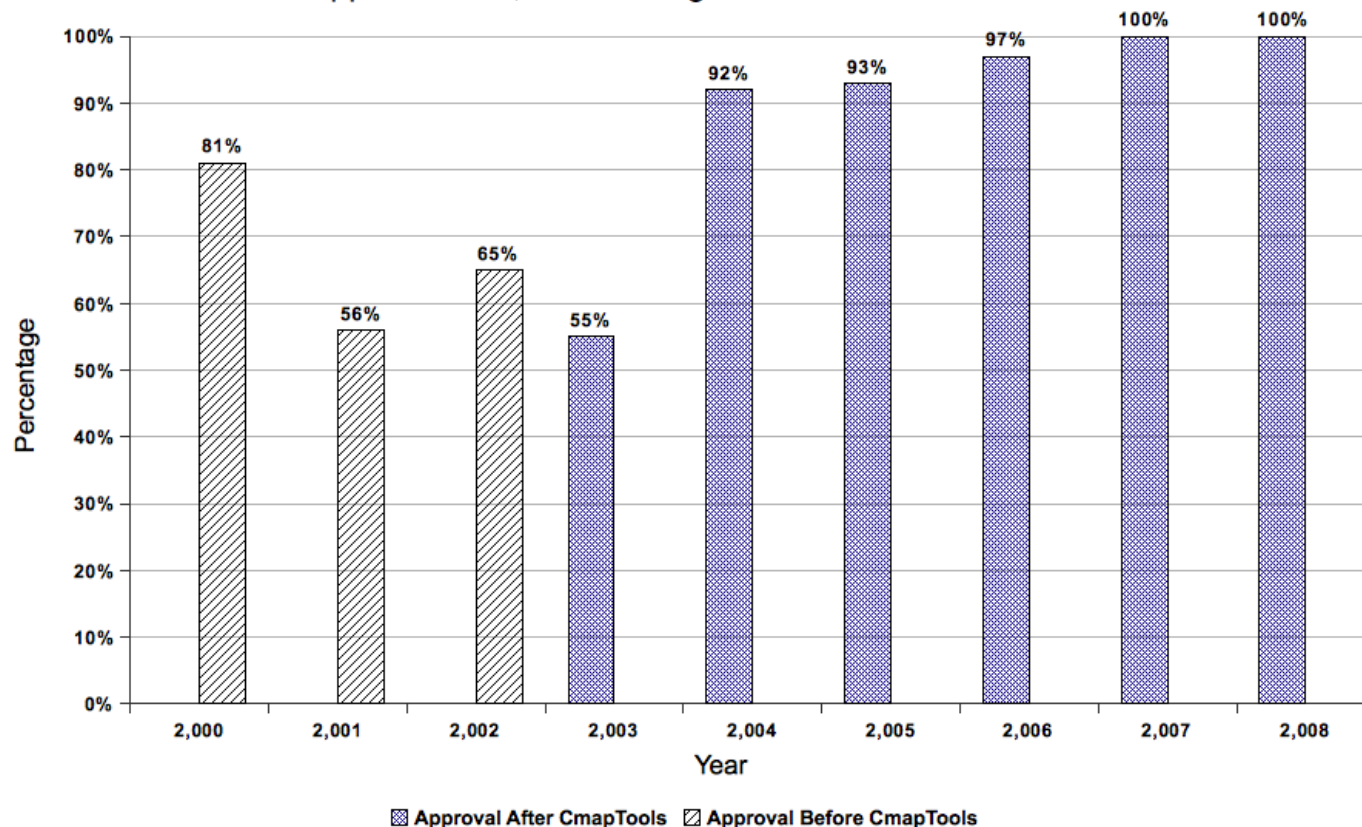


## Instituto Educación Integral (High School), Costa Rica

### Approval Rate, National High School Graduation Exams



### A Sample Case that Illustrates the Possible

In June, 2002, Alberto Cañas and I gave an invited lecture to faculty, students, and visitors at the University of Costa Rica. One of the persons in the audience was a principal of a local school that served students from 4th grade through high school. These students are multicultural, multi-race, and range from brilliant to students who are significantly compromised in learning. Some students chose the school because they were interested in using different learning methods. Otto Silesky's school, Instituto de Educación Integral, is a private school, but it also receives some public support. Silesky had a staff who was willing to try new things, and they had the freedom to proceed. A major innovation introduced was *that all teachers in all subject areas and all grades* agreed to use concept maps and CmapTools in their instruction and assessment, as well as to make changes in their instructional strategies. They discussed at length the difference between rote memorization and truly meaningful learning, and how moving to more meaningful learning would require change in teaching practices. At the same time, they introduced laptops for students to use in the classroom, making it easy for students to build concept maps while in the classroom, and collaborate while doing so. Needless to say, this was not an easy transition for teachers or students, since their instructional methods had been relatively traditional, that is, information was presented by teachers and textbooks and students were expected to memorize this information.

It is not easy to shift from programs that center on memorizing information and tests that mostly required verbatim recall of information to instruction that centers on understanding the subject matter, and finding applications to real world examples to serve as the principal form of assessment. In fact, the first year of the program (2003) was difficult, and this was reflected in the fact that performance on standard National High School Graduation Exams *decreased* from 65% passing the exams in the previous year (2002) to 55% passing in 2003. This is not surprising given all the changes that both teachers and students had to master in going from

old practices to new practices that emphasized meaningful learning. However, both students and teachers reported many positive things that were happening in their classrooms during 2003. Silesky and his staff persisted with their efforts and in subsequent years, the percent passing these exams increased to 92% in 2004, 93% 2005, 97% in 2006, and 100% in 2007 and 2008. The data are summarized in Figure 1.2. The results were so remarkable that staff from the University of Costa Rica came visit to learn more about the instruction being used. What they found were students and teachers who were highly enthusiastic about the new methods they were using to learn. Another positive outcome was that Silesky's school experienced an immense increase in the percentage succeeding for those graduates who took the University admission exams, from zero percent passing entrance exams in 2004 to 75% passing in 2005, 76% passing in 2006, and 75% passing in 2007. In fact, many students who may not have planned on college studies were not only succeeding in university work, but they were spreading the word on the newer methods of learning they had acquired in high school.

Figure 1.2 About here

Admittedly, this is but a single case, and at this writing I am not aware of any other school that has made the changes that were made in Silesky's school. But then, we only needed to land a human being on the moon one time to prove that it can be done! I present this case because it demonstrates a clear case of the promise that exists for highly significant improvement in education. Not only did students improve markedly in performance on National exams, Silesky reported that the most significant thing to him was the very positive effect the new program had on student's self confidence and their pleasure in learning. When we consider that graduation rates in US schools vary with an average of 70% graduating on time, but only some 30% graduating from inner city schools, the results in Silesky's school are impressive. I shall present some other studies that support the validity of ideas in this book and point to the promise I believe is possible in the transformation of education in schools, corporations and other organizations.

There is another message here, and an answer to a question I am frequently asked when I lecture to an audience of educators. Will our students do well on high stakes State achievement tests if we change to the kinds of methods and learning tools you are suggesting? The answer is not simple, since so much depends on where the teachers and students are when we begin the transition, and how willing we are to persist in quality efforts to achieve meaningful learning. It was not until the second year that the staff and students saw payoff when National exams were the criterion of success, but they did succeed, even by this criterion which is not a full measure of what the students really achieved. In Chapter 7 (Figure 7.8), I will show that when the evaluation criteria required novel problem solving, positive effects of greater efforts to achieve meaningful learning result in weeks. There are many issues regarding the kinds of assessment used in schools and corporations, and I discuss some of these in Chapter 9. Other studies have also shown positive effects from use of concept mapping and other meaningful learning strategies, and many of these can be found in Proceedings of the three International Conferences on Concept Mapping (see: <http://cmc.ihmc.us>).