

Teaching Matters

Centre for Teaching Excellence

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Do you know what you want your students to know?

Most, if not all, university instructors have instructional objectives for their courses. We all know what we want to cover. But how many of us reflect on our courses from the opposite perspective, from the students' perspective, and ask ourselves

what we want our students to accomplish as a result of our courses? According to some research (Angelo, 2007), many university instructors do not include learning goals in their course designs even though research indicates that formulating such goals leads to greater faculty and student satisfaction (Angelo, 2007) and deeper and more observable learning (Botturi, 2004).

According to Botturi (2004), "A learning goal is the formulation of the expected outcome in terms of acquired knowledge and competencies." In other words, effective goals focus on identifying in observable terms what we want our students to know and to do. The trick here, of course, is the "observable" nature of this learning. It is easy to point to key concepts and simply state that we want students to 'know' or 'understand them'. But how can we justify to our own satisfaction that they know them? One useful technique is to choose verbs carefully when designing learning objectives. Since I often teach Rhetoric, I have to deal with the concept of persuasion. If I simply stated, "On completion of this course, students will understand persuasion," I would not be pro-

viding guidance either to myself or my students. However, the following descriptors would provide more of a compass for all of us.

By the end of the course, students will develop an extended definition of persuasion. They will apply this definition to explain how persuasion works in specific texts such as advertisements or websites.

After reading this descriptor, students would have a better sense of what the course wanted them to know and to do with what they had learned.

Other techniques for developing effective learning goals include focusing on one goal per statement, limiting overall course goals to five to eight per course, and ensuring that goals reflect a progression from easier cognitive tasks to more complex tasks. Bloom's (1956) taxonomy is well known for its recognition that cognitive tasks extend from recall to comprehension (defining), to application, analysis, synthesis and evaluation. A range of verbs exist to express these operations – verbs such as recall, describe, design, revise, illustrate, create, estimate, organize, measure, manage,

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Engaging Students in Physics



For Rohan Jayasundera, the key to good teaching stems from the relationships you build with your students. Rohan, one of two UW recipients of this year's new provincial Leadership in Faculty Teaching (LIFT) award, shared this and other ideas that help to make him an award-winning teacher.

Rohan, who has been teaching Physics at UW for 25 years, sees a variety of students daily. From his first-year course for engineers to his third-year course on digital electronics, Rohan is always working to help his students understand major concepts. In his introductory course, he has three hours of lecture time weekly with 100 students, plus a tutorial. He punctuates his lectures every 15 minutes or so with questions and humour to keep his students engaged. He also learns his students' names so he can call on them when they have questions or if he needs to regain their attention. Each term, he studies student photos that he

receives from Engineering to help him with this daunting task.

Even more interaction happens in the tutorials of 50 students each. Rohan leads the tutorials, and provides extra time to help his students (including Saturday mornings!). He typically only focuses on one carefully designed problem in each tutorial that allows him to assess the students' understanding of the main concepts plus teaches them how to decipher and solve physics problems. His questions help to lead them through the problem-solving process by asking for their input on how to proceed through each step of the solution. His goal is to get at least half of the tutorial group talking so that he can assess how well they are doing.

He also carefully monitors students' assessment results. Students do weekly quizzes, and Rohan makes a point of speaking with students who do not do well on more than one quiz. He requires all students who fail the midterm to meet with him, but he also calls in those who barely pass to meet with him in groups of four or five. His aim is to engage these students on a more personal level and increase their comfort in asking questions that will help them to understand the material. He knows the value of winning their confidence, and sees them noticeably relax as they feel more connected to him as their instructor.

His third-year course of less than 20 students is taught more like a tutorial. Lots of interactive problem-solving occurs in class, where his focus is more on quality of student learning than on quantity of content.

Not only is Rohan a great classroom teacher, but he also models solid teaching development practices. He credits much of his development as a teacher to the five other Distinguished Teacher Award winners in Physics, but he has put in the effort to learn about teaching. Even now he attends others' classes across campus to learn strategies and start discussions about teaching. He also gives back to the department by regularly opening his classes to his colleagues and coordinating the annual teaching retreat in Physics (this December he will bring in Jearl Walker, a renowned Physics pedagogue).

Rohan's overall mantra is that if you expect the students to work hard, you have to work along with them. He embodies this in all of his teaching – from undergraduate students to his colleagues. Congratulations on your LIFT award, Rohan!

CTE also congratulates Gord Stublely from Mechanical & Mechatronics Engineering for his LIFT award. To learn a little about Gord's leadership role in teaching within his department, see Issue 22 of our newsletter, available online. *Donna Ellis*

Instructional Development Grants Available

Instructional Development (ID) Grants of up to \$1,000 are administered through the CTE Office. ID Grants are designed to help instructors improve teaching effectiveness. The next deadline for proposals is **Wednesday, November 7, 2007**. Information and the application form can be obtained from the CTE website at:

http://cte.uwaterloo.ca/grants/ID_grants/index.html

CTE: Leaders in Educational Development

Donna Ellis, CTE's Associate Director, Instructional Development, has been taking significant leadership roles in her profession this year. Donna co-chaired the Educational Developers Caucus winter conference in February with Trevor Holmes, formerly of the University of Guelph and new CTE staff member. This group comprises teaching centre staff, primarily from across Canada, and the conference was attended by more than 100 participants.

In June, Donna yet again co-chaired a major event for her profession, this time at the University of Ottawa. With colleagues Eric Kristensen and Adam Caron,

Donna hosted the week-long International Institute for New Faculty Developers. The Institute is sponsored by the Professional and Organizational Development (POD) Network, a professional association for faculty developers that draws members primarily from the United States and Canada. Again, more than 100 participants from around the world who were relatively new to the profession attended the Institute to learn more about how to operate a teaching centre and how to be an effective faculty developer. CTE staff members Svitlana Tarabangordon, Katherine Lithgow, and Scott Anderson all attended the Institute as well.

Donna is also involved in an international consulting project in Portugal with colleague Alan Kalish from The Ohio State University. Teaching centres are not commonly found on higher education campuses in Europe outside of the United Kingdom, so advice and expertise from our two North American centres was sought.

While these activities have decreased Donna's availability on our campus over the past few months, she is successfully identifying the University of Waterloo and our Centre for Teaching Excellence as a strong leader in educational development in North America and beyond.

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question, and evaluate. To see a more complete inventory, go to the University of Queensland's site at <http://www.tedi.uq.edu.au/downloads/Bloom.pdf>

We all need models to give us ideas for our own courses. Here is an example from an occupational therapy course offered at the University of Queensland (<http://www.tedi.uq.edu.au/teaching/assessment/learningGoals.html>).

On completion of this course students should be able to:

- select, describe and apply a range of assessment approaches for children and adults with neurological, musculoskeletal, developmental and emotional conditions.
- select, justify and design appropriate treatment approaches and activities for children and adults with neurological, musculoskeletal,

developmental and emotional conditions.

- demonstrate clinical problem solving skills related to assessment, interpretation and treatment design.
- demonstrate techniques of assessment and develop treatment programs for children and adults (with supervision).
- use appropriate verbal and written communication skills in clinical settings.

As noted earlier, research indicates that spending time on specific learning goals such as these enhances student and faculty satisfaction. As an added bonus, I find that time spent designing such goals also streamlines my teaching and saves time during the semester.

To learn more about setting learning goals for your courses, consider attending CTE's course design workshop, which is held every term, or making an appoint-

ment with one of our Senior Instructional Developers – Trevor Holmes or Mark Morton. The Teaching Excellence Academy, held each April, also focuses on the development of course learning goals as part of the course redesign process.

References

Angelo, T. (2007). Teaching goals, assessment, academic freedom and learning. Professional and Organizational Development Network in Higher Education. <http://teaching.uchicago.edu/pod/angelogoals.html>

Bloom, B.S. (1956). *Taxonomy of educational objectives*. NY: David McKay Publishers.

Botturi, L. (2004). Visualizing learning goals with the Quail Model. *Australasian Journal of Educational Technology*, 20 (2) 248-273.

Catherine Schryer

“Why Not?” Include Technology in Your Classroom Teaching

During the 50th Anniversary celebrations at UW, we have been asked to think about the spirit of “why not?” (<http://www.anniversary.uwaterloo.ca/>). I want to play with this idea and take it just a bit further. As the Associate Director for Learning and Teaching Technology at CTE, it may be a bit odd for me to be talking about “why not” to use technology in your teaching, but it is a serious question.

Every day, faculty members across campus are thinking about how best to engage their students. You may have heard colleagues talk about introducing a UW-ACE course website or using clickers in their large classes. But, why would they do that? People have been learning for thousands of years without using computers, data projectors, or cell phones. Why should we consider them now? In this article, I give four reasons why you might consider using new technology in your teaching, and my reasoning about “why not” to rush in:

1. “The students demand it.” Of course we should pay attention to learners. In a market economy, “consumers get what consumers want”, right? It is true that UW has many tech-savvy students who are very familiar with using technology from when they get up in the morning (alarm clock on their cell phones), throughout the day (MP3 player on the way to class), and into the evening (Facebook to connect with friends after dinner). But that is not enough of a reason

to add time and cost to your course to introduce new technology. The tech-savvy nature of our students may be the catalyst for considering a new approach to learning, but it is also the rationale to make sure that when you do it, it works well.

2. “It is fun to play with new toys.” Were you one of the first kids in your high school math class to use a graphing calculator? Or, the first parent at the school play with a video camera? As faculty members, we have inquisitive minds, and that includes exploring new tools and ways of doing things. We are charged with staying current in our field, including instructional methods and technologies. And the new technologies can be fun to play with. But, remember, when you ask 150 undergraduate students to play with a new piece of software that has some bugs, you have planted the seed for 150 errors, not just one. It may be fun to explore, but when you introduce a new approach to your students, you want them to spend their time deepening their learning, not debugging the technology (you also don’t want to do tech-support instead of conceptual clarification and mentoring).

3. “My colleague down the hall did it.” In a community of scholars, it is good to know what other people are doing so that you can share experiences and learning in the lab and in the classroom. Yet, adopting a technology to “keep up

with the Joneses” won’t work unless it is a good fit for your students and the learning objectives you have defined for them. You didn’t adopt the same textbook, did you? Why adopt technology without knowing that it will work for what you want your students to learn?

4. “It will reduce the time it takes to prepare for class.” This is the holy grail of technology in education. If we could find a way to allow our students to learn more, faster, and deeper while requiring as much or less preparation and/or marking time, then we would have found the equivalent of the “perpetual motion machine” for education. In the meantime, as scholar-teachers, we continue to strive to find ways to teach efficiently in ways that our students can learn efficiently. Using technology can help you shift your teaching time toward student engagement rather than record keeping, but it takes time to plan and prepare before introducing the technology.

If these are reasons for “why not”, then “why”? Look for an article in the next CTE newsletter for a discussion of ways to successfully include technology in your teaching. And, if you have questions about technologies, resources, or activities that you’d like to try in your class, contact your CTE Liaison (http://cte.uwaterloo.ca/who_we_are/staff.html) to start exploring the possibilities.

Liwana S. Bringelson

New Faculty Welcomed to UW

Once again this Fall, the Centre for Teaching Excellence and the WatPort offices coordinated and offered welcoming events for our newest faculty members.

This year, our faculty members and their spouses attended a barbecue at President Johnston's farm as a kick-off event on September 4th. This informal gathering provided an opportunity for the newest members of our university community to meet one another and create some connections. The Faculty Association of UW (FAUW) co-sponsored this event and Dave DeVidi drew tickets for the lucky door prize

winners!

September 5th saw a fuller roster of activities. The day opened with coffee and welcoming remarks from Bruce Mitchell, then our new faculty members attended two workshops: one on promoting academic integrity and another on managing the successful classroom. Applied Health Sciences Associate Dean Ron McCarville joined CTE's Catherine Schryer, Donna Ellis, and Trevor Holmes in facilitating these workshops.

After a welcoming message from Amit Chakma, lunch with faculty Deans and department Chairs and Directors was held in the Festival Room. Then a panel

presentation and discussion on "Succeeding at UW" was moderated by Geoff McBoyle. Panelists Dave DeVidi, FAUW President, Terry McMahan, Dean of Science, and Susan Tighe, a recently tenured faculty member in Civil Engineering, shared strategies and suggestions with the audience members and responded to their questions.

New faculty members are reminded to watch for notices for Lunch and Learn events. One occurs each term on topics of relevance to new faculty, such as documenting teaching for tenure and promotion.

CTE Welcomes a New Senior Instructional Developer



We are delighted to announce the arrival of our newest colleague at the Centre for Teaching Excellence (CTE). Trevor Holmes has taken on the newly created role of Senior Instructional Developer, Programming.

Trevor has distinguished himself in the field nationally and internationally, most recently co-editing a special issue of the *International Journal for Academic Development*. He brings to Waterloo his

passion for teaching and transformational learning. He tried to leave behind his sense of humour, but rumour has it he may have been unsuccessful. Students and faculty members alike praise his infectious enthusiasm for their learning and his ability to make sense of theory in an engaged and engaging manner. Fundamentally respectful of all roles faculty play and the university's various roles in society, Trevor is keen to find out what animates your own research, teaching and service.

Trevor's route to Senior Instructional Developer began as a TA at York in the 1990s, where he won a university-wide teaching award and was appointed one of the first formal peer developers for his TA colleagues in English. For a year he coordinated an earlier version of Trent University's Instructional Development Centre followed by a half-decade as Educational Development Associate at the Uni-

versity of Guelph, during which he helped to found the national Educational Developers Caucus of the Society for Teaching and Learning in Higher Education. Trevor has also taught courses in Cultural Studies at both Trent and Wilfrid Laurier Universities, and at the same time has published several scholarly essays in the field of gothic studies.

At the CTE, he will be conceptualizing and delivering workshops and other programming for our faculty members across their career span, with an initial focus on new faculty members. He will also take responsibility for teaching awards and continue to raise critical questions about teaching and learning in his scholarly work.

We are looking forward to Trevor's energy and enthusiasm as we work to expand our services to faculty members at Waterloo. Welcome, Trevor!

Celebrating Our Great Teachers



Distinguished Teacher Award winners present at the Learning about Teaching Symposium event, "Celebrating 50 Years of Teaching Excellence," held May 2, 2007

Campus-wide Event on Teaching

Dean of Science, Terry McMahon, welcomes

Dr. Carl Wieman, Director of the Carl Wieman Science Education Initiative at UBC, Director of the Colorado Science Initiative, winner of the Nobel prize in Physics in 2001, and winner of two national teaching awards to present the 2nd Annual Arthur J. Carty Lecture

Science Education in the 21st Century: Using the Tools of Science to Teach Science

New research on how people learn combined with modern information technology is setting the stage for a new teaching approach that can provide relevant and effective science education for today's students. Dr. Wieman will discuss the failures of traditional educational practices, even as used by "very good" teachers, the successes of some new practices and technologies that characterize this new approach to teaching, and how the results are consistent with findings from cognitive science.

Date: Tuesday, September 25, 2007

Time: 7:00 pm – reception to follow

Place: Theatre of the Arts, Modern Languages, 2nd floor

Free admission and open to the public.

For more information, please contact Liz Diebolt at:
ediebolt@uwaterloo.ca

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Teaching Matters is published by the Centre for Teaching Excellence. At the Centre, we provide leadership in the promotion, development, and advancement of excellence in teaching and learning at UW.

Centre for Teaching Excellence

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visit the CTE web site:

http://cte.uwaterloo.ca/who_we_are/staff.html

For faculty members...

Fall 2007 Faculty Events

September	4 (T)	New Faculty Welcoming Barbecue	5:30 - 8:00 p.m.
	5 (W)	New Faculty Welcoming Events: Workshops	9:00 a.m. - 12:15 p.m.
	5 (W)	New Faculty Luncheon and Panel Discussion	12:15 p.m. - 3:15 p.m.
	12 (W)	Open Classroom & Follow-up Discussion	10:30 a.m. - 12:30 p.m.
	20 (Th)	Collaborating Between Faculties – Helping Students Make Connections Using ePortfolios and Concept Maps	3:30 - 4:30 p.m.
October	26 (W)	Understanding the Learner (CUT workshop)	12:30 - 3:30 p.m.
	2 (T)	E-Merging Learning Workshop	11:30 a.m.- 12:30 p.m.
	2 (T)	Teaching Large Classes (CUT workshop)	12:00 - 1:30 p.m.
	3 (W)	Teaching Large Classes (CUT workshop)	12:00 - 1:30 p.m.
	10 (W)	New Faculty Lunch and Learn – Matching Courses to Learner Levels	11:45 a.m. - 1:15 p.m.
	16 (T)	E-Merging Learning: Coaching A, Series 1	11:30 a.m. - 1:00 p.m.
	17 (W)	E-Merging Learning: Coaching A, Series 2	11:30 a.m. - 1:00 p.m.
	18 (Th)	Course Design (CUT workshop)	12:30 - 3:30 p.m.
	30 (T)	E-Merging Learning: Coaching B, Series 1	11:30 a.m. - 1:00 p.m.
	31 (W)	E-Merging Learning: Coaching B, Series 2	11:30 a.m. - 1:00 p.m.
November	1 (Th)	Clickers in the Classroom	3:00 - 4:30 p.m.
	6 (T)	Understanding the Learner (CUT workshop)	9:30 a.m. - 12:30 p.m.
	12 (M)	Open Classroom & Follow-up Discussion	10:30 a.m. - 12:30 p.m.
	14 (W)	Course Evaluation Analysis	12:00 - 1:30 p.m.
	28 (W)	Course Design (CUT workshop)	12:30 - 3:30 p.m.
December	4 (T)	UW-ACE Instructor User Group	10:30 - 11:30 a.m.
	5 (W)	Advanced Course Design (CUT workshop)	10:30 a.m. - 12:30 p.m.
	11 (T)	Teaching in the Canadian Classroom	12:00 - 1:30 p.m.

For details and workshop registration visit:

http://cte.uwaterloo.ca/events_registration/FACULTY_events.html

Learning about Teaching Symposium: Sneak Preview

Mark your calendars! On Tuesday, May 12, 2008, Dr. Marilla Svinicki, Professor and Chair of the Department of Educational Psychology at the University of Texas, will deliver the annual Presidents' Colloquium on Teaching and Learning on the topic of student motivation as learners. In keeping with the tradition set by this year's speaker, Dr. Ken Bain, she will also deliver workshops to faculty members the following day. Dr. Svinicki is the author of *Learning and Motivation in the Postsecondary Classroom* and past Director of the Center for Teaching Effectiveness at the University of Texas at Austin.

Focus on Teaching Opportunities

Any workshop or event can be customized and run as a department-specific Focus on Teaching Event. Please contact Donna Ellis at Ext. 35713 or donnae@admmail to discuss your ideas or get more information.

For graduate students...

Fall 2007 CUT Events

September	17 (M)	Avoiding Plagiarism	1:30 - 3:00 p.m.
	19 (W)	*Research Projects Workshop	10:00 a.m. - 12:00 p.m.
	24 (M)	*Teaching Dossiers	12:30 - 2:30 p.m.
	26 (W)	*Understanding the Learner	12:30 - 3:30 p.m.
October	2 (T)	Teaching Large Classes	12:00 - 1:30 p.m.
	3 (W)	Teaching Large Classes	12:00 - 1:30 p.m.
	18 (Th)	*Course Design	12:30 - 3:30 p.m.
	30 (T)	*Consultation Session: Research Projects	12:00 - 1:30 p.m.
November	1 (Th)	CVs and Cover Letters	12:00 - 1:30 p.m.
	5 (M)	*Consultation Session: Teaching Dossiers	12:00 - 1:30 p.m.
	6 (T)	*Understanding the Learner	9:30 a.m. - 12:30 p.m.
	15 (Th)	*Research Projects Workshop	2:00 p.m. - 4:00 p.m.
	19 (M)	CVs and Cover Letters	12:00 - 1:30 p.m.
	20 (T)	*Teaching Dossiers	9:30 - 11:30 a.m.
	28 (W)	*Course Design	12:30 - 3:30 p.m.
December	5 (W)	Advanced Course Design	10:30 a.m. - 12:30 p.m.
	6 (Th)	*Consultation Session: Research Projects	12:00 - 1:30 p.m.
	11 (T)	Teaching in the Canadian Classroom	12:00 - 1:30 p.m.
	13 (Th)	*Consultation Session: Teaching Dossiers	12:00 - 1:30 p.m.

Events listed with an asterisk (*) are required for the Certificate in University Teaching (CUT), but space for non-CUT participants may be available. CUT participants, please note that all of these workshops partially fulfill CUT requirements for GS 901 and 902.

Required CUT workshops will be offered each term. Check the CUT website for details about which workshops you require.

For details and workshop registration visit:

http://cte.uwaterloo.ca/events_registration/CUT_events.html

TA Developer News

In the fall term, our experienced TA developers, Tricia Stadnyk (Ph.D. candidate, Civil Engineering) and Amanda Clark (Ph.D. candidate, Psychology), will continue to work with graduate students enrolled in the CUT program. Both of them will be facilitating workshops and conducting teaching observations. This is Trish's last term as a TA developer, so we will be announcing a TA developer position to begin in January 2008. Watch for the position announcement in late October!

CUT Enrolment Policies Explained

Graduate students who want to register in the Certificate in University Teaching (CUT) program need to meet with the program coordinator, Svitlana Taraban-Gordon, to discuss their plans. Due to a high demand and a large number of students currently registered in the program, we are able to accept only a small number of students each term (priority is given to Ph.D. students). Please keep in mind that each of the three CUT courses has a 12-month completion time. Therefore, the numbers on Quest may not reflect the number of spaces that are actually available each given term. Interested students should take into account the time left to complete their degrees because the CUT program takes a minimum of 3 terms to complete. All inquiries about registration in the Certificate program should be directed to Svitlana: staraban@admmail.uwaterloo.ca.