An Investigation of Students Attitude and Motivation toward Online Learning

Evelyn Knowles, PhD
Assistant Professor of Interior Design
Park University

Dennis Kerkman, PhD
Associate Professor of Psychology
Park University

This study investigated students' attitudes and motivations toward online learning. Students in the online course, Introduction to the Visual Arts, were asked to complete questionnaires administered during the first and last week of the online course. A group of questions on Attitude was asked on both surveys. Questions on Interest, Self-management, and Locus of Control were asked only at the beginning of the course. The end of class survey included questions on Study Process Approach. Students in the study were found to have a strong internal Locus of Control. A significant correlation was found between a more internal locus of control and relying on surface strategies for learning. Another significant result was found on the Attitude pre- and post-course comparison regarding missing interaction with other students and getting more information through an online course. Generally, students' attitude toward online learning was more positive during the last week of the course than in the first week. The study showed that this online course provided a sufficient amount of student to instructor interaction, a high amount of student to material interaction, and a low amount of student to student interaction.

Introduction

Although Park University has offered online courses to students since 1996, the first online art course was developed during the summer of 2006. The primary purpose for the course was to satisfy general elective requirements of distance learning students. There was hesitancy on the part of faculty and administrators to allow art or design students take an online art course. Art history courses generally want students to experience the art personally, though trips to art galleries, or through the best reproductions available.

The starting point for this study was a group of questions regarding outcomes of the online course. Using the same assignments and exams, would students' grades be higher or lower in the online course? Would students feel they received more or less information in the online course? How would students feel about the online course? The next set of questions involved measuring students' attitudes toward the online course.

Determining how to measure student motivation was the first step in this analysis. Should a researcher ask students directly how motivated they are to learn, ask them to rate their interest in the subject, ask if their attitude toward online learning has an effect on motivation to learn, and measure how their study processes affect their motivation? Or does students' locus of control determine their result in online learning? Once it is determined how to measure student motivation, what will be the result of high student motivation? Will high internal motivation result in a high grade? Since a grade can be viewed as an external motivator, will high internal motivation have a negative affect on the course grade or no affect on grade?

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Student motivation in online learning can be determined by different factors. This study investigated several differing approaches to determining student motivation in online learning. Literature on *motivation in student learning* pointed to factors of individual interest, external motivation, intrinsic motivation, transformation of information into knowledge, and depth of study processes to determine how student motivation can be measured.

External versus Internal Motivation

External motivation generally consists of recognition and praise for good work. For college students, it can also be continuing eligibility for scholarships, loans, or promotions at work. An extrinsically motivated student seeks approval and external signs of worth (Sansone & Smith, 2000). Colleges traditionally give students grades as a validation that they have achieved the course objectives. Grades, however, are not the only or best motivation for student learning. Jacobsen (2000) found that college students in their late teens and early twenties had higher extrinsic goal orientation. This means that traditional age students are generally more motivated to learn by grades than older students. The downside of this is that external motivators, such as grades and rewards, can undermine intrinsic motivation for a task (Deci, Koestner, & Ryan, 1999). Too much emphasis on grades and rewards could destroy a student's interest in learning.

Intrinsic motivation generally consists of an internal desire to learn about a specific topic. Vansteenkiste, Simons, Lens, Soenens, Matos, & Lacante (2004) demonstrated that students with intrinsic motivation processed reading material more deeply, achieved higher grades, and showed more persistence than students with extrinsic motivation. Bye, Pushkar, and Conway (2007) found that interest and intrinsic motivation predicted positive affect. They recruited students from a traditional, face-to-face curriculum, and paid them for filling in a questionnaire. Although they looked at *age* as a variable, "*interest* emerged as the strongest predictor of both intrinsic motivation for learning and positive affect" (Bye et al., p.155). Some studies have linked high internal motivation with positive emotional results (Bye et al., 2007).

Studies on Learning Theories

Most learning strategy theories are based on the constructivist perspective of learning which contends that meaning and knowledge are constructed by the learner through a process of relating new information to prior knowledge and experience (Olgren, 1998). Olgren stated that "the quality of learning outcomes depends on how well the learner organizes and integrates the information" (1998, p. 79). For deep learning to occur, students should use a combination of organization and elaboration strategies to analyze and synthesize information in ways that build a mental model linked to prior knowledge in memory.

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Craik and Lockhart's (1972) levels of processing theory was the first to distinguish shallow from deep processing. It asserted that this distinction critically depended on the nature and number of successes in recalling information and the nature and number of mental operations carried out while the individual was learning the information. More specifically, linking learning to prior knowledge in memory, known as Elaboration Hypothesis was described by Anderson and Reder (1979). Their explanation was that information associated with other items already in memory induced a deeper level of knowledge, which, when associated with more or other concepts during the

initial learning phase, was more rapidly and more accurately recalled from long-term-memory.

Another approach to learning theory derived from the conceptual framework generally known as 'student approaches to learning', or SAL (Biggs, Kember & Leung, 2001). They found that learners who really understand material de-structure the material, and then restructure it to relate the material to their existing knowledge system. Biggs (1976) developed The Study Process Questionnaire which found three factors in learning: surface, deep, and achieving. Each factor was comprised of two kinds of items, those relating to a motive, and those relating to a congruent strategy. The Study Process Questionnaire has been used by Recio (2004) to study distance education. She stated, "Today it is accepted that there are, mainly, two approaches to learning, deep approach and surface approach" (p. 55). Deep approach is consistent with intrinsic motivation and transforming knowledge. Characteristics of deep approach are: an intention to understand material for oneself, vigorous and critical interaction with knowledge content, relating ideas to one's previous knowledge and experience, discovering and using organizing principles to integrate ideas, relating evidence to conclusions, and examining the logic of arguments.

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Surface approach is consistent with extrinsic motivation and information reproducing. Characteristics of surface approach are: an intention simply to reproduce parts of the content, ideas and information accepted passively, concentrating only on what is required for assessment, not reflecting on purpose or strategies, memorizing facts and procedures routinely, and failing to distinguish guiding principles or patterns (Recio, 2004).

Online education often requires students to take on greater responsibility for their own learning. They cannot simply follow the herd of students attending class. Students must log into the online classroom as a solitary initiative, though once in, they will find comments from the instructor and other classmates. Therefore, intrinsic motivation is crucial for the completion of online courses. Individual interest has been described as the energizing force behind intrinsic motivation (Alexander, Murphy, Woods, Duhon, & Parker, 1997).

This study measured student motivation toward learning on five different scales. Two standardized factors, Locus of Control and Study Processes, were measured. Additionally, this study explored students' interest, attitude, and self-management as three different factors. Due to the exploratory nature of this study, research questions were investigated rather than hypotheses proposed. This study focused on three questions:

1. Did students change their attitude toward online learning from the beginning of the class to the end of the class?
2. Which factors were correlated with Deep or Surface Study Approaches?
3. Which factors were positively correlated with high exam grades?

Method

The course chosen to study was Introduction to the Visual Arts. It had previously been exclusively offered in the face-to-face format, and was the first art course at Park University to be developed for the online teaching mode. It was required for students who were Fine Arts majors and available as an elective to fill a general education requirement for non-Fine Arts majors. The online course was

developed and taught by the same instructor who had been teaching it face-to-face for several terms.

The new online course was taught in an eight week session. Each week, students viewed visual information that had been scanned in to the e-course from photographs in books. This information was available to them within the weekly unit as well as in the Document Sharing space within the course. Recall plays a large part in this type of course because much of the tests involve recall of declarative information about artists or styles and iconic memory of photographs of their works. The grading was based on three exams and a final exam where students identified information associated with the photograph. Because of this type of information processing, an understanding of study processing, elaboration hypothesis, and processing theory were important to student performance and motivation.

Participants

The participants in this study were students enrolled in Introduction to the Visual Arts online in the spring 1 term of 2007. There were initially twenty nine students in the course, two students dropped during the first week, which resulted in twenty seven students in the course. Thirteen were majoring in art/design, eleven in management, one in elementary education, one in social psychology, and one was a non-degree seeking student. Demographic information on the students was not collected because the sample was small enough that age, ethnicity or gender would not have significant influence on the data collected. Also, keeping student anonymity was a concern with this small sample.

Procedure

The questionnaires were administered online in the first week of the course and in the eighth (last) week of the course. The questionnaires administered in the first week asked questions on *Interest, Self-Management, Attitude*, and *Locus of Control*. The questionnaires administered in the last week asked questions on *Attitude* and *Study Approaches*. Twenty two responses were received from the initial questionnaire and twenty one responses were received from the follow-up questionnaire. Only 17 respondents answered both surveys.

Materials

Students' motivation was measured in five ways. Some questions were asked only on one of the surveys. These were the questions on *Interest, Self-management, Locus of Control,* and *Study Process*. There was one group of questions on *Attitude* that was asked on both surveys.

To measure *Interest*, students were asked four direct questions. Whether the course was a degree requirement, and their preference for face-to-face versus online mode were asked in a *yes* or *no* format. One question asked them to rate their interest in taking this class and another asked how many previous online courses they had taken. These questions identified students who were not required to take the course, rated themselves as having a high interest in taking the course, had taken online courses before, and preferred to take this course in online format.

The *Locus of Control* questionnaire used the standardized instrument based on Rotter's investigation on internal versus external control of reinforcement (1996). This instrument had thirteen questions with two choices, where a resulting lower the score indicates an internal locus of control, and a higher score indicates an external locus of control. The authors' seven questions on *Self-management* asked the students to rate themselves on a scale of one to five.

Study processes were measured by using the Revised Two-Factor Study Process Questionnaire (R-SPQ-2F) developed by Biggs and Kember (2001), which can be used to measure learning or teaching. It consisted of twenty items using a rating scale of one to five; ten items measured deep learning and ten items

measured surface learning. The preferred approach for using the R-SPQ-2F questionnaire reports the extent to which an individual differs from other students in a similar context (Biggs and Kember, 2001).

Attitude was measured through a set of thirteen questions compiled by the authors. These questions were designed to uncover students' attitudes toward online courses. The questions were asked in the first week of class and again in the last week of class to determine if there was a change in attitude toward online courses after having participated in one.

Results

For all yes/no questions, data were coded with "yes" as 1 and "no" as 0, so that the mean is directly proportional to the percentage agreement (e.g., if the mean is .71, then 71% of the students agreed with that statement). For all results reported here, the .05 level of statistical significance is used. Results with p-values between .10 and .05 are interpreted as non-significant statistical trends. Two of the 13 pairs of pre- and post-course questions on *Attitude* showed statistically significant differences: Agreement with the statement, "I will get more information through an online course" increased from 0.06 (0.24) to 0.29 (0.47), $t(16) = 2.22$, $p = .04$, and agreement with the statement "I will miss the interactions with other students in an online course" increased from 0.41 (0.51) to 0.71 (0.47), $t(16) = 2.58$, $p = .02$. There was a nearly statistically significant trend on one *Attitude* item, "I will miss getting to know the instructor in an online course". Agreement with this item *decreased* from 0.53 (.51) to 0.35 (.47), $t(16) = 1.85$, $p = .08$ (trend).

Another significant correlation was found for Locus of Control and one of the study processes. There was a negative correlation between Locus of Control and Surface Strategy approach to learn, $rho\ (16) = -.465$, $p = .03$.

The *Locus of Control* test showed that the majority of students were much more internally motivated than externally motivated. On a scale of 0 (extremely internal) to 13 (extremely external), the mean was 2.5 (.72) with scores ranging from 0 to 3, which shows that all students were relatively internally motivated. There was a statistically significant correlation between Locus of Control and total score on the four exams $rho\ (16) = .534$, $p = .014$, indicating that students with more external LOC scores had higher total scores on exams.

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There were four questions asked for *Interest*. Q1 asked if the students were required to take the course, thirteen (59%) responded "yes", nine (41%) said "no". Q2 asked students to rate their interest in taking the class on a one to five scale. The mean was 3.7 on a one to five scale, which reveals higher than average interest. Q3 asked how many online courses students had previously taken. Ten respondents had not taken any online courses before, nine students had taken 5 or more online courses, and three had taken 2 to 4 online courses. Q4 asked if the students would have preferred to take this course in traditional face-to-face mode. Ten answered "yes", and eleven answered "no".

The mean for students on a 1 - 5 scale for *Self-management* was 20.52. This scale consisted of seven questions, Q5 through Q11. Students reported on how well they allocated their time: "very well" 14%, "well" 55% and "moderately" 23%. They reported that they "usually" 77% got their homework done on time. They reported that they were "never" 59% and "occasionally" 36% late to appointments. For relying on a teacher to keep them on track, 32% said "no", 32% said "occasionally", and 27% said "sometimes". When asked if they get tasks done only when reminded to do them, 64% responded "no", and 27% said "occasionally". In response to Do you wait to see what others are doing before you make a decision? 41% said "no", 27% said "occasionally", and 27% said "sometimes". For the last question in the set, 82% responded that they "usually" do what their instructor tells them to do.

The results of the *Study Process* questions showed that the students in the course had more of a Deep Approach to learning than a Surface Approach. The range on each category of approach to learning was from 10 to 50, ten questions with five being the high score on each question. For Deep Approach the mean was 35.1, which is above 30. For Surface Approach the mean was 21.0, below 30. Within each approach, there were sub-categories of Motive and Strategy, each with five questions. The range in scores for these was from 5 to 25. The Deep Motive mean was 17.7 and the Deep Strategy mean was 17.4. This is interpreted to mean the students generally had a deep desire to learn and used strategies to maximize the meaning of the material. For Surface Motive the mean was 8.9, and the Surface Strategy mean was 12.1. Since Surface Motive was the lowest, it appears the students in our study did not have a surface motive, such as fear of failure.

Students' *Attitude* toward online learning was more changed on some questions than others. On a scale of 0 to 1, where 0 equals "no" and 1 equals "yes", the amount of agreement with the statement was compared from the first week's questionnaire to the last week's questionnaire. The statement that elicited the most change in attitude was, "I will miss the interactions with other students in an online course." The mean of the pre-course to the mean of the post-course response increased by 31 percent in agreement that they missed interactions with other students more than they expected they would.

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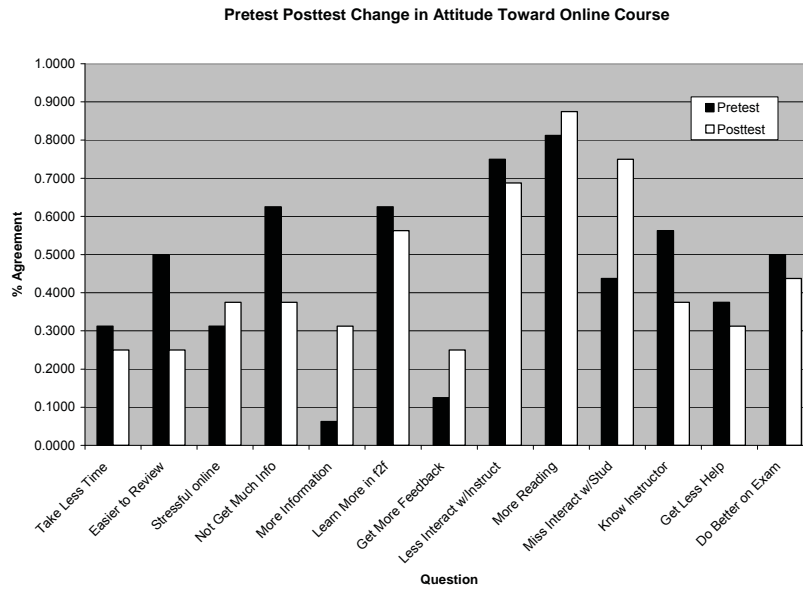
The next highest changes in *Attitude* were on, "I will get more information through an online course," which increased by 25 percent; "I will not get as much information in an online course," which decreased by 25 percent; and "It will be easier to review materials in an online course," which decreased by 25 percent. Students found they received more information than they expected, while they found it not as easy to review materials as they expected. The third highest change in *Attitude* was on, "I will miss getting to know the instructor in an online course," Which decreased by 24 percent. The next highest change in *Attitude* was for, "I will get more feedback from the instructor in an online course." This was a 12 percent increase that the students did feel they received more feedback from the instructor than they expected. The remainders of the changes in *Attitude* were less than 10 percent change, but still a change in attitude. None of the scores for *Attitude* remained constant. Figure 1 shows the comparison of students' responses, pre-course and post-course, to questions on *Attitude*.

Discussion

The first research question asked: Did students change their attitude toward online learning from the beginning of the class to the end of the class? The finding was that there was a change in response to all questions on *Attitude* toward online learning. These consisted of thirteen questions compiled by the authors. In these questions, the answer that indicated a positive change in *Attitude* at the end of the course would be "yes" for five questions. These are shown in Figure 1 from left to right as questions 2, 5, 7, 9, and 13. The positive change in attitude toward online learning would be indicated by "no" for eight questions. These are shown in Figure 1 from left to right as questions 1, 3, 4, 6, 8, 10, 11, and 12.

Figure 1: Attitude Comparison

Pretest Posttest Change in Attitude Toward Online Course

The majority of questions did reflect a positive change in *Attitude*, and some of these were reassuring to online proponents. Students indicated that the online course took more time than they expected and required more reading than they expected (questions one and nine). Many students expect online courses to take less time since they don't have to sit in a classroom for a specified amount of time. The assumptions would be that they can log in and log out at will. However, once they get into the course content and documents, they often find they spend more time reading the materials. This may be because they must read instead of

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simply relying on listening to the instructor in class, or it could be that more documents and supplemental materials are easily accessible to them. The negative reaction to the online course material showed up when students were asked about the ease of reviewing materials in an online course (question two). Their responses showed that they did not find reviewing information easier online. This is a surprising finding since all online information is documented and students do not have to rely on their own note taking or memory to review information. A check of the minutes students spent in different areas of the course revealed that students did not review the photographs online, but rather downloaded or printed the material. Printing the materials would make the review process similar to reading a book, which defeats the purpose of having the materials online. Computer technology should help with learning tasks of identification, so this component needs more investigation.

Both questions that dealt with availability of getting information from the online course received positive responses. Question five was the same as question four except that it was stated in the positive rather than the negative. The repetition was done intentionally to provide reliability for the answers. These students were consistent in their response to the amount of information they received in the online course. The response for both was positive, that they received more information through an online course. This question was asked because professors who do not use online technology believe that the medium is limited and cannot provide as much information as a teacher in a classroom face to face with the students. When

online technology is utilized to its fullest capacity, many times more information is available to students than in a classroom without access to the internet. For example, these students could have been given access to works of art from all over the world through web sites; much more than is available in any one book or gallery.

Closely related to "getting information" was the question on learning. On question six, students responded that their learning was better through online than in a face-to-face classroom. This is good news for validating that students have a positive attitude toward online learning. These responses also indicate that students probably equate learning with receiving information. Although that is not always true, in this type of introductory course, much of the learning is based on factual information.

Another group of questions addressed the concept of interaction. It is a common belief that online courses do not provide sufficient interaction between the students and the instructor. Four questions were asked to find out how the students felt regarding interaction with the instructor. These asked about feedback from the instructor (question seven), interaction with the instructor (question eight), receiving help from the instructor (question twelve), and getting to know the instructor (question eleven). All of these questions had a positive response. Students responded that they received more feedback than they expected, did not lack interaction with the instructor, got more help from the instructor than they expected, and did not miss getting to know the instructor. In fact, getting to know the instructor proved less important at the end of the term than students thought it would be at the beginning of the term. This suggests that the instructor's personality is not important to students, which is a positive finding for online courses; the students' interaction with the subject matter should be more important than the instructor's personality. One of the major misconceptions that college administrators hold about online learning is the lack of interaction between students and the instructor. The positive finding in this research study may aid in dispelling this common fallacy.

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The place where interaction was found to be lacking was between students in the online course (question ten). Students' responses showed they missed interaction with other students more than they expected. This might be alleviated by assigning more discussions or using the live chat feature in the online course.

The third question stated, "An online course will be stressful for me." The students' attitude changed toward "yes". More questions need to be asked to determine what the cause of the stress was. It could have been that more self reliance than expected was necessary, or there could have been problems with using the online technology. Unfamiliarity with online courses could be a factor in the stress being higher than expected.

The last question stated, "I will do better on tests in an online course." The students' attitude changed toward "no". This response was a surprise. One possible reason why students would develop a more negative attitude toward their achievement on exams could be related to the question on stress. Since these students found the online course more stressful than they expected, the stress could have made them expect to perform worse on exams. The first three exams were taken online where the students had been doing their course work. The final exam was a paper test taken in a room with a proctor. Perhaps the change in physical surroundings and the addition of a proctor caused the students to feel they would not do as well on the final exam as they had done on the earlier exams. However, most of the students received a very high score on the final exam, so

there was no evidence to explain their feeling that they would do worse on exams in the online course.

The second research question asked: Which factors were correlated with Deep or Surface Study Approaches? There was a negative correlation between Locus of Control and Surface Strategy approach to learning. This suggests that although these students had an internal Locus of Control, they used Surface Strategies for learning the material required by this course. This study approach is appropriate for learning material that is factual in nature. "An approach to learning describes the nature of the relationship between student, context, and task" (Biggs et al, 2001, p.137). The Core Learning Outcomes stated for the course reflect factual knowledge. The students in AR115 were expected to: describe their responses to art, compare works of art, identify stylistic divisions of art, and identify studio techniques. Clearly, this is an introductory course where a majority of the student's time must be spent on learning the basic knowledge of the discipline. Bloom's Taxonomy Action Verbs Requiring Cognitive Outcomes (2006) notes that the categories of knowledge, comprehension, and application are appropriate for 100 level courses.

The third research question asked: Which factors were positively correlated with high exam grades? Students with a higher external locus of control did better on the exams.

Conclusions

Online courses are encouraged to provide interaction between the student and the course content, the student and the instructor, and the student and other students. This study showed the online course to have more rigor, or required reading and course work, than the students expected. The course studied provided for a high amount of interaction between students and the course material. A characteristic of online courses is that they are completely developed before the term starts, with all of the assignments in place. They are not bound by a fifty minute time period three times a week. In a live classroom, student questions, technical malfunctions, or other distractions may prevent course information from being presented. Another characteristic of online courses is that students must take more responsibility for their learning, must take the initiative to enter the online class, and do the assignments rather than passively sit in a classroom and listen to an instructor.

This study showed the online course to have more rigor, or required reading and course work, than the students expected. The course studied provided for a high amount of interaction between students and the course material.

This study also showed that students generally did not miss interaction with the instructor and did not lack feedback from the instructor. The online platform allowed students to receive enough interaction with the instructor, so the need for interaction with the instructor was met. Students did miss interaction with other students and they did experience stress. These two aspects may be overcome by providing more areas for discussion between students, such as a course chat room, where students can post freely about the course topics. Another way the lack of student to student interaction may be alleviated is by offering the course as a hybrid course, one that uses the online interface for 50% of the classes and a face-to-face mode the remainder of the classes.

Despite the rapid growth of online college courses in the past ten years, there are still questions among college administrators and faculty regarding the amount of learning and quality of learning in online courses compared to face-to-face courses. The findings from this study clearly showed that students received more information and learned more than they expected in an online course. The results of this study are encouraging to the practice of teaching art history online

and can be translated to practical value by disseminating the information on student's attitudes toward online learning to art history faculty and administrators.

Additional studies can be done to determine what learning strategies students use during this course. Additional information could be collected on future groups to determine the age of the students, whether the students are art majors, and how much college experience the students have. These factors could play a part in the selection of study strategies.

A follow up study is underway to investigate the question of reviewing materials in the course. The researchers expected online technology to aid in the review of the visual images necessary for the exams, and it was therefore disappointing to find that the students did not review materials online. Methods to aid the review of the visual images would be the next step for improving learning of art through online technology.

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Knowles is an Assistant Professor in Interior Design and the Coordinator of Program Quality Development in the School for Online Learning at Park University. She received her doctorate in Adult and Higher Education from the University of Oklahoma. Knowles also is an educational consultant for continuing education in the professions of architecture, engineering and design.

Kerkman is an Associate Professor in Psychology at Park University. He received his doctorate in Psychology from the University of Kansas. Kerkman has conducted educational program evaluation studies for the U.S. and Mexican governments and conducts research on spatial cognition.