methods of instruction include the use of any technology media resource.

CHAPTER II. LITERATURE REVIEW

Introduction

Educators continuously seek innovative ways to present quality instruction for a number of reasons, including to: (a) increase their service for student's learning, (b) fulfill their institution's mission by integrating institution's core concepts into each curricular, and (c) address students' demographic needs (Morse, 2003). Nicastro (1989, as cited in Feinstein et al., 2005b) noted that there was a current trend toward more active involvement by students in their own educations. The author also pointed out that many educators thought that instructor-led lectures were not effective methods of instruction. Other instructional methods such as case studies, student-led discussions, and Web-based modules allow students to learn at their own pace and have been incorporated into classrooms to enhance students' learning (Hsu & Wolfe, 2003).

Many researchers agree that hospitality educators currently are implementing innovative techniques that extend their instructional methods (Feinstein et al., 2005b; Harris & Cannon, 1995; Van Hoof & Colling, 2001). Hospitality educators are facing the challenge of how to apply successfully instructional systems to provide future hospitality professionals with knowledge that balances academic subjects and industry applications (Feinstein et al., 2005a). Deale and Hovda (2006) stated that service was the focus of the hospitality industry, but service that was practiced in the hospitality industry was not the primary focus of educational organizations and was not reviewed succinctly in the educational literature. They suggested that excellent service practices might allow an educational institution to

distinguish itself from others and offer ways to improve its performance and image, especially in highly competitive markets.

Leading scholars also addressed issues and concerns about the future of hospitality education (Feinstein et al., 2005b; Lewis, 1993; Power & Riegel, 1993). Feinstein et al. indicated that many authors typically pontificated on whether traditional hospitality educational systems would survive, or prophesize on how technology would change the face of hospitality education. In the early 1990s, Lewis believed that hospitality management programs were not changing with the times, which would make many programs in North America shut down in the following years. He proposed a two-step process for rectifying the situation: (1) reposition hospitality education to serve the levels in management that hospitality graduates were expected to ultimately achieve, and (2) redefine the mission of hospitality management to incorporate the first step, and then revise the curriculum, culture, and faculty around this new mission.

In contrast to Lewis' viewpoints, Powers and Riegel (1993) pointed out that hospitality programs would be prospering in the following years based on hospitality programs' strong support for both the hospitality industry and students. They considered students as customers and hospitality programs as products and the responsibility of these programs was to prepare management majors specialized for the hospitality industry.

Use of Technology-based Instruction

Use of technology in hospitality programs is a major instructional trend because technology maintains students' attention, increases their motivation, facilitates presentation of figures and graphs, and provides more active teaching environments (Barlett & Strough,

2003). Harris and West (1993) stated that multimedia programs are an efficient and effective means of training for technical skill and conceptual development. They indicated that by using multimedia programs, trainers could save time, increase retention, and increase motivation of learners by involving them in the learning process. Harris and Cannon (1995) also pointed out that an instruction format should be reviewed carefully from the perspective of the individuals being educated, because the format affected their involvement in the instruction session, and their motivation and commitment to learning. A significant number of emerging educational technologies derived changes in the delivery of the entire curriculum. Kasavana (1993), for example, urged that some portion of hospitality curricular would be taught with several emerging technologies: distance learning, virtual reality, simulation, and audio graphics. These technologies ultimately increased learners' retention by facilitating more active learning environments (Astin, 1985, as cited in Feinstein et al., 2005b).

Effects of Technology-based Instructional Methods on Students' Learning

Many researchers strive to measure the effects of different types of instructional techniques on students' learning. Various instructional methods include static and animated text, graphics and non-linear structure (Crosby & Stelovsky, 1995); multimedia based CD-ROM (Issa et al., 1999); videotape (Smith & Shillam, 2000); non-interactive computer assisted instruction—PowerPoint (Susskind, 2005); Web-based multimedia tutorials (Buzzell, Chamberlain, & Pintauro, 2002); computer generated animations (McGregor, Fraze, Baker, Haygood, & Kieth, 2003); interactive CD-ROM (Price, Lukhard, & Postel, 2005); online training course (Feinstein, Dalbor, & McManus, 2007; Kim & Kim, 2005);

webquest (Hassanien, 2006); virtual learning environments (Dale & Lane, 2007); and

podcasting (Dale, 2007).

By incorporating various technology-based instruction methods in their courses,

many researchers attempt to identify effects of these methods on students' learning. A typical

measurement is two folds: comparing pretest and posttest scores of treatment groups (Buzzell

et al., 2002; Crosby & Stelovsky, 1995; Issa et al., 1999; Jaffe, 1989; Price et al., 2005;

McGregor et al., 2003; Smith & Shillam, 2000) and analyzing students' academic

performance (Barlett & Strough, 2003; Erwin & Rieppi, 2000; Richardson, 1997; Susskind,

2005). Different results on students' knowledge acquisition were reported in studies

comparing pretest and posttest scores. Some studies concluded that students' knowledge

increased after they were exposed to technology-mediated instructional methods (Crosby and

Stelovsky, 1995; Issa et al., 1999; Kim & Kim, 2005; Smith & Shillam, 2000), while others

found no significant differences between pretest and posttest scores of treatment groups

(Buzzell et al., 2002; Jaffe, 1989; McGregor et al., 2003).

Not only students' knowledge acquisition but also their comprehension gain scores

provide an important indicator to understand how much students comprehend materials.

Crosby and Stelovsky (1995) measured effects of technology-mediated instruction on

students' learning, compared to traditional lecture type instruction. In their study, an

instructor gave the same lecture to students in both sections and had them complete a pretest.

And then, students in one section received the only traditional instruction, while students in

the other section received technology-mediated instruction by using multimedia. After all

instructions, students were asked to complete a posttest. The authors found that students

performed better when they were instructed using the technology such as multimedia

courseware, and suggested that the multimedia courseware not only enhanced computer science instruction in general, but also could "make computer science accessible to a more heterogeneous student population" (p. 161). Similar findings were found by Issa et al. (1999). They tested the effect of multimedia-based CD-ROM on students' learning improvement, compared to the traditional classroom format. Student knowledge improved more with lessons of multimedia-based CD-ROM than with the traditional classroom format.

Like Crosby and Stelovsky (1995), other researchers (Feinstein et al., 2007; Smith & Shillam, 2000) found improvements between pretests and posttest after participants were exposed to technology-based instructional methods. Smith and Shillam studied the effectiveness of a safety videotape in educating restaurant employees. Foodservice workers in each restaurant took a pretest, viewed the educational videotape, and then took a posttest. Researchers found that the total percent of correct responses of pretest and posttest increased significantly. Feinstein et al. (2007) sought to determine whether there was a significant increase in learner's food safety and sanitation knowledge after students' taking an online food safety and sanitation course. They assessed differences in ServSafe[®] Food Manager Certification Examination (ServSafe[®] Exam) scores, administered as pretests and posttests. Participants first took the ServSafe[®] Exam to assess the individual level of food safety knowledge before taking the actual online course. After completing the online course, participants took a different version of the ServSafe[®] Exam. A paired-sample *t*-test revealed that there was a significant difference between pretest and posttest scores and led to the conclusion that participants learned a significant amount through ServSafe[®] Online.

Other studies have compared different instructional methods by analyzing students' course performance as measured by final examination grades (Barlett & Strough, 2003;

Erwin & Rieppi, 2000; Richardson, 1997; Susskind, 2005). Different conclusions were

reported in these studies. Erwin and Rieppi (2000) showed that students in a multimedia-

based class were significantly higher in their final examination scores (dependent variable)

than those in a traditional class. They measured students' academic performance in

undergraduate psychology courses in which students were enrolled in a particular section

without knowing the instructional style, multimedia or traditional, they would receive.

Students were exposed to the same final examination. Similarly, Richardson (1997) found

that examination scores were significantly higher from computer-assisted lectures compared

with didactic lecture instruction. In contrast to previous findings, other studies (Barlett &

Strough, 2003; Susskind, 2005) reported no significant differences in students' performance

grades with the implementation of different instructional techniques.

Effects of Technology-based Instructional Methods on Students' Perceptions

Effects of instructional methods also have been measured by assessing students'

attitudes toward the instruction (Barlett & Strough, 2003; Buzzell et al., 2002; Kim & Kim,

2005; Richardson, 1997; Susskind, 2005). Most of these studies reported that students'

attitudes toward instruction were becoming more favorable after they were exposed to new

technology-based instructional material. Susskind examined the effects of non-interactive

computer-assisted instruction on students' self-efficacy and attitudes. In an introductory

Psychology course, 51 students chose which section of an introductory Psychology course to

attend, so they were not randomly assigned to conditions. Section one was taught via a

traditional instructor-led lecture with notes on a whiteboard, and section two received the

same lecture except that the notes were presented by PowerPoint presentation software. A

survey was conducted with students to assess their classroom motivation. Then, the lecture format was switched so that students in section one could have lectures with PowerPoint presentation software and students in section two could experience the traditional lecture. A second survey was administered to both sections. Also, students in the two groups were asked to answer 15 items that reflected their attitudes toward the course and their self-efficacy beliefs. Students displayed more positive attitudes toward PowerPoint lectures; they claimed that when PowerPoint was used, the lectures were more organized and their main points were emphasized more. Students also believed learning was more effective when PowerPoint accompanied lectures; they showed improvements on self-efficacy concerning note taking capabilities.

Other research studies also addressed students' attitudes toward multimedia-assisted instruction. Price et al. (2005) assessed educational outcomes among students learning with traditional lecture versus CD-ROM. Although they found students preferred traditional lecture instruction, they suggested that when given the option of total self-instruction, students who knew they learned well using this type of instruction chose it but there were always students who preferred the traditional lecture method of instruction. To satisfy the diverse learning needs of students and enhance computer skills, the authors concluded that it would be beneficial to offer courses that combine traditional lecture methods of instruction with computer-assisted self-study.

Perry and Perry (1998) surveyed 109 college students enrolled in two classes: computer information systems and teacher education. They concluded that students preferred to attend classes using multimedia presentations and that they found class more interesting and more enjoyable with multimedia. The authors stated that multimedia could affect

learning in a positive manner. A multimedia opinion survey showed that, when multimedia materials were utilized: (1) students found more material was covered, (2) students considered they learned and retained course material better, and (3) students indicated they understood difficult concepts better. Moreover, Kim and Kim (2005) found that, when comparing a set of five teaching resources (course Website, didactic lectures in class, laboratory activities, assignments, and textbook) for teaching sanitation principles, students perceived the technology-mediated instruction (course Website) as the most effective teaching resource to improve students' knowledge, followed by cooking lab activities, textbook, didactic lectures in class, and assignment related to food sanitation.

Hypotheses of the Study

Based on previous research instructional methods, the following hypotheses were developed for this study:

H1: Students who use new multimedia material (DVD) (experimental group) will attain higher gain scores between pretest and posttest than students who do not have access to the new multimedia material (control group).

H2: Students in the experimental group will attain higher table and beverage servers' performance grades in the Quantity Food Production course than students in the control group.

H3: Students who use new multimedia material (DVD) (experimental group) will have more positive perceptions of the instruction than students who do not have access to the new multimedia material (control group).

CHAPTER III. METHODOLOGY

This chapter consists of descriptions of the study design, study samples, measurement instruments, new instructional material, data collection and its statistical treatment.

Study Design

This study used a between-group quasi-experimental design; random assignment of participants to groups was not possible. Groups were not created artificially for the purpose of this experiment: students who were enrolled in the Quantity Food Production laboratory during spring 2007 were designated as the control group and students who were enrolled in the laboratory course during fall 2007 were designated as the experimental group. The control group was exposed only to the traditional instructor-led instructional method, while the experimental group had both the instructor-led instructional method and accessibility to the new multimedia instructional material.

The study assessed students' knowledge and perceptions before and after the new multimedia instructional material was introduced. A set of the questionnaire for the pretest and posttest was employed to both groups of students. Students in the control group (1) received the instructor-led orientation and practice session, (2) completed the pretest, (3) had their hands-on experiences as table/beverage severs during the semester, and (4) completed the posttest at the end of the semester (see Figure 1). Students in the experimental group (1) received the instructor-led orientation and practice session, (2) completed the pretest, (3) had their hands-on experiences as table/beverage severs and had access to the new instructional multimedia material during the semester, and (4) completed the posttest at the end of the semester (see Figure 2).

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┌─────────────────────────┐
│     CONTROL GROUP       │
│      Spring 2007        │
└─────────────────────────┘
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┌──────────────────┐     ┌──────────────────────┐
│ INSTRUCTOR-LED   │  +  │  PRACTICE SESSION    │
│  ORIENTATION     │     │                      │
└──────────────────┘     └──────────────────────┘
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┌─────────────────┐
│     PRETEST     │
└─────────────────┘
```

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┌─────────────────┐
│    HANDS-ON     │
│   EXPERIENCES   │
└─────────────────┘
```

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┌─────────────────┐
│    POSTTEST     │
└─────────────────┘
```
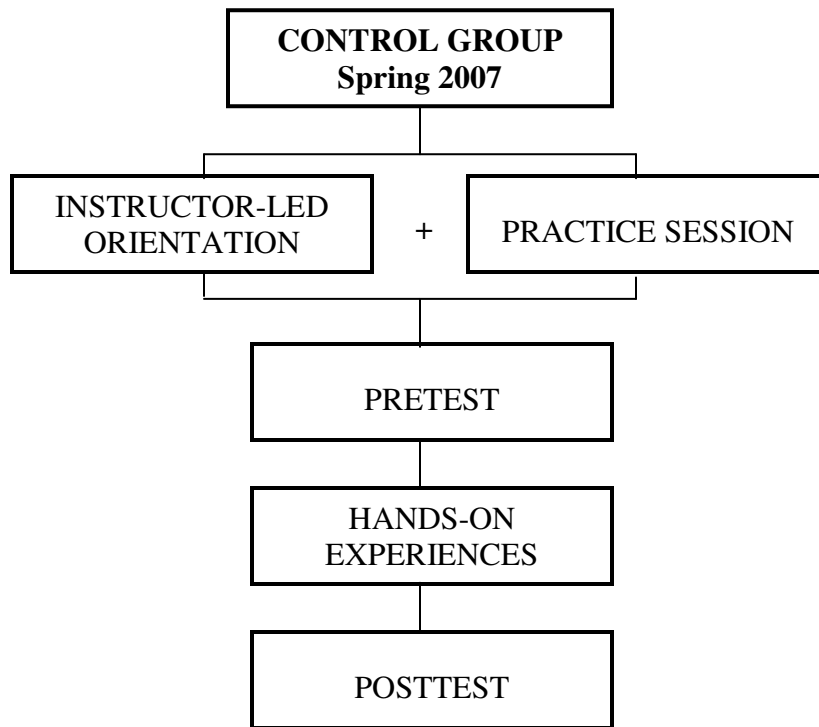
Figure 1. Study procedures for the control group.

For both groups, orientation sessions were held during the first two weeks of the semester. Orientation sessions consisted of four days class period (each three hours in length) in which students received instructions about back- and front-of-the-house procedures for the Quantity Food Production laboratory. The front-of-the-house sessions included two instructor-led orientations:

1. Dining service procedures: during second day of orientation sessions. Duration: 45 minutes.

2. Beverages preparation: during third day of orientation sessions. Duration: 30 minutes.

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                    ┌─────────────────────────┐
                    │   EXPERIMENTAL GROUP     │
                    │       Fall 2007          │
                    └─────────────────────────┘
```

| INSTRUCTOR-LED ORIENTATION | + | PRACTICE SESSION |

PRETEST

| HANDS-ON EXPERIENCES | + | DVD |

POSTTEST
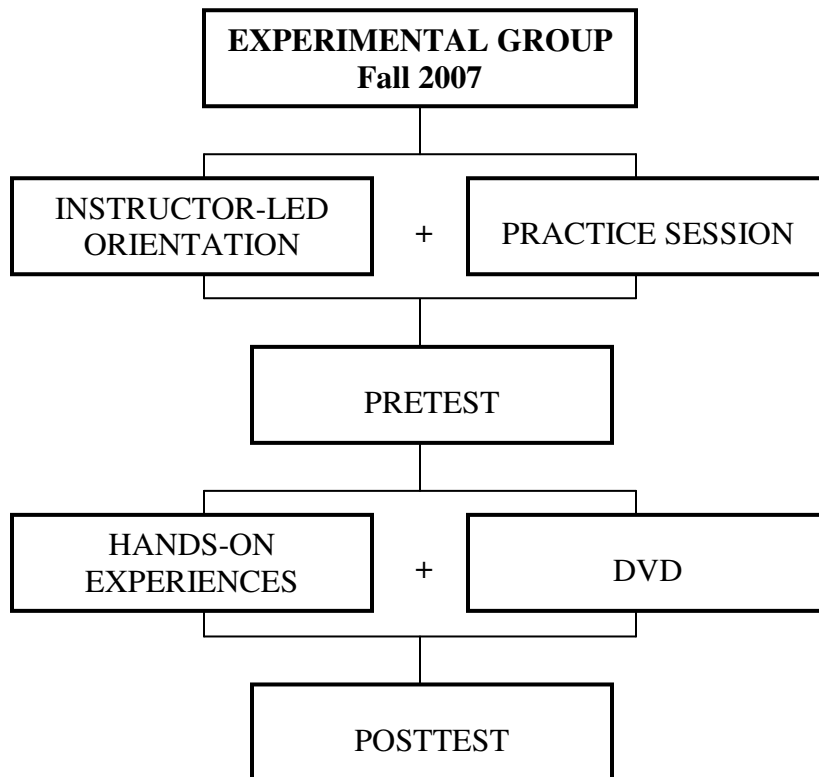
Figure 2. Study procedures for the experimental group.

Following the dining room service procedures session, students were divided into groups to have practice on these procedures under the supervision of instructor and teaching assistants. This practice session had a length of one hour and 30 minutes. Each student had a one-time opportunity to practice service procedures in a simulated dining room setting.

Pretests were administered the last day of the orientation (day four) at the end of class period. Students were asked to complete the pretest and submit it to the instructor before leaving the classroom. Each student of the experimental group received a copy of the new instructional DVD after completion of the pretest.

Once orientation sessions were completed (week three of the semester), students started their rotation of hands-on experiences as table and beverage servers as well as back-

of-the-house positions. In the rotation schedule, each student was assigned as a table server seven to eight times throughout the semester, and as a beverage server one time.

Posttests were administered to all students on the last day of lecture class (week 14). Students were asked to fill out the questionnaire at the end of the lecture class and submit it to the instructor before leaving the classroom.

Sample

The sample for this study included a total of 111 students who were enrolled in Quantity Food Production and Service Management Experience (HRI 380L), spring and fall semesters 2007. This study used a convenience sampling method because it was based on the easy availability and accessibility of participants. Students enrolled in the course spring 2007 represented the control group (n=59) and students in the course fall 2007 represented the experimental group (n=52).

A majority of students in this course were juniors and seniors majoring either in Hotel, Restaurant, and Institution Management or Dietetics. Students' demographic information was culled to assess students' characteristics (gender, age, major, classification, GPA, and work experience).

Measurement Instruments

This study has two instruments—pretest and posttest (see Appendix A). Pretest and posttest questionnaires measured students' knowledge; addressed their perceptions of the instruction, and collected students' demographic data. These two tests were given to students in both control and experimental groups. Students in the experimental group were given

additional questions on the posttest related to the new instructional material (see Appendix B).

Pretest and posttest instruments consisted of three sections. The first section assessed students' knowledge about table and beverage service in HRI 380L and was composed of 15 multiple-choice questions. These questions were related to the information covered in the two instructor-led orientation sessions and in the new multimedia instructional material.

The second section included 17 questions that assessed students' perceptions of the instruction. The first seven questions addressed students' opinions about the instruction using a 5-point Likert range from 1=strongly disagree to 5=strongly agree. The next seven questions addressed students' self-reported level of understanding of information provided during instructional sessions, using a 5-point range from 1=not at all to 5=a great deal. The following two questions assessed overall satisfaction of students with the instruction, measured with a 5-point range from 1=very unsuccessful/very dissatisfied to 5=very successful/very satisfied. In addition, one open-ended question was included to address students' suggestions for facilitating the learning process of the topics covered during orientation instructional sessions.

The last section of the instruments collected students' demographic information (gender, age, major, student classification, and GPA) and work experiences. Students' identification numbers were used to code questionnaires and their pretest and posttest scores.

Five additional questions were added to the posttest for students in the experimental group. The questions were developed to measure students' opinions about characteristics of the DVD (information, usefulness, interesting, quality, and applicability in completion of performance assignments). Each characteristic was measured with a 5-point range from

1=not informative to 5=very informative, 1=useless to 5=very useful, 1=not interesting to 5=very interesting, 1=not a quality product to 5=a high quality product, and 1=not applicable to 5=applicable in the completion of assignments.

Instructional Material Content

The new multimedia material, "Tearoom Service Procedures," was presented on DVD and included a combination of text, audio, still pictures, and motion video. It was recorded and edited during summer 2007 under the supervision of the course instructor. The DVD covered the same information provided during the service orientation (instructor-led) sessions of HRI 380L. The movie was edited using the Adobe Premiere Pro program and the DVD was developed using the Sonic DigitalMedia LE v7.

The DVD had a movie length of 37 minutes. Its content was divided into two major sections:

1. Dining room service procedures, duration: 19 minutes. Sub-sections covered procedures for proper uniform, sanitizing tables, carrying trays, setting tables, setting beverage stations, taking orders, serving beverages, serving entrée, refilling beverages, clearing, and serving dessert.

2. Beverage preparation procedures, duration: 18 minutes. Sub-sections covered procedures for sorting glasses, gathering milk and lemons, cutting lemons, preparing butter chips, filling creamers, icing iced tea glasses, making iced tea, making coffee, setting up counter, and cleaning up.

The DVD served as an additional instructional resource for students who took HRI 380L in fall 2007. Each student received one copy of the DVD the last day of orientation sessions after completing the pretest.

Data Collection and Analysis

A total of 111 students who took HRI 380L in spring and fall 2007 semesters were involved in this study. Fifty-nine students were designated into the control group, while 52 students were in the experimental group. Both pretest and posttest were given to all students in each group. A pretest was administered to students at the beginning of each semester—spring and fall 2007—after students received the traditional instructor-led orientation about beverage and service procedures, while a posttest was administered at the end of each semester—spring and fall 2007—once all students performed their hands-on experiences as beverage and table servers. However, only students in the experimental group received the new multimedia instructional material after they completed the orientation sessions. Therefore, the information covered on the DVD did not influence results of pretests.

To assess the efficacy of the new multimedia instructional material, this study collected students' tests scores, final course grades, and students' perceptions of the instruction. Differences between pretest and posttest scores were computed and a gain score was obtained for each student. An average gain score for each group was calculated and then both scores were compared. Course performance grades were computed after the semester was over. To compute final performance grades, this study considered the grades related to the positions as table or beverage servers. Average final performance grades for each group were compared and analyzed.

Teaching assistants in charge of the front-of-the-house evaluated performance of table and beverage servers after each HRI 380L class. Only one teaching assistant was in charge of these evaluations during each semester and they were different from semester to the other. A grading rubric (see Appendix C) detailing evaluation criteria was included in the students' lab manual and used by teaching assistants to evaluate students' performance. Performance grades were on a scale from 1 (lowest) to 10 (highest), with six areas of evaluation: (1) hospitality/teamwork /professionalism; (2) overall organization; (3) food quality/presentation; (4) sanitation/safety; (5) equipment knowledge; and (6) procedural adherence.

All collected data were entered and analyzed using the Statistical Package for the Social Sciences (SPSS) Release 13.0. Descriptive statistics and independent samples *t*-tests were employed to compare final gain scores, students' perceptions, and performance grades. For all statistical tests, a significance level of .05 was applied.

The pretest was used as a covariate to control for initial differences between the two groups. Gain scores means were analyzed to determine if a significant gain between pretest and posttest occurred with either treatment.

CHAPTER IV. RESULTS AND DISCUSSION

Results

The purpose of this study was to examine effects of the Tearoom Service Procedure DVD on students' learning and their perceptions of the instruction. A quasi-experimental study design was conducted to achieve a study's goal. Pretests and posttests scores and students' performance grades were computed and analyzed. Results of this study are presented in the following parts: description of respondents' demographic characteristics, analysis of tests scores, analysis of students' performance grades, analysis of perception responses, and analysis of responses about DVD.

Demographic characteristics

One hundred eleven subjects participated in this study during the spring and fall semesters of 2007. Fifty-nine of the participants were from the control group and the remaining 52 subjects constituted the experimental group. Table 1 shows the characteristics of the subjects of the two groups. The majority of the subjects in both groups were female: 43 (73%) in the control, and 41 (79%) in the experimental group. Most of the subjects in both groups, 54 (92%) in control and 46 (89%) in experimental groups, were under 25 years old. Subjects majored in either Hotel, Restaurant, and Institution Management or Dietetics: 23 (39%) or 36 (61%) for the control group, respectively, and 38 (73%) or 14 (27%) for the experimental group, respectively. In the control group, a majority of subjects were juniors (58%) and the remainder were seniors (42%); in the experimental group, a plurality of the students were seniors (50%), followed by juniors (46%), with 2 (4%) unknown. Forty-four percent of students in the control group (26) reported a GPA higher than 3.0, whereas 58% of

Table 1.   Demographic profile of the students (*n*=111)

	Control group (*n*=59)		Experimental group (*n*=52)		Students who watched DVD (*n*=44)	
	n	%	n	%	n	%
Gender						
Female	43	72.9	41	78.8	33	75.0
Male	16	27.1	11	21.2	11	25.0
Age						
≤20	11	18.6	16	30.8	14	31.8
21-25	43	72.9	30	57.7	25	56.8
26-30	3	5.1	3	5.8	2	4.5
≥31	2	3.4	3	5.8	3	6.8
Year						
Junior	34	57.6	24	46.2	21	47.7
Senior	25	42.4	26	50.0	21	47.7
Other	0	0.0	2	3.8	2	4.5
Major						
HRIM	23	39.0	38	73.1	33	75.0
Dietetics	36	61.0	14	26.9	11	25.0
GPA						
3.51-4.00	12	20.3	17	32.7	16	36.4
3.01-3.50	14	23.7	13	25.0	10	22.7
2.51-3.00	19	32.2	11	21.2	10	22.7
2.01-2.50	12	20.3	10	19.2	7	15.9
1.51-2.00	1	1.7	0	0.0	0	0.0
NA	1	1.7	1	1.9	1	2.3
Work Experience (as table server)						
Yes	27	45.8	19	36.5	14	31.8
No	32	54.2	33	63.5	30	68.2

students in the experimental group (30) reported being in this range. Twenty-seven (46%) of the subjects in the control group and 19 (37%) in the experimental group reported they had work experience as table servers. students in the experimental group (30) reported being in this range. Twenty-seven (46%) of the subjects in the control group and 19 (37%) in the experimental group reported they had work experience as table servers.

Among the 52 subjects of the experimental group, 44 (85%) reported they had watched the Tearoom Service Procedure DVD. Table 1 shows the demographic profile of these 44 students.

Data analysis

Test scores

To evaluate students' knowledge of table setting, taking orders, table service, and beverage preparation and service, 15 multiple-choice items in both pretest and posttest were included. Numbers and percents of correct answers for both control and experimental groups are shown in Table 2. For the control group, the number of students who answered correctly in the posttest increased in only 4 out of the 15 test items, compared to the pretest. The control group had a lower number of correct answers in posttest than pretest in 9 test items. This may suggest that students' hands-on experiences throughout the semester did not help them to improve their knowledge about Tearoom procedures and, instead of reinforcing information covered in orientation sessions, they made students even more confused about procedures. For the experimental group, Table 2 shows that in 12 out of the 15 test items asked in the questionnaire the number of students who answered correctly in the posttest increased, compared to the pretest. These results are descriptive only, and not the results of *t*-tests.

Table 2.   Frequency of students responding correctly to pretest and posttest knowledge
            questions

| Question | Control ($n = 59$) | | | | Experimental ($n = 52$) | | | |
| | Pretest | | Posttest | | Pretest | | Posttest | |
	Correct	%	Correct	%	Correct	%	Correct	%
1[b]	39	66.1	37	62.7	46	88.5	48	92.3
2	54	91.5	50	84.7	49	94.2	44	84.6
3	55	93.2	51	86.4	48	92.3	48	92.3
4	30	50.8	23	39.0	30	57.7	28	53.8
5[a,b]	56	94.9	59	100.0	45	86.5	47	90.4
6[b]	47	79.7	44	74.6	35	67.3	45	86.5
7[b]	51	86.4	51	86.4	41	78.8	43	82.7
8[b]	52	88.1	46	78.0	36	69.2	38	73.1
9[b]	59	100.0	59	100.0	51	98.1	52	100.0
10[a,b]	51	86.4	54	91.5	44	84.6	50	96.2
11[b]	55	93.2	48	81.4	25	48.1	31	59.6
12[a,b]	38	64.4	56	94.9	36	69.2	48	92.3
13[b]	43	72.9	36	61.0	26	50.0	28	53.8
14[a,b]	47	79.7	53	89.8	41	78.8	48	92.3
15[b]	58	98.3	57	96.6	46	88.5	50	96.2

[a] Questions with higher frequency of students in control group answering correctly in posttest compared to
  pretest.
[b] Questions with higher frequency of students in experimental group answering correctly in posttest compared
  to pretest

To compare scores between the groups first, total pretest and posttest scores for each

subject were calculated. Fifteen points were the total possible score for each pretest and

posttest. Then, gain scores (difference between posttest and pretest scores) were computed

for each subject by comparing individual pretest and posttest scores. An average gain score

for each treatment group was then estimated. Table 3 shows mean gain scores and standard

deviations for both control and experimental groups. The experimental group obtained a

positive mean gain score (M=1.14, SD=2.12), while, on average, students from the control

group scored lower on the posttest than the pretest (M=-.19, SD=1.86). To identify effects of

Table 3.   Results of *t*-test for gain scores

Group	Gain scores				
	Mean	*SD*	*t*	*df*	*p*
Control (*n* = 59)	-.19	1.86	-3.36	101	.000
Experimental (*n* = 44)	1.14	2.12			

the DVD on students' learning only 44 students who reported had watched the DVD were

included in the experimental group for further analysis.

The first hypothesis developed for this study stated:

H1: Students who use new multimedia material (DVD) (experimental group) will attain

higher gain scores between pretest and posttest than students who do not have access

to the new multimedia material (control group).

To test this hypothesis, an independent samples *t*-test was computed for gain scores of

control and experimental groups as shown in Table 3. There is a significant difference in gain

scores between the experimental group and the control group. The experimental group (fall

2007) obtained significantly higher gain scores than the control group (spring 2007)

($p<.001$). This result indicates that students who reported watching the Tearoom Service

Procedure DVD improved their knowledge about service procedures, compared to students

who did not (control group).

Performance grades

Students' grades from HRI 380L were computed and analyzed to determine students'

performance as table or beverage servers. Performance grades were scored from 1 to 10 and

evaluated students' performance based on an established criterion rubric.

For the purpose of this study only grades that evaluated performance of students in

the table and beverage server positions were analyzed. Since each student performed the

table server position seven or eight times during the semester, an individual average grade

per student of both control and experimental groups was computed. A total average grade for

the control and experimental groups was then computed. For beverage servers' performance

grades, a total average grade per each group was computed. Table 4 shows the means and

standard deviations of final average grades for table and beverage servers of control and

experimental groups. For the experimental group, grades from only the 44 students who

reported watching the DVD were considered.

Table 4.   Results of *t*-test for students' performance grades in HRI 380L

| | Performance grades | | | | |
Position	Mean*	*SD*	*t*	*df*	*p*
Table server					
Control (*n* = 59)	9.71	.29	.144	101	.443
Experimental (*n* = 44)	9.71	.24			
Beverage server					
Control (*n* = 59)	9.55	.81	-.108	101	.457
Experimental (*n* = 44)	9.56	.40			

*From 1=lowest to 10=highest.

The second hypothesis developed for this study stated:

H2: Students in the experimental group will attain higher table and beverage servers'

performance grades in the Quantity Food Production course than students in the

control group.

To test this hypothesis, two independent samples *t*-tests (Table 4) were computed to

compare:

1. Table servers' performance grades of students of control and experimental groups.

There was no significant difference between the two groups (*t*=.144, *p*=.443). Table

servers' performance grades of students in the experimental group were not higher

than those in the control group.

2. Beverage servers' performance grades of students of control and experimental

groups. There was no significant difference between the two groups (*t*=-.108,

p=.457). Beverage servers' performance grades of students in the experimental group

were not higher than those in the control group.

Therefore, H2, indicating that students in the experimental group would attain higher

performance grades in HRI 380L, was rejected.

Perceptions of the instruction

All students in both control and experimental groups completed the pretest

questionnaire about perceptions of the instruction at the beginning of the semester after they

had the Tearoom service orientation sessions (second week). During week 14, after all

students had completed the table and beverage service assignments and students in the

experimental group had the opportunity to watch the DVD, posttest questionnaires were

administered. Students' perceptions of the instruction were assessed by their level of agreement on 10 statements (see Table 5). For the experimental group, perceptions' responses from only the 44 students who reported watching the DVD were considered.

The last hypothesis of this study stated:

H3: Students who use new multimedia material (DVD) (experimental group) will have more positive perceptions of the instruction than students who do not have access to the new multimedia material (control group).

An independent samples *t*-test was computed to evaluate this hypothesis. For each perception statement asked in the posttest questionnaire, a *t*-value was computed to compare control and experimental groups. Table 5 shows the test results for each variable. In most cases there were no significant differences in students' perceptions of instruction between the control and experimental groups.

Only three perception statements appeared to be significantly different between the two groups. First, students in the experimental group had more positive perceptions of the amount of information covered during orientation sessions (statement 4) than the control group ($p<.01$). Second, students' responses for item 7 indicated that subjects in the control group agreed more than the experimental group to the statement of making changes to instruction ($p<.01$)[1]. And, finally, subjects in the experimental group had a higher overall satisfaction (statement 10) than subjects in the control group of the Tearoom service instruction ($p<.05$) (see Table 5).

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[1] For statements 4 and 7 a higher mean score indicated a higher students' agreement to a negative perception statement.

Table 5.   Results of *t*-test for students' perceptions of the instruction in posttest

Statement	Students' perceptions in posttest						
	Control (*n*=59)		Experimental (*n*=44)		*t*	*df*	*p*
	Mean	SD	Mean	SD			
1) Instructional sessions' content was thorough.	4.02	.81	4.21	.77	-1.205	99	.116
2) In my opinion, the ideas presented in the instructional sessions were:							
a) clear	3.93	.85	4.00	.84	-.404	101	.344
b) concise	3.88	.91	4.11	.72	-1.395	101	.083
c) easy to understand	3.86	.94	3.95	.83	-.506	101	.307
3) There was an opportunity to ask questions during the instructional sessions.	4.31	.88	4.36	.84	-.342	101	.367
4) Instructors covered too much information in the instructional sessions.	3.88	1.25	3.25	.99	2.768	101	.003
5) I have a basic understanding of service procedures.	4.47	.63	4.36	.92	.729	101	.234
6) I feel capable of the following procedures:						101	
a) Set a table	4.51	.68	4.57	.76	-.420	101	.338
b) To serve customers	4.49	.70	4.57	.76	-.529	101	.299
c) To prepare beverages	4.53	.70	4.43	.90	.593	101	.277
7) I think some changes could be made in the instructional sessions to facilitate the learning process.	3.49	1.02	2.98	.95	2.598	101	.005
8) Extent to which you understand each category of information:							
a) Setting a table	4.34	.66	4.45	.59	-.920	101	.180
b) Taking orders	4.58	.59	4.57	.62	.067	101	.473
c) Serving beverages	4.47	.70	4.50	.73	-.178	101	.429
d) Serving food items	4.53	.77	4.45	.63	.498	101	.310
e) Clearing tables	4.53	.68	4.41	.69	.853	101	.198
f) Refilling beverages	4.49	.65	4.48	.73	.104	101	.459
g) Preparing beverages	4.53	.63	4.36	.81	1.144	101	.128
9) Instructional sessions were successful	4.10	.85	4.30	.59	-1.300	101	.098
10) Overall satisfaction	3.92	.89	4.20	.63	-1.835	101	.035

Note. All items were rated using a 5-point scale: items 1 to 7 with 1=strongly disagree and 5=strongly agree, item 8 with 1=not at all and 5= a great deal, item 9 with 1=very unsuccessful and 5=very successful, and item 10 with 1=very unsatisfied and 5= very satisfied.

Note. None of the statistical tests would pass the Bonferroni significance level (*p*<.0025) adjusted for multiple comparisons.

Responses about the new instructional material DVD

Five questions included in the posttest were distributed to students in the experimental group (see Appendix B). Of the 52 students who received the new material (experimental group), 44 (85%) reported they had watched the DVD. The majority of them watched each DVD section one or two times: 35 (80%) students for the beverage service section and 27 (65%) for the table service section of the DVD. Twenty-five (57%) students reported watching the DVD prior to their table/beverage server assignments, and 14 (32%) students did it after distribution of DVD. The time students watched the DVD might depend, however, on the rotation schedule of assignments because some students could be assigned to a table or beverage server position at the beginning of the semester (right after distribution) or be beverage server at the end of the semester.

Of the 44 students who reported watching the DVD, 40 (91%) found the DVD informative (4 or 5 rating on a 5-point range from 1=not informative to 5=very informative), 39 (89%) thought it was useful (4 or 5 rating on a 5-point range from 1=useless to 5=very useful), 17 (39%) found the information provided in the DVD interesting (4 or 5 rating on a 5-point range from 1=not interesting to 5=very interesting), 30 (68%) considered the DVD was a quality product (4 or 5 rating on a 5-point range from 1=not a quality product and 5=a high quality product), and 35 (80%) thought it was applicable in the completion of assignments (4 or 5 rating on a 5-point range from 1=not applicable to 5=applicable).

Discussion

The analysis of gain scores indicated that subjects improved their cognitive knowledge of table and beverage service procedures after viewing the Tearoom Service Procedure DVD. However, students had difficulty answering some items related to table setting; in two of these items the number of subjects having the correct answer decreased on posttests compared to pretests. Items showing the greatest improvement in posttest answers for the experimental group were related to serving food items and especially all the questions related to preparing beverages. These procedures may have been demonstrated well in the DVD, and therefore reinforced beverage service instruction effectively (Graber, 1990).

Results supported hypothesis one: students who watched the Tearoom Service Procedure DVD (experimental group) obtained higher gain scores, comparing pretest and posttest scores, than students in the control group who did not have access to this new instructional material. Similar findings were reported by Crosby and Stelovsky (1995) and Issa et al. (1999).

Analysis of students' performance grades in HRI 380L showed that experimental and control groups had similar table and beverage server performance grades. As shown in Table 4, mean performance grades for the experimental group were not significantly higher than those for the control group for both table and beverage server positions. These findings indicated that the Tearoom Service Procedure DVD had no effect on the actual students' class performance. Similar results were reported by Barlett and Strough (2003), and Susskind (2005). One possible factor that may have influenced the results of hypothesis two is that students' performance was evaluated based on teaching assistants' observation; since

students in the control and experimental groups were evaluated by different teaching assistants, performance evaluation varied from one semester to the other.

From the analysis of responses about students' perceptions it can be stated that, in general, no significant differences were found between control and experimental groups. Similar findings were reported by Buzzell et al. (2002). Results showed that three out of the 17 questions about students' perceptions of instruction, students in the experimental group had more positive perceptions of the instruction than those in the control group after receiving the Tearoom Service Procedure DVD. This finding indicates that the new instructional material had little effect on students' perceptions. This constitutes an interesting finding. One of the major concerns of students after they were exposed to orientation sessions was the large amount of information they had received in a short period of time and the lack of material to support that information. Thus, this DVD could be additional instructional material for students to comprehend information presented during the orientation.

Results from the additional questions about the DVD addressed to students in the experimental group showed that the majority of the students found the new instructional material as interesting, useful, applicable in the completion of assignments, and a quality product. The DVD used in this study has been specifically designed to provide students with an additional resource to support the information they received during the instructor-led instructional sessions.

Eight (15%) of the 52 students who received a copy of the DVD, reported not having watched it. Possible causes of this may be: students previous work experience and their self-confidence in their performance as servers, length of DVD, students' perceptions about the

usefulness of the information covered in the DVD material, and the rotation schedule of assignments. The last cause refers to students who were assigned to a table or beverage server position at the beginning of the semester, right after orientation sessions, and therefore, they did not need to review Tearoom procedures.

CHAPTER V. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The main objective of this study was to examine if the Tearoom Service Procedure DVD on a table and beverage service demonstration affected students' learning outcomes and their perceptions of the instruction. A total of 111 students at Iowa State University participated in this study. All subjects were enrolled in HRI 380L in spring and fall semesters 2007. Students were asked to complete the pretest and posttest instruments containing three sections: test questions, students' perceptions of the instruction, and demographic information. Table and beverage servers' performance grades of students of HRI 380L also were used to measure students' learning outcomes. Additionally, subjects in the experimental group were asked to fill out a questionnaire about the new instructional DVD.

Release 13.0 of SPSS was used to enter and analyze data. Descriptive statistics, including means and standard deviations, were computed for gain scores, students' performance grades, and perception responses. Hypotheses were tested by using independent samples t-tests.

In testing the first hypothesis, effects of the Tearoom Service Procedure DVD on students' learning outcomes were examined. Results showed that students' knowledge was improved after viewing the instructional DVD. Most improvements were in areas related to table setting procedures, table service flow direction, and beverage preparation procedures. Results also indicated that the instructional DVD conveyed factual information and reinforced Tearoom service instruction.

Results of testing hypothesis two showed that the new instructional DVD had no effect on student performance in table and beverage server positions when comparing students' performance grades of the control and experimental groups. DVD did not significantly affect students' Tearoom service performance when comparing the control and experimental groups.

After testing hypothesis three, results indicated that the instructional DVD had little impact on students' perceptions of the instruction. Students showed more positive perceptions about amount of information covered in instructional sessions, suggestions for changes in instructional sessions, and overall satisfaction with the instruction, after watching the DVD.

Results of hypotheses tests have shown that students may have improved their learning outcomes of table and beverage service on a cognitive test according to computed gain scores but they may not have performed procedures correctly when applying service skills in a real setting, as demonstrated by performance grades. Especially in the table server position, there is an emotional aspect of serving customers that may generate a pressure situation for the students and can make students forget service procedures. Therefore, the new instructional Tearoom Service Procedure DVD seems to have more effect on acquiring cognitive knowledge than dealing with psychomotor skills.

Limitations and Recommendations for Future Research

The Tearoom Service Procedure DVD is believed to positively influence students' learning outcomes and to have some influence on students' perceptions of the instruction. Two limitations were recognized in this study. The first limitation was that the sample in this

study was not randomly selected and was confined to undergraduate students enrolled in HRI 380L during spring and fall 2007 at Iowa State University and results should not be generalized to other classes or group of students in a different academic year or to other educational programs. The second limitation was that students' performance evaluation varied from one semester to the other, depending on the teaching assistant, and affected students' grades subjectively.

Regarding the first limitation, analysis of demographic profile of participants in this study (see Table 1) showed that regarding some demographic variables—age, student classification, major, and GPA—the sample of this study could be considered as diverse. Thus, results may be generalized to other classes or groups of students in a different academic year.

To address the second limitation, further research should improve students' performance evaluation by: increasing the number of observers to cover more areas of evaluation; providing teaching assistants with special training to ensure evaluation criteria are being followed; and assigning the same person in charge of evaluations in the two semesters to follow evaluation criteria more consistently between the two groups.

Additional statistical analysis is suggested to:

- relate to demographic data using students' educational and work backgrounds to identify relationships with students' test scores and students' performance grades;

- conduct factor analysis and Cronbach's reliability to identify all test items' structure dimension; and

- covary out the pretest scores by using an ANCOVA model or by estimating a repeated measures ANOVA model, with the two-group comparison as the between-subjects effect.

APPENDIX A. MEASUREMENT INSTRUMENTS

Assessment of students' knowledge of service instruction and
their perceptions of the instruction

Welcome to HRI 380L: Quantity Food Production and Service Management Experience.

This study aims to assess your understanding of service instruction and your perceptions of the instruction after you complete the orientation sessions. We are interested in the degree to which the service instructional sessions you have received met your needs for being able to understand the Joan Bice Underwood Tearoom procedures.

The survey should take no more than 10 minutes of your time. Your participation is voluntary and you may refuse to participate or leave the survey at any time. Any information you provide will be kept strictly confidential and used only for statistical analysis.

For further information about this study please contact Gabriela Yamauchi, (515) 294-4636, yamauchi@iastate.edu, or Dr. Miyoung Jeong, (515) 294-3038, mjeong@iastate.edu. If you have any questions about the rights of research subjects or research-related injury, please contact the IRB Administrator, (515) 294-4566, IRB@iastate.edu, or Diane Ament, Director, Office of Research Assurances (515) 294-3115, dament@iastate.edu.

Thanks very much for your time to complete this survey.

Think about the service instructional sessions you recently received during Tearoom orientation on 'Beverage Preparation' and 'Table Service: Dining room set up and table service exercise'.

WHAT DO YOU KNOW?

I) The following questions evaluate the extent to which you understand information covered in recent service instructional sessions. Please circle the letter before the response option you think is correct.

1) What is correct placement of salt and pepper shakers on the table?
    a. Salt should be at the left side (from the point of customers facing the table as approaching it)
    b. Salt should be at the right side (from the point of customers facing the table as approaching it)
    c. There is no specific rule for placement of salt and pepper shakers

2) The bread and butter plate should be placed:
    a. Above the dinner fork
    b. Center of the placemat
    c. Above the dinner knife
    d. There is no specific rule for placement of bread and butter plate

3) The water glass is placed:
    a. Above the dinner fork
    b. Center of the placemat
    c. Above the dinner knife
    d. There is no specific rule for placement of water glass

4) Flatware handles should be lined up evenly with ends placed:
    a. One inch from edge of the table
    b. Two inches from edge of the table
    c. Three-forth inches from edge of the table
    d. Aligned with the edge of the table

5) The rule for order of service at a table:
    a. Senior men first
    b. Women first
    c. Senior women first
    d. There is no specific rule for order of service

6) The rules for serving food items:
    a. Left hand, from left side, clockwise
    b. Right hand, from right side, clockwise
    c. Left hand, from left side, counter-clockwise
    d. Right hand, from right side, counter-clockwise

7) The rule for serving beverages:
    a. Left hand, from left side, clockwise
    b. Right hand, from right side, clockwise
    c. Left hand, from left side, counter-clockwise
    d. Right hand, from right side, counter-clockwise

8) The rule for clearing all items:
    a. Left hand, from left side, clockwise
    b. Right hand, from right side, clockwise
    c. Left hand, from left side, counter-clockwise
    d. Right hand, from right side, counter-clockwise

9) What are beverages offered for service in the Tearoom?
    a. Hot tea, coffee, soda, and milk
    b. Iced tea, hot tea, bottle water, and coffee
    c. Iced tea, hot tea, coffee, and milk
    d. Milk, lemonade, iced tea, and hot tea

10) While preparing beverages, the rack with milk glasses should be placed:
    a. In the upper right side of the pantry reach-in refrigerator
    b. In the left side of the pantry reach-in refrigerator
    c. In the walk-in refrigerator
    d. In the pantry freezer

11) The correct use of milk from crates located in the walk-in refrigerator is:
    a. Milk from either the blue crate or yellow crates is intended for use in the dining room
    b. Milk from yellow crate for family meal and milk from blue crate for dining room
    c. Milk from blue crate for family meal and milk from yellow crate for dining room
    d. There is no designation of crates for milk

12) While preparing for beverage service, the tray of iced tea glasses should be placed:
    a. In the upper right side of the pantry reach-in refrigerator
    b. In the left side of the pantry reach-in refrigerator
    c. In the walk-in refrigerator
    d. In the pantry freezer

13) Creamers should be filled with cream:
    a. Halfway full
    b. Completely full
    c. Three-quarters full
    d. Two-third full

14) While serving beverages:
    a. Get all beverage item orders from the beverage server in the beverage area
    b. Get milk, iced tea, and coffee orders from the beverage server in the beverage area
    c. Get milk, coffee, and hot tea orders from the beverage server in the beverage area
    d. Get milk, iced tea, and hot tea orders from the beverage server in the beverage area

15) The rule to follow when refilling beverages from a pitcher or pot:
    a. All glasses and cups must be picked up from the table
    b. Just water glass must be picked up from the table and refill
    c. All glasses and cups, except water glasses, must be picked up from the table
    d. Leave all glasses and cups on the table and refill with the beverage

WHAT DO YOU THINK?

II. Considering the service instructional sessions you have received regarding 'Beverage Preparation' and 'Table Service'; please circle the number that best indicates your opinion.

	Strongly Disagree				**Strongly Agree**

1) Instructional sessions' content was thorough.

    1   2   3   4   5

2) In my opinion, the ideas presented in the instructional sessions were:

   a. Clear   1   2   3   4   5

   b. Concise   1   2   3   4   5

   c. Easy to understand   1   2   3   4   5

3) There was an opportunity to ask questions during the instructional sessions.

    1   2   3   4   5

4) Instructors covered too much information in the instructional sessions.

    1   2   3   4   5

5) I have a basic understanding of service procedures.

    1   2   3   4   5

6) I feel capable of following procedures:

   a. To set a table   1   2   3   4   5

   b. To serve customers 1   2   3   4   5

   c. To prepare beverages 1   2   3   4   5

7) I think some changes could be made in the instructional sessions to facilitate the learning process.

    1   2   3   4   5

8) If you answered 4 (agree) or 5 (strongly agree) in statement #7 above, please provide some suggested changes in the space below:

_____

_____

_____

_____

III. The following statements assess the extent to which you understand each category of information presented during orientation. Please circle the number that best indicates your opinion.

		Not At All			**A Great Deal**	
1)	Setting a table	1	2	3	4	5
2)	Taking orders	1	2	3	4	5
3)	Serving beverages	1	2	3	4	5
4)	Serving food items	1	2	3	4	5
5)	Clearing tables	1	2	3	4	5
6)	Refilling beverages	1	2	3	4	5
7)	Preparing beverages	1	2	3	4	5

IV. Rate the degree that you think the instructional sessions were successful in helping you learn service information for the Joan Bice Underwood Tearoom.

 Very unsuccessful   1   2   3   4   5   **Very successful**

V. Rate your level of overall satisfaction with the service instructional sessions.

 Very unsatisfied   1   2   3   4   5   **Very satisfied**

WHAT ABOUT YOU?

Last 4 digits Student ID: _____

Gender: ☐ Male ☐ Female

Age: _____

Year in school: ☐ Junior ☐ Senior Other (please specify): _____

Major: ☐ HRI ☐ FSHN Other (please specify): _____

Your GPA:

☐ 3.51–4.00 ☐ 2.01-2.50 ☐ 1.00 or below

☐ 3.01-3.50 ☐ 1.51-2.00 ☐ Not applicable

☐ 2.51-3.00 ☐ 1.01-1.50

Previous Work Experience (as table server):

☐ No ☐ Yes, less than 1 year ☐ Yes, 1 to 2 years ☐ Yes, more than 2 years

THANK YOU FOR YOUR PARTICIPATION!

APPENDIX B. ADDITIONAL QUESTIONS

Tearoom Service Procedure DVD: Beverage preparation and Dining Room service

1. Did you watch the DVD about Tearoom service procedures distributed after orientations sessions?
   ☐ Yes   ☐ No

2. I have watched:

Section	Times				
	none	1-2	3-4	5-7	More (specify)
Beverage preparation					
DR service procedure					

3. When did you watch the sections?
   ☐ After distribution

   ☐ Prior to my assignment

   ☐ Other. Please specify: _____

4. Which section/s of the DVD did you find more beneficial for your assignments?
   ☐ Beverage preparation

   ☐ Dining Room service procedures

   ☐ Both

5. I think viewing the DVD was _____ in helping me prepare for Tearoom assignments:

Not informative	1	2	3	4	5	**Very informative**
Useless	1	2	3	4	5	**Very useful**
Not interesting	1	2	3	4	5	**Very interesting**
Not a quality product	1	2	3	4	5	**A high quality product**
Not applicable in completion of assignments	1	2	3	4	5	**Applicable** in completion of assignments

APPENDIX C. GRADING RUBRIC CRITERIA

Anchors / Evaluation Criteria / Rubrics[2]

Hospitality/Teamwork/Professionalism

9-10

Demonstrates initiative in welcoming guests with excellent service and professionalism, Possesses a cordial and courteous disposition towards guests and fellow students, and embodies the ideal of "a cooperative effort by the member(s) of a group or team to achieve a common goal." The student would act as an ambassador of goodwill towards others, and put others' needs above their own during the laboratory, inspiring and leading others to do the same.

7-8

Demonstrates adequate but good hospitality skills towards their fellow students and Tearoom patrons. The student would not necessarily take the initiative to help others, unless asked, but would then do so willingly and cheerfully. One who performs at an above average to very good level of service, does what is expected of them, and is still cordial and courteous towards guests and fellow students.

4-6

The service to guests is average to below average, and the student acts like they really would rather not be in class. The student is "looking out for number one" and tries to get by with doing as little as possible for their fellow students and Tearoom patrons. However, their attitude is more apathetic than purposefully defiant, perhaps a bit "passive-aggressive," or just plain lazy.

1-3

Demonstrates no redeeming qualities in the care of their fellow human beings. One would have to be deliberately abrasive and devoid of any form of common sense or caring in their dealings with people. Starting a fight with a fellow student, instructor, lab assistant, or a Tearoom patron would earn a student a zero in this category, and dismissal from class. It should be rare or non-existent that a grade in this category would ever be given to a student.

Food production/Overall organization

9-10

Demonstrate pre-planning, thorough knowledge of the menu items or dining room setup through efficient and accurate production procedures, very little or no guidance from the Instructor or Teaching Assistant, complete and thoughtful analysis of time-work schedules and work-flow diagrams. A student pursuing work with a genuine sense of purpose when completing assigned tasks.

7-8

Demonstrate good but only adequate organizational skills in food production or service. One is deferring leadership to an assistant due to disorganization, lack of planning or knowledge. A student not entirely prepared, with only slight intervention from superiors, Instructor, or Teaching Assistant. The student performs at an average level of food production or service and does what is expected of them.

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[2] Source: HRI 380L Lab Manual.

4-6

The unprepared student that is able to complete cooking or dining room assignments without constant direct supervision. The quality of organization is below average, which is demonstrated by slower production and perhaps frustration from their co-workers. A student that does not pick up their special instruction sheets outside the Tearoom the night before their laboratory, thus being unprepared and disorganized for production the next day.

1-3

The student would know nothing about the recipe item or dining room setup, and obviously be completely unprepared for lab. The Instructor or Teaching Assistant would step in to take direct control of the situation, likely resulting in the Instructor reassigning the student to another area of production, or dismissing the student from class.

Food quality/Presentation

9-10

Producing and/or serving an excellent product, of the highest quality, and to the expected Tearoom standards. Preparing a plate free of spills, drips, or crumbs on the rim of plates, either during plating, or during service to the Tearoom patrons. Servers are the final checkpoint for insuring that plates meet the established standards in presentation, uniformity, and quality before serving to guests.

7-8

Performs at an above average level of food production or service and completes all work that which is expected of them, at a reasonably high level of quality. There may be a few plates with spills, drips, or crumbs along the rim of plates. A student not entirely prepared, but nevertheless knowledgeable about the recipe /serving procedures, with only slight intervention from superiors, Instructor, or Teaching Assistant.

4-6

Unconcerned and sloppy in food quality but able to complete cooking or dining room assignment without constant direct supervision. The quality of the food is average to below average, which is demonstrated by poor-looking plates and perhaps complaints from students and guests over the menu items' flavor and/or appearance. The food would not meet the desired standards of quality. A server might allow the food to get cold, or tip the plate through inattention (disrupting the plate presentation – thus requiring re-plating) in order to receive a mark in this category.

1-3

The student would possess a total disregard for food presentation or quality standards. Food produced is not able to be served as it is inedible, and not be fit for presentation. Intentional alteration (sabotage) of any plated item by a server would earn a student a zero in this category, and dismissal from class.

Sanitation/Safety

9-10

Performs proper hand-washing at the start of, and during the laboratory and takes initiative by showing a proactive approach towards sanitation, and demands it from themselves, as well as their co-workers. One who uses gloves whenever directly handling ready to eat food. Demonstrate proper

sanitation through awareness of proper food production and serving methods, and does not endanger fellow students and Tearoom guests by compromising sanitary procedures. Applies preventive sanitation practices for; chemical, physical, and biological contamination of food. These practices are inclusive of food handling, service, and equipment usage.

7-8

Demonstrate proper hand-washing at some point during the laboratory and makes an attempt to use gloves whenever touching food items (or whenever the Instructor or Sanitor was looking). One who knows proper sanitation methods, and for the most part, adhere to them. A foodservice worker who attempts to demonstrate preventive knowledge of chemical, physical, and biological contamination of food through sproper sanitation practices. These practices are inclusive of food handling, service, and equipment usage.

4-6

One who does not adequately wash their hands before or during the laboratory and may have a wrinkled and/or stained uniform, and may not have their hair properly restrained; and then would perhaps touch their hair or face during service, without washing their hands afterwards. Disregards the use of gloves whenever touching food items, and would perhaps make editorial comments regarding requests from others to do so. One might know but not really practice basic sanitation practices, thus enabling a potentially dangerous situation to occur. These practices are inclusive of food handling, service, and equipment usage.

1-3

The student is unkempt, disheveled, and unpresentable to fellow students and Tearoom patrons, perhaps smelling of alcohol. Serious and/or intentional (sabotage) violations of sanitary procedures would earn a student a zero in this category and dismissal from class.

Equipment knowledge

9-10

Demonstrate a thorough knowledge of the kitchen and dining room equipment by not asking the Instructor or Teaching Assistant for assistance. Demonstrates the proper assembly, use, disassembly, and cleaning of equipment used. The ability to share equipment cheerfully with others, and is flexible in changes to the equipment schedule. Proactively show others (who are in need of guidance) the proper usage of all equipment.

7-8

Knows the basics of kitchen and dining room equipment, however, requests the Instructor or Teaching Assistant for a little assistance. Does not necessarily know how to completely assemble, use, disassemble, and clean each piece of equipment. May become frustrated in requests from others to use their equipment through the changing of the equipment schedule, but would comply. He/She lacks confidence in the ability to completely demonstrate the proper usage of equipment to others.

4-6

Demonstrates a lack of understanding of the basics of the kitchen and dining room equipment and relies heavily on the Instructor or Teaching Assistant for assistance. Does not know how to completely assemble, use, disassemble, and clean each piece of equipment. Displays open frustration from requests of others to use needed equipment, resulting from changes in the equipment schedule. The student would be unable to show the proper usage of equipment to others. NOTE: Limited

equipment knowledge and the (possible) resulting misuse of equipment could enable a situation to occur that might result in the destruction of Tearoom property, or in the worst-case scenario, serious injury to self, fellow students, or Tearoom patrons.

1-3

The student would not ask for help, and would improperly use a piece of equipment that resulted in serious injury to a fellow student or a Tearoom patron, or resulted in the destruction of Tearoom property. This grading level would also apply to any piece of equipment that, through improper use, rendered any food items inedible. Intentional misuse of equipment (like readjusting the settings on a piece of equipment for the sake of sabotage) would earn a student a zero in this category, and dismissal from class.

<div align="center">

Procedural adherence

</div>

9-10

Demonstrate thorough understanding of the chain of command, and proper adherence to instructions as stipulated to them by superiors. One who retrieves and submits required paperwork in a timely fashion, and demonstrates above-average competence in completing all costing and/or requisition documents. This includes recipe directions, special instructions, TWS & WFD, and laboratory guidelines as provided in orientation/lecture. One who uses constructive, thoughtful communication with superiors and assistants to resolve deviations or differences with procedures. Demonstrates accurate scaling and measurement practices and applies proper dining room service and setup procedures. Arrives to lab in proper uniform.

7-8

Shows little regard for the chain of command, but will adhere to instructions as requested by their superiors. There will be communication between the students' superiors and, if applicable, their assistants, adequate enough to get the job done. One who retrieves and submits required paperwork in a timely fashion, and demonstrate average competence in completing all documents. This includes recipe directions, special instructions, TWS & WFD, and laboratory guidelines as provided in orientation/lecture. Demonstrates accurate scaling and measurement practices and applies proper dining room service and setup procedures.

4-6

Does not respect and/or follow the chain of command, and will perhaps deviate from instructions of superiors. There could be insufficient communication between the students' superiors and, if applicable, their assistants; perhaps not enough to get the job done adequately. May not submit paperwork in a reasonable amount of time. One who may disregard recipe directions, special instructions and laboratory guidelines as well as the scaling and measurement of food items which may result in less than desired Tearoom standards. Does not adhere to dress code.

1-3

The student marches to a different drummer, and does things their own way. There is no respect for the chain of command as demonstrated by the student. There is no adherence to recipe scaling or measurement. The student is defiant and/or conveys disrespectful comments towards their superiors and/or assistants regarding proper procedures for production in the HRI 380 laboratory. Open defiance and blatant disregard for authority and/or abuse of assistants would earn a student a zero in this category, and dismissal from class.

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ACKNOWLEDGMENTS

I would like to express my sincere appreciation to my major professor Dr. Miyoung Jeong for her support and guidance throughout my graduation program. Drs. Catherine Strohbehn and Mack Shelley are gratefully acknowledged for their participation and assistance as members of my program of study committee.

I want to express a special gratitude to Mr. John Kramer who helped make this research possible.

Finally, I would like to thank my parents and sisters in Argentina, and especially, my husband, Leandro, for his unconditional support, and my wonderful daughter, Renata.