GLOBECORP: Simulation versus tradition

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Although simulations and role-plays have been practiced within the confines of different methods, their effectiveness in sustaining a semester-long course of study burdened with institutional assessment had not been tested. A simulation called GLOBECORP was designed to discover the effects of a course syllabus designed exclusively around the method of simulation on the author's English as a second language (ESL) composition students and their progress as measured by mandated testing. The purpose of the study was to gather empirical evidence on the effectiveness of simulations in ESL writing instruction. The measurements of the experimental simulation group on four research instruments were compared with the measurements of a control group in the study. The results of statistical analyses suggest that simulations can be used in ESL writing instruction with the confidence that positive student outcomes will be achieved.

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Most practitioners and theorists in the field of second language acquisition agree with the pedagogical goal of communicative competence (Canale & Swain, 1980; Ellis, 1995), but they often disagree about how teachers can facilitate this outcome and how to measure the level of success. Accountability measures of successful instruction required by institutions and government agencies add another dimension to the demands placed on teachers. Institutionally mandated instruments of accountability may not be the best measure of communicative competence, but teachers have to consider them in selecting instructional methods. Whether we like it or not, accountability affects the way we teach, and an important part of the learning outcome is the method of instruction (Lightbown, 1985; Strevens, 1978). Therefore, the quest for efficient methods occupies many researchers and practitioners.

To prove that simulation methodology can produce successful results on institutional assessment while increasing communicative competence, we need empirical evidence. Using Richards and Rodger's (1982) schema as a foundation, this study investigates the differences in learning outcomes between English as a second language (ESL) composition courses taught with two different methods: one based on simulation and one on tradition. In the experimental group, the communicative language is taught through simulation/gaming methodology relying on a task-based syllabus to outline procedures. The control group was taught through the traditional methodology of lectures, reading assignments, writing exercises, and discussion, relying on a grammatical syllabus design. Studies have investigated the effects of simulations integrated into other methods (Troyka & Nudelman, 1975), but this study looked

at student outcomes from a semester-long course syllabus designed exclusively around a simulation.

I designed a simulation called GLOBECORP that controlled the course sequence for the full 16 weeks of the semester and tested its effectiveness in increasing ESL writing competency, lowering writing anxiety, and improving instructional effectiveness. A control group taught with the traditional method provided data for comparison of the relative effectiveness of the group taught using simulation. Four research instruments provided data for the effects of the differing instructional methods. Pre- and posttreatment scores were used to investigate the differences between the groups. The research questions were as follows:

1. How would the use of simulations compare with the traditional method of instruction in increasing the writing competency of ESL composition students as measured by writing samples and by objective tests required by the institution?
2. How would the use of simulations compare with the traditional method of instruction in lowering writing anxiety for ESL composition students as measured by scores on writing anxiety surveys?
3. How would the use of simulations compare with the traditional method of instruction in increasing the students' perception of the usefulness of the class as measured by surveys on instructional effectiveness?

Method

The study was conducted at the University of Central Oklahoma (UCO), a liberal arts college, with a population of 16,039 students. The 50 students enrolled in the two classes used for the study were similarly distributed in terms of first language, sex, nationality, academic classification, and major field of study.

Pre- and posttreatment objective tests of writing competency and pre- and posttreatment writing samples provided empirical evidence of changes in writing performance and differences between the two groups. In addition, I used two surveys to investigate any differences between the experimental and control groups in the levels of writing anxiety and in their perceptions of the instructional effectiveness of the course. The Simon and Schuster Competency Test for Writers (SSCTW), writing samples, the ESL Writing Anxiety Test (ESL-WAT), and the Instructional Effectiveness Surveys (IES) provided data for analysis. Two of these four instruments, the SSCTW and the IES, are required by the institution for accountability purposes; therefore, the students' success on these instruments became the only public indicators of success or failure of instruction.

Mandated objective tests

Research conducted by such institutions as Educational Testing Service and Simon and Schuster, using their own test of writing competency shows that objective tests of writing competency such as the SSCTW, are highly predictive of students' writing

abilities. The SSCTW used for this study was a pre- and posttreatment testing instrument required by the department and administered to all students enrolled in freshman composition courses. These objective tests are provided by the publisher of Prentice Hall's *Simon and Schuster Handbook for Writers* (Troyka, 2002), and test items are keyed to specific sections of that text. The results of the tests indicate areas of grammatical competence and error patterns across 17 categories: commas, apostrophes, capital letters, quotation marks, pronoun case, subject-verb agreement, adjectives and adverbs, pronoun reference and shifts, fragments, comma splices and fused sentences, dangling and misplaced modifiers, levels of diction, conciseness, parallelism, transitions, ordering sentences, and narrowing topics.

These objective tests are constructed in pairs, specifically for the purpose of pre- and posttesting. Students are allowed 45 minutes to answer 60 multiple-choice items divided into three sections. The first section contained 22 items covering the areas of verbs, adjectives and adverbs, pronouns, capital letters, and punctuation.

The second section, containing 32 items covering word choice, sentence structure and punctuation, and sentence clarity and style, required the students to select the best of three ways to revise sentences or parts of sentences if revision would improve the sentence. If none of the three revised sentences or parts of sentences improved the original rendering, then the students were instructed to select Choice A, in which no changes had been made in the original item.

The third section consisted of six items concerning the ordering of sentences in paragraphs and narrowing topics for essays. This section specifically focused on the rhetorical aspects of writing.

Writing samples

All student writing produced during the semester in both the experimental and control groups was organized in portfolios. This student writing included writing generated via computers, a word processor, or e-mail as well as traditional paper compositions. All of the participants' pre- and posttreatment writing samples were evaluated holistically by three experienced English composition instructors using criteria from the 6-point scale provided in *Diagnostic and Competency Tests for Simon & Schuster Handbook for Writers* (Gordon, 1993).

Writing anxiety surveys

Most of the studies conducted on writing anxiety in first and second language have relied on the Daley-Miller Writing Apprehension Test (DM-WAT) and the DM-WAT adapted for ESL students (ESL-WAT), respectively (Gungle & Taylor, 1989); therefore, the ESL-WAT was a prime candidate for measuring the writing anxiety differences between the control and experimental groups. The DM-WAT, a 26-item self-report instrument using a 5-point Likert-type scale, was compiled in 1975 by Daly and Miller, who took the items from already established instruments of communication-related apprehension, revised them, and tested them for their reliability. In 1986,

Gungle and Taylor formulated an ESL version by adding a reference to writing in English to each statement and by providing a 6-point labeled scale rather than the original 5-point scale in order to keep the participants from giving noncommittal responses.

Instructional effectiveness surveys

As a regular practice, the instructors of each course at UCO are evaluated by the students with the University of Central Oklahoma Student Feedback on Instructional Effectiveness, a survey instrument with a multiple-choice format, which has been used since the fall of 1985. The students of full-time faculty members complete the survey once a year, and the students of part-time faculty members complete the survey every semester. The students score the instructors with a 4-point scale similar to the Likert on 12 statements about the instructor's performance, attitude toward the students, preparation, clarity of presentation, manner of delivery, explanation of course requirements, pace, assigned workload, examinations, grading, and availability, ending with a query as to whether the student would recommend the instructor to others. On the reverse side of the instrument, the students can write comments about the outstanding aspects of the course, suggest recommendations for changes to improve the course, and add any additional comments or questions.

The students in both the experimental and control groups used this instrument to evaluate the instructor's effectiveness in teaching their section of the course. Data from this instrument revealed any differences between the students in the control and experimental groups concerning their impressions about the course and their opinions on the effectiveness of the instruction.

Simulation and course design

Needs assessment analyses conducted over the four semesters preceding the study had shown that the majority of students enrolling in the course were pursuing degrees in business. Even students registered with a major in general studies revealed plans to pursue careers in business. Most students indicated a desire to improve their communication with native speakers, especially those with whom they came in contact during typical day-to-day interactions. This desire on the students' part to increase their ability to understand native speakers coincided with one of the goals of the sheltered ESL composition courses—to help students adjust to campus life, both academic and social, with the emphasis on improving their ability to cope with university-level writing assignments. This information about the students entering the courses guided the simulation creation process for the experimental group, just as it had informed the adaptations made in the control group's syllabus each semester.

Information about the students helped me decide to base the simulation on international business, and several experienced simulation designers helped in the creation of the simulation. Greenblat and Duke's (1975) Gaming-Simulation Record Sheet, and

Jones's (1982) elements of a simulation provided the details for considering all components of the simulation. Greenblat and Duke's instructional grid included a section on "Design and Operating Characteristics," which instructed simulation designers to present the steps of play in chronological order. Jones reminded simulation designers not to be disappointed if the participants in the simulation did not follow those steps exactly because the goal of simulation is to allow the interaction of the participants to drive the events.

Crookall and Arai's (1995) collection of articles on gaming and simulation supported the view of simulation as a methodology that transcends disciplines. Whereas Crookall (1984) had used simulations that were not specifically designed for English instruction, Cumming (1984) and Troyka and Nudelman (1975) provided models of simulations specifically created for composition courses. Horner and McGinley's (1990) step-by-step guide for running simulations informed the group assignment process and the development of role descriptions. Students needed to have as much input as possible into their own roles and the gradual development of those roles during the semester; therefore, only enough information to initiate play was built into the roles for the simulation.

After consulting these sources on simulation and game design, creating some simulations of my own, and facilitating a few simulations, I created GLOBECORP, a simulated multinational corporation, for my experimental class. GLOBECORP, designed with roles that parallel the real world, simulates an imaginary company with the title name in which various problems arise, sometimes because of multicultural and multinational differences. These problems must be resolved by negotiation, compromise, and consensus. GLOBECORP is diversified, offering many products and services offered through its subsidiaries, so that each situation that arises in stories, newspaper articles, and videos will affect the corporation and can be used in the plot outlines for the simulation as it progresses.

For example, GLOBECORP owns the gas plant mentioned in the story "Señor Payroll," the car plant in the movie *Gung Ho*, the tire plants in the newspaper articles concerning the labor strike, the resort chain hoping to expand on the island of Sarawak, fast-food chains, grocery chains, and any other type of business venture that can be imagined. Information that appears in the local, state, national, or world news media becomes fodder for the simulation plot. Under this assumption, the simulation can be updated to reflect current events and used in consecutive semesters without the complication of creating a totally new simulation every semester. This flexibility allows the simulation to be varied as often as necessary to take advantage of breaking news and to deter students from attempting to copy work done by students who have already completed the course. Plagiarism, a problem in all writing courses, presents no problem when topics are immediate and relate to recent occurrences.

The roles for the simulation include the chief executive officer, executive managers, workers' representatives, and representatives from the following divisions: Oil and Gas, Environmental Affairs, Management Information Systems, Marketing, Public Relations, Personnel, Acquisitions, and Advertising. The students were asked to select

the position that they wanted and to apply for it in a formal letter of application; however, they were not limited to the suggested list but were allowed to describe and apply for any position that they thought would be relevant.

The specific activities for each day of the class were planned and followed closely to avoid problems encountered in some comparative method studies in which the activities in the control and experimental groups converge and come to resemble one another so much that the results are confounded (Clark, 1969; Long, 1983; Smith, 1970). One advantage of teacher-researchers is that they do control and monitor exactly what occurs in the classroom. Activities for the experimental group included completing warm-up exercises, such as cloze; consulting on collaborative writing assignments; completing individual writing assignments in the form of letters, memos, reports, and summaries; reading from the textbooks *Simon and Schuster's Handbook for Writers* and *Outsiders*; conducting library research; presenting oral reports; watching the movie *Gung Ho*; practicing persuasion strategies, with emphasis on appeals to reason, emotion, and ethics; and debriefing.

The control group used no simulations. The students followed a course sequence that included reading assignments and grammar exercises from the textbooks *Simon and Schuster's Handbook for Writers* and *Outsiders*, lectures and discussions covering the reading assignments and specific grammatical concepts, writing assignments, peer evaluation, structured library research assignments, and movie viewing with listening activities. The control group had the same teacher, textbooks, computer access, and evaluation system as the experimental group.

Each student in the experimental and control groups was evaluated through portfolio assessment of specified assignments (30%), the evaluation of correctness and achievement of purpose for two representative writing assignments selected by the students from their portfolios (30%), participation assessed through attendance (5%), the posttest (5%), and the evaluation of oral presentations and accompanying reports (30%). As part of the portfolio requirement, the students in the experimental group kept a planner in which they recorded their progress; this planner was intended to keep the students focused on the tasks and to illustrate their progress throughout the semester. The real-world counterpart is often referred to as a planner or a personal digital assistant used by corporate management to plan and keep records for later referral. These planners were collected periodically, and their contents were the basis for debriefing activities verifying what the students were accomplishing and often how they felt about what was happening in the class. The control group was asked to keep a journal in place of the planner kept by the experimental group.

To ensure that only the method of delivering instruction to the two groups was varied, the students in both groups completed similar writing assignments. For example, when the simulation group wrote a report detailing plans for their resort in Sarawak, the control group read the same articles about Sarawak and wrote about the advantages and disadvantages of developing land in that part of Malaysia. Both groups wrote summaries, but the simulation group had a supervisor directing the task.

After an extensive syllabus was created for each of the two groups, the decision concerning which section would become the experimental group and which would

become the control group was made. The students who had enrolled in the two sections had self-selected, so the researcher had no control over that process; however, the section that received the experimental treatment could be controlled. A coin toss determined that the class held at 1:40 p.m. on Tuesdays and Thursdays would become the experimental group. That left the class held at 8:40 a.m. on Mondays, Wednesdays, and Fridays to be the control group. Every effort was made to ensure that the experimental treatment was assigned randomly and that the participants within the groups were as much alike as possible.

The students taking part in the study would less likely fall prey to the Hawthorne Effect (in which the experimental group feels special in some way) (Brown, 1988) because class meetings were not in close proximity either in time or location. The classes were held in different wings of the same building on different days—a situation making comparisons between classes more difficult for students. Often, when classes are scheduled back-to-back on the same days and held in the same classroom, it has been more difficult to overcome the phenomenon of students' comparing the activities of their respective classes and asking why they were not doing the same things. In addition, a special effort was made to monitor conversations among students to pick up any evidence of their being aware of differences and feeling that their class was receiving more or less attention or worse or better assignments. No evidence to that effect was found. The students from both classes knew that their work was being used in a study, so if a feeling of being chosen resulted during the study, it would occur in both the experimental and control groups equally.

Results

The results of the statistical analyses of the data gathered from the four research instruments were compiled and analyzed. Also, examples of student writing illustrate differences between the two groups.

Mandated objective tests

The results for both the pre- and posttreatment administrations of the SSCTW were organized and analyzed. All students increased their scores in the posttreatment administration of the objective test. The average gain for the experimental group was 17.28 points, whereas the average gain for the control group was 18.12 points. These gains are close considering that the test consisted of 60 items worth 1.67 points each, which figures out to be a one-half question difference between the two groups. This result suggested that the two groups made similar gains in proficiency as measured by the mandated discrete-item instrument of writing competence. After these scores were compiled, the descriptive statistics were calculated and displayed in Table 1.

The results from the descriptive statistics reported in Table 1 illustrate how similarly the two groups performed on the objective test. In spite of the fact that the students in the experimental group received no explicit grammar instruction, they still

TABLE 1:   Summary Statistics for the Objective Test Scores

	Experimental Pretest	Control Pretest	Experimental Posttest	Control Posttest
Number of cases	25	25	25	25
Minimum	45.00	40.00	60.00	67.00
Maximum	85.00	80.00	93.00	93.00
Range	40.00	40.00	33.00	26.00
Mean	60.96	61.12	78.20	79.24
Standard deviation	10.30	11.71	8.76	6.98
Median	60.00	62.00	78.00	78.00

improved in their performance on the posttest, which consisted mostly of discrete-item measures of grammatical concepts. Statistical tests showed that both groups started the experiment with no significant difference, implying that the groups started the semester and the experiment at about the same level of competence as measured by the SSCTW.

The posttest scores should ideally be greater than the pretest scores for both groups at the completion of the course due to the treatment received by both groups. Four months had elapsed between the pre- and posttesting administrations, and the two forms of the test were counterbalanced to combat the practice effect (Brown, 1988, p. 38). The means of the scores for the pre- and posttreatment objective tests were subjected to paired samples *t* tests for each group to discover any significant differences between the two administrations of the objective tests. The findings from the separate measures of gains in mean scores within the two groups showed that both the groups had increased their writing competency as measured by the SSCTW. The mean differences between the experimental and control groups on the posttest did not prove to be significant. The results of the independent samples *t* test indicated no significant difference between the means of the posttreatment objective test scores for the experimental and control groups. The findings from the separate measures of gains within the two groups showed that both the experimental and control groups had increased their writing competency as measured by the SSCTW. The comparison between groups, however, had shown no significant differences. Even though the traditional class had focused on grammar, the simulation method had produced similar gains over the treatment period.

Writing samples

Data from the writing samples that had been evaluated and rated by three independent ESL composition instructors were compiled for analysis. The raters used a 6-point scale and were unaware that the writing samples were written by the same students in a pre- and posttreatment situation. An examination of the overall results from both groups showed that 67% of the students performed better on the posttreatment writing

sample than on the pretreatment writing sample. However, most of those gains were concentrated in the experimental group. Of the 75 posttreatment ratings for the writing samples from the participants in the experimental group, 68 ratings showed increases, which means that 91% of the experimental group improved on the writing task required after the treatment consisting of simulation as the method of instruction. Of all the ratings, the only loss in points on the posttreatment writing sample as compared to the pretreatment writing sample was for the participants in the control group. Statistical analysis indicated that none of the results from the statistical analyses of the ratings on the pretreatment writing samples showed any significant differences; therefore, the control and experimental groups were assumed to have started the experiment at comparable levels of writing performance as indicated by the ratings of all three raters on the writing samples.

After establishing the baseline for the two groups, I conducted statistical analyses to discover any gains that the students in either group might have made in writing performance due to the treatment. The Wilcoxon signed-ranks test was used due to the ordinal data and the repeated samples inherent in the pre- and posttreatment situation. Results of these statistical tests indicated that there was a significant difference between the pre- and posttreatment writing samples according to the ratings assigned by Rater A. The increase on the posttreatment writing sample was apparent in the median score difference of 1 point between the two administrations of the writing sample. Although the median for the control group did not differ for the two administrations according to the ratings of Rater A, there was a significant difference.

Next, the same tests were conducted for the ratings given by Rater B, and the results paralleled those of Rater A. According to the results from statistical tests run on the data from Rater B, there was a significant difference between the pre- and posttreatment writing samples for both the control group and the experimental group. Again, the median scores for the experimental group showed the increase, this time from 3 to 4; and the median scores for the control group stayed the same.

These statistical tests were then conducted for the ratings given by Rater C, and the results of the Wilcoxon test for the experimental group indicated that there was a significant difference between the pre- and posttreatment writing sample ratings for the experimental group. Conversely, the results for the control group indicated no significant difference in the pre- and posttreatment writing samples ratings of Rater C. The scores of all three raters showed that the experimental group performed significantly better on the posttreatment writing sample, but the control group had one rater whose posttreatment ratings did not differ significantly from the pretreatment ratings.

It had been expected, as in the Troyka (1973) study, that the students in the experimental group would show a greater increase in writing competency than the students in the control group. To discover if that difference occurred in this present study, the Mann-Whitney U test was conducted on the data from the posttreatment ratings for each rater, and the results are presented in Table 2.

The results indicate a significant difference between the posttreatment ratings for the control and experimental group, based on the ratings for all three raters. The

TABLE 2:   A Comparison of Posttreatment Writing Sample Medians

	Rater A	Rater B	Rater C
Experimental group	3	4	4
Control group	3	3	3
Index of difference	0	1	1
U	419.0*	467.0*	471.0*

*$p < .05$.

experimental group received significantly higher posttreatment writing sample ratings than the control group. This result indicates that the treatment, simulation, helped the participants in the experimental group improve their performance on the writing task.

These statistics provide quantitative evidence of the beneficial effects of using simulation to help ESL students improve their writing. Some examples from the writing tasks that the students completed during the semester supplement this quantitative evidence. The assignments prompted writing products that were based on the same information but that displayed distinctly different voices and tone.

Following are excerpts from the writing assignments in which both the experimental and control group members were asked to write a summary. These examples are reproduced exactly, including any errors made by the student writers.

An example from the experimental group

In this article, the author mentions some skills that are very important for conducting business in an intercultural context. To be a successful manager in all the fields of business, good multicultural communications abilities are necessary because effective communications helps business transactions runs smoothly. For instance if a management information systems major is sent to another country to work in a big multinational firm, he/she should possess skills in order to learn the important values and beliefs of the culture. The author of this article says that if you really want to understand another culture have some idea of the origins of it's values, belief, and manners.

An example from the control group

Today, working people has a variety of diversity culture and lifestyle in different environment. Suggestions for tipsheet, "Working with People From Diverse Backgrounds," contains many useful information and awareness to evaluated about cultural diversity values. Many apparent differences inbetween Americans, Asians and Hispanics workers, but majority of the cultural experiences still will to be approach. Conflicting of different ethnic and varying cultural values created tensions difficulty for the immigrants to adjusted their lifes. And suggestions from the tipsheet is identifying the cultural values in flexible dealing with an awareness training contains and messages for consulting management.

Remember that the students in the experimental group were writing with a definite audience in mind. These students were asked to summarize the article for the chief executive officer of the company. The students in the control group were assigned to write a summary under usual teacher-centered classroom circumstances: for the

teacher. The voice in the excerpt from the experimental group is strong, as evidenced by the specific example that ties the information from the article to the purpose for which it was written—to help someone else understand the point of the article without having to read it. On the other hand, the voice in the excerpt from the control group is weak, as illustrated by the lack of personalization of the information from the article. For example, the control group student writes "suggestions from the tipsheet is identifying the cultural values" but does not attempt to deliver the meaning of the article to a reading audience that is authentic. The student from the control group who wrote the excerpt above probably knows that the teacher has already read the article, and his summary becomes nothing but a redundant task. However, the student from the experimental group knows that the student playing the role of the chief executive officer has not read the article yet and that the purpose of the summary is to deliver the important information to that reader. No longer is the reader audience a disembodied entity or merely a teacher who already knows the information.

Another difference between the writing of the two groups can be illustrated with excerpts from the assignments based on the development of Sarawak. To begin focusing on this problem, which was to involve Internet interaction with groups of composition students in Tokyo and New York City, I informed the participants in the experimental group, who were already familiar with their roles in GLOBECORP, that they were to prepare a plan to develop a resort in Sarawak, formerly Borneo. The preparation for the assignment had already taken place through e-mail communication between the teachers in Tokyo and New York and me. We had met each other through a mailing list and exchanged information, including the reading material to be provided to all simulation participants. My students as GLOBECORP employees would propose the plan for the resort, the students in New York would play the role of environmentalists who opposed the plan, and the students in Tokyo would play the role of the government officials of Sarawak who would make the final decision.

The existence of an authentic and responsive audience and a clearly defined purpose motivated the students in the experimental group to write detailed proposals in an attempt to convince the students in Tokyo playing the roles of government officials that their plan to develop Sarawak was better than the plan that the environmentalists in New York had for the land. The students used sophisticated strategies to convince the officials that they would also protect the environment while providing needed economic advantages for the underdeveloped state. Here is an excerpt of an exchange between the students in the UCO experimental group and those in Tokyo:

Excerpt from an e-mail message written by GLOBECORP students

> The positive effect that tourism may have on Sarawak is increasing the income for Sarawak for other development. However, once tourism are promoted, the government may need to provide facilities. This will consequently damage the living place of wild animals, and many people are forced to move. To maximize the positive effect and minimize the negative effect, we propose to expand the existing national park in Niahma to maintain the natural beauty of Sarawak at our expense.
>   Tourism and development should be confined to certain areas to prevent the deforestation. We will only open a few areas for development. Most of the projects will be focused

on expanding the exciting attractions such as the national parks and beaches. We will now answer the questions that you asked about our plan.

   1. Does "cultural village" mean Kuching?

   The cultural village is the one in Kuching. We do not understand what you mean the "relationship." Can you explain that part of question again? Although the national park is far away from the "Cultural Village" that we plan to build, we think that the tourists will willing to go over there if there are some attractions that captive them.

   2. Where are those beaches you said about?

   There are two beaches in Pemai and Tamai. Since Tamai Beach is near by the Pemai Beach, we not need to consider to develop both, but we'll keep one clean.

   3. Where are those waterfalls and will tourists visit?

   Also the waterfall is located in Renchang. From Kuching, it will take 40 minutes to reach there. The new areas are sidewalks, pathways and roads will be created so that people can visit there.

The message sent by GLOBECORP received a reply that encouraged the further revision and refinement of the plan for development. An example of the type of messages that supported this investment in the creation of the proposal follows.

Excerpt of an e-mail message received by GLOBECORP

Thanks for your good proposals. We agree that Sarawak has good tourism potential. We appreciate your many complimentary comments about our country, and we will try to make Sarawak an interesting tourist destination for travelers from your countries. We have not decided exactly what attractions we will promote yet, but the infrastructure of Sarawak will be improved as a result of the work we do with you to develop tourism. Our country will be more developed and more convenient for both tourists and local residents as a result of your proposals. Roads and communication projects are necessary. Thank you for your proposals on those roads and telephone companies. Your comments on the good and bad parts of tourism development showed careful thought and consideration. We are very concerned that too much tourism may be harmful for the native people of Sarawak who live in the forests. The plan that you have to pay them to keep their culture for tourists to see is a good idea. They need to have jobs because they can't live by hunting because the trees are getting cut down by the industry. Our decision will be carefully made to avoid creating problems. Thank you for understanding our point. We will try to study the cost-sharing plan that you sent and tell you more later.

These excerpts illustrate the interaction inherent in the simulation framework. During the creation of the proposal for the development of Sarawak, the students did not need to perform peer evaluation with forms, which is often required in the traditional method of instruction to keep the students focused on the task. Instead, they read and collaborated to improve each part of the proposal and put it together into a master plan. They also received input from the Internet interaction, especially when the meaning was not transmitted. Then they negotiated in an attempt to understand what was unclear and to clarify it.

In comparison to the interaction and lively negotiation exemplified in the excerpt from the experimental group, the writing produced by the control group on the essay topic concerning Sarawak Development appears to be presented in a vacuum, with no

purpose attached to the transmission of the information. The excerpt presented below was typical of the essays produced by the students in the control group on this topic.

Excerpt of an essay from the control group

> Sarawak is located at the East Malaysia and West Malaysia is separated by "Laut China Selatan," South China Ocean. Even though the area of East Malaysia is double the size of West Malaysia, however, the population there is about one third of West Malaysia and East Malaysia also not as well developed as West Malaysia.
>
>   For developing Sarawak, first we have to start on from facilities. As we know, Sarawak is not well develop compare to other states in Malaysia, in order to develop its' tourism industry, we have to provide the tourists a safe, interested and comfortable environment to stay on. We can start to make a improvement in those three areas: security, transportation, and hotel and entertainment services.
>
>   Security was the most important factor to concern when tourists choose to travel, because every tourists want to have a safe trip. This not only include the stability of government but also the protection form crimes. So we have to increase the number of polices and the rotations of the polices in Sarawak.

Although the essay from which the excerpt above was taken is clearly organized, it lacks an essential ingredient: the motivation to communicate. The information is presented in a perfunctory manner, whereas the information in the e-mail message, written by students whose jobs require them to convince the audience to accept the plan, is presented with a purpose and the motivation to be understood.

These examples from the students' writing supplement the quantitative evidence provided by the statistical analyses, providing support for the use of simulations to help students improve their performance on actual writing tasks.

Writing anxiety surveys

High scores on this instrument indicate high writing anxiety; therefore, low scores on this instrument are preferred. The results of the statistical analyses of the data revealed that the mean for the ESL-WAT pretreatment scores was 83.60 for the experimental group and 77.16 for the control group. The control group mean was close to 78.00, the median score for the instrument; however, the higher mean score in the experimental group suggested that the experimental group was more anxious about writing than the control group before the application of the simulation method of instruction.

Of the 50 students in both groups responding to the pre- and posttreatment ESL-WAT, 9 students showed an increase in writing anxiety levels as indicated by the results from the survey instrument. Of those 9 students, only 1 was a member of the simulation group; the remaining 8 students were members of the control group. The control group showed an increase of 73 points, whereas the simulation group showed only a 3-point increase. Thirty-nine students had reduced ESL-WAT levels on the posttreatment administration of the survey. The total decrease in writing anxiety for the experimental simulation group was expressed with the loss of 268 points, an average loss of 10.72

TABLE 3: **Summary Statistics for English as a Second Language Writing Anxiety Test Scores**

	Experimental Pretest	Control Pretest	Experimental Posttest	Control Posttest
Number of cases	25	25	25	25
Minimum	38.00	43.00	41.00	42.00
Maximum	109.00	144.00	109.00	125.00
Mean	83.60	77.16	72.88	71.88
Standard deviation	17.43	26.94	18.42	19.97

points per case. In comparison, the control group had only a 132-point loss on the ESL-WAT posttreatment survey, an average loss of 5.28 points per case.

The difference between the losses in ESL-WAT scores between administrations of the surveys suggested that perhaps the experimental group had lowered writing anxiety levels due to the effect of the treatment—simulation. Therefore, statistical analyses were conducted. First descriptive statistics were calculated for both groups, and they are displayed in Table 3.

The results from the descriptive statistics reported in Table 3 show how much difference existed between the two groups before the treatment was administered. Nevertheless, the students in the experimental group came within 1 point of meeting the posttreatment scores of the control group. That occurred despite the fact that the experimental group started out 10.72 points higher than the control group. At the end of treatment, the experimental group had registered writing anxiety levels only 1 point higher than the control group, representing a possible lowering of writing anxiety due to the treatment. To test this prediction statistically, a t test was used to determine any differences between the means of the experimental and control groups before the treatment began. This test was conducted to set the baseline for the experiment. If the groups began the treatment with no significant difference between their pretreatment writing anxiety levels, then any differences between the posttreatment anxiety levels could be the result of the difference in instructional methods used for the two groups. The results indicated no significant difference between the means for the two groups on the pretreatment scores. The two groups started the treatment with no significant differences in writing anxiety levels as measured by ESL-WAT. Accordingly, any differences between the posttreatment levels of writing anxiety as measured with this instrument might indicate differences between the two groups due to the variable of instructional method.

The next statistical tests were conducted to determine any differences in the pre- and posttreatment ESL-WAT scores within the groups. The results indicated that a significant difference existed between the means of the pretreatment and posttreatment ESL-WAT scores for the experimental group, suggesting that the lowered anxiety level was the result of the treatment—simulation. The next step was to measure any loss of writing anxiety over the course of study for the control group. The results supported a significant difference between the means of the pretreatment and posttreatment scores

TABLE 4:   Results of the *t* Test for English as a Second Language Writing Anxiety Test
           Posttreatment Scores

Statistic	Experimental Posttreat Scores	Control Posttreat Scores	Mean Difference in Scores	t
n	25	25		
Mean	72.88	71.88	1.00	0.18*
Standard deviation	18.42	19.97		

*p > .05, df = 48.

for the control group. The separate measures of mean differences within the two groups suggested that both the experimental and control groups had significantly decreased their writing anxiety levels as measured by the ESL-WAT.

The next statistical test was used to determine any differences between the means of the experimental and control groups on their ESL-WAT posttreatment scores. An independent *t* test was conducted, and the results are shown in Table 4.

The mean differences between the experimental and control groups on the posttreatment surveys of ESL writing anxiety were not significant. The results of the independent samples *t* test ($t = 0.184$, $p > .05$) did not support the prediction that the experimental group would experience lower writing anxiety levels than the control group at the completion of the semester. However, both groups had posttreatment ESL-WAT scores that were significantly lower than their pretreatment scores.

Instructional effectiveness surveys

The data gathered from the fourth instrument were compiled for analysis. First, the mean scores for each item on the Instructional Effectiveness Surveys were recorded and categorized by group. Then the responses of the experimental and control group were compiled. Scores were recorded for 12 items: the instructor's (a) performance, (b) attitude toward the students, (c) preparation, (d) clarity of presentation, (e) manner of delivery, (f) explanation of course requirements, (g) pace, (h) assigned workload, (i) examinations, (j) grading, (k) availability, and (l) results to a query as to whether the student would recommend the instructor to others. Table 5 shows the results from this compilation of data.

The mean scores for most of the items reflect a more positive feeling about the course from the students in the experimental group. Only the item concerning the relationship of tests to material covered resulted in a lower mean score for the experimental group than for the control group. The item concerning recommending the teacher to others resulted in a tie between the two groups. The other items show a higher mean for the experimental group; however, to test for a significant difference between the means of the two groups, an independent *t* test was used. The results indicate that the mean differences between the experimental and control groups on the instructional effectiveness surveys were significant. The experimental simulation class rated the

TABLE 5:   Mean Scores From the Instructional Effectiveness Surveys

Item	Experimental Mean Scores	Control Mean Scores
Instructor's		
Performance	3.900	3.700
Attitude toward students	4.000	3.900
Preparation	3.900	3.800
Clarity of presentation	3.800	3.700
Manner of delivery	3.900	3.800
Explanation of course requirements	3.800	3.600
Pace	3.800	3.600
Assigned workload	3.900	3.700
Examinations	3.700	3.800
Grading	3.800	3.600
Availability	3.800	3.700
Student would recommend	3.900	3.900

effectiveness of the instruction during the course significantly higher than the control group.

The comments written by students in the spaces provided on the instructional effectiveness surveys supported the findings of the statistical analysis; the experimental group expressed greater confidence in the effectiveness of the instruction and expressed appreciation for the interactive nature of the class. The following excerpts from the comments written by the students are included to supplement the results from the statistical tests:

- I like to talk more in the classes when we do GLOBECORP.
- The way that we got to use the e-mails to other countries helped me learn to use the internet and it was fun so I kept writing to the one in Japan after the class.
- I have to use more English and I get better. But I don't talk in other class, only English.
- I learn more stuff from the GLOBECORP about different countries and culture.
- Do you have another English class like this? I want to take again.

These comments are representative of the feelings about the group using simulation as a method of instruction. Of the 25 students in the experimental group, 18 wrote comments. Although the control group was provided the same amount of time to write comments, they did not write as many as the experimental group. Only 10 of the students from the control group wrote any comments at all, and those were brief, as illustrated in the excerpts below:

- I like our teacher.
- The class needs to have more time for conversation with students to talk.
- I learned about grammar and writing. Thank you.
- I want to take your English class again.
- She's doing a good job with the international students.

These excerpts reflect the results from the survey instrument and support the literature in the field of simulation gaming that claims the method of simulation is more enjoyable for students.

Conclusions

The results of the statistical analyses of the objective tests showed that the students in the control and experimental groups started the semester with no significant differences in writing competency. Both groups made posttest scores significantly greater than their pretest scores, and there was again no significant difference between the groups in the posttest scores. At the end of the semester, both classes had increased their scores on the mandated objective test of writing competency.

The students in the control group who had explicit grammar instruction on usage did no better than those students who used the language in simulations without explicit grammar instruction. In addition, the students who used the language performed better on the communicative task of writing than did the students who studied language usage in the control group.

The differences in writing competency measured by the writing sample ratings suggested that students taught with simulations performed better that those taught with the traditional method.

The experimental group and the control group showed no significant differences in pretreatment measures of writing anxiety as measured by the ESL-WAT survey responses. This result suggested that the two groups began the semester with similar levels of writing anxiety. The results of the statistical tests conducted to discover differences between the pre- and posttreatment administrations of the ESL-WAT surveys reflected the lowered writing anxiety levels of both groups at the end of the treatment. Both groups had shown significant differences in the measure of writing anxiety. This finding suggested that writing anxiety decreased due to both the traditional and simulation gaming methods. An examination of the descriptive statistics shows that the students in the experimental group decreased their mean ESL-WAT score by 10.72 points, whereas the students in the control group decreased their mean ESL-WAT score by only 5.28 points. The results indicate that the simulations did affect individual students by lowering their anxiety about writing in English.

Although the ratings from the students in both the experimental and control groups expressed satisfaction with the course, the experimental group rated their instruction higher in several areas. These higher ratings did prove to be statistically significant. One of the benefits of simulation is the anecdotal evidence that students are more favorably disposed to instruction with simulation methods. The empirical evidence in this study supports that anecdotal evidence and provides these answers for the research questions:

1. The use of simulations proved to work as well as the traditional method of instruction in increasing the writing competency of ESL composition students as measured by

objective tests required by the institution and proved superior to the traditional method in the evaluation of writing samples.
2. The use of simulations proved superior to the traditional method of instruction in lowering writing anxiety for ESL composition students as measured by scores on writing anxiety surveys.
3. The use of simulations proved superior to the traditional method of instruction in increasing the students' perception of the usefulness of the class as measured by surveys on instructional effectiveness.

Providing empirical evidence for statistically significant differences between two different methods of instruction is difficult, but this study suggested that instructors who wish to enliven their classrooms by changing to approaches that include simulation should do so with confidence. Taking into account the results of this study, teachers who are held accountable for their students' overall improvement between pre- and posttests of discrete item instruments need not fear that using simulations to increase their students' communicative competence will adversely affect those scores. In this particular round of simulation versus tradition, simulation wins.

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