EDHE 6530 – Research on Higher Education

Status of Higher Education Research Paper:

Future Needs for Research

Melissa McGuire, Matthew Park, and Susan M. Ratz-Thomas

University of North Texas

November 2, 2010

Status of Higher Education Research Paper: Future Needs for Research

Introduction

Higher Education in America has significantly changed since the establishment of Harvard in 1636. The types of institutions have evolved, as well as the teaching methods, administrative practices, and student demographics. Despite these changes, much of the existing body of research on undergraduate students has considered traditional-aged, Caucasian students, from middle or upper-middle class homes, who lived on campus, and did not work or have other family responsibilities (Pascarella, 2006). These antiquated demographics and student characteristics no longer define or describe most students who attend institutions of higher education today, nor do these studies consider the vast changes in higher education since these studies were originally conducted. Therefore, original research and theories must be replicated or revised to appropriately reflect the evolution that has occurred in the American higher education system.

The current needs for higher education research are vast and vary greatly depending on how needs are defined, by whom, and when. Pascarella (2006) identified ten directions for future research in his article entitled, “How College Affects Students: Ten Directions for Future Research.” In a separate article, Bensimon, et al. (2004) suggested that future studies in higher education be of greater relevance to policy makers and practitioners. For the purpose of this paper, we have chosen to focus on three areas that are both relevant and of relation to the directions Pascarella identified. We believe future research in higher education should focus on (a) changing student demographics, (b) community college students and institutions, and (c) technology.

Changing Student Demographics

The demographics of college attendees have changed dramatically since the inception of higher education in the U.S. Once a privilege for upper society in preparation for service as a member of the clergy, today a college degree is necessary for almost any moderate- to high-paying job in America. The evolution of higher education has been reflective of changes in the demographics of the U.S. and once again, administrators at higher education institutions are experiencing significant shifts within the students they serve. The warning given by Pascarella and Terenzini in 2005 that their agendas could no longer assume the "traditional' model of the undergraduate student is still very prevalent today. Presently, there are increases in minorities, older students, and part-time students attending college. For example, between 1995 and 2006, the number of students over the age of 25 grew 13% and in 1997, minorities accounted for 32% of the college-going population, an increase of 15% in 1976 (U.S. Department of Education & National Center for Education Statistics, 2009). Experiencing some of the most substantial growth on college campuses is the Hispanic student population and resurgence of veteran and active military students.

Hispanic Population

The U.S. Census Bureau (2004) has predicted the Hispanic population in the U.S. will represent 17.8% of the total population and 22% of the college-aged population by the year 2020. While growth of this population in college has increased immensely, educational attainment within the Hispanic population has not kept pace. Of those Hispanic students who pursue a college degree, most will begin their experience at a community college because it is often seen as the first step to obtaining a bachelor's

degree (Crisp & Nora, 2009). Furthermore, while most will express the intent to transfer to a four-year institution (Holachlander et al., 2003), less than 25% of them actually do (Fry, 2004).

In addition to the challenges associated with getting students in and out of college, many Hispanics are entering college underprepared. Hoyt (1999) found that roughly 21% of Hispanics at the community college level were enrolled in at least one developmental college course and 11% were enrolled in at least three. Additionally, the Hispanic college population has the lowest six-year graduation rate in America. Only 51% of the college-going Hispanic population obtains a bachelor's degree in six years, compared to 59% of Caucasian students. This difference exists even when all levels of admission selectivity are considered (Kelly, et al., 2010).

President Obama has also recognized the importance of this population of students. In an effort for the U.S. to recoup its world standing as having the most adults with a college degree, he recently established an expectation to not only increase the number of Hispanic students going to college, but also the number of Hispanic graduates. According to *Rising to the Challenge (*Kelly, Schneider, & Carey, 2010), a project of the American Enterprise Institute, this new expectation should be considered a national priority.

The situation and challenges described above are hindering the collegiate success of the Hispanic population and represent areas where further research is needed to understand how to better prepare this population for higher education and what types of institutional assistance can better facilitate their success in college. When considering diverse populations, campus administrators often turn to identity

development theories to understand the experiences of students. While this is valuable, few theories guiding higher education practices have considered the various ethnic populations on campus, specifically the Hispanic population. Those that have often lack clarity about how ethnicity actually influences completion rates (Lascher, 2004). Additionally, while many studies have considered various environmental factors surrounding this student population, namely familial influences (Perez & McDonough, 2008; Torres, 2004) or college decision and selection (Haynes, 2009), the statistics above illustrate the limitations of current research as the persistence and graduate rates for the Hispanic population are not where institutions, and President Obama, want them to be. As the percentage of Hispanic students is expected to grow on campuses, it is imperative for new research studies to look at specific interventions to understand if they influence persistence and success for this population. Furthermore, past and future research studies should be replicated to consider various factors, such as institutional type, size, and location so that the effects of these characteristics are fully understood within the context of the Hispanic college student. Failure to examine these issues could ultimately not only impact the financial stability of institutions but also the economic and social development of the U.S.

For example, Pascarella and Terenzini (2005) found that as the amount of postsecondary education increases, participation in jobs also increases and unemployment decreases. Additionally, the College Board (2006) found the median earnings of college graduates, compared to high school graduates, have grown significantly over the last 30 years. For instance, in 2005, females with a college degree earned 70% more than females with only a high school diploma; the gap was 63% for

males. These statistics illustrate the importance of a college education on the U.S. economy; the more spending power an individual has, the more opportunities for money to be circulated into the U.S. economy through personal spending and taxes. Clearly, as the Hispanic population becomes a larger percentage of the U.S. population, ensuring as many Hispanic students as possible receive a college degree becomes increasingly important in order to sustain and enhance economic development in the U.S.

Veterans

Similar to the growth in the number of Hispanics entering college, institutions are seeing exponential growth in the number of veterans entering college. As a product of the enactment of the Post-9/11 Veterans Educational Assistance Act of 2008 (Post-9/11 GI Bill), this current growth is similar to that witnessed after the signing of the Serviceman's Readjustment Act of 1944. This new GI Bill offers financial support for educational expenses to nearly two million service men and women who are actively serving or have served in the military since September 11, 2001. In 2008, veterans represented 4% of all undergraduates in higher education (Radford & Wun, 2009). This percentage is expected to grow significantly in upcoming years as more U.S. troops return home from war.

Also similar to the Hispanic population, a majority of veterans prefer the settings of community colleges or for-profit institutions because they feel these institutions better cater to their particular needs (Sewall, 2010). Rationale for this includes costs, convenience, geography, and better support systems, as well as the acceptance of military credit (American Council on Education, 2008; Sewall, 2010).

Compared to other populations of students on college campuses, the transition for veterans is considerably different. The American Council on Education (2009) described a veteran's transition as, "[they] are not just adjusting to the transition from military to civilian life; they also are making a transition to college life, one that proves challenging for many students" (p.30). While research does exist on this population, it has generally focused on the impact of federal assistance programs for veterans and academic achievements rather than individual-level transitions, such as deployment and reenrollment (Rumann & Hamrick, 2010).

By focusing future research efforts on the experiences of veterans, appropriate interventions that facilitate successful transitions can be developed by campus administrators. This includes the provision of additional support services available to veteran students upon admittance and increased opportunities for four-year institutions to recruit these students from the beginning of their college experience. Although the cost and geographic region of an institution can be considered constant, administrators at four-year institutions can improve the veteran perception of support systems and convenience with the appropriate information. Additionally, research should explore the appropriateness of developmental theories for this college-going population. Given the experiences of these students prior to college, or even during their college experience, many may progress or digress along development models in ways faculty and administrators do not understand. The implications of future research in this area could be significant.

An additional area of future research that could be warranted is within the subpopulations of veterans. While the term "veteran" is widely used on college

campuses and in research to describe both students who have served in the military and are still serving, demographic differences exist between these populations. For example, in contrasting veterans to military students currently serving, military students tend to be younger (75% are 39 years of age and younger), have a greater percentage that are non-Caucasian, and include more females (U.S. Census Bureau, 2009). Focusing future research efforts on these subpopulations of veterans may provide greater perspective on this important group of students. Similar to the Hispanic student population, these studies should be initiated and replicated across institutional type, size, and location to ensure a well-rounded perspective is available.

Future Directions

With both of these populations of students, Hispanics and veterans, there is an overarching need to better understand the particular intricacies that guide their development and decision making processes, along with their unique needs. Without this knowledge, administrators cannot effectively assist in their collegiate success and improve their own institutional outcomes. Current population and institutional growth patterns enhance the pressures and urgency on researchers because institutions cannot afford, literally, to lack an in-depth understanding of the college life cycle for these students.

Community Colleges

A common trend among the populations discussed above was the desire to attend a community college to further their education. Community colleges serve a critical role in higher education in the U.S., but they are relatively young compared to four-year institutions. In the last few years, *The Chronicle of Higher Education* and

other publications have published numerous articles addressing the role these institutions play in the U.S. Adding to the press surrounding community colleges, President Obama was instrumental in putting these institutions in the spotlight through a number of initiatives, such as the development of the first White House Summit on Community Colleges. The Summit brought together community college representatives (leaders, faculty, and students), business leaders, philanthropic leaders, and federal and state policy leaders to discuss the roles community colleges play in educating our future workforce, providing job training, and meeting the President's aforementioned goal to "lead the world with the highest proportion of college graduates by 2020," (White House Summit on Community Colleges, n.d.).

The value of community colleges is gaining support and recognition in other areas as well. Key philanthropists, foundations, and business people, such as Bill and Melinda Gates and the Lumina Foundation, have demonstrated their own feelings regarding the invaluable role community colleges play in higher education by making new commitments to give millions of dollars through grants, investments, and awards to fund new national efforts in support to President Obama's leadership and acknowledgment of the critical role community colleges will play, and will continue to play, in educating the American workforce (Building American Skills by Strengthening Community Colleges, n.d.). With newfound attention on the community college system and an emphasis on college graduates, it is extremely important that community colleges be on the agenda for future research in higher education.

Among the list of future research trends Pascarella identified in 2006, one was to "extend and expand inquiry on previously ignored students and institutions" (p. 513).

Research on community college students and institutions is one particular area in critical need of extended and expanded inquiry. Key student issues such as student access, engagement, retention, and completion have been researched on multiple occasions in various ways at four-year institutions, but have not included community colleges (Pascarella & Terenzini, 2005). As a result, research conducted on community college students and institutions is limited and needs to be expanded.

Community Colleges Today

Community colleges have come a long way in a short time since the first public community college, Joliet College in Illinois, was founded in 1901, almost 300 years after the establishment of Harvard. Community colleges experienced their greatest growth when two-year colleges were opening weekly in the mid-1960s, for a total of 457 new colleges by the decade's end (Vaughn, 2000). Today, community colleges are the gateway to higher education for more than 50% of first-time college students and serve a more diverse student body than those attending four-year institutions (Townsend, Donaldson, & McClenney, 2005). The American Association of Community Colleges (AACC) website touts that there are 1,166 community colleges in the country, and if the branch campuses are included, the number increases to approximately 1,600 (2010). According to Vaughn (2000), the community college mission is to "provide access to postsecondary education programs and services that lead to stronger, more vital communities." Community colleges serve the communities in which they are located by providing open-access admissions policies and equity through a number of support services to ensure that every student has the opportunity to succeed academically (Vaughn, 2000).

Community colleges serve the surrounding community and have complex missions that have evolved from the days of junior colleges. Many of the community colleges today offer remedial classes, job training, certificates, degrees, continuing education, and the possibility of transferring to a four-year institution. Community colleges are woven into the fabric of the community they serve through the programs they provide while maintaining critical business and community partnerships. Eduardo M. Ochoa, Assistant Secretary for Postsecondary Education, said recently "they have to be all things to all people" (Epstein, 2010).

Understanding the Community College Mission

A historical example of the importance of understanding the role of community colleges was highlighted by a controversial study published in 1992. In this study, researchers from Harvard University and the University of Chicago concluded that states should direct students to four-year institutions rather than community colleges because students at a four-year institution are more likely to obtain a bachelor's degree than those who start at a community college. This research was criticized by another educational researcher because "the findings were flawed by a 'hidden assumption' that the purpose of community colleges was to send students on to the bachelor's degree" (Jacobson, 1992). The lack of a widely-understood mission of community colleges can complicate the generalizability of research findings.

Research in Core Higher Education Journals

Silverman (1987) conducted an extensive review of eight "core" higher education journals and over 1,100 articles to find that some areas, such as community colleges, were "relative[ly] silent." Some journals focus specifically on community colleges, but

typically only those individuals who work at or research community colleges frequent those types of journals. Researchers and educators who do not specialize in community colleges are typically not exposed to this segment of higher education; consequently they may not consider the implications or greater influence that research on community colleges can yield.

Townsend, Donaldson, and Wilson (2005) researched five major higher education journals published during 1990-2003, including *The Journal of Higher Education, Research in Higher Education, The Review of Higher Education, The Journal of College Student Development,* and the *NASPA Journal*, and found there was "extremely limited visibility of community colleges with use of community colleges as research sites." Journals provide a venue for sharing empirical studies and rich information that guide and enhance the field of higher education, yet there is a compelling trend that discussion of this important sub-section of the field, community colleges, is almost non-existent in the core higher education journals.

An Example of Current Research

Greene, Marti, and McClenney (2008) conducted research on student engagement and academic achievement on community college African-American and Hispanic students. Their study discussed the fact that there is a plethora of research on the positive impact of student engagement on academic outcomes, but there is little research that focuses on student engagement at community colleges, especially when considering minority student achievement and persistence (Pascarella, 1997; Townsend, Donaldson, & Wilson, 2005). It also highlighted the importance of continued research on community college students, and, in particular, diverse student sub-

populations and the implications for educational attainment that can be discovered by educational leaders.

Future Directions

Community colleges are a valuable and imperative component of higher education that has not been researched to the same length and depth as four-year institutions. Researchers need to adapt and replicate past studies to include this important element of higher education that has been overlooked for far too long. Furthermore, researchers need to find ways to research community college students and institutions that take into account the mission of the community college and are not colored by the paradigms of a traditional four-year institution. To communicate the importance to the entire higher education community, the results must be published in one of the main higher education research journals, such as *Research in Higher Education* or the *Journal of Higher Education,* and not only the community college journals.

Community colleges represent a significant piece of the higher education landscape in the U.S. With enrollments growing, a complex missions, open admission access, diverse populations, and national political support, the implications for the future necessitate a greater community college research presence in the 21st century.

Technology

Similar to growth patterns in Hispanics, veterans, and community colleges, the array and adoption levels of existing and emerging technologies in higher education in the U.S. are rapidly expanding. Enrichment of the Internet, personal computers, and a variety of other technological advances have the capacity to fundamentally transform

not only the face of teaching and learning, but numerous other aspects of the college experience. In the coming years, accrediting standards and state and federal agencies could add pressures on institutions to implement technology-related changes both inside and out of the classroom. Given how quickly new technologies arise, there are significant implications for instruction, student interaction, postsecondary access, budgetary matters, and a number of other areas in higher education. With research on the impacts of communication and information technologies still in its formative stages, future efforts should be dedicated to studying the outcomes and characteristics of technology as it relates to higher education in the 21st century (Pascarella, 2006).

Obsolescence and Cost

According to Moore's Law (1965), computing power is doubling every two years as more transistors are being inexpensively placed onto integrated circuits. Technologies are advancing so quickly in terms of sophistication and applicability that unless they are enhanced, existing systems become obsolete and are replaced by newer ones, which seem to emerge weekly. Since 1995, there has been a significant increase in the amount of technology available within higher education institutions across the U.S. In 1995, roughly 50% of schools had internet access and about only one student out of 10 had a personal computer (Reiser, 2001). In 2000, e-mail was a recent technological phenomenon and students used it extensively as a form of social interaction, spending significant amounts of time checking, sending, writing and responding to e-mail messages (Gatz, 2000). In 2010, Web 2.0 technologies such as wikis, blogs, instant messages, and social networks have replaced e-mail as the dominant communication media and have been influential in improving student

connectivity. These technologies are now in use at a large number of higher education institutions and, like most new technologies, are expected to decline in use over the next five years, when something new emerges. With technology expanding so rapidly, with no signs of slowing down, and new applications constantly evolving, colleges and universities cannot afford to make ill-informed decisions regarding technological innovation and implementation.

One of the biggest challenges of technological advancement on college campuses is cost, and, given the current economic state of retrenchment and rethinking in higher education, instructors and administrators must determine if the potential long-term savings outweigh the immediate expenses (Kim, 2006). Valid research on technology could help administrators and faculty members carefully weigh the relative advantages and disadvantages of technological adaptation and expansion while avoiding the ever-present risk of obsolescence. In addition to enhancing connectivity, technologies can save monetary resources by increasing organizational efficiency and fostering partnerships with for-profit corporations. As more and more universities look to the private sector for financial support and advancement, the quality of a university's technology will be a significant factor in attracting corporate decision makers. In effect, technology will become a core differentiator in recruiting both students and corporate partners. Well-established and timely technological research could be the answer to an institution's long-term viability and future financial success (Glenn, 2008).

Implications for Access and Instruction

Through technology, distance education has become an important long-term strategy in higher education which has yielded a low-cost method of providing access to

students who might otherwise be unable to pursue it. According to one study, community colleges in the U.S. reported a 22% increase in distance education enrollments in fall 2008 compared to fall 2007, while campus enrollments increased less than 2% nationally (Instructional Technology Council, 2010). No longer do professors and students need to be in the same location, at the same time, for learning to occur. Increased accessibility, as called for by the Truman Commission, has become a reality, but leads to the question of where online learning is headed. The rapidly growing interest in distance education highlights the importance of future technological research as campuses must explore the pedagogical issues of online learning.

Existing evidence suggests that the learning and cognitive benefits of information technology may not accrue equally in all students, which could potentially impact institutional outcomes in negative ways. It is widely accepted that students learn in different ways and appealing to a student's preferred learning style can increase both their learning efficiency and retention (Pascarella, 1998). Teaching faculty should have a strong understanding of how instructional technologies relate to learning style preference in order to maximize the potential for student learning and effectively incorporate emerging technologies into instructional pedagogy (Rogers, 2000; Saeed, 2009).

Before instructors can better understand how to incorporate various e-learning styles in the classroom, they must be well-vested in how to use technology in a systematic or curricular way and willing to change the way they teach (Keengwe, 2009). Currently, there is general resistance to the adoption and integration of instructional technology on behalf of faculty. Research on effective faculty training, support, and

development opportunities related to instructional technologies would greatly benefit colleges and universities. A critical component of such research includes how institutional policies and practices can effectively encourage faculty to adopt new technologies, as well as what it takes to adequately train them and what support structures or services are important for keeping them up to date on new developments.

Implications for Student Development

Technology dramatically changes the way college students interact and communicate with the world. The Web is transforming into a fully interactive space and the control of content has been decentralized to allow every person to collaborate, create, publish, subscribe, and share information (Anderson, 2008). Peer-to-peer and faculty and staff connections have long been considered a key to collegiate success with important impacts on student personal and intellectual growth (Rogers, 2000). Long standing models of college student development such as Tinto's (1993) concept of social integration in relation to student departure and Astin's (1984) theory of involvement are based on studies utilizing students and faculty found on traditional campuses. Although the impacts of student-student and student-faculty interactions are well-established, the influences of students' social networks and interpersonal experiences as derivatives of technological innovation present possibilities for much needed extension and replication of the existing body of knowledge. Administrators within higher education need to update their notions of student development in light of the ever-changing technological environment.

Future Directions

In some aspects, current educational technologies match the characteristics and profiles of millennial learners. Today's traditional-age college student is characterized by (a) enjoying collaboration and working in teams, (b) having capacities for multi-tasking, (c) being intuitive visual communicators, (d) having the ability to shift their attention easily from one media to another, (e) demonstrating strong visual-spacial skills, (f) working at a rapid pace, (g) expecting fast response time, or turnaround, and, (h) in contrast to most faculty, being at ease with new technologies (Beyers, 2009; Glenn et al., 2008). Collaborative learning technologies, social networks, the Web, and online instructional media have proved successful in part due to their natural fit with millennial student interests. However, the era of millennial students will soon be coming to an end in colleges and universities. Campus administrators need to start investing in research surrounding future technologies today. Innovations such as educational gaming, simulation environments, three-dimensional computing, advanced communications between humans and machines, tablet applications, smartphones, e-books, and the shifting of content production to users could have profound impacts on the future of post-secondary education (Anderson, 2008; Kim, 2006). Social networking and distance learning may be the technologies of millennial students in the present, but the future is uncertain. Learning how emerging technologies align with the characteristics of the upcoming generation of college students could help higher education position itself for a promising future.

Technology has given rise to a generation of students who have never known life without a computer, and through technology, the very nature of campus life in higher

education has changed. Institutional access, instruction, interaction, and effectiveness have all been influenced by technological innovation and many foundational student development theories fail to consider how students use technology to interact and learn (Glenn et al., 2008). Although obsolescence is a concern and technology by its very nature is in a constant state of fluctuation, future research agendas in higher education must be open to studying the impacts of technology on both students and institutions in order to develop strong practices for educating students in the 21st century.

Conclusion

Higher education in the U.S. has, and will continue to evolve in numerous ways. No one could have anticipated the profound changes that have been realized in terms in student characteristics, institutional type and mission, and methods of access and instruction. Yet, moving forward, there are some clear themes that ring with importance as areas of future research.

The demographics of students attending colleges and universities will continue to change. Currently, growth is substantial for the Hispanic student population, as well as veterans and military serving students. Failure to create a research agenda focused on these important populations could greatly impact administrators' abilities to successfully help these students transition into the collegiate environment and lead them through the educational process to graduation. Institutions could be impacted in a multitude of negative ways if a more in-depth understanding of these populations is not soon realized.

Community colleges play a significant role in the American higher education system and it is critical that research on this important venue be conducted in the future.

There is a gap in the higher education literature on community colleges, especially in the core higher education journals. Until broader, accurate research is conducted, and past research is replicated on community college students and institutions, there will be a considerable void in the higher education research landscape.

Technological innovation is continually changing the face of higher education in a number of ways, such as providing wider access to potential students and instructional flexibility to accommodate varying learning styles. Yet, empirical evidence to support or refute the effectiveness of technologies and guidance on how institutions should use such tools is lacking. With colleges and universities rapidly embracing the transformational opportunities afforded by technology and the constant risk of obsolescence, it is imperative that scholarly research be focused on these technology-related topics in the future.

Future research in higher education should help refine or replicate what is currently known about students and institutions as well as be relevant to the present state of affairs. By studying changing student demographics, community colleges, and technology, knowledge regarding fundamental higher education theories and concepts will be further developed and enhanced. Furthermore, researchers will demonstrate to policy makers, accrediting agencies, and the general public that colleges and universities operate in the present and have the well-being of the entire nation at heart.

References

American Association of Community Colleges. (2010). Retrieved from http://www.aacc.nche.edu/AboutCC/history/Pages/pasttopresent.aspx

American Council on Education. (2009). Military service members and veterans in higher education: What the new GI bill may mean for postsecondary institutions. Retrieved from http://www.acenet.edu/Content/NavigationMenu/ProgramsServices/CPA/Publications/MilService.errata.pdf

Anderson, B. (2008). Electronic roundup: Emerging technologies in higher education. *Behavioral & Social Sciences Librarian, 27*(3-4), 214-217.

Astin, A. W. (1984). Student involvement: A developmental theory for higher education. *Journal of College Student Personnel, 25*, 297-808.

Beyers, R. N. (2009). A five dimensional model for educating the net generation. *Journal of Educational Technology & Society, 12*(4), 218-227.

Building American Skills by Strengthening Community Colleges. (n.d.). Retrieved from http://www.whitehouse.gov/sites/default/files/uploads/White-House-Summit-on-Community-Colleges-Fact-Sheet-100510.pdf

College Board. (2006). Education pays: Second update. Retrieved from http://www.eaop.org/documents/college_board_edu_pays_update_2006.pdf

Crisp, G., & Nora, A. (2009). Hispanics and higher education: An overview of research, theory, and practice. *Higher Education: Handbook of Theory and Research, 24*, 317-353. doi: 10.1007/978-1-4020-9628-0_8.

Epstein, J. (2010). Measuring 2-Year Students' Success. *Inside Higher Ed*. Retrieved from http://www.insidehighered.com/news/2010/10/21/data

Fry, R. (2004). Latino Youth Finishing College: The Role of Selective Pathways. Retrieved from http://pewhispanic.org/files/reports/30.pdf

Gatz, L. B., & Hirt, J. B. (2000). Academic and social integration in cyberspace: Students and E-mail. *Review of Higher Education, 23*(3), 299-318.

Glenn, M., D'Agostino, D., & New, M. C. (2008). *The future of higher education: How technology will shape learning.* New Media Consortium.

Greene, T. G., Marti, C. N., & McClenney, K. (2008). The effort–outcome gap: Differences for African American and Hispanic community college students in student engagement and academic achievement. *The Journal of Higher Education* 79(5), 513-539.

Haynes, R. M. (2009). *A predictive model of Hispanic participation in Texas higher education: Inferences drawn from institutional data in prevalent Hispanic states*. (Doctoral dissertation). Retrieved from ProQuest Digital Dissertations database. (Publication No. AAT 3385791).

Hoachlander, G., Sikora, A. C., & Horn, L. (2003). Community college students: Goals, academic preparation, and outcomes. Washington, DC: U.S. Department of Education, National Center for Education Statistics.

Hoyt, J. E. (1999). Remedial education and student attrition. *Community College Review*, 27, 51–73.

Instructional Technology Council. (2010). *Trends in eLearning: Tracking the impact of eLearning at community colleges*. Washington, D.C. Retrieved from

http://www.itcnetwork.org/file.php?file=%2F1%2FITCAnnualSurvey2009Results.pdf

Jacobson, R. L. (1992). Role of community colleges questioned by research on 5 state systems. *Chronicle of Higher Education*. *39*(12), A30.

Keengwe, J., Kidd, T., & Kyei-Blankson, L. (2009). Faculty and technology: Implications for faculty training and technology leadership. *Journal of Science Education and Technology, 18*(1), 23-28.

Kelly, A., Schneider, M., & Carey, K. (2010). *Rising to the challenge: Hispanic college graduation rates as a national report*. Retrieved from http://www.aei.org/docLib/Rising-to-the-Challenge.pdf

Kim, K., & Bonk, C. J. (2006). The future of online teaching and learning in higher education: The survey says. *EDUCAUSE Quarterly, 29*(4), 22-30.

Lasher, E. L. (2010). Retaining Latino and non-Latino college students: Key similarities and differences. Retrieved from http://www.csus.edu/sernacenter/assets/publications/retention.pdf

Moore, G. E. (1965). Cramming more components onto integrated circuits. *Electronic, 38*(4).

Pascarella, E. T. (2006). How college affects students: Ten directions for future research. *Journal of College Student Development, 47*(5), 508-520.

Pascarella, E. T. (1997). It's time we started paying attention to community college students. *About Campus. 1*(6), 14.

Pascarella, E. T., & Terenzini, P. T. (1998). Studying college students in the 21st century: Meeting new challenges. *Review of Higher Education, 21*(2), 151-165.

Pascarella, E. T., & Terenzini, P. T. (2005). *How college affects students (Vol.2): A third decade of research*. San Francisco, CA: Jossey-Bass.

Pérez, P. A., & McDonough, P. M. (2008). Understanding Latina and Latino college choice. *Journal of Hispanic Higher Education, 7*, 249-265.

Reiser, R. A. (2001). A history of instructional design and technology: Part I: A history of instructional media. *Educational Technology Research and Development, 49*(1), 53-64.

Rogers, D. L. (2000). A paradigm shift: Technology integration for higher education in the new millennium. *Educational Technology Review,* (13), 19-27.

Rumann, C., & Hamrick, F. A. (2010). Student veterans in transition: Re-enrolling after war zone deployments. *The Journal of Higher Education, 81*(4), 431- 458.

Saeed, N., Yang, Y., & Sinnappan, S. (2009). Emerging web technologies in higher education: A case of incorporating blogs, podcasts and social bookmarks in a web programming course based on students' learning styles and technology preferences. *Journal of Educational Technology & Society, 12*(4), 98-109.

Sewell, M. (2010). Veterans use new GI bill largely at for-profit and 2-year colleges. Retrieved from http://chronicle.com/article/Veterans-Use-Benefits-of-New/65914/

Silverman, R. J. (1987). How we know what we know: A study of higher education journal articles. *Review of Higher Education*. 11 (1), 39-59.

Tinto, V. (1993). Principles of effective retention. *Journal of The Freshman Year Experience, 2*(1), 35-48.

Townsend, B. K., Donaldson, J., & Wilson, T. (2005). Marginal or monumental? Visibility of community colleges in selective higher education journals. *Community College Journal of Research and Practice*, *29*, 123–135.

Torres, V. (2004). Familial influences on the identity development of Latino first-year students. *Journal of College Student Development, 45 (*4), 457-469.

U.S. Census Bureau. (2009). U.S. interim projections by age, sex, race, and Hispanic origin. Retrieved from http://www.census.gov/ipc/www/usinterimproj/

U.S. Department of Education & National Center for Education Statistics. (2009). *Digest of Education Statistics*. Retrieved from http://nces.ed.gov/fastfacts/display.asp?id=98

Vaughn, G. G. (2000). The community college story. (2nd ed.). Washington, D.C.: Community College Press.

White house summit on community colleges. (n.d.). Retrieved from http://www.whitehouse.gov/communitycollege