

International Research and Education Collaboration and the Game of Baseball Have Much in Common

Craig Capria¹, Imin Kao²

¹Nassau Community College, ²Stony Brook University, USA

Craig.Capria@ncc.edu¹, imin.kao@stonybrook.edu²,

Abstract

For many years, professional baseball organizations throughout the world have been developing relationships with other nations in order to deliver a new brand of baseball to their fans. An exchange of players and coaches between nations has cultivated a unique style of play that has made a great game even better. For instance, in the 1970s, collaborations between Japanese baseball interests who emphasized fundamentals and team oriented play, and their American counterparts who emphasized speed and power, has been mutually beneficial in improving the game of baseball in both nations. The popularity of the game of baseball has continued to grow since the 1970s, and today enjoys a wider audience than it has at any point in its past.

We see the same trends in higher education today. While international collaboration has always been an intrinsic part of the scholarly endeavor, the forces of globalization are accelerating the scope, pace and importance of international research. International collaboration is also indispensable for bringing together teams of researchers from unique cultural backgrounds, and with unique perspectives and approaches to problem solving, to bear on key national and global issues. The pooling of resources and expertise on an international scale is increasingly required for researchers to adequately address the vast, complex and interconnected global issues that face us all.

The connection between international collaboration and the game of baseball is realized if we think of a baseball field with each base representing progressive steps toward the goal of continuing international research collaboration between institutions of higher learning. The extent of the relationship between these two seemingly disparate entities, and the unique experiences of the authors in collaborative international research efforts, will be the focus of this paper. We will also discuss the challenges and benefits of such international education and research collaboration.

Introduction

The history of baseball in the United States can be traced to the 18th century, when amateurs played a baseball-like game by their own informal rules using improvised equipment. The popularity of the sport inspired the semi and fully professional baseball clubs in the 1860s. By the following decade, American newspapers were referring to baseball as the “National Pastime” or the “National Game.”

Of course, the rules of the game in the mid 18th century were quite different from the rules by which the game is played today. For instance, one of the ways of eliminating a player from the game was to knock him out by throwing the baseball at his head – hence our modern use of the term “yer out!”

Another way in which the game has changed for the better is through the infusion of international talent and skills. As of Opening Day 2008, over 45% of players in Major League Baseball organizations were born outside of the 50 United States. As there are now over 100 National Baseball Federations around the world, foreign-born players are not just coming from traditional international hotspots like the Dominican Republic or Venezuela. There are currently players from 33 countries playing in the Major and Minor Leagues, including places like Argentina, Australia, Brazil, Taiwan, Germany, Italy, Japan, Korea, the Netherlands, New Zealand and South Africa. To the avid baseball fan, then, it comes as no surprise that the quintessentially American game of baseball has a vibrant and thriving tradition outside of our country’s borders.

Fig. 1. The researcher's baseball diamond [8], illustrating different steps in international collaboration in successive bases such as those in a baseball game.



Solutions to today's key national and global issues require teams of researchers from unique cultural backgrounds, and with unique perspectives and approaches to problem solving. Consequently, academic research, and education as a whole, is evolving from a local institution to a global one, much as the game of baseball has done. The forces of globalization are accelerating the scope, pace, and importance of international research and collaboration [8]. And these forces are dramatically changing the "rules of the game," and the way in which universities operate, much in the same way that globalization of baseball has dramatically changed the way major league teams operate.

In the following sections, we will discuss the current trends that are fueling academic globalization and the growth of international collaboration in education and research. We will then show how similar forces drove the game of major league baseball to expand beyond its North American borders. Finally, we will discuss how an individual researcher can benefit from international collaborative efforts [5,6,7], and how the professional development of a researcher can be charted in baseball terms (see Fig. 1).

Current Trends

Academic globalization is being driven several trends, which include:

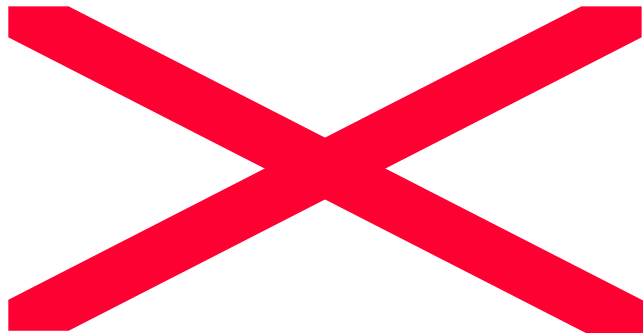
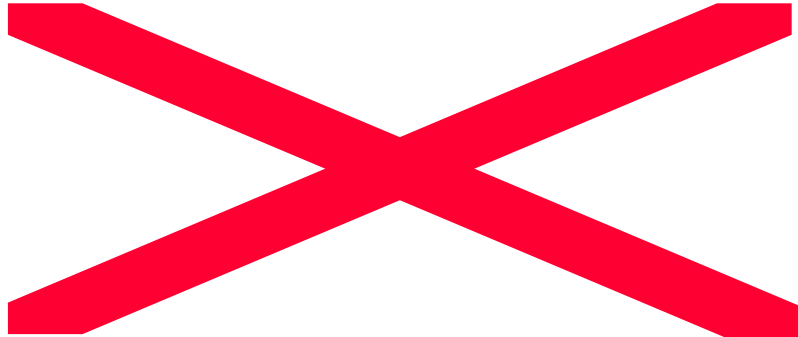
- The Internet
- Increased competition among universities
- Cooperation among universities
- New sources of funding

The Internet

Historically, no sport (and perhaps no other business) in the USA has been as resistant to change as Major League Baseball. New revenues used to simply mean new customers; creativity was lacking, to say the least. Several times, baseball owners did little to promote the game baseball because of a lack of foresight, banning local radio and television broadcasts in the early days of those mediums.

All of this has changed in the last 15 years as Major League Baseball has moved to embrace the Internet as a promotion tool for the game. Aside from each team having its own website, the development of MLB advanced media, mlb.tv, and Mosaic, allows fans to watch live games and download archived ones. Additionally, such resources have allowed MLB to expand its fan base and player recruiting efforts to global markets in Asia, Europe, South America, and Africa [3]. Thus, the Internet has played a part in the influx of global talent to North America, and a unique style of play never before seen in the major leagues.

Fig. 2. The growth in PC and Internet users [4].



Likewise, the impact of the Internet on higher education has been profound (see Fig. 2), with the net result being easier access to information, easier administrative cooperation for conferences, journals, and professional societies, and distance education [4]. The implications for research are no less profound – collaboration with scholars anywhere in the world can now be done as easily as with one’s colleagues at the same university [1,2].

Increased Competition

Since the 1970s, increasing competition for young athletes in other professional sports, such as gridiron football and basketball, has decreased the number available to play baseball. The popularity of football (soccer) in the suburbs, the unsuitability of baseball to the inner city (because of the need for large fields), and fewer collegiate scholarships being offered in baseball in comparison with gridiron football and basketball also served to make the game less at-

tractive to young men in the United States. These facts, coupled with recent rounds of expansion further depleting the domestic talent pool, has forced MLB to look outside the borders of the USA to fill the talent gap and maintain the sport's competitiveness

Increased overseas scouting and recruiting efforts by the various major league teams has led to a demographic shift in the composition of major league rosters. While Latin America is the most significant hotbed in the explosion of international talent, the Asia-Pacific rim is becoming increasingly important as well [3].

In a similar fashion, increased competition among universities has contributed to a growth in international collaboration. The sources of competition include an increase in the number of private universities, distance education courses and degrees, increasing numbers of Western university campuses overseas, and corporate universities. Coupled with a gradual decline in the number of American born doctoral candidates, American universities have increasingly turned to the recruiting of foreign faculty and students. These foreign-born faculty and students, who bring with them a unique perspective and approach to problem solving, are then able to exchange ideas with their new colleagues and fellow students alike. This exchange of ideas fosters collaborative efforts between the domestic and foreign-born faculty, and potentially, cooperation between universities as well in the form of joint projects and faculty exchange. The success of such collaborations can be self sustaining.

Cooperation among Universities

As well as undertaking a wide range of development initiatives in the United States, Major League Baseball is active in growing the game around the world through the activities of its international division. Through a series of development programs targeting players, coaches and baseball organizations and initiatives that introduce the game to kids, Major League Baseball International is active in supporting the growth of baseball in more than 60 countries. Today, there are organized national baseball federations in more than 100 different countries.

Furthermore, through its "Envoy" program, MLB sends experienced professional, college and high school baseball coaches on four-to-eight-week-long instructional assignments to needful baseball federations and organizations around the world, and invites foreign players to participate in training at academies in the U.S.

The field of higher education in recent years has been marked by active efforts on the part of American and European academic institutions to open overseas branches in Asia, and to develop international exchange programs. The recent Korea's Incheon International Free Economic Zone (IFEZ) program is one example of a global ubiquitous campus [9]. This has led to a growing number of Asian exchange students to study outside their own region. Asian institutions have responded in kind, as universities increasingly rely on internationalization to boost their originality and dynamism. This had led to increasing cooperation among universities in achieving a common goal, fostering student and faculty exchange programs between institutions.

New Sources of Funding

With some countries, such as the U.S., U.K., Germany, and Japan providing grants that promote international research and education experiences, we can expect more and more universities to encourage faculty to develop proposals to secure such grants.

Benefits of International Collaboration

Solving Global Problems

As the dominant species on this planet, it is our responsibility to support biological well being, protect future generations, and foster global health and prosperity. Threats to our health, prosperity and future include: terrorism; drug-trafficking and abuse; compromises of computing infrastructure integrity and security; international monetary instability; spread of AIDS and other diseases; poverty and starvation; natural resource depletion; environmental pollution; bio-diversity losses; global warming; and natural disasters. Each of the above ultimately impacts everyone, and is therefore global problems. The "Engineers Without Borders – international" (EWB-I) is an example of a collaborative effort to facilitate collaboration and exchange of information, in order to assist poor communities in their

respective countries and around the world [10].

The scientific community plays an essential role in solving global problems because its work leads to understanding their causes, and the ability to evaluate potential solutions. Such work consists of defining the problem space, collecting and analyzing data, and proposing and testing solutions. The best progress in this work requires scientists from many nations: global problems require global solutions, and global solutions require global participation.

Leveraging International Investment

Major scientific countries - the United States, the European Union, Japan, Korea, the nations of the former Soviet Union - have invested billions of dollars in information and communication technologies through their governmental and industrial organizations. International collaboration can leverage this investment, building upon it to cause new technologies to serve groups of nations and the world community.

Harnessing Talent

International collaboration builds upon the education, training and experience of tens of thousands of engineers and computer scientists, the lessons they have learned, and the discoveries they have made. The diversity of the talent pool produces synergistic results: Scientists from different countries approach problems with diverse skills, attitudes and perspectives that stimulate novel approaches and creative breakthroughs. Providing scientists from different countries the opportunity to work together not only increases the talent pool, but also changes and enhances it. The potential synergy of the hybrid talent pool could greatly accelerate the advancement of knowledge, the creation of new technologies, and the solutions to global problems.

New Paradigms

Current NSF CISE initiatives in the US, such as Digital Libraries, Educational Innovation and Knowledge and Distributed Information (KDI), will create new technologies, tools and paradigms for scientific collaboration and discovery. International collaboration extends the scope of these activities to overcome challenges of physical distance, time zones, languages, cultures, computing environments, etc. Scientists in different countries who collaborate to solve global problems test the effectiveness of new tools and technologies. International collaboration is a valuable laboratory for research, development and evaluation. It will lead to new paradigms for scientific discovery and collaboration.

Training Leadership

If the U.S. is to maintain world leadership in information and communication industry, it must train students to work and compete in a global arena. Projects requiring international collaboration provide valuable experience for scientists, engineers and managers to function in an increasingly global marketplace. Graduate students participating in global projects will gain competitive advantage, for themselves and the companies that will employ them: in distributed virtual environments; working with people in other cultures; and via discovery of new technology commercialization opportunities.

Assistance to Underdeveloped Countries

Supporting research and education in developing countries is an efficient means of foreign aid. Direct research support could help less developed countries build centers of excellence, computing infrastructure and industries. It would help bring developing countries into the information age.

Investment in foreign research increases the hybrid talent pool, builds lasting professional relationships, and produces advances in science and technology. Support of research in other countries (under international collaboration activity) would benefit highly capable and motivated scientists and students there who otherwise lack the resources to achieve their potential. Scientists in these countries could participate in large international projects only if needed infrastructure, tools and training become available. The ever-decreasing costs of computers, and the ability to collaborate over long distances using computer networks, mean that relatively small investments in foreign research can produce enormous returns.

International Research and Education Collaboration as Illustrated by the Baseball Model

If we consider a baseball diamond and the four bases it contains (1st base, 2nd base, 3rd base, and home plate), we can relate the levels of development of the international researcher to progress on the bases (see Fig 1 for illustration). In this case, home plate represents the researcher's home institution. At this level, the researchers work in separate facilities, have separate systems, and rarely communicate about projects. These researchers are forever stranded in the batter's box, and will never leave home plate.

First base represents the next level of international collaboration, which is basic collaboration at a distance. In this case, the researchers have separate systems at separate sites, but engage in periodic communication about shared projects, mostly through telephone, letters and the Internet. All communication is driven by specific project issues and shared data. The researchers view each other as resources, but they operate in their own worlds, have little sharing of responsibility and little understanding of each other's cultures, and there is little sharing of power and responsibility.

Having reached second base, the researchers have separate systems but share the same facility. They engage in regular communication about shared projects, mostly through phone, letters, or Internet, but occasionally meet face to face because of their close proximity. They appreciate the importance of each other's roles, may have a sense of being part of a larger, though somewhat loosely defined team, but may not share a common language or an in-depth understanding of each other's worlds. As in the first two cases, one member of the team may have considerably more power and influence over project decisions than the other researchers, who may not welcome this mode of collaboration. Many new inter-campus programs are also established to facilitate the exchange of faculty and/or students, even with articulation of curriculum in some cases. However, in the case of many academic exchange programs, there is really nothing serious at stake, which makes such exchange a nicety but without a mode in-depth collaboration in spirit.

At Third base, the researchers share the same sites and have some systems in common, such shared laboratories. There are regular face-to-face interactions about the project, mutual consultation, coordinated efforts, and a basic understanding and appreciation for each other's roles and cultures. There is a shared allegiance to a problem solving paradigm. Although the pragmatics are still sometimes difficult, team-building meetings are held to tackle operational discrepancies. There may be unresolved but manageable tensions over an individual's perceived power and influence on the collaborative team. However, an international research and education collaboration of this nature has something at stake for both parties that are involved. Partnership is more likely to be fostered, with growing affinity in collaboration and outcomes. Cultural and academic experience will also grow as a result of such activities, with deeper awareness of differences and similarities that will facilitate the assimilation process. Such proactive collaboration will gradually turn the supposed hindrance of perceived cultural and academic difference into an intellectual stimulation brought about by the diversity of the team. Such synergy tends to cultivate creativity and innovation that would not have been easily achieved otherwise.

Returning to home plate, which is the equivalent of hitting a home run, researchers share the same sites, the same vision, and the same systems in a seamless web of resources. All researchers are committed to a problem solving paradigm and have developed an in-depth understanding of each other's roles and cultures. Regular collaborative team meetings are held to discuss both project issues and team collaboration issues. There are conscious efforts to balance power and influence among the researchers according to their roles and areas of expertise. The outcomes of such proactive research and education collaboration will stimulate intellectual growth and fostering a mutually beneficial collaboration.

Summary

In this paper, we presented a researcher's baseball diamond [8] as a model to illustrate different steps in international education and research collaboration, using the successive bases such as those in a baseball game. The progressive steps in international collaboration are akin to the progression of the three bases leading to the home plate in Baseball. Prompted by globalization, the progression starts in First base with global knowledge base, worldwide literature, and shared data – made possible by the computer and information, to the Second base with academic exchange, studying abroad, and various inter-campus programs. These activities lead to the Third base in which a proactive education and research collaboration is established to promote synergistic collaboration which includes cultural and academic experience with awareness that cannot be achieved otherwise. Such experience not only benefits individuals who

participated in such mutually beneficial collaboration [5,6,7] but also stimulates creativity and innovation.

Acknowledgements

The research has been partly supported by a grant from the National Science Foundation (NSF-CMMI-0800241; PI: I. Kao) and a supplement of IREE program.

References

01. R. A. Cole, F. Fortes, & A. Klinger (1998). International Collaboration in Computer Science. Available at <http://cslu.cse.ogi.edu/nsf/wiccs97/report.pdf>.
02. The International Association of Universities (2003). "Internationalisation of Higher Education: Trends and Developments since 1998". UNESCO. Available at <http://unesdoc.unesco.org/images/0014/001455/145505e.pdf>.
03. J. Helfgott (2008). "The International Game". The Hardball Times. Available at <http://www.hardballtimes.com/main/article/the-international-game/>
04. YearBook of Statistics, Telecommunication services, Chronological time series, 1990-1999, International telecommunication Union
05. I. Kao, C. Capria, and S. H. Chang, "International Research Collaboration in Engineering: academic and cultural enriching experience in research and education," in the International Conference on Engineering Education (ICEE 2008), Hungary, July, 2008
06. I. Kao and C. Capria, "Research and Cultural Experience in Taiwan: A Stony Brook University/ITRI Research Collaboration," invited talk at the International Research and Education in Engineering (IREE 2008) Conference, Washington D.C., May 2-3, 2008
07. C. Capria and I. Kao, "Research Project Supplement IREE: Research in Intelligent Fault Detection and Diagnosis (FDD) and Fingerprint Analysis for Intelligent Systems and International Collaboration," poster presentation at the International Research and Education in Engineering (IREE 2007) Conference, Lafayette, November, 2007
08. I. Kao, Keynote Lecture "International Research Collaboration: Academic and Cultural Enriching Experience in Research and Education," in the International Conference on Engineering Education (ICEE 2008), July 2008
09. Park Si-soo, "IFEZ to Power Korea's Economic Growth," The Korean Times, available at http://www.korea-times.co.kr/www/news/special/2009/04/242_42055.html
10. "Engineers Without Borders-International," available at <http://www.ewb-international.org/>