



INNOVATION ABSTRACTS

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Teamwork: The Key To Success For Students With Disabilities

There is a tendency to say that students with disabilities can only swim, stretch, and do modified weight training for their physical education. However, at Palomar College these students are encouraged to break out of such confines and are afforded the same opportunities for instruction as students without disabilities. A first effort at this encouragement was an adapted physical education class in snow skiing.

The class, P.E. 27-Beginning Skiing, is not unusual for a Southern California community college; but to offer this course to disabled students, and be responsible for transportation, meals, lodging, equipment, and instruction, presented some unique organizational challenges.

Preliminary organization began in September. We began a fund-raising effort among local service clubs to help defray student expenses. The cost for the five-day trip was estimated at \$250 per student. After donations, the actual cost for each student was \$100. (There were twice as many applicants as could be accommodated.) Those wishing to enroll were advised to take weight training and/or swimming classes to increase their overall strength and stamina. Thus, skiing proved to be a good motivator for participation in other P.E. classes.

Ultimately, 14 students with a variety of disabilities were selected for this trip: quadriplegics, paraplegics, hemiplegics, acquired brain injured, cerebral palsied, visually-impaired (totally blind), autistics, and learning disabled. Four had never seen snow, and one had never been out of San Diego County.

The group left Palomar College in the college van and arrived at Lake Tahoe 12 hours later. The rest of the day was spent unloading gear and settling into a four-bedroom house. Several students, as well as the two instructors, slept on the floor in sleeping bags. There were only two bathrooms and a minimum of hot water. Learning to cooperate and adapt to limitations were priorities.

Early the next morning, the group departed for the Alpine Meadows Handicapped Ski School. First, each student's disability was assessed in order to assign an appropriate individual instructor. After some instruc-

tion, everyone returned to the house for a well-deserved rest. The afternoon was spent socializing, playing in the snow, and preparing dinner. The evening was spent around a warm fire, discussing goals and getting to know each other better.

This general format was repeated for the next two days. Every student learned to ski, whether on a sit-ski, a mono-ski, stand-up skis with triggers, or regular skis. All special equipment provided by the ski school was included in the cost of the lessons. The usual "fun things" associated with a ski trip, such as lunch in the lodge, a visit to the pizza house, dancing, and a giant snowball fight, were included at no extra charge.

At the end of the trip, all students and their parents or spouses were asked to evaluate the experience. Every student boosted self-confidence and achieved a higher level of self-esteem. The class exceeded the highest expectations of the instructors. The motto of the Handicapped Ski School is: "If I can do this, I can do anything." Realizing students could fulfill the spirit of this motto was a great reward for students and instructors alike.

This class would not have been possible without a total team effort within Palomar College and nearby communities. Shortly upon their return, the authors made presentations (which included a videotape of the trip) to the Palomar College Board of Governors, various staff organizations, and local community clubs. The energy and commitment generated to provide this unique class and achieve such a successful outcome has made the entire college community more aware of our disabled student program.

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Test Partners: A Formula For Success

In reading a recent *Innovation Abstracts*, an article entitled "The Algebra Cup" (Volume XII, No. 14), I was a bit overwhelmed by some of the strategies and activities that the author had undertaken in her College Algebra classes. But the idea of the "Partnership Exam" caught my attention. I had been looking for a way to help my students overcome their test/mathematics anxiety and reduce their careless errors on tests.

In the 1990 spring session, I allowed students in my General Education Mathematics classes to take one test in groups of their choosing. The results were mixed. The material for the test was especially difficult, but the test results were better than they had been in previous years. I attributed the improved test performance to the group setting. The students liked the group test, but I had a problem with it. Students who had performed poorly on previous tests chose groups with stronger mathematics students and reaped the benefits. I felt this was unfair to the weak student whose test grade was inflated and the strong student who was being "used" by the weak student. So, I discontinued the process for the balance of the session.

After some thought and discussion with colleagues, I decided to attempt the process again in all of my classes (General Education Mathematics, Intermediate Algebra, and College Algebra) with some modifications. This time students would be *grouped with someone performing at or near the same level*. To make that determination, students took the first two unit tests individually. I then averaged the two test grades and ranked them from highest to lowest (via a computer spreadsheet). Next, guidelines for group testing were outlined with each class: Students would be assigned in pairs or triads with individuals who had performed at the same level on the first two tests. Test partners would take the test together and turn in one set of results; each student in the group would receive the same grade. Participation was voluntary.

From among the students wishing to participate, students were assigned to groups. Groups generally consisted of pairs of students of the same sex. (I thought students might feel more comfortable working with someone of the same sex; however, there were a few groups with both males and females that seemed to work well.) There were also some groups of three students. The triads were formed either because the spread of averages on the first two tests required it or to minimize the impact of a student who had demon-

strated by personality, behavior, or performance that he/she might not be an asset to a group.

No changes were made in the tests except for the grouping of the students. *The results were phenomenal*. In one Intermediate Algebra class, all the students who had "test partners" scored as high or higher than they had on previous tests. This is at a point in the course when test scores generally start falling as the material gets more difficult. The group with the highest previous averages achieved the maximum possible score, an improvement of less than 10 points. However, students in the other groups showed improved test scores ranging from 10 to 40 points. One group of two students who had consistently scored in the 50's on the previous two individualized tests showed the greatest improvement (40 points).

What accounts for these phenomenal results? I think the answer is threefold. First, the test partner format minimizes or eliminates test or mathematics anxiety. Students have a support system if they get nervous or "go blank." Second, the group format reduces the number of careless errors. I suggest that each person in the group work a problem and then compare the results to determine what they all believe is the correct answer. Students comment frequently that they find each other's careless errors. Hopefully, experience with locating the careless errors of a test partner will enable a student to find more of his/her own. Third, the peer pressure of being in a group forces students to study so they can "carry their weight" on the test. A person who does not contribute meaningfully on test day is likely to be abandoned by his/her test partner(s) the next time a test is scheduled.

I feel comfortable with a test partner system in which grouping is based on level of performance—students' test performances are not artificially inflated. Group testing removes the obstacles of anxiety, careless errors, and lack of motivation to learning and successful test performance that many students experience. With these obstacles minimized or eliminated, students can truly perform at their best.

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