



# Class via Computer

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*Dr. George Kontos*

**“WHAT ARE YOU DOING WITH MATH AND PHYSICS?” THE PROFESSOR OF ENGINEERING HALF-JOKINGLY ASKED GEORGE KONTOS. “WHY DON’T YOU GO INTO COMPUTERS?” KONTOS RESPONDED WITH HIS OWN QUESTION:**

**“COMPUTERS?” IT WAS 1969, YEARS BEFORE LAPTOPS, HIGH-SPEED HOME INTERNET, OR EVEN THE WORLD WIDE WEB ITSELF. “I DECIDED TO GIVE COMPUTERS A TRY BY TAKING A CLASS, AND I FELL IN LOVE WITH THEM,” SAID KONTOS. BUT DR. KONTOS NOT ONLY FELL IN LOVE WITH COMPUTERS — HE ALSO FELL IN LOVE WITH USING THEM TO TEACH. AND TODAY HE RESEARCHES HOW TO BRING THE BEST PRINCIPLES FOR UNDERGRADUATE EDUCATION IN A PHYSICAL CLASSROOM INTO CLASSES THAT MEET ON-LINE.**

Kontos, an assistant professor of business at Bowling Green Community College, Western Kentucky University, grew up in Greece, where he received his BA in mathematics from the University of Athens. From there, he went to the University of Texas at Austin to pursue a graduate degree initially in physics, and then in math. But when Kontos graduated, he left with what was then a relatively new degree: a Masters in computer science.

Although his first love was mathematics, and his next was computers, Kontos always had another love. After teaching for a few years in both Iran and Iraq, he headed back to Texas, to the University of Houston, in order to pursue a doctorate in education with a focus on computers. “I felt like computer science, at least back then, and math were too abstract. I wanted to be closer to the students, to be more in touch with the human element. And so I found that education would be the right choice for me.”

If it has been the right choice for him, it has also been the right choice for his students, for Dr. Kontos is a strong proponent of Arthur Chickering and Zelda Gamson’s prominent study, “Seven Principles for Good Practice in Undergraduate Education.”

## According to Chickering and Gamson, effective undergraduate education...

- 1 Encourages contact between students and faculty
- 2 Develops reciprocity and cooperation among students
- 3 Encourages active learning
- 4 Gives prompt feedback
- 5 Emphasizes time on task
- 6 Communicates high expectations
- 7 Respects diverse talents and ways of learning

"I'm a firm believer in the seven principles (*see above*), and I believe that every teacher should strive to follow them." But there is a problem here. It is not that the principles are either hard to understand or limited in their applicability, for as Kontos points out, "they are common sense and easily transferable to other areas." Neither is the problem a lack of agreement: "We all know that prompt feedback is important. We all agree that students should be able to communicate with the faculty, that there should be a connection." The problem Kontos sees is a lack of application: "Teachers may look at the principles and say, 'Big deal. I know this.' But," he asks, "do you do it?"

A further challenge is the application of the seven principles to on-line classes since the principles were initially intended for the traditional, face-to-face classroom. In fact, according to Dr. Kontos, it is "only recently that they have sparked the interest of teachers and specialists in on-line class teaching environments." But at state and national conferences, Kontos shows educators how to implement these

fundamentals in classes where they do not "see" their students. "For some time, possibly because of technological limitations, application of some of these principles was challenging in an on-line setting. But advances in technology are making it easier. I go out and talk about the seven principles to spread the word, especially to instructors who are new to on-line teaching."

In his research and classes, Kontos pays particular attention to the first and the fourth principles. While all seven are essential, he believes that these two principles are the most significant — and the most challenging — for educators. For instance, a lack of contact between students and faculty has been a frequent complaint in on-line classes. "Sure, you can send a group e-mail to the entire class, but that's not what I mean when I talk about applying the first principle; it's making an actual connection with someone. It's like you're in a classroom and someone raises a hand and you answer his or her specific question — there's a difference between talking to

the whole class and talking to that particular student."

For his own on-line courses, Kontos meets with each of his students at the beginning of the semester. Most of them live within the area, and so he asks them to come to campus for the first class session. But for those who cannot make it, he talks with them over the phone: "It is time consuming, but it is also very helpful." He then ensures that they begin the process of establishing a connection with each other by having their first assignment being to introduce themselves to the entire class via Blackboard. (Blackboard is a widely used Web-based course management system that facilitates on-line teaching and learning.)

Back in the early 1990s, "the only way to communicate was through e-mail, and we had a chat section. But now we have so much more." Various features of Blackboard, such as the ability to include photos and video links, help personalize the technology. "Blackboard provides opportunities for building friendship and community with the students.



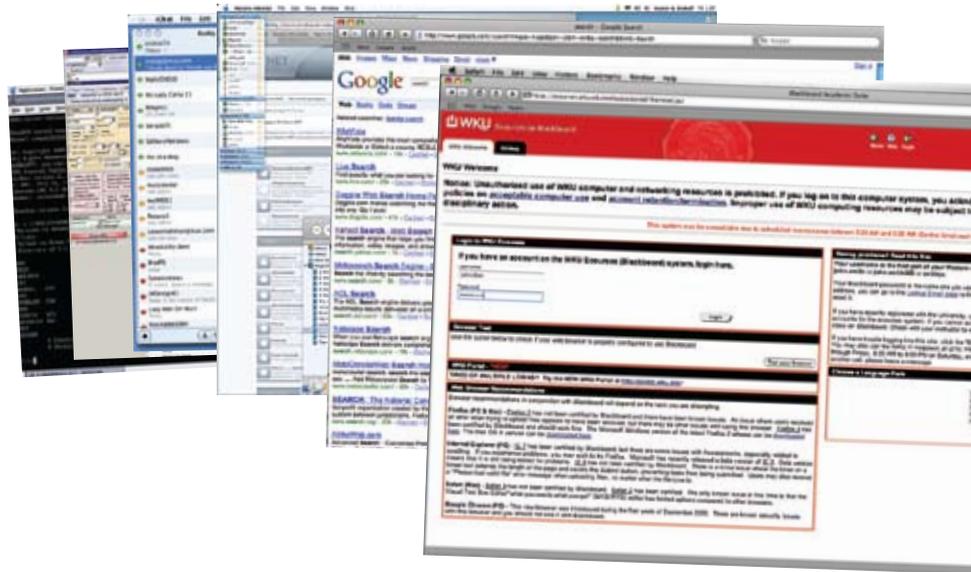
You can see pictures. They can see you, and you can see them. And with every new update, it makes on-line classes easier to handle for teachers and students alike."

While he concentrates on researching and applying all seven, it is the fourth concept — the need to give prompt feedback — that Kontos considers "the most important of the principles." Here again he illustrates how you are what you research. He has been known to surprise students both with the immediacy and the timing of his e-mail responses.

"My computer is on at all times, day and night. If I wake up in the middle of the night, I'll go check. And sometimes my students will say, 'Wow! Don't you ever sleep?'"

Another means to help implement the fourth principle is a simple-to-use tool that Dr. Kontos has been developing for assessing incoming students' computer literacy. This instrument addresses the perennial problem faced by teachers on the first day of class: what do my students know? "You can have them raise their hands in answering a few simple questions, but that may give unreliable results because of peer pressure. Students may not be entirely candid when raising, or not raising, their hands because it is done under the watchful eyes of their peers. Or you can do a pre-test, but you'll have to grade and tabulate it; that's going to be good, but it will be a lot of work. And teachers don't have much time — they need something quick."

To help instructors know how to better customize their courses, Kontos has been promoting the use of his computer survey whose results can be quickly and easily determined with commonly used software. On the first day of class, he asks his CSCI 145 Introduction to Computing students to take the self-assessment test over how well they



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know computer vocabulary, e-mail, search engines, networks, and various types of software. They can grade themselves as well-informed ("I am an expert") or uninformed ("I do not know any of it"). As a result of his students' feedback through the survey, Kontos has been able to stress the areas in which his students believe themselves to be inadequate.

To statewide and national audiences, Kontos speaks about the survey's simplicity, quickness, and its inter-disciplinary potential. "Adapting the tool to evaluate the level of understanding of entering freshmen in any course topic, such as mathematics or English, should be easy."

While continuing his work with the computer literacy survey, Kontos is also studying how to implement the third of the seven principles: "Encourages active learning." Currently, he is researching the impact of having students work

with local communities in designing real web pages. "The students are asked to create a website for a local business. They then research the community, investigate ways to approach companies, and choose the particular business. The students tell the instructor which business' website they will be developing (at no charge, of course), meet with the business to discover their needs, plan, and finally develop the website. At the project's completion, besides evaluating the website, the teacher can contact the businesses and see how it all worked out."

What does the future hold for the on-line classroom? "Ask me what the future of face-to-face classes is," Kontos says with a smile. "I don't see how we did it ten years ago, because the technology just was not there, but now we have so much. Really, though, you don't have to use all that technology; you just need to remember, and practice, those seven principles." ■