

# the INTERIOR



NOVEMBER 29, 1977

## DEL REGATO USING SOUNDS TO HELP BLIND STUDENTS COUNT

Visually handicapped students use the Braille system to read, but generally they have difficulty counting and learning mathematics because numbers are abstract and the Braille system has limitations as a means to communicate mathematical ideas. Dr. John C. del Regato, Assistant Professor of Education, has changed all that with his Mathematics Acoustical Board (M.A.B.), a small box with buttons emitting sounds similar to a touch-tone telephone.

Del Regato found that for people who have vision, mathematics is largely inseparable from its visual symbolism. He determined that "in our mind's eye, numbers and numerals are one" and decided to find a way to teach blind or visually-limited people mathematics despite its dependency on visual processing of information.

Up to now most blind children have learned numbers and how to count by touching a certain number of objects and learning the number associated with them. However, there is no relationship between the symbol for that number -- which a blind student cannot see anyway -- and the number of objects being felt and counted. The sense of touch -- known as tactile modality -- has been the only vehicle through which blind students could associate the symbol for a number with the actual quantity of objects being counted.

To come up with a faster, less complicated way for these students to associate numbers and arithmetic with a symbol which they could observe without sight, del

Regato decided to try teaching numbers and arithmetic through the use of various sounds. Initially he used a touch-tone telephone to see if blind children could recognize and learn the symbol system associated with numbers. He soon found that although the tones are dual frequency, they were not distinct enough for easy recognition. So he modified the sounds by using tone bars and piano keys and found that this made them more discernable, so students could quickly learn the numbers associated with them and could easily retain and manipulate these symbols.

Through a nine-week study with blind children between ages 4 and 18 who either had poor arithmetic competency or had not yet experienced arithmetic, del Regato learned that his pupils could master the system rapidly. He also learned that since acoustical perception develops earlier than vision, it may be possible to introduce some basic arithmetic concepts to sighted children at a younger age by using his tonal modality system. This may assist them later as they are confronted with symbolic information.

Even some blind learners who also had brain damage in their language centers were able to relate to del Regato's approach. One student who could not read or write and didn't know any numerals or simple arithmetic soon learned how to recognize the tonal numerals and could add 0 or 1 to a number. Children who lacked the motor coordination to learn Braille also seemed to learn arithmetic more rapidly when tonal modality was involved.

Next del Regato developed a second prototype of his tone board, on which the sounds were electronically devised and each numeral had its own unique sound. In this form it became possible for students to use the device themselves. After technical modifications were made and a third prototype developed, he completed a comparative study which demonstrated that students utilizing acoustical mathematics

For Saginaw Valley State College Employees.  
Published by Dept. of Information Services.  
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showed greater mathematical growth and competency than those using Braille.

He and his wife, Diane, also devised a variety of instructional materials to accompany the Mathematics Acoustical Board through which they attempted to personalize the program for each child. Students soon learned how to add and subtract two or three-digit numbers and in general could recognize the sound for each number within approximately one hour's training. Other sounds on the acoustical board are used to denote addition, subtraction, multiplication, division, decimal points, and the equal sign.

Del Regato is continuing to develop his approach. Currently he is seeking funds to try the method with students who have sight but are unable to process visual information. He feels that those with visual perception disorders will probably be able to learn the system as easily as blind children have. For the future, he sees limitless applications of the system for handicapped children and adults.

#### BILINGUAL TEACHER TRAINING PROGRAM EXPANDING

SVSC's Bilingual Bicultural Teacher Training Program is currently providing teachers with the skills needed to teach in a bicultural classroom setting through a federal grant of \$76,297 it received for the 1977-78 school year. The award, following a similar \$75,000 stipend last year, represents the second year of a three-year grant to develop the special teacher training program.

Program director is Adolph J. Ayala, whose staff members include a community liaison officer, a project aide and a secretary. Tuition money for participating students is also provided under terms of the grant. The SVSC teacher training program is designed to develop teaching techniques that will help Spanish-speaking children to function in English and merely use Spanish as the vehicle to get there, said Ayala.

But first the youths must increase their Spanish skills before they can deal with the American culture. "Before a student can cope with someone else's culture, he must be comfortable and happy with his own," Ayala feels.

SVSC is also participating in a second project, called the Mid-Michigan Bilingual Bicultural Program, which is being developed in the Bay City, Buena Vista, and Carrollton school systems. The mid-Michigan program recently received a \$155,000 federal grant and plans are to operate it for five years. That project is expected to compliment programs that have already been started in these districts, as required by Michigan Public Act 294 of 1974 for bilingual bicultural education.

Underlying premise is that non-English speaking school children can learn English by first developing language skills in their own language. Appropriate curricula and educational materials, as well as effective instruments of evaluation that can be used in an urban/rural bilingual bicultural setting like Bay City will be developed through the mid-Michigan program. This is in contrast to most other bilingual programs across the country, which have been directed primarily toward a different type of urban setting. Also to be developed is a program that can be used by cooperating suburban districts like Carrollton and Buena Vista.

About 420 children from the three school districts will be involved in the program beginning in January. Twelve classrooms will be utilized, including three kindergarten and three first grade rooms in the Bay City district plus two each in Buena Vista and one each in Carrollton. Next year the program will expand to include second grade students, with a total projected involvement of about 650 students. The mid-Michigan bilingual program will be headed by a project supervisor who has not yet been hired, as well as two bilingual bicultural resource teachers and two full-time and ten part-time bilingual bicultural teachers aides.

"Because of several traditional teaching techniques in the United States, bilingualism and cultural diversity have often had a limiting effect on children's ability to progress in school. Our goal is to take bilingualism and make it the advantage as it should be, while concentrating on developing English language skills," said Ayala.

A recent study showed that Mexican-American students were as highly motivated at the beginning of kindergarten as other children. By the end of that year, however, their motivation had become significantly lower due to the approach to education used by the classroom teacher.

"Teacher expectations have been the key problem for non-English-speaking children in the past. The teacher normally expects the child to conform to the speech and language patterns of the majority in the classroom but because of his background, he often has difficulty and cannot conform. The mid-Michigan program will attempt to help schools use the child's home culture to his own advantage. The SVSC teacher training program is designed to give classroom teachers the skills needed to do this.

At SVSC, the teachers are being trained to develop new teaching techniques which will make it easy for Spanish-speaking youths to function in an English-speaking society and, at the same time, will allow him to develop and keep his own home culture," Ayala noted.

Traditionally the Spanish-background students have been forced to speak English and this has been done by punishing them when they use Spanish instead. They then had to choose between renouncing their Spanish home background to succeed in school or dropping out. In the past as many as 70% of the Spanish-speaking children have chosen to leave school rather than renounce their heritage.

#### BILINGUAL CONFERENCE HERE SATURDAY

A regional conference for members of parent advisory committees from across

the state is being planned by the State Board of Education for this Saturday, December 3, on campus. Parent members of the advisory committees from this part of the state will be participating in workshops designed to help them become more involved in local bilingual programs.

At the same time they will have the opportunity to examine the growing facilities of the SVSC Bilingual Bicultural Teacher Training Program and the initial plans of the mid-Michigan project mentioned in the article above.

#### NEW VETERANS COORDINATOR NAMED

New Veterans Coordinator for SVSC is Harold "Rusty" Moe. He will serve as liaison between college students and the veterans administration, as well as a public relations specialist and troubleshooter.

He earned an M.A. degree this year from the United Theological Seminary and received his B.A. from SVSC in 1970. He has served as a counselor and teacher of psychology and English, with work experience including St. Joseph, Sts. Peter and Paul, and Buena Vista High Schools. He has also been a co-therapist at Good Samaritan Hospital Mental Health Center, Dayton, Ohio. Moe currently resides at 111 Koerner Court, Midland.

#### FREE BAND CONCERT FRIDAY NOON

A free band concert by the Imlay City High School band at 12 noon this Friday, December 2, in Doan Center will be sponsored by the SVSC Music Department. Everyone is invited to attend, said Tom Root, Director of Bands for the College.

#### FINAL FALL COLLOQUIUM THURSDAY

Instructor of English Mark Greenberg will be speaking on "Influence -- or Influenza?" this Thursday, December 1, at the final fall lunch-colloquium sponsored by the Faculty Association. Lunch begins at noon, with the colloquium following at 12:30 and lasting until 1:30 P.M.

Greenberg's talk will focus upon recent theories of poetic influence and argues for influence as a crucial factor in determining the progress of poetry from the Romantics to the present. According to him, tremendous competitive pressures attend the poet who seeks to be original in his compositions. "Originality" and "traditions" eventually determine one another, but often only as fragments remaining after a terrible clash. Greenberg will concentrate upon the poetic survivors of such a battle and thus should interest not only humanists but historians of science as well. He will then show how late nineteenth century poets placed themselves in a tradition they created for themselves and how they advocated that poetic heritage with uncharacteristic ferocity. All members of the College community are welcomed to attend.

#### WINTER ALL-SPORTS PASSES AVAILABLE

Each full-time SVSC employee is entitled to one winter all-sports pass without cost, and can pick them up in the Business Services Office during regular working hours. Passes cannot be mailed or picked up by anyone other than the user, according to Robert Becker, Director of Business Services. Additional passes are available for \$7.50 each and may be purchased for spouses and dependents of employees.

#### YUN TO SPEAK AT SCIENCE COLLOQUIUM

Featured speaker at Friday's biweekly science colloquium will be Dr. Tom Yun, Associate Professor of Physics. The December 2 session begins with refreshments at 12:30 in Room 217 Wickes and Yun will speak from 1:00-2:00 P.M. His topic will be "Quarks, charmed particles, heavy electrons, gluons, and what's next?: Toward a unified theory of all forces."

#### U OF M DOCTORAL PROGRAM TO BE DISCUSSED HERE

Drs. William Alexander and Jean Carduner, who are developing criteria for a Doctor of Arts in Humanities program to be offered by the Rackham School of Graduate

Studies at the University of Michigan, will be at the Chrysallis Center this Friday, December 2, beginning at 10:30 A.M. to meet with members of the SVSC faculty, staff and administration on their proposed new program. Drs. Alexander and Carduner are interested in talking with small groups or individuals by appointments, which can be arranged by calling the Center at Ext. 385.

Both are seeking suggestions on whether the new U of M program should be interdisciplinary or require concentration in one or two separate disciplines. They are also attempting to ascertain if it should stress human values, focus on humanistic issues related to specific careers that have a humanistic thrust, and what the specific outline of the program should entail. They will also seek input on what, if any, type of core course should be included, whether one academic year of course work plus an internship, experiential year or dissertation should be required, and whether it should be set up so that the program can be completed in several summers. The visit by Drs. Alexander and Carduner is being made possible through contacts developed by Rosalie Troester, a long-time friend of Chrysallis who has been working on a Doctor of Arts in English program in Ann Arbor.

#### ENERGY CONSERVATION PROGRAM COMING DECEMBER 8

Is that cold chill running down your back the result of drafts in your house or because you've just seen this month's heating bill? You'll be able to learn the latest on how much insulation is adequate for your home plus how you can wisely use electricity and natural gas in your homes next Thursday, December 8, at 7 P.M. in the Lower Level of Doan Center,

At that time, James W. Losee, Energy Management Systems Operating and Planning Supervisor for Consumers Power Company's Central Region, will present an interesting and informative slide presentation with tips on how to reduce energy consumption in a variety of ways. All home owners

from the Saginaw Valley area are invited to bring their concerns and questions about energy conserving techniques that can be utilized in their own homes.

Losee's presentation will be the second program sponsored by the SVSC Women's Club in a five-part lecture series for the 1977-78 school year. All lectures are free and informal, with refreshments and ample time for questions included.

#### SVSC MUSICIANS TO GIVE CHRISTMAS CONCERT

A concert by the SVSC concert and chamber choirs as well as college instrumental chamber ensembles will be presented at 8:00 P.M. on Sunday, December 11, at St. Thomas Aquinas Catholic Church, 5376 State Street, Saginaw. The program will include works by Haydn, Mozart, Bach, St. Saens and Berger and will be directed by music faculty members Mary Anderson and Julie Meyer.

#### PUBLIC SAFETY OFFICE RESPONSIBLE FOR LOST, FOUND ITEMS

The Department of Public Safety is now responsible for all lost and found items on campus. If you find any lost items or wish to claim an item you have lost, you should contact their office in Doan Center. The Department of Public Safety is open seven days a week from 8 A.M. to 12 midnight.

#### RESIDENT ASSISTANTS MEETING HERE SATURDAY

More than 250 Resident Assistants (R.A.'s) from all colleges in the state of Michigan and several from Ohio will be on campus this Saturday, December 3, for the group's annual conference. Patrick R. Mattice, Coordinator of Residential Halls, is organizing the meeting, which includes sessions on how student assistants in dormitories can relate the most effectively with their peers for whom they are responsible.

#### CAMPUS NOTES

-- Assistant Professor of Art Matt Zivich has had three works accepted for showing at the 44th Flint Area Exhibition, a yearly competition held by the Flint Institute of Arts at the DeWaters Art Center, Flint. His works accepted for showing include an acrylic painting entitled "Waterloo"; "Unfinished Painting", done in acrylics, oil and collage; and a drawing in black crayon entitled "Figures in a Landscape." The show runs until December 30 and is free to the public.

-- Dr. Brian G. Chow, Associate Professor of Physics, recently appeared on the TV-19 "Day By Day" program. He discussed President Carter's first veto of the Clinch River Breeder Reactor Project and the national nuclear policy.

-- Mrs. Marilyn G. Frahm has been named Staff Assistant at the Center for Placement and Continuing Education, where she will assist in the coordination of cooperative education, placement and continuing education programs. She previously was senior secretary for the Continuing Education and Evening Services Office and has been with the College since 1976.

-- Bridge lessons are continuing every Thursday from 4-6 P.M. in the Lower Level of Doan Center. Because the lessons are individualized, both beginners or experienced players will find them enjoyable. Life bridge master Ed Bartlett will be on hand for many of the sessions. Persons interested in joining the Bridge Club should call Dr. Shiv Arora at Ext. 366 or Dr. Al Busch at Ext. 529.

-- In case you haven't seen him on campus because he's been out visiting so many high schools and colleges, Mark Denay has rejoined the SVSC Admissions staff this fall after completing a leave of absence undertaken to pursue doctoral studies at the University of Michigan.

-- United Airlines is daily flying in fresh, vine-ripened pineapples and selling them for \$1.50 each at Tri-City Airport.

Money from the sale, which will continue until Christmas, goes to retarded children.

-- The Rod Rodgers Dance Company of New York will perform next Tuesday, December 6, at 8:00 P.M. in the Theatre. The group features a mixture of dance styles ranging from jazz and modern to Afro-Haitian dance techniques. Tickets are available from Campus Activities, Ext. 525, for \$2.50 general admission, \$1.00 for SVSC students and \$1.50 for other students.

#### PERSONNEL

ASSISTANT PROFESSOR OF PSYCHOLOGY  
(Anticipated Fall Semester, 1978)

ADMINISTRATIVE SECRETARY - Athletic  
Department. Full-time permanent. \$4.00  
per hour.

TELEPHONE OPERATOR - Part-time permanent.  
\$3.14 per hour.

These positions will be open exclusively to SVSC employees for one week. Persons interested should contact the Personnel Office. SVSC is an equal opportunity employer.