EXPLORATORY LEARNING THROUGH CRITICAL INQUIRY: SURVEY OF CRITICAL INQUIRY PROGRAMS AT MID-SIZED U.S. UNIVERSITIES

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ABSTRACT

Many alternatives exist for setting the delivery, content, direction, tone, and priorities for a Critical Inquiry/Thinking general education program. Review of our university's overall general education program indicated the need, and overwhelming faculty approval, for a program to improve critical thinking skills, to specifically include exploratory learning and improved cognitive abilities. As we moved ahead we formed a Critical Inquiry Committee for in depth, and participative planning. One of the preliminary, investigative steps was to survey peer institution critical inquiry programs. The results of the study are reported below, along with our steps in developing our first year, one credit, general education critical inquiry program. Our paper includes details of our faculty development program and the results of our pilot program implementation. Our full program is scheduled for implementation during fall 2012.

KEYWORDS

Critical inquiry/thinking, exploratory learning, analytic thinking, cognition, general education, curriculum

1. INTRODUCTION ~ IS THAT GOING TO BE ON THE TEST?

Faculty members are aware of the importance of critical inquiry (CI) and critical thinking CT), however, these skills are seldom specifically addressed directly in courses. Further, critical thinking is generally assumed to be a byproduct of secondary education, rather than an end in itself. While critical thinking skills, exploratory learning methods, and cognitive abilities are considered essential to higher education success, and prerequisite to satisfactory course progression, these skills are not often directly addressed either before or during college. Even in the more objective and quantitative disciplines, such as math and science, the inquiry, exploration, questioning, and decision processes (critical inquiry) are ordinarily secondary to achieving the "correct" answers. (Sadly, with the recent, absolute prioritization of K-12 test scores, learning to think may well be even more sidelined in favor of "answer-driven test outcomes.") In higher education, the trend continues. Students learn, all too frequently, what to do, rather than why they are doing it. We feed the "is that going to be on the test mentality." In spite of all the pedagogical discourse to the contrary, students continue to learn their outcomes, learning them in the traditional, non-integrated "silos" of teaching disciplines, seeking the test answers -- rather than the questions. Change is difficult.

Over the last decade, the American education process, especially higher education, has focused on content areas of concentration that emphasize technical and memory based skills (Arumand and Roksa). The absence of training on critical thinking, along with analytical ability, is ever present. Emphasis on test scores for both undergraduate and graduate admissions are at an all time high. In fact, educators and institutions are evaluated on test scores of both incoming and graduating students (Resmovitz). The idea of teaching critical thinking has gained popularity in recent years (Mulnix). It was often believed that students were exposed to critical thinking philosophies during their primary and secondary education programs.

Notwithstanding faculty members repeated complaints that students are not adequately prepared for success in their courses, little attention is paid to the skill of thinking, Socratic dialogue, or exploratory learning. Because we cannot readily change the st5udent preparedness, the most logical approach should be

to consider change in our own pedagogical approaches. For example, Clabaugh, Forbes, and Clabaugh suggest that students will demonstrate greater gains in critical thinking skills when the learning objectives for specific courses are specifically developed toward building these skill; perhaps obvious, yes – but is it done? It may be that small steps, specific activities and assignments directed solely at cognitive development can combine to make significant progress to improve thinking and exploratory skills. More pervasive alternatives, entire programs focused solely on critical inquiry, represent are another avenue to effect improvement.

Our university, a small undergraduate institution in the Southeastern United States, determined that the development of CI skills for entering freshmen should be the cornerstone of our Quality Enhancement Plan (QEP), which was undertaken in preparation for a forthcoming accreditation review. We felt that a successful critical inquiry course would enhance student thinking skills and their interest in inquiry and learning. A welcome accompanying plus was that faculty involved in the CI program would naturally advance their own CI skills, and perhaps more importantly, their ability to bring CI skill development to their existing, traditional classes. Win, win… Creating a solid faculty development program to prepare [eventually all] faculty to teach CI courses became the cornerstone of our CI implementation strategy. Better trained CI faculty, across all disciplines would foster and cultivate continued critical inquiry and thinking skills throughout the all levels of our curriculum.

There are many options to set the direction, content, tone, priorities, and activities for a viable CI program. This can range from a dedicated CI course, sequential courses, discipline embedded CI segments, integrated cross-discipline approaches, and step approaches. Following the CI model, with exploration as the key foundational step, we felt learning about the types of CI programs in use would be valuable in designing our program. This would guide us in discerning among programs to find the greatest likelihood of success. In connection with the planning and implementation of our QEP, we decided to survey CI practices at peer institutions, including the perceptions of administrators on successful CI efforts. The purpose of our study was to: (1) determine the types of CI programs currently offered, (2) find out how CI is addressed within various curricula, and (3) understand the sometimes conflicting views on which types of programs are likely to have the greatest success. Our study gives a summary of CI practices at other institutions, presents our experiences in creating our own CI program, including the pivotal CI faculty development program, and concludes with lessons learned as we implemented our pilot program in 2011-12.

2. CRITICAL INQUIRY, SURVEY & COURSE IMPLEMENTATION

Formal and informal faculty/student interactions reinforce retention and academic performance; this is especially important in the first year of college. Faculty teaching gateway courses (e.g., English, math, etc.) if trained more systematically in CI methods hold a key position to make headway in critical thinking skills. This should have synergistic advantages in furthering the CI agenda, at the same time improving delivery, understanding, and retention of gateway course material. Getting faculty involved in the delivery of an early CI course develops faculty in these areas, and carries on to additional opportunities for further student/faculty interactions as students progress through college.

Derek Bok states that “Many investigators have found that critical thinking and learning in general can be enhanced by giving students problems and having them teach each other by working together in groups. Where these conditions exist, the great majority of studies show that students make much greater gains over those achieved by classmates studying individually or competing with one another.” USCA student focus group data, collected in spring 2010 by members of the QEP committee, revealed that students found classes that involved discussion, hands on learning, or problem solving to be most memorable. Several studies demonstrate the positive impact this type of course instruction can have, not only on first-year students, but on faculty efficacy. USCA instructors have repeatedly reported being able to transfer active and engaging teaching strategies from a first-year seminar to other courses. This “spill over,” applying CI teaching strategies in an active learning environment, to other courses is one of the desired program outcomes.

2.1 Survey Results

We supplemented our CI pedagogy research by doing our own survey of CI practices at peer institutions. We had strong connections with deans of southeast U.S. business schools, and decided to avail ourselves of that

resource, surveying business schools rather than a broader institutional approach. As general education is typically a very significant portion of business school curricula, we felt our results would apply to our larger range of interest. We conducted an online survey, from the USCA School of Business Dean to Business School Deans of 80 institutions, which our Office of Institutional Effectiveness felt constituted a representative comparison group. Although we wanted more information, we held the survey to 25 objective and one open-ended question. We received 35 responses, 44%, which seemed a favorable response rate.

When we first began to consider the incorporation of a CI component to the curriculum, part of the underlying impetus was widespread view among faculty that freshmen students were not adequately prepared for their transition to the academic challenges ahead. To test this assumption among our peer institutions, respondents were asked to indicate their level of agreement with the statement, "freshmen are not adequately prepared for success in their courses." The results are shown in Table 1.

Table 1. Freshman Preparedness

Survey Question: *"Often educators hear that freshmen are not adequately prepared for success in their courses. In your opinion, does this statement apply to your entering first-year students?"*

Answer Options	Responses	Response %
Strongly Disagree	0	0 %
Disagree	11	31 %
Agree	16	46 %
Strongly Agree	8	23 %
Total Responses: 35 < < > > Skipped Question: 0		

Almost 70% of respondents agreed or strongly agreed with the statement, lending support to the notion that freshmen students require additional training to enhance their preparedness for college. Beginning in fall 2011 we started a pilot CI program, a one-credit hour course, focused on themes and ideas presented in the book *The Last Town on Earth*, (Thomas Mullen) our freshman first-year reading. Further support for our approach is shown on the results in Table 2. Here almost 80% of respondents agreed or strongly agreed that a one-credit hour critical thinking methods course would be useful in helping students achieve better curricular success.

Table 2. Value of a One Credit Hour Critical Inquiry Course

Survey Question: *"Do you think a short, one credit hour critical inquiry methods course for the first-year students would help them achieve better curricular success?"*

Answer Options	Responses	Response %
Strongly Disagree	2	6 %
Disagree	5	15 %
Agree	20	58 %
Strongly Agree	7	21 %
Total Responses: 34 < < > > Skipped Question: 1		

Although the respondents indicated support for the inclusion of a one-credit hour freshman level CI course, this method alone was not viewed as the single best approach to help students effectively learn critical thinking skills. Instead, as shown in Table 3, respondents indicated the greatest amount of support for a program that would incorporate critical thinking skills within the curriculum as a whole. For example, one respondent likened the approach of teaching critical thinking to that of teaching writing and speaking (across the curriculum), but acknowledged that this could make assessing student learning in this area more challenging. Another respondent indicated that faculty on his/her campus wanted to embed critical thinking into existing courses, but he/she wondered how faculty could integrate these efforts in a way that would result in students developing these skills over time.

Table 3. Critical Thinking Skill Development Alternatives

Survey Question: *"In an ideal situation, how would students best learn critical thinking skills?" Rank the following alternative options.*

Answer Options	Best	Better than acceptable	Acceptable	Less than acceptable	Worst
Specifically designed CT course	8	3	11	10	2
Specific areas within curriculum, all four years	15	12	4	2	0
Specific areas integrated within the major	3	14	14	2	0
Specific areas integrated within general education	4	8	10	9	2
Through extra-curricular activities	1	0	6	6	19

Respondents appeared to be supportive of a program designed to integrate critical thinking skills within the curriculum, throughout all undergraduate four years, but in practice this did not appear to be taking place. As shown in Table 4, only 20% of respondents indicated that critical thinking skills are actually integrated within the curriculum for all four years in their respective institutions. Rather, over 42% of respondents indicated that although their institutions do not have any specific CI segments in their curricula, the development of critical thinking skills is inherently part of many courses.

Table 4. Critical Inquiry Curricular Approaches in Use

Survey Question: *"Which of the following does your institution do to develop critical thinking skills in your students?" (If more than one fits, choose the most influential.)*

Answer Options	Responses	Response %
Through a specific critical inquiry course	3	9 %
Specific segments integrated within the curriculum, all four years	7	20 %
Specific segments integrated within the major	2	6 %
Specific segments integrated within general education	3	9 %
No specific program segments, but inherently part of many courses	15	42 %
Through extra-curricular programs, projects and other activities	0	0 %
Other	1	3 %
No specific critical inquiry program	4	11 %
Total Responses: 35 < < > > Skipped Question: 0		

Part of this reluctance to specifically designate any single course as a critical thinking course may be based on the perceived difficulty of actually measuring CI related outcomes and relying on these measures to evaluate student performance. As shown in Table 5, over 45% of respondents do not fully believe that critical thinking can be objectively assessed, or indicate skepticism about the ability of institutions to assess critical thinking with traditional standardized multiple choice tests.

Table 5. Critical Thinking Assessment

Survey Question: *"Do you believe critical thinking can be objectively assessed?"*

Answer Options	Responses	Response %
No	3	9 %
Unsure	5	14 %
Yes, with standardized multiple choice tests	8	23 %
Yes, somewhat agree	9	26 %
Yes, strongly agree	10	28 %
Total Responses: 35 < < > > Skipped Question: 0		

Nevertheless, an intrepid few have actually attempted to surmount the perceived hurdles and offer students at least one critical thinking course. As shown in Figure 1, nine respondents (just over 25%) indicate that their school or institution had a dedicated critical thinking course in their curriculum.

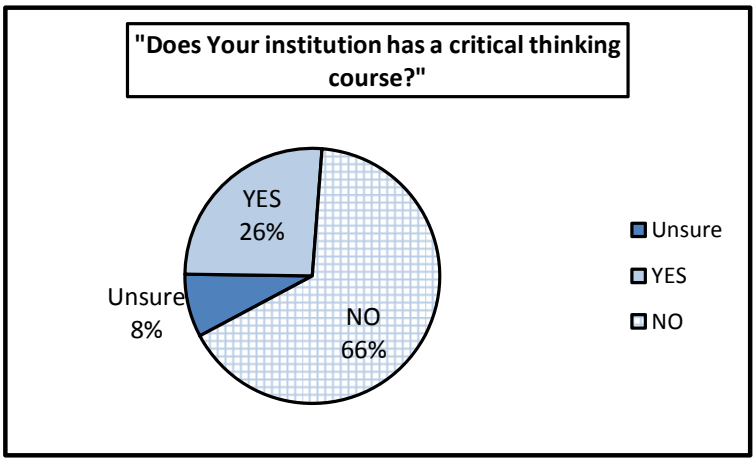

Figure 1. Presence of Critical Thinking Course

While the focus of any CI course should be on critical inquiry skill development, as we have argued, an important factor in the success of the program was tied to faculty development. Consistent with the prevailing view on the preferred method of CI instruction (see Table 3), our goal is that critical inquiry skills will ultimately be integrated and assimilated throughout all four years of university study. This goal will be achieved in three ways: (1) as a natural outcome of the freshman CI course. If successful, CI skills will be carried through, by the students, into other classes (and, indeed, their lives); (2) specific other courses, across all majors and years, will be developed by interested faculty that specifically focus on furthering CI skills; and (3) full faculty participation in teaching the freshman CI course. A natural outcome of their training and development will result in furthering this process in courses they regularly teach. It is both interesting, and appealing, to note that two of these three results are achieved somewhat indirectly. That is to say that as a result of planned CI implementation, both students and faculty will be trained in the process (items 1 & 3), with expected and desired extension, ideally, to all other classes.

The importance of faculty development is illustrated in Table 6. Although sample size for this question is limited to only eight respondents, only one of those respondents strongly believed that faculty in their institution who teach the critical thinking course receive adequate training and support. For the other respondents, the subject of faculty development was noted as the "missing link." One respondent discussed how the lack of faculty development on his/her campus has resulted in professors "conveying their thoughts not developing thoughtful students." Further, he/she said, "Only a serious effort will change that model."

Table 6. Faculty Training & Support

Survey Question: *"In your opinion, do faculty in your institution who teach a critical thinking course receive adequate training and support?"*

Answer Options	Responses	Response %
Strongly Disagree	1	12.5 %
Disagree	2	25 %
Agree	4	50 %
Strongly Agree	1	12.5 %
Total Responses: 8 < < > > Skipped Question: 27 (n/a)		

2.2 Faculty Development

At USCA, faculty development plans centered on an intensive Critical Inquiry Workshop and a Faculty Learning Community. After the workshop experience, faculty would be more knowledgeable about the concepts and learning theory underlying critical inquiry instruction. The Faculty Learning Community would be continuously available for consultations, and have planned full membership meetings to discuss successes and failures, and plans for improvement. This would also provide faculty with access to teaching materials and practical applications for developing critical thinking skills in students, which would be accumulated and summarized within the learning community. Specific "Faculty Learning Outcomes" follow.

Faculty Learning Outcomes → During the workshop, the instructor will:

1. Define Critical Inquiry,
2. Create a sample course outline/timeline for leading the class,
3. Gain access to a variety of course materials (syllabi, assignments, grading rubrics, technology),
4. Develop strategies for including CI in other discipline-specific courses,
5. Create a plan for incorporating Peer Mentors as an integral part of the instructional strategy.

After the workshop, the instructor will be able to:

1. List the steps necessary for practicing critical inquiry,
2. Use a variety of activities for fostering critical thinking and collaborative learning in students (e.g., discipline-specific strategies, group activities, and active-learning techniques),
3. Evaluate the effectiveness of the activities for fostering critical inquiry,
4. Integrate the First Year Reading Experience (FYRE) into the course structure,
5. Integrate information literacy into the course structure,
6. Encourage students to appreciate multiple perspectives.

Incentives to attract faculty to teach CI courses are varied, with economic incentive seemingly an attractive option. In our survey, however, we did not find that direct payment was a widespread approach. Only one institution of the eight respondents provided additional pay. The seven others factored the CI course into the regular faculty teaching load. Other compensation options had zero responses. We decided on partial course relief. Faculty teach two one hour sections, and receive credit for three hours of instruction. We also paid for faculty attendance at a development seminar ($750), but not for teaching the course. We also gave CI faculty priority scheduling for their CI course, and, importantly, priority by their unit heads in scheduling their non-CI courses. We considered offering faculty the option to teach their two one-hour CI courses concurrently, either at the beginning of the term or at the end of the term, giving them half a semester of additional non-course time. Ultimately we decided the CI courses should run the entire semester, but we are leaving that option open for future consideration.

Faculty workshops targeted the skills to help faculty members deliver course elements to achieve our desired Student Learning Outcomes (SLO). The workshops provided [suggested] daily plans, resources, activities, and teaching methods. Syllabus construction was addressed, including rubric options tied to the SLO's. Additional topics included using technology and social networking as part of the CI experience. Regardless of the specific CI course direction, a constant emphasis was placed on how to integrate critical inquiry into subsequent non-CI specific classes. One way to help promote the integration of critical inquiry in the post-CI courses was to plan further workshops on group methods and group project design.

Another important element in creating and implementing a successful CI initiative is broad faculty involvement. To that end, every effort was made to involve the entire USCA faculty in the CI courses. Ideally, all full-time faculty, all disciplines, would eventually teach a CI course. Unit heads were encouraged to promote the program and participation, with regular CI faculty rotations. As an added incentive, we decided to avoid detailed course prescriptives, giving faculty the freedom to utilize creative and singular approaches in their CI courses, using their own, individualized teaching philosophies and styles.

2.3 Pilot Program Implementation

We held a three-day CI workshop for an initial cohort of 34 CI faculty. A critical thinking and teaching strategies expert led two days of activities and theory development, followed by a day of course material preparation. Later a common course model was integrated into a sample syllabus and distributed to the faculty. During the fall 2011 pilot the instructors for the CI course met three times as a group to discuss and review their experiences and opinions concerning the course. At the end of the semester, faculty discussions focused on positive aspects of the course, areas in need of review, change, or elimination. The faculty was uniformly positive about the design and objectives of the course. Many felt they would like additional experience with the delivery of certain critical thinking techniques, and stated they would incorporate some critical inquiry techniques into their other university courses. To that end, mission accomplished!

Some teaching techniques worked very well. Activities such as two-sided debates, role playing, and exercises where students are faced with moral decision-making were particularly popular. All of these activities were more likely to be successful when students worked in small groups that had to reach consensus on decisions. The faculty using student peer mentors as assistants in the course were enthusiastic about the peer mentor contributions. Faculty also identified a number of teaching techniques that should be discouraged because they prevent collaborative effort and prevent active participation by the entire class. Among those techniques were traditional lectures and open-ended questions addressed to the entire class. A sampling of 165 student reflective essays (a requirement of the course) revealed strong support for the class overall. A large number of students felt the critical thinking exercises helped them gain greater appreciation for different perspectives. A common comment was appreciation for the library literacy exercise because it opened their eyes to new ways to conduct class research. They also commented that the in-depth discussions on topics from the First Year Reading book were novel and enjoyable experiences and provided them with new ways to consider the reading of a book. Overall, it appears that the content of the course was well received by the students.

Our critical inquiry class highlighted student questioning, data gathering, and analytical evaluation. Many of our students had never encountered a learning environment that asked for and embraced their opinion. Ground rules for the class were clear: everyone has an opinion; an opinion grounded in research; all opinions are respected. Creative approached were encouraged. For example the first class assignments was for groups to interpret photographs, such as a man standing with a black case. The initial attempt at this exercise resulted in comments such as “it’s just a guy waiting for a bus”. After each group gave their response, they were asked to change groups and then re-evaluate the pictures. The next evaluations resulted in comments such as “he is a spy and there are secret documents in the case”. The class then discussed the ideas of objectivity and subjectivity and finished with a review of validity and truth. These are serious concepts for individuals that have never been exposed to this type of inquiry. The class was also exceptional in that it gave a cohort group the chance to explore together. Most of the class time was spent on discussion and lively debate, which arose spontaneously from class room discussion. It took two or three weeks for the students to feel comfortable and to trust themselves, fellow students and instructor with this new process. A key facet of the course was to teach them that they are “allowed” to be creative and search for new and different ideas.

Faculty learning community sessions yielded valuable feedback. Instructors were positive about the course, but recognized that critical thinking improvement were not likely to be observed in the short term. The course was considered valuable in opening new learning activities and pedagogical styles for the instructors. Most instructors commented that they would use the same techniques in other courses. For example, one instructor learned more of the merits of course structure vs. open dialogue. On reflection he felt his typical content-laden lectures were less productive than he thought. He planned for more of the activity-based, group learning, with high outcome accountability for future classes. Others agreed and felt this type of learning was well received by the students, with the added value of better student/teacher interactions.

3. CONCLUSION

Survey results indicated that there is widespread concern about the level of preparation exhibited by incoming freshmen. Although most respondents believed that the integration of CI throughout all four years of undergraduate education was optimal for CI development, there is also strong support for the incorporation of a dedicated CI course in the first year curriculum. Most institutions surveyed did not have such a course. Part of the reluctance to offer such a course may be related to the perceived difficulty in assessing critical thinking skills using traditional classroom methods. There also appears to be inadequate training and support for faculty assigned to CI courses. The proposed CI faculty development program described for USCA was designed to alleviate some of these obstacles. Only through implementation and ongoing assessment can we judge the quality and effectiveness of the CI program described. Our critical inquiry course will hopefully set in motion a lifelong philosophy of student discovery and analysis. The philosophy must be incorporated in the entirety of the educational process, with each new critical inquiry experience adding to the last.

After the pilot year of the CI program, instructor morale was very high and student feedback was positive. Instructors were able to experiment with flexible teaching methodologies and approaches, and most commented that their experiences would positively affect the other courses they teach. Student feedback indicated their appreciation of the focus on critical thinking and the introduction to new learning skills. Student also tended to favor the same teaching methodologies favored by the instructors. The effectiveness of the CI course at USCA can best be judged when each cohort of CI students is assessed at graduation. We will be use freshmen-senior assessment (ETS-PP testing) to those ends. Quantifiable answers, however, may remain elusive, as isolating the singular effects of a freshman CI course four years later is surely confounded by multiple factors. We firmly believe, however, that the introduction to critical inquiry as freshmen will have lasting effects, especially on under-prepared students. By introducing freshmen to critical inquiry and sound exploratory learning practices, and by interjecting critical inquiry methods throughout the curriculum, we believe senior students will be more intellectually capable and inquisitive at graduation. We remain convinced that the development of a critical inquiry program for freshmen is in the best interests of the better undergraduate experience we all seek.

REFERENCES

Arum, R. And Roksa, J. 2011. *Academically Adrift: Limited Learning on Campus*. University of Chicago Press.

Bok, Derek. 2006. *Our Underachieving Colleges: A Candid Look at How Much Students Learn and Why They Should Be Learning More.* Princeton University Press, Princeton, NJ, USA.

Braxton, James R. et al, 2000. Faculty Teaching Skills and Their Influence on the College Student Departure Process. *Journal of College Student Development*, Vol. 41, No. 2, pp 215-227.

Claubaugh, Maurice G., Jr., et al, 1995. Bloom's Cognitive Domains Theory: A Basis for Developing Higher Levels of Critical Thinking in Reconstructing a Selling Course. *Journal of Marketing Education*, Vol. 17, No. 3, pp 25-34.

Conley, David T, 2007. *Redefining College Readiness.* Educational Policy Improvement Center, Eugene, Oregon, USA.

Donahue, Lee. 2004. Connections and Reflections: Creating a Positive Learning Environment for FIrst-Year Students, *Journal of The First-Year Experience*, Vol. 16, No. 1, pp 77-100.

Dyer, Andrew et al. 2010. Quality Enhancement Plan: Think DEEP! Aiken, SC: University of South Carolina Aiken.

Fidler, Paul P., et al, 1999. Teaching the Freshman Seminar: Its Effectiveness in Promoting Faculty Development. *Journal of The First-Year Experience and Students in Transition*, Vol. 11, No. 2,pp 59-74.

McClure, Amy I. et al, 2008. Transferring Teaching Skills: Faculty Development Effects From a First-Year Inquiry Program. *Journal of The First-Year Experience and Students in Transition*, Vol. 20, No. 1, pp 31-52.

Mullen, Thomas. 2006. *The Last Town on Earth.* Random House, New York, NY, USA.

Mulnix, J.W. 2012. Thinking Critically about Critical Thinking. *Educational Philosophy & Theory*, 44(5), 464-479.

Pascarella, Earnest T. 1980. Student-Faculty Contact and College Outcomes. *Review of Educational Research*, Vol. 50, No. 4, pp 545-595.

Reason, Robert D. et al, 2006. First Things First: Developing Academic Competence in the First Year of College. *Research in Higher Education*, Vol. 47, No. 2 pp 149-175.

Resmovitz, J. 2012. *Test Scores Often Misused in Policy Decisions.* Huff Post, August 6.

Smith, Gerald F. 2003. Beyond Critical Thinking and Decision Making: Teaching Business Students How to Think. *Journal of Management Education*, Vol. 27, No. 1, pp 24-51.

Terenzini, Patrick T. et al, 1995. Academic and Out-of-Class Influences on Students' Intellectual Orientations. The *Review of Higher Education*, Vol. 19, No. 1, pp 23-44.