



NOTICIAS de TODOS

News from TODOS Mathematics for All

Fall 2005

Volume 1, Number 2

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The mission of TODOS: Mathematics for ALL is to advocate for an equitable and high quality mathematics education for all students, in particular Latino/Hispanic students, by advancing the professional growth and equity awareness of educators.

Notes from the Field Lena Licón Khisty

I recently received some gratifying news. I begin with a preface, to set the context for why I am elated by this news, and why I think it is significant enough to share with others who are concerned about the achievement of Latinos especially in mathematics.

As a teacher educator and researcher in academe, I often wonder if anything I do related to my teaching, research, writing grant proposals, and especially, my professional development work actually contributes to the schooling of Latino children. Schools are such complex entities; normally, my work, and that of others like me, seems to affect some teachers, and perhaps a few students of those same teachers. The professional development work I do might be a source of some excitement or interest, simply because my presence at the school site brings — something novel, to break the monotony of isolation teachers feel (how well I remember my own tenure as a high school teacher).

Do not misunderstand me. I am proud of my work and I do consider it a genuine contribution. I have received positive feedback in many ways, and my funded project evaluations have always demonstrated results. But these evaluations reflect a narrow view of my work. In a way, they can be thought of as individual performance evaluations (in this case referring to an individual project, as opposed to a person) measured against objectives set by the individual. In spite of the positive results, I still wonder if, in a larger context or from a broader viewpoint, my work in professional development really makes a difference for the teachers I work with, and ultimately, for the children they serve. Do the ideas, practice, and basic assumptions I bring forth in my professional development projects really make a difference, or are they theoretical artifacts to satisfy scholarly requirements of academia? As a Chicana who is committed to resolving schooling issues in our community, these questions are no small matter to me.

Media coverage of Latino student achievement

Now, to turn to for what prompted these notes from the field. Recently, I was given a copy of a newspaper article that appeared on the front page of the Chicago Tribune, August 5, 2004. The headline read: “City’s schools get gold star; 74% improve. Most 3rd and 5th graders now meet State’s math standards.” The article noted that Latino students had made considerable achievement gains across all grades, particularly in their scores in 5th grade reading, writing, and mathematics. The article credited Latinos’ improvement to be a contributing factor to boosting scores among minority students statewide.

(Continued next page)

(Khisty, continued)

Collaborating at two Chicago schools

Chicago has about 600 schools in its district, but ten K-8 schools had the greatest gains in achievement scores. In this short list of ten schools was Whittier Elementary, the school with which I have had a six-year partnership. Also in this list was a second school, Little Village, with which I also have worked for the last three years. You can't imagine the overwhelming sense of joy I felt when I saw this article; that two schools (both 100% Latino) that I have partnered with were among the top ten in all of Chicago to make the greatest academic gains. My immediate reaction was to shout: It worked!

My collaboration with Whittier was through a Comprehensive School grant (LEAP, L. L. Khisty, PI, and M. Malone, Principal of Whittier and Co-PI) funded by the U.S. Department of Education for a five-year (six years total with an extension) project that was completed just this year. The project was to upgrade and reform the curriculum and instruction in only one whole school and was based on the premises that reforms in mathematics and science teaching complemented principles of effective instruction for English language learners; and that the integration of the two areas would provide enhanced opportunities for student improvement especially in the more advanced areas of problem solving, critical thinking, and writing. In essence, the school curriculum was transformed into a maintenance program to develop biliteracy in Spanish and English with reforms in mathematics and science facilitating the maintenance of the home language. The project further was based on the premise that reforms would be sustained through teacher research or inquiry as the primary mode of professional development.

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Subject: TODOS NOTICIAS

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My work with Little Village came about through a second U.S. DoE. grant (for three years) to see if some of the ideas and processes garnered from Whittier's LEAP could work in other contexts to develop leaders in biliterate mathematics teaching with Latinos. This project focused more on strengthening teachers' abilities to teach data analysis, probability, and higher order thinking in mathematics in the lower grades while connecting it to students' talking and writing mathematically. Teacher inquiry was still part of this project work. The newspaper article noted that Little Village's math scores increased twofold or more in 3rd and 5th grade, for example, from 43% passing to 92% passing at 3rd grade on the state test. Furthermore, the article noted that the mathematics curriculum now emphasizes higher order thinking and integrated literacy skills.

Improving Teaching and Learning

I offer these comments not for self-praise but to confirm that our work in schools with teachers can produce significant results. I might not have realized this without this "external" evaluation via state testing results. But these evaluations and measures do not capture the real nature of what was accomplished. Through these years of working with Whittier Elementary and Little Village, I can look back and identify two key factors that contributed most to improvement. The first factor, is that for the first two years of Leap at Whittier, the Principal, Mary Malone, the Project Coordinator, Susan Kolian (a teacher at the school released for this work), and I met every Friday for five to six hours to come to a "common knowledge and common language". Both Mary and Susan are certified in ESL and one is also certified in Bilingual Education. Nevertheless, we spent some of the time ensuring that we all really understood and talked about in the same way the role of the primary language in learning, principles of second language acquisition, the standards of effective pedagogy for Latinos, and the nature of change. We spent a good deal of this time also strategizing how to bring the school faculty together around a common vision of what the school wanted the students to know by the time they left for middle school and a common vision of new pedagogies (including alignment and coherency in the curriculum and teaching). As the project progressed, we had biweekly meetings and we brought other school faculty into the meetings. And through all of this mathematics took a back seat. We could not get to the content until we set in place an appropriate mind set for the school.

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This brings me to the second key factor, which is related to mechanisms for changing habits of mind among the school's faculty and staff. At the heart of all activities at Whittier (and with the teachers at Little Village, too), was the commitment among the project team to create and maximize opportunities for teachers to demonstrate and be recognized for their expertise, to become active in generating wisdom about teaching rather than uncritically absorbing knowledge. Teacher research became the most powerful vehicle for these accomplishments. Teachers came together in study groups where they selected a classroom and presented findings from the data. Often, one or more teachers shared their research with the entire school faculty, and this became the school's staff development activities. In essence, the school developed a "discourse" centered around the posing of questions and supporting of statements through systematically gathered evidence. Eventually, this form of discourse permeated every aspect of school functions. As one teacher at Whittier noted many times: "Data (meaning classroom observations or student work) means freedom. If you have data, then you are grounded and not wobbly. You can try something new (with your teaching) and not be afraid because you will know better why or why not it was effective".

My point is that school improvement worked, not because of mine or some other outsider's influence, but because the Principal in one school and teachers in both schools genuinely co-constructed the projects' activities and processes of change. In reality, I was always merely in the background—where I like to be, and ought to be as a change agent. Not every teacher in the two schools was active in project activities but many were participants. Their story continues to unfold. The teachers ensure that they are part of the decision-making process, in terms of the mathematics curriculum their respective schools adopt. Instead of bringing in someone from the outside, they conduct active learning staff development for their school. They have also presented their work at regional and national conferences, and some are writing papers for publication. Some have received national recognition for their work in teacher research, and have written and received grants to do this work with their colleagues. This is particularly significant, since a majority of the teachers are Latinas/os, and their accomplishments empower them and all of us. The role of grants is to open the door to allow this process to take place.

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President's Corner



Miriam Leiva

Adelante TODOS

By Miriam A. Leiva, President

Adelante means *advance forward*, and that is just what our organization is doing. And we are advancing very rapidly – *muy aprisa*. Since our first formal meeting in 2003 we have accomplished much and we are poised to accomplish much more. In this column I will review our progress for the past 6 months and preview plans for 2005-06.

Duke Energy Foundation Travel Awards:

TODOS members were awarded travel scholarships in 2005 to cover expenses to attend the NCTM and NCSM meetings in Anaheim. Award winners are: Audrey Harding, Arizona; Richard Sgarlotti, Michigan; and Cindy Chapman and Yvette De La Torre Groves from New Mexico. Look for information and application forms for awards to attend the St. Louis 2006 meetings. Thanks to Duke Energy Foundation for ongoing funding of the Travel Awards, and to Shirley Frye, Chair of this program.

McDougal Littell Professional Development

Awards: TODOS received a generous gift from McDougal Littell Publishing Company designated to support members to attend professional development opportunities that address equity in mathematics education. In

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(Leiva, continued)

2006 two teacher-members, Bob McDonald and Stephanie Douglas, received McDougal Littell Awards to attend the National Coalition for Equity in Education Conference directed by Professor Julian Weissglass at the University of CA, Santa Barbara. Thanks to McDougal Littell for funding this program and to its Chair, Jean Shaw.

Gifts from Scholastic: Scholastic has made a significant contribution to our TODOS School, Navajo Elementary School: a grade-specific classroom set of books for *each* teacher of the Marilyn Burns Classroom Math Libraries.

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Atkinson Middle School, the TODOS Middle School, as well as Navajo Elementary, received the software FASTT Math developed by Tom Snyder Productions, a Scholastic Company.

Gifts from Pearson (Prentice Hall and Scott Foresman) and McGraw-Hill (SRA and Wright Group): The 2004-05 TODOS Board meeting was supported by grants from Prentice Hall and Scott Foresman. The Wright Group and SRA of McGraw-Hill funded the 2005-06 meeting. Both meetings were attended by TODOS members and by representatives from the publishing companies to share information and to participate in planning future events.

Prentice Hall also funds our website and Scott Foresman funded the publication of the TODOS Research Bibliography.

Gift from Houghton Mifflin: Our annual reception funded by Houghton Mifflin at the NCTM Annual Meeting is now a tradition for TODOS. It is said to be the best party at the national meetings and we thank Houghton Mifflin for making it possible.

Gifts from CASIO: CASIO is the major supporter of the Iris Carl Memorial Award, which was presented for the first time this year to Iris Carl, posthumously. The retired Houston educator, who died in 2004, was called a "crusader for equity in education" and was a major force in mathematics education reform. Next year, the award will be presented to honor a colleague for his/her contributions to equity and mathematics education. TODOS members will have a chance to submit nominations for this award later this year.

TODOS CASIO Student Recognition Awards: This year marked the first competitive awards program from CASIO to recognize mathematics students in grades 5-8 and 9-12. TODOS members nominated students who wrote detailed essays to questions posed. Completed forms were reviewed by a TODOS committee, chaired by Linda Fulmore and John Carter. Each award winner received a grade appropriate CASIO graphing calculator and an award certificate.

CASIO Award Winners for 2005:

Guadalupe Martinez, 5th grade, Navajo Elementary School, Albuquerque, NM; **Estafania Alba Rodriguez**, Kennett Middle School, Landenberg, PA; **Maria del Carmen López**, Kennett Middle School, Landenberg, PA; **John Justiniano**, Spratley Middle School, Hampton, VA; **Jaime Cruz Ortiz**, Kennett High School, Kennett Square, PA; **Maria C. Bernal**, Kennett High School, Kennett Square, PA; and **Lorena Gabriela Garrido Mullo**, Red Bank High School, Chattanooga, TN.

The 2005 Anaheim National Meetings: Prior to the Anaheim meetings, TODOS members received an information matrix that listed all sessions with an equity focus, as well as those presented by other TODOS members. Once again, we held the annual reception during the NCTM meeting and a Conference-within-a-Conference, in partnership with NCSM which included our annual business meeting.

2006 Conferences and Annual Meeting: We continue our strong partnership with the National Council of Supervisors of Mathematics (NCSM), and have submitted a substantial number of proposals for the Annual Meeting in St. Louis in April, 2006.

At the invitation of NCTM, our speakers for a TODOS-Equity Strand were selected and a program is set for Saturday, April 29 at the St. Louis Meeting. We solicited and reviewed proposals from the membership for this Conference-Within-A-Conference. We also collaborated with the regional meetings Program Committee for TODOS Equity Strands for the 2006 NCTM meetings in Chicago and Phoenix.

Other large state councils are also working with us to design TODOS strands at their meetings, including the California Mathematics Council and the Conference for the Advancement of Mathematics Teaching in Texas.

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Thanks to Jose Franco, Chair of TODOS Programs and to Carol Edwards, Chair of Conferences for your work on these events.

Gift from SERVE and Membership Benefits:

This year, members received the publication, Access and Opportunities to Learn are not Accidents, written by Dr. William F. Tate, IV from Washington University. This document was a gift to TODOS from the Southeast Eisenhower Regional Consortium for Mathematics and Science Education, SERVE, and its Director, Francena D. Cummings.

We look forward to having more of you involved in our many activities, programs, and committees. Write (miriam@todos-math.org) and tell me what areas interest you. Adelante TODOS!

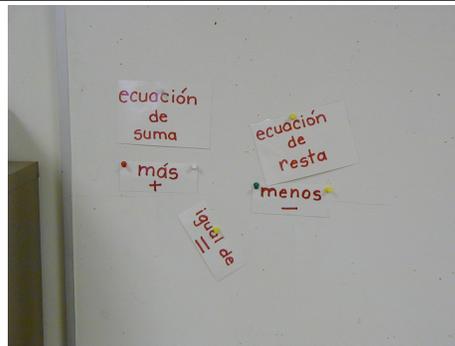
Las matemáticas de los niños migrantes mexicanos

Eduardo Mancera Martínez
Asociación Nacional de Profesores de Matemáticas

Es conocida la problemática que enfrentan los maestros bilingües en los Estados Unidos de Norteamérica cuando trabajan con niños migrantes. Lo que no se sabe es que en México también se trabaja con niños migrantes, pues familias de distintos grupos indígenas viajan a las grandes ciudades del país buscando más oportunidades de empleo y de educación para sus hijos.

En estas familias que abandonan sus lugares de origen, la educación tienen un significado importante, la consideran el medio por el cual sus hijos pueden tener la oportunidad de lograr un mejor futuro. Las familias que se trasladan fuera del país consideran a la educación de la misma forma. En este sentido el interés de los padres por lograr una buena educación en sus hijos es algo que se tiene con seguridad, asunto que en ocasiones no se puede asegurar en otros casos.

Cuando en las escuelas se incorporan los niños migrantes, hay problemas que son conocidos en México. Señalarlos puede ser de utilidad a los maestros de nuestro país vecino. La lengua materna local, es decir, la lengua indígena de la localidad donde vivía la familia, representa el mayor obstáculo con los niños migrantes, en



Displaying mathematics terms in Spanish helps students make connections in Navajo Elementary School a TODOS school in Albuquerque

principio dicha lengua no necesariamente es totalmente idéntica en todos los grupos indígenas con mayor presencia en la región. En efecto, en ocasiones, entre comunidades cercanas no es fácil la comunicación. Lo mismo, aunque tal vez en menor escala, sucede con el español, pues hay una versión de la localidad y otra de la entidad federativa, además de otra oficial, que es la que se enseña en las escuelas.

Dada la tendencia en la enseñanza a partir de libros de texto, las autoridades educativas han publicado libros de textos para los grupos indígenas que se apoyan en grafías del español, tratando de acerca los fonemas a las pronunciaciones y significados indígenas, pero a partir de la lengua indígena “oficial”. Es decir con códigos teóricamente cercanos, pero que encierran dificultades por las diferencias entre las versiones locales y regionales.

Parece evidente que niños que han enfrentado estas problemáticas de comunicación en su lengua materna tienen dificultades para entender los significados y significantes planteados en lenguaje académico en la educación. Esto se agrava en el contexto de la enseñanza del español. Por ejemplo, la clasificación de las figuras geométricas o los nombres de algunos dígitos pueden ser problemas importantes en la comprensión de contenidos matemáticos. Por la forma de hablar, costumbres, rasgos físicos, cabellos desaliñados o el color de piel, los niños migrantes suelen ser señalados y por ello algunos reaccionan con agresividad; otros, suelen ser “transparentes”, nadie les hace caso, algunos maestros no los detectan a lo largo del curso por ser callados y poco participativos. Esto puede ser la principal causa para que a estos niños se les clasifique con discapacidad social.

Algunas formas de trabajo con los niños migrantes implican crear oportunidades donde

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(Mancero Martinez, continued)

ellos les platicuen a los otros alumnos sobre sus costumbres y valores, los cuales generalmente están ligados al cuidado de la naturaleza, lo cual permite al maestro tratar ciertos contenidos sobre valores socialmente importantes, o de biología o ecología.

Otro problema muy ligado al lenguaje, es el uso en las comunidades indígenas de sistemas numéricos con base diferente a 10. Incluso en algunos casos se manejan bases diferentes en la serie numérica, lo cual, sabemos que influye en la comprensión del sistema de numeración decimal y las operaciones aritméticas. Cualquier adulto que maneje el sistema de numeración decimal tiene dificultades serias para comprender sistemas de numeración de otro tipo ¿por qué esto no se toma en cuenta con los niños migrantes?

Varios maestros utilizan la presencia de los niños migrantes en el aula para trabajar aspectos relacionados con las habilidades de conteo y cálculo mental, pues la principal actividad de sus padres, por lo general, se relaciona con el comercio.

En general, la problemática de los niños migrantes se puede atender aprovechando su presencia en el aula, no ignorándolos ni dándoles privilegios por su situación. Ellos constituyen fuente de información desconocida para los niños de otras latitudes y pueden ayudar a entender que las matemáticas pueden tener varias “versiones” y estrategias para abordar problemas. El maestro al aprovechar a los niños migrantes también incorpora valores positivos sobre su presencia en la sociedad y tiene la oportunidad de explorar imaginarios sociales desconocidos a partir de sus creencias y conocimientos sobre la naturaleza, de esta manera se les puede dar un lugar en el proceso de enseñanza y que ellos aprovechen también a las creencias y perspectivas de sus compañeros.

Eduardo Mancera Martínez esta Licenciatura en Física y Matemáticas de la Escuela Superior de Física y Matemáticas del Instituto Politécnico Nacional. Maestría y Doctorado en el Centro de Investigación y Estudios Avanzados del Instituto Politécnico Nacional. Dr. Mancera Martínez esta expresidente de la Asociación Nacional de Profesores de Matemáticas y Vicepresidente del Comité Interamericano de Educación Matemática



Taking a break, with students from Homestead school in Florida. Together with their teacher, Larry Orihuela this group collaborated on the design of our first TODOS membership brochure.

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Creating new visions

The subject of mathematics seems to hover at the periphery of my story. One might wonder, as I do, about why am I not focusing more on talking about the content and less on teacher change, discussing habits of mind, language diversity and practice. My thoughts on this tendency are that before the content can take hold effectively, a lot of clutter, in terms of organizational barriers and power issues, modes of thinking, and ways of interacting have to be reckoned with, or transformed.

Those of us in academia, those of us on the front lines or in the classroom, have to create new visions of partnerships and new discourses for that partnership. I have learned more, I think, than the teachers I was allegedly assigned to "teach", and even though the funding has ended, the collaborations continue. Mary, the Principal at Whittier, who has been remarkable throughout the project, sums it up best: "The last six years have been the most challenging, and therefore, intellectually stimulating of anything I have ever done," she says "It's like a roller coaster ride that is so exhilarating, you just want more."

For more information on the projects, please email llkhisty@uic.edu

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BOOK REVIEW: Mathematics Educators Bullish on Social Justice

Edgar Romero

Rethinking Mathematics: Teaching Social Justice by the Numbers (2005). A *Rethinking Schools* Publication edited by Eric Gutstein and Bob Peterson. Rethinking Schools, Ltd., Milwaukee, WI. \$16.95 www.rethinkingschools.org.

Rethinking Mathematics: Teaching Social Justice by the Numbers is yet another excellent *Rethinking Schools* publication. Bob Peterson, a founding editor of *Rethinking Schools* magazine, co-edited both *Rethinking Globalization* and

Rethinking Columbus. Eric Gutstein teaches mathematics education at the University of Illinois-Chicago, and recently published *Reading and Writing the World with Mathematics* (Routledge, 2005).

A book edited by this duo could never avoid controversy. On June 20, Diane Ravitch, never bullish on social justice herself, gave the book a mauling in a *Wall Street Journal* op-ed piece. Ravitch begins by growling, "It seems our math educators no longer believe in the beauty and power of mathematics." She attacks the 1989 NCTM Standards with a recollection that "these were the days of innocent dumbing down," and goes on to dismiss constructivism as just an excuse for teaching less mathematics. Diane Ravitch's reasons for not wanting you to read this book are just the reasons you should order your own copy today. *Rethinking Mathematics* is full of ideas for infusing mathematics with meaning, so that you can teach *more* mathematics, and to teach it *better* than is traditionally done. These ideas are presented for you to consider and adapt, as a qualified professional, bucking the trend toward the deskilling of teachers and the adoption of teacher-proof curricula.

While the catchy subtitle of *Rethinking Mathematics* lends itself to Ravitch's depiction of the book as substituting politics for the study of mathematics, the editors explain in their Introduction, in effect, that the subtitle could just as well be inverted: The book illustrates ways of teaching mathematics by considering essential mathematical aspects of social issues which students are interested in and understand. The master teachers who have contributed chapters to this book show how meaningful social issues can fit into a rich mathematics curriculum. The first two chapters, "Teaching Math Across the Curriculum," by Bob Peterson, and "Reading the World with Math," by Marilyn Frankenstein, set the tone for a series of concrete lesson plans.

An especially sore point for conservatives like Ravitch is that the editors don't buy into the dogma of value-free mathematics. Discussing his lesson plan on "Sweatshop Accounting," Larry Steele takes this issue head on. "Decisions based on business considerations are often presented as if they are value-neutral," he writes, but insists that "nothing could be further from the truth." The accountant applies subtle, implicit values, but ones with real consequences, and destructive ones, for real people in Third World countries.

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Father and daughter work together at Family Math Night at Atkinson Middle School

(Romero, continued)

As the editors point out, "not every-thing that counts gets counted." This lesson is reinforced in Bill Bigelow's article on "The Transnational Capital Auction," a simulation game he designed to help students understand the role of capital in international finance. This modern-day Monopoly provides revealing insights into the "race to the bottom," in which Third World elites sell their countries out and laugh all the way to the bank. The bank takes its share off the top. No wonder Diane Ravitch wants you to keep your students busy memorizing multiplication tables!

Like the articles just mentioned, and like Gutstein's own "Home Buying While Brown or Black," most of the lesson ideas presented in the book were planned well in advance by teachers. Some of the most interesting articles, however, tell of lessons which emerged spontaneously. Peterson's "Write the Truth: Presidents and Slaves" evolved from student questions about which Presidents had owned slaves. Peterson responded to these questions by directing students to sources of information, and some excellent mathematics lessons resulted. An article by Erin Turner and Beatriz T. Font Strawhun relates the story of a research project on overcrowding in a New York middle school, carried out by students, and emerging from their own concerns.

The spontaneously-generated lessons are especially interesting because of the way they tie in with constructivist theory. An essential feature of constructivist pedagogy is an understanding that learning begins with genuine student interest. A lesson which emerges spontaneously from students themselves, then, is about the best one imaginable. It takes a masterful teacher, however, to pull off such a lesson. Discerning an incipient math lesson in student impulses requires a deep understanding of the mathematics itself. Interactive skills and pedagogical sophistication are essential, as well as flexible planning, the confidence required to give the students their head, and the management skills to keep the whole process moving toward a constructive goal.

There is no fixed recipe for this kind of teaching, but there are things that teachers can do to develop their capacities for it. One key, as the editors indicate in their Introduction, is for teachers to familiarize themselves with the communities in which they teach. Another is for teachers to be aware of the lesson possibilities to be found in this book. *Rethinking Mathematics* can help you to become the kind of teacher who brings out the bear in Diane Ravitch.

Edgar Romero is a Ph.D. student and Center for the Mathematics Education of Latinos/as (CEMELA) Fellow at The University of New Mexico.

Membership Information

Individual Membership Dues are \$25 per year; 3 years for \$70.

Information on school and institutional memberships is available on our website:

www.todos-math.org.

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