

### AN ENTHUSIASTIC VISION FOR THE SECOND DECADE OF THE ICUC

Torres y Torres, Janelle L.<sup>1</sup>; Abraham, José Miguel<sup>2</sup>; Castro-Acuña, Carlos<sup>3</sup>; Azar, Maria Lidia<sup>4</sup>; Branan, Dan<sup>5</sup>; Welter, Paul<sup>6</sup>; Morales Bueno, Patricia<sup>7</sup>; Myers, David R.<sup>8</sup>; Pinto-Cañon, Gabriel<sup>9</sup>; Yatin, Servet M.<sup>10</sup>; Zamfirova, Galina<sup>11</sup>

1.- Department of Chemistry, Missouri Western State University, 4525 Downs Drive, St. Joseph, MO 64507USA, jtorresytorres@missouriwestern.edu, 2.- Fac. de Química, Bioquímica y Farmacia, Universidad Nacional de San Luis, Argentina, 3.- Depto. Físicoquímica, Fac de Química, UNAM, México, icuc\_mexico@yahoo.com.mx, 4.- Fac. de Química, Bioquímica y Farmacia, Universidad Nacional de San Luis, Argentina, 5.- Department of Chemistry, Colorado Community College System ,9101 E. Lowry Blvd. Denver, CO 80230, 6.- Department of Literacy Education Teaching and Learning, Northern Illinois University, DeKalb, IL 60115, pkelter@niu.edu, 7.- Pontificia Universidad Católica de Peru, 8.- Division of Natural Sciences, Bard College at Simon's Rock, 84 Alford Road, Great Barrington, MA 01230, United States, myersd@simons-rock.edu, 9.- ESTII, Universidad Politécnica de Madrid, 10.- Quincy College, 1250 Hancock Street, Quincy, MA 02169, syatin@quincycollege.edu , 11.- Transport University "Todor Kableshkov" Geo Milev st. 158, 1574 Sofia, Bulgaria, gzamfirova@mail.bg

#### Resumen

El ICUC es una organización internacional que se enfoca en la enseñanza de la química en el nivel de ingreso en universidades y que proporciona un medio de intercambio de ideas, experiencias, métodos y propuestas educativas entre profesores de muchos países. Fue establecido en 2003 y actualmente está en busca de nuevos miembros que aporten sus ideas y entusiasmo. La página del ICUC es <http://www.icuc-chemed.org> y entre mucha información útil se pueden encontrar los resúmenes de los trabajos publicados en el Anuario Latinoamericano de Educación Química en los últimos años.

#### Abstract

The ICUC (International Center for First-Year Undergraduate Chemistry Education) is an international organization that focuses attention on entry-level chemistry education and provides information and expertise for educators and other supporters throughout the world (ICUC, 2012). The ICUC was established in 2003, and grew to over 200 members by 2010 (Kelter and Castro-Acuna, 2012). It has provided opportunities for exchange of best practices in the teaching of first-year chemistry through a listserv, a newsletter entitled the *ICUC Quarterly*, a yearly journal published in Universidad Nacional de San Luis, Argentina, named *Anuario Latinoamericano de Educacion Quimica* (ALDEQ) and sponsorship of the ICUC FYI-Chem conferences in 2005 and 2007. Due to a decrease in funding and the evolving needs of the membership, the ICUC Board of Directors has been discussing the best means for retooling the ICUC so that it can remain a vital organization for international chemistry educators and attract new members. Some of the issues faced by the organization, the personal contributions of current and former Board members, and the Board's vision for the future of the organization are presented here.

#### Historical development of ICUC

The ICUC (International Center for First-Year Undergraduate Chemistry Education) was established in 2003 through the vision of Paul Kelter (formerly of the University of Illinois Urbana-Champaign, UIUC, now of Northern Illinois University) and 25 founding members from across the globe. The organization was unique in that it brought together first-year chemistry educators from around the world in an effort to improve the teaching of entry-level chemistry, improve communication among

international practitioners of first-year chemistry education, and provide venues for the presentation and publication of research in chemistry education by its members (Kelter and Castro-Acuna, 2012).

The history and advances of the organization are related in a 2010 publication in the ACS Symposium Series (*ibid.*Kelter and Castro-Acuna, 2012). The organization had early strong financial support, but economic difficulties faced in the United States of America and many other countries led to a sharp decrease in funding for the organization (*ibid.*). The Board tried to creatively use technology to keep the membership together, including the formation of topic-based communities on Ning.com, which were first proposed by Dan Branan (*ibid.*) (Ning, 2012). However, the financial difficulties prevented the direct sponsorship by the ICUC of regular live, face-to-face communication of the members and the opportunity to present scholarly work that the FYI-Chem conferences, held at UIUC (2005) and the University of Colorado-Boulder (2007), had provided earlier (*ibid.*).

Since 2009, the ICUC Board of Directors has been diligently discussing a new direction for the organization in the face of these financial difficulties and decrease in face-to-face communication. The main theme of the discussions has been how to rebuild the membership, how to keep communication going between the members, and how to continue to provide a means for presentation and publication of research in chemical education. Some unique opportunities have arisen since these discussions began that have resulted from the connections built or enhanced by ICUC membership, including the publication of the ACS Symposium Series article in 2010 (*ibid.*Kelter and Castro-Acuna, 2012), and participation in conferences in Mexico, Spain, Chile, Venezuela, and Argentina, and Canada during 2010, 2011 and 2012. These opportunities have made it very clear that the organization's strength at this time is in its international membership. The ICUC's membership has included educators from Israel, South Africa, Peru, Argentina, Morocco, Spain, Mexico, Chile, Scotland, China, Bulgaria, Italia, Venezuela, the United States of America (USA) , and more. As related by current Board member David Myers in his narrative below, it is a high priority of the Board to have a Chair from outside the USAnited States of America.

The following narratives, contributed by present and past Board members of the ICUC, give some insight, in their own words, into the challenges faced by the ICUC, the strong reasons the members have for their participation and their vision for the future.

**1) David R. Myers, current ICUC Board member:**

I joined the International Center for Undergraduate Chemistry (ICUC) shortly after the first FYI—Chemistry Conference at the University of Illinois—Urbana/Champaign, at which conference I met Paul Kelter, one of the founding members of the ICUC. (I learned later that another colleague—Frank Torre, with whom I serve on the Executive Board of our local ACS, was another one of the founding members.) A call had gone out for submissions to this first FYI—Chemistry conference; being interested in improving my skills in chemical education and anxious to disseminate some of my work, I applied, was accepted and attended. Here I also met other colleagues, such as Patty Dooley, formerly of USMA, now of Bard College at Simon's Rock. Through the organization, I have continued to meet and expand the circle of my colleagues interested in chemical education across international borders.

Why did I join? My interests (and therefore my impetus for joining) lie in improving the state of chemical education across all years but (at the time) particularly the first year. My logic here is old and oft repeated: if we can excite the students in the first year, we have a better chance to keep them in chemistry for successive years. In addition, I was seeking colleagues in chemistry and chemical education. At my institution, I was essentially a 'sole-practitioner'. I had a two-thirds time colleague with whom chemistry conversations were difficult; he had a new career direction developing which was taking much of his energy and attention.

Why did I run for election to the ICUC Board? For many of the same reasons that I joined the ICUC: to further the purposes of the ICUC and to keep the energy invested by Paul and the other founders going, as well as to continue to learn more about chemical education around the world. As I have worked with the current board, I have deepened my commitment to keeping the organization going, relevant and international. The ICUC had its origins in the USA (not to diminish the very important roles of Gabriel Pinto and Jose Miguel Abraham) and now with the chairmanship of Carlos Castro-Acuna (UNAM), the goal of an international organization is coming into fruition.

How has it helped me in my career? Other than permitting me to meet other interesting and wonderful colleagues in chemical education, it has also provided a venue in which to present my work in first-year chemistry education. At FYI—Chemistry 2005 (UIUC), I spoke about “Introductory Chemistry Laboratories on an Austere Budget: A Curriculum Which Works!” which was well-received by the audience; several asked me to send my laboratory curriculum and supplies list. At FYI—Chemistry 2007 (U. Colorado—Boulder), Michael Ducey and I presented on “Introducing Students to Computational Chemical Structure in First Semester General Chemistry” which was also well-received and has formed the basis for a submission to the *Journal of Chemical Education* (in preparation).

Finally: what is my vision for the future of the ICUC? With the election a few years back of Carlos Castro-Acuna (UNAM) as the chair of the Executive Board, the ICUC became clearly International. The chairmanship of the board should continue to embrace the international nature of the organization, moving around the globe to our other members; the United States should take its turn also but (and I feel quite strongly about this), the United States should not get an unequal role in chairing the organization. The “I” in ICUC is for international and it should remain as such.

## **2) Carlos M. Castro-Acuna, current Chair of the ICUC Board of Directors:**

My enthusiasm for the ICUC: To have an organization such as the ICUC represents, for me, a great treasure: that of personal contact with professors from other countries and regions who share with me the love for teaching chemistry, even though we may be in very different places and environments. Some of us have more economic funding but less liberty to teach, but it also amazes me what great things are achieved with very little funding. Without a doubt, the ICUC is very valuable in the way that we as members give our time to share our ideas. It is incredible how much we can teach each other and learn from each other. It is for the same reason I am so passionate about the International Chemistry Olympiad. This competition gives Mexican students and teachers/professors an opportunity to meet others from many countries and exchange ideas and discover that we speak a common language: the language of chemistry. Through contact over various days with each other, we have the opportunity to share ideas with people/professors from other countries who are very different from one another in their customs, religions, and cuisine, but very much alike in their desire to teach chemistry. It is for this reason that I accepted the Chair position of the ICUC board. We don't need to have large conferences or meetings, because every time two members of the ICUC meet with one another, talk to one another, and exchange ideas, the ICUC is alive. I have proof of this based in very productive joint activities with members from Venezuela (Amalia Torrealba), Peru (Patricia Morales), Argentina (Jose Miguel Abraham, Maria Lidia Azar) and Spain (Gabriel Pinto Canon). We now have few members, but what is important is that we are achieving a common objective: to improve the teaching of chemistry. I invite our readers to join ICUC and give us the opportunity to know new and better ways to keep Chemistry as the central science.

## **3) Janelle Torres y Torres, current Board member:**

I joined the ICUC in the summer of 2004, when I met Paul Kelter at the Biennial Conference on Chemical Education in Ames, IA. His enthusiasm and vision for the organization was contagious. I was a chemistry instructor at a small community college in Muscatine, IA, USA, where I was the only full-time chemistry instructor. The ICUC gave me an instant forum to discuss my ideas and find community

in the international world of chemical education. I enjoyed receiving the updates through the listserv of who was joining the group, which arrived on almost a daily basis, during my early years of membership in the organization. Another benefit was the availability of an award for first-year chemistry students, which gave students of high ability, recognition for their efforts and connected them to an international community of scholars.

It is this benefit of connection to an international community of other practitioners of first-year chemistry education that has really served me personally and professionally. I was elated to be elected to the ICUC Board of Directors in 2006, and again in 2010. Shortly after my election in 2006, I met with two members of the Board at the University of Illinois Urbana-Champaign (UIUC). One of the main results of our discussion was a proposal to divide up the duties of the ICUC amongst the Board members so that we would each be responsible for maintaining our portion of the organization. This proposal did not come to fruition as we were very busy planning the FYI-Chem 2007 conference and, later, a conference that was to be held in Mexico City in January 2009. It is my opinion that our dedication to the very time-consuming activities of planning for the conferences began to disconnect the organization from its basic activities of maintaining communication between members through the listserv and publishing the *ICUC Quarterly* newsletter.

Even in the face of these and some continued difficulties, my membership in the ICUC still remains an absolute blessing to me both in my personal and my professional life. Even if we are now a small community, we have a high regard for the contributions from all members, whether they are new in their career, still in school, or are highly respected professionals with many years of service. My presentation and participation at the FYI-2007 conference in Boulder, CO brought some unanticipated benefits, and it was through the ICUC listserv that I first learned of the opening of my current position at Missouri Western State University. My exchanges and conversations with members of the ICUC Board and with other members have led me to think more creatively and confidently, with the knowledge that there is always someone who supports me who can provide honest, informed feedback and even friendship. I am truly excited about the possibilities that ICUC has for its future and I am earnestly awaiting meeting new members from around the world from whom I can learn and possibly develop new partnerships.

#### **4) Galina Zamfirova, current Board member:**

I teach General Chemistry of about 20 years in the Transport University in Sofia, Bulgaria. I understood about the organization ICUC before about 5 years from Gabriel Pinto and eagerly I joined as a member. I was very pleasantly surprised by the friendly relation of the then Chair of the ICUC Board of Directors, and later of the other board members. In 2011, in my visit to Madrid, I met personally Gabriel Pinto, with whom we discussed the problems of teaching chemistry of our students. Unfortunately, the economic crisis has a negative impact not only on the financing of education but also on reduced motivation of students and sometimes even teachers. I strongly hope that the exchange of experience and ideas within ICUC will extricate us from the current apathy and we will be able to show and give to our students the love for this unique, logical and magical subject.

#### **5) Servet M. Yatin, current Board member:**

I attended the first FYI—Chemistry Conference at the University of Illinois—Urbana/Champaign. My reason for attending was to benefit from the experiences of peers who are teaching first year chemistry at community colleges and to learn from peers who teach at large universities on their expectations of community college transfer students. Even though I am in Boston area where every street has a college or university, I was feeling detached from rest of the universe at Quincy College (QC), where I was the only chemistry professor. I met Paul Kelter, one of the founding members of the ICUC at the meeting. I was so impressed with his energy and drive to create a welcoming

culture; I become a member while at the meeting. He relentlessly connected people while giving specific hints on how people can utilize each other's knowledge and experience. I met amazing people from all over the world and learned a lot on the high school chemistry curriculum of different countries. This was very critical for me as Quincy College has students from 60+ countries. I want to serve every single one of my students well and form bridges between QC and four-year universities for my students. ICUC helped and still is helping!

The ICUC's award for Excellence in First-Year Undergraduate Chemistry for achieving students has been another benefit I gained from ICUC. The Excellence in Chemistry award gives my students visibility and equips them to compete when they apply to transfer to a four-year college. It means a lot!

It was very clear from my first exposure that this organization met its mission to help its members every possible way. An affirmation that the organization cares for its members came after the news disseminated through the listserv in December 2007 of a devastating fire that destroyed the chemistry department of a university in Chile. The ICUC membership responded with a book drive to help the ICUC member at the university, his colleagues, and their students. The organization became "one" overnight to mobilize books to help.

The benefits for the organization for me are many and the ultimate source for those benefits is the wonderful membership. For example, when I was planning my first online chemistry course for Spring of 2008 I asked the ICUC members for help. The response was absolutely amazing. For example, one member offered his years of online experience and shared his syllabi. Thanks to him and others, my experience was wonderful. The time and trouble saved is priceless!

When they have requested, I have offered my help to several members on student learning style identification, targeted teaching, using and teaching concept maps, using analogies in teaching, textbook choices and reviews, syllabus designs, student transfers and more. I have met several members and enjoyed social activities during my visits of other states and countries and welcomed them in Boston. I have also discussed the development of educational products, formation of a review board, received assistance for my business team, and exchanged emails on books with various ICUC members.

The internationally visionary, caring, and responsible membership was my drive to run for ICUC Board and serve as a board member. My vision is keeping the fire started by founding members alive until the economic difficulties are over and then make it stronger. The warmth of this fire should be felt by every first year chemistry teacher, from here to infinity and beyond!

**6) Jose Miguel Abraham, Argentina, one of the founding Board members and Maria Lidia Azar, Argentina, current Board member:**

The ICUC is an organization of great importance to us: it gives us a marvelous stage for the exchange of ideas, activities, programs, and projects linked to the teaching of chemistry and to investigations in the field of chemical education. It is also valuable because it provides the opportunity to meet other educators and discuss unique aspects of the projects, including the purpose, content, methodology, strategy, and evaluation systems used. These discussions have been resulted in or occurred through publications and presentations that have been realized through the ICUC from its foundation until the present time. Some of these professional meetings have included the FYI-2005 conference at the University of Illinois in Urbana-Champaign, Illinois, the FYI-2007 conference at the University of Colorado-Boulder, and the Reunion ICUC-PIEQ XV-2006, UNSL, San Luis, Argentina, among others. In addition, the ICUC promotes the presentations of its members in numerous events that occur throughout the United States of America, Europe, and Argentina, among others. First and foremost, the ICUC and its members have demonstrated of the highest quality of positive and constructive dialog between themselves. For us, this high quality of conduct and the spirit of solidarity and cooperation we

have observed among the members are as valuable as our scientific investigation in chemistry education and the environment.

In agreement with the statement above, and with Jose Miguel Abraham having had the honor of serving as one of the founding board members of the ICUC from 2003-2007, and now with Professor Azar having the opportunity of serving as one of the current ICUC board members of this marvelous organization, we are completely committed to the purposes of the ICUC. The ICUC has had such a positive impact on our careers that every day we find ourselves more deeply committed to the organization, because it has provided a very valuable means of personal and professional growth.

Thank you very much, ICUC, and let's move forward with great enthusiasm!

**7) Patricia Morales Bueno, current Board member:**

I agree with the main purpose of the group as I think ICUC is the common axis of all its members. As an international member of ICUC and also a board member in last years, I have the expectation that the group becomes an opportunity to know and share experiences and opinions about chemistry education in an international context. So it is important to provide alternatives to strengthen inclusion of all international contributions within the group. It is important to work on a common basis but at the same time it is important to recognize the cultural, contextual, organizational, time, etc. differences between group members, since the contribution that each can provide from their own experience is exactly what enriches an international association like this.

**Conclusions**

So, how have we, specifically, decided to move ahead in a way that meets the needs of current members and will, hopefully, attract new members to ICUC the organization? We are in agreement that a means for exchanging ideas and providing a sense of an international community of support for first-year chemistry educators and beyond must be a central focus of the organization. As a first priority, we have relaunched the ICUC website at <http://www.icuc-chemed.org> (ICUC, 2012) with the assistance of Dan Branam, current ICUC Board member. The website will be the primary focal point for the organization, where the bylaws, membership list with emails, links to ALDEQ abstracts and submission information, links to the LinkedIn home page, where the ICUC group page can be accessed (soon to be prepared at [www.linkedin.com](http://www.linkedin.com)), links to professional meetings of interest to the membership throughout the world, links to job postings of interest to the membership, mission statements, a general history of the organization, and more will be housed in several languages. In our effort to bring each of these and more to fruition, we first need to communicate to our current and potential members the goals and current mission of the organization. We plan to do this by email through a listserv of the membership that relates our plans and gives them an opportunity to contribute their response. Through the listserv, which will be open to posts by the membership, and communication through an ICUC group in LinkedIn (<http://www.linkedin.com>, (LinkedIn, 2012)), a means for creating community will be achieved. As was done in the past, new members will be able to post their professional background, their reason for joining, and their ideas for improving the organization. We are also planning to reinstate the ICUC's quarterly newsletter, the *ICUC Quarterly*. We will continue our current focus of having short meetings of members at established chemical education and related conferences, conferences and as the organization again gains strength and possibly a financial basis for support, we could hold ICUC-sponsored symposia at these meetings, local and regional meetings, and videoconferences. It is our hope that with dedicated and energetic new members, a truly international focus to the organization, organization and with creative usage of technology, the ICUC will once again flourish in a very different environment from the one in which it was begun.

We welcome new members to the organization. If you are interested in joining the ICUC, please visit our website and contact Dr. Carlos M. Castro-Acuña ([icuc\\_mexico@yahoo.com.mx](mailto:icuc_mexico@yahoo.com.mx)) for more information. Together we will continue to build the ICUC into an organization that meets the needs of its members in 2012 and for many years to come.

#### **Bibliographic References**

- ICUC Website: <http://www.icuc-chemed.org>. Accessed August 26, 2012.
- Castro-Acuña, C.M. and Kelter, P. "The ICUC and the Benefits of an International Chemistry Education Organization," in "Chemistry as a Second Language: Chemical Education in a Globalized Society," Flener Lovitt, C. and Kelter, P. co-editors, ACS Books, Washington, D.C. (2010); ISBN13: 9780841225909.
- The Ning Networking Site. <http://www.ning.com>. Ning, Inc. 2012. Accessed August 26, 2012.
- The LinkedIn Networking Site. <http://www.linkedin.com>. The LinkedIn Corporation 2012. Accessed August 26, 2012.