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The winter 2013 issue of the *International Journal of Interdisciplinary Research (IJIR)* has been the result of a rigorous process in two stages:

- Stage 1: all papers that were submitted to the 2013 IABD conference went through blind reviews, and high quality papers were recommended for publication in the *Business Research Yearbook (BRY)*.
- Stage 2: approximately ten percent of the articles published in the *BRY* and two invited manuscripts (originally reviewed by the Chief Editor) were selected for possible publication in *IJIR*, and the respective authors were contacted and asked to resubmit their papers for a second round of reviews. These manuscripts went through a rigorous review process by the editorial board members and external reviewers. In the end, five articles were recommended for publication in the winter issue of *IJIR*.

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Ahmad Tootoonchi, Chief Editor

# A COMPARISON OF STUDENTS' PERFORMANCE IN AN ONLINE MANAGERIAL ACCOUNTING COURSE WITH IN-CLASSROOM SETTING

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## ABSTRACT

This empirical research study is comparing students' performances in an online versus in-classroom setting in an introductory managerial accounting course. The research question is whether there is a significant difference in the learning outcomes. The research methodology used in this study includes scores from 12 weekly online assignments, a final examination held on campus, and total marks. The data collected represents three classes taught in the fall semester of 2011 (two in classrooms and one online). This study confirmed the findings of previous studies that students having only online instruction were as successful as students having classroom instruction. It concluded that course instruction and pedagogy are more important for student learning than the type of media delivery and instructors of online learning environment should focus their effort on quality in designing and developing online courses.

## INTRODUCTION

Higher education institutes around the globe have long experimented with different learning environments to accommodate the needs of their students. Along with the classroom face to face classroom, we have seen the use of distance education (e.g., correspondence courses, televised courses, and, lately, online courses). Online learning has become a leading growth sector in higher education. According to the 2011 Sloan Survey of Online Learning (Sloan Consortium 2011), the rate of growth of online enrolments has continued to be far in excess of the rate for the total higher education student population (Allen & Seaman, 2011). Over 6.1 million students were taking at least one online course during the fall 2010 term; an increase of 560,000 students over the number reported the previous year. The ten percent growth rate for online enrolments far exceeds the less than one percent growth of the overall higher education student population. Thirty-one percent of all higher education students now take at least one course online.

Online learning advocates have stated that online learning provides more flexible access to content and instruction and is more cost-efficient by enabling instructors to handle more students while maintaining learning quality that is equivalent or comparable to face-to-face instruction. Other researchers suggest that online education has created a shift in the way higher education institutions offer their programs (Bassoppo-Moyo, 2006). However, educators continue to question the quality of student performance and learning in an online environment compared to face-to-face environments or classroom (also referred to as *blended*) environments, containing a

mixture of face-to-face and online learning (Parsons-Pollard, Diehl, & Hylton, 2008). A review of over 200 studies comparing the differences among distance education (including online) and face-to-face classes revealed mixed results, suggesting that further studies are needed to determine the effectiveness of online instruction (Bernard, et. al., 2004). Authors of the review concluded that "methodology and pedagogy are more important than media in predicting achievement" (p.399), and they encouraged instructors of online classes to focus their efforts on quality course design rather than the environment in which it is presented. This argument is consistent with the findings of some studies, which have found no significant differences between online and face-to-face student achievement (Fortune, Shifflett, & Sibley, 2006; Herman & Banister, 2007; Koory, 2003; Tallent-Runnels, et. al., 2006; Warren, & Holloman 2005; Weber, & Lennon, 2007).

A recent meta-analysis (Means, Toyama, Murphy, Bakia, & Jones, 2009) concluded that the success of online learning approaches appears quite broad across different content and learner types. However, most prior studies were conducted in non-technical settings, and the results might not apply to technical courses such as accounting (Bryant, Kahle, & Schafer, 2005; Arbaugh, 2005). Another problem with prior research is that the vast majority of studies used students' final grades to measure the effectiveness of student learning. Other measures are needed to add insight into the ways in which student performance might vary across instructional methods (Kan & Cheung 2007; Arbaugh, et. al., 2009).

This study first provides a literature review of the performance of online students in accounting courses. Next, students' performance in an introductory managerial accounting course is compared between an online and a classroom setting using two different learning measures. Finally, conclusions are drawn.

## PRIOR RESEARCH IN ACCOUNTING

Online learning research studies in accounting as a technical field are a relatively few and have addressed topics such as instructors' descriptions of their experiences with online courses, comparison of student performance in different learning environments and students' satisfaction with online learning. Comparison of student performance in different learning environments studies yield mixed results. Some studies have concluded that online learning is as effective as classroom or classroom learning. For example, Gagne and Shepherd (2001) found that an online environment was as effective as a classroom in terms of student learning and that students' course evaluations were similar, although online students were less satisfied with instructor availability than face-to-face students. Basile and D'Aquila (2002) found no significant differences in a study of 128 students in four sections of a Principles of Financial Accounting course taught by two different instructors after controlling for differences based on the course instructor. Chen and Jones (2007) compared an online MBA course and a classroom MBA course and reported insignificant differences for final grades and overall evaluations of the course and instructors, but reported some student preferences for group work in the classroom

course. Keller, Hassell, Webber, and Johnson (2009) reported no significant difference in final grade between students in an online and a classroom introductory managerial accounting course.

Some research studies have concluded that students in online environments tend to outperform their counterparts in face-to-face settings. Campbell, Floyd, and Sheridan (2002) reported that students in online principles of accounting course performed significantly better on a comprehensive multiple-choice exam than those in a classroom course and were more satisfied with the course and the instruction. Abraham (2007) examined the participation and performance of graduate engineering students enrolled in two sections of a financial management course in two different semesters, with one section using an online approach and the other section using a classroom approach. Students in the classroom environment displayed increased participation in non-compulsory assignments and achieved higher marks in both in-session and final examinations. Stivason, Saunders, and Price (2008) found that students in an online introductory accounting course performed better on assessments than students in a classroom. Jones and Chen (2008) reported that MBA accounting students in online learning sections had more positive group work experiences and more positive perceptions of instructor feedback compared to students in a face-to-face section.

In contrast, other studies have concluded that students in online tend to under-perform their face-to-face counterparts. Vamosi, Pierce and Slotkin (2004) reported that online students' satisfaction and perceptions about effectiveness in the delivery of course materials were lower than that of students in a classroom when class content rotated between live lectures and live lectures captured for viewing over the Internet during the second half of the course in a financial accounting course. Similarly, Chen, Jones, and Moreland (2010) found that online students received lower mean scores than face-to-face students in three of four areas studied in an intermediate-level cost accounting course.

Most of these aforementioned studies used students' final grades when comparing the effectiveness of the online method to online or classroom face-to-face delivery. In addition, these research studies frequently failed to control for differences in teaching and grading formats where two or more instructors delivered the course content or by the same instructor but over more than one semester. Thus, it is recommended that researchers should use well-designed strategies to provide better evidence about student learning in online versus face-to-face classroom environments (Means et. al., 2009; Reeves, 2005; Tallent-Runnels et. al., 2006). Thus, the main purpose of this study is to contribute to the current stream of online learning literature by: (1) examining the student performance using three different measures of learning; and (2) controlling for instruction and grading formats by having the same instructor teach both online and classroom sections in the same semester using the same measurements of learning outcome between the two types of delivery. As a result, differences in factors such as institutional environments, grading standards, and instructor teaching style are minimized.

## RESEARCH METHOD

### Research Design

A quasi-experimental research design was applied to students registered in three sections in fall 211 of an introductory managerial accounting course taught by the same instructor. Students self-selected into each section are used in this study. It assumes that students would enrol in a section offering the teaching mode that would best maximize their utilities such as grades, more cost-efficient, and more flexible access to content and instruction. This self selection would not affect the robustness of the study because students were all from the same school and taking a core course which is required for all undergraduate business major students. This allowed for the student's profile to be comparable in both teaching modes. Self selection was used by the vast majority of prior studies. Moreover, to have a high degree of internal validity and achieve as close a comparison as possible between classroom and online sections, the same instructor taught all three sections, eliminating differences across sections in confounding factors such as institutional milieu, grading standards, and instructor teaching style. Furthermore, efforts were made to ensure that students in the two learning environments participated in the same learning activities, assignments, and discussions in addition to having access to the same textbook and other learning aids such as assignment solutions, PowerPoint slides, and previous examinations and related solutions. One issue often raised in the debate over the two learning environments is the interaction and discussion that can occur in a face-to-face classroom. In an effort to facilitate similar interaction and discussion, students in the online treatment may use a discussion board to post comments or ask questions to other students or teaching assistants. Traditional office hours were offered for students in the classroom, while virtual office hours were held for the online students.

### Measures of Student Learning

Students' performance was compared with three different measures of learning, consisting of twelve weekly online assignments, a final examination (held on campus) and total marks. Students in both groups (classroom and online) were required to register at WileyPlus Course Management Systems to perform the twelve weekly online assignments.

The twelve weekly assignments corresponded to the twelve chapters required for the course and consisted of true/false statements, multiple choice questions, and problem solving questions requiring calculations, analyses, or short answers. Each assignment was graded as a pass or fail with two attempts for each question. To earn a pass grade, students needed to receive a minimum of 60% of the 100 marks available for each assignment. To receive the full 10% grade allocated to the online assignments, students needed to pass twelve out of twelve assignments. After the due date for each assignment, students were able to review the assignment, answers, solutions, and link to the online textbook. These weekly assignments were essential to keep students active

while providing learners with timely and meaningful feedback and assessment in the online or classroom environment. This created an element of motivation and an educational design that promotes a more active, collaborative, and participatory learners as those commonly found in the face-to-face environments. A common final examination was administered on campus to all students in both learning environments at the same time. Student performances in twelve online assignments, the final examinations, and total marks were used to perform the comparison between the two different learning environments for fall 2011.

## Statement of Hypotheses

The null hypotheses for this study are:

1. $H_o$: There is no statistically significant difference in students' performance between the in classroom section and the online section in the 12 weekly assignments.

2. $H_o$: There is no statistically significant difference in students' performance between the in classroom section and the online section in the final examination.

3. $H_o$: There is no statistically significant difference in students' performance between the in classroom section and the online section in the total marks.

### Data Collection Procedures

There were 184 students enrolled in the two traditional classroom sections and 134 registered for the online section. The results presented below only include data from students who completed all requirements for the course. In the traditional classroom sections, 19 students withdrew from the course and 9 students did not write the final examination for personal reasons leaving 184 students in the two sections that completed the course and received final grade. In the online section, 6 students withdrew from the course and 11 students did not write the final examination, leaving 134 who completed the course and received final grades.

## Statistical Analysis and Results

First, we analyzed and compared the results for the two classroom sections with regard to students' performance in the 12 weekly online assignments and the final examination using a t-test to determine if the two classroom sections could be treated as a single sample for comparison with the online section. The results of students' performances in the two assessments noted above were not significantly different between the two classroom sections. Therefore, the two classroom sections were treated as one section of 184 students for hypothesis testing over fall 2011. Summary performance measures for students in both the classroom and online sections and related tests in fall 2011 are presented in table 1.

**TABLE 1: SUMMARY STATISTICS AND TESTS OF STUDENTS' PERFORMANCES**

| Section | Number of Students | Mean Score | Standard Deviation | Standard Error of the Mean | F-Value | Significance Level |
|---|---|---|---|---|---|---|
| **PANEL A**: Students' Performances in 12 Weekly Assignments | | | | | | |
| Classroom | 184 | 8.65 | 2.17 | 0.160 | 0.005 | 0.943 |
| Online | 134 | 8.52 | 1.98 | 0.169 | | |
| **PANEL B**: Students' Performances in the Final Examination | | | | | | |
| Classroom | 184 | 57.72 | 17.14 | 1.26 | 0.787 | 0.376 |
| Online | 134 | 48.28 | 16.44 | 1.89 | | |
| **PANEL C**: Students' Performances in the Total Marks | | | | | | |
| Classroom | 185 | 67.34 | 17.22 | 1.27 | 1.319 | 0.252 |
| Online | 134 | 57.71 | 15.81 | 1.37 | | |

The average scores on 12 weekly assignments reported in Table 1- PANEL A are the number of points awarded out of 10, The results of t-test analysis that was performed to test whether the students' performance on these assignments are significant different between the in classroom and online sections. The results indicated that the average score on weekly assignments in the classroom sections (8.65) was not significantly different from the average score achieved by students in the online section (8.52) at F-Value 0.005 which measured the difference between classroom and online variances at the 0.943 significance level.

Table 1- PANEL B, demonstrates the results of t-test analysis that was performed to test whether the students' performance on final exam mean scores differ between the in classroom and online students. The results indicate that the average of final exam in classroom students was not significantly different from the average of final exam of online students at the 0.376 level of alpha. However, in classroom students section have higher average final exam mark than online section. They averaged 57.72% while the online students averaged 48.28%. We accept the second null hypothesis that there is no statistically significant difference in students' performance between in classroom students and online students in final exam.

Table 1- PANEL C, above were the results of t-test analysis to address whether or not the students' performance in total mark mean scores differ between the face to face classroom and online students. The results indicated that the average score of total mark for face to face classroom students was not significantly different from the average total mark mean score of online students at F-Value 1.319 and the 0.252 level of alpha. Nevertheless, face to face classroom students section performed higher than online section in this analysis. They averaged 67.34% whereas the online students averaged 57.71%. Therefore, we accept the third null hypothesis that there is no statistically significant difference in students' performance between

face to face classroom students and online students in total mark mean scores in fall 2011, winter 2012, and summer 2012 term.

## CONCLUSION

In just over a decade, online learning has become an innovative form of teaching in higher education worldwide. With innovation comes challenges, and educators face just that, as they strive to fully understand how to use this great learning technique. A primary focus for all educators involved in online instruction is the learning outcomes. The major focus of this study was to compare the learning outcomes of students' performance between those in an online learning setting and those in a classroom setting. This was achieved using two different learning outcomes to better assess and demonstrate the effectiveness of the two types of media delivery in an introductory managerial accounting course. Students were required to complete twelve weekly online assignments and a final examination held on campus. The results of this study revealed that students registered in the online section were as successful as students enrolled in the classroom section. Students were able to learn the course material in both types of settings. The results from this study support the findings of prior research in that students' performances in online courses are comparable to those of students in classroom or traditional classes. One may well also conclude that the teaching style and the pedagogy are far more imperative for student learning than the type of media delivery. Furthermore, instructors of online classes should dedicate their efforts to designing and developing a quality course outline which encompasses learner-centered environment, knowledge-centered environment, assessment-centered environment and community-centered environment to both motivate and keep learners constantly involved.

## LIMITATIONS OF THE STUDY

Despite the fact that the study has provided us with further insight into the realm of online learning, some limitations were observed. These limitations include the fact that the study was conducted at a single university and for a single course, managerial accounting, which was taught by one instructor. Furthermore, the assignment of students to each group was not random as the students had the choice of enrolling in any group, assuming students would enrol in the teaching mode that would best maximize their utilities in terms of grades, more cost-efficient, and more flexible access to content and instruction. Even though the study's results were informative, this study does not promote one medium of delivery (classroom or online) over another, nor does it attempt to measure the effect of teacher/student and student/student interaction on learning outcomes.

This study concentrated on the form of delivery as the main factor influencing students' performance in the course. Nevertheless, other factors could have influenced the results such as:

previous online course experience, proficiency with a particular classroom webpage (WileyPlus), work experience and other student demographics.

## REFERENCES


Abraham, A. (2007). Adopting a student-centred pedagogy in the teaching of accounting to engineering students: Comparing a blended learning approach with a traditional approach. In *ICT: Providing choices for learners and learning. Proceedings,* Singapore.

Allen, I. E., & Seaman, J. (2011). Class differences, online education in the United States,2011, *The Sloan Consortium.*

Arbaugh, J. (2005). How much does "subject matter" matter? A study of disciplinary effects in online MBA courses. *Academy of Management Learning and Education*, 4 (1), 57-73.

Arbaugh, J., Godfrey, M., Johnson, M., Pollack, B., Niendorf, B., & Wresch, W. (2009), Research in online and classroom learning in the business disciplines: Key findings and possible future directions. *Internet and Higher Education*, 12, 71-87.

Basile, A., & D'Aquila, J. M. (2002). An experimental analysis of computer-mediated instruction and student attitudes in principles of financial accounting course. *Journal of Education for Business*, 77(3), 137–143.

Bassoppo-Moyo, T. C. (2006), Evaluating eLearning: A front-end, process and post hoc approach. *International Journal of Instructional Media*, 33(1), 7-22.

Bernard, R. M., Abrami, P.C., Lou, Y., Borokhovski, E., Wade, A., Wozney, L., Wallet, P.A., Fiest, M., & Huang, B. (2004). How does distance education compare with classroom instruction? A meta-analysis of the empirical literature. Review of Educational Research, 74(3), 379–439.

Bryant, S., Kahle, J., & Schafer, B. (2005), Distance education: A review of the contemporary literature. *Issues in Accounting Education*, 20 (3), 255-272.

Campbell, M. C., Floyd, J., & Sheridan, J. B. (2002). Assessment of student performance and attitudes for courses taught online versus onsite. *Journal of Applied Business Research*, 18(2), 45–51.

Chen, Clement C., & Jones, K. T. (2007). Blended learning vs. traditional classroom settings: Assessing effectiveness and student perceptions in an MBA accounting course. *Journal of Educators Online*, 4(1), 1–15.

Chen, Clement C., Jones, Keith T., & Moreland, Keith. (2010). Distance education in a cost accounting course: instruction, interaction, and multiple measures of learning outcomes. *The Journal of Educators Online* 7(2):1-20.

Fortune, M. F., Shifflett, B., & Sibley, R. E. (2006). A comparison of online (high tech) and traditional (high touch) learning in business communication courses in Silicon Valley. *Journal of Education for Business*, 81(4), 210-214.

Herman, T., & Banister, S. (2007). Face-to face versus online coursework: A comparison of costs and learning outcomes. *Contemporary Issues in Technology Education*, 7(4), 318-326.

Gagne, M., & Shepherd, M. (2001). Distance learning in accounting. *T.H.E. Journal*, 28 (9), 58-65.

Jones, K. T., & Chen, C. C. (2008). Blended learning in a graduate accounting course: Student satisfaction and course design issues. *The Accounting Educator's Journal*, 18, 15–28.

Kan, A., & Cheung, L. (2007). Relative effects of distance versus traditional course delivery on student performance in Hong Kong. *International Journal of Management*, 24 (4), 763-773.

Keller, J. H., Hassell, J. M., Webber, S. A., & Johnson, J. N. (2009). A comparison of academic performance in traditional and classroom sections of introductory managerial accounting. *Journal of Accounting Education*, 27(3), 147–154.

Koory, M. A. (2003). Differences in learning outcomes for the online and F2F versions of "An introduction to Shakespeare". *Journal for Asynchronous Learning Networks*, 7(2), 18-39.

Means, B., Toyama, Y., Murphy, R., Bakia, M., & Jones, K. (2009). Evaluation of evidence-based practices in online learning: A meta-analysis and review of online learning studies. U.S. Department of Education Office of Planning, Evaluation, and Policy Development, Policy and Program Studies Service Center for Technology in Learning.

Parsons-Pollard, N., Diehl Lacks, R., & Hylton Grant, P. (2008). A comparative assessment of student learning outcomes in large online and traditional campus-based introduction to criminal justice courses. *Criminal Justice Studies*, 21(3), 239-251.

Reeves, T. C. (2005). No significant differences revisited: A historical perspective on the research informing contemporary online learning. In G. Kearsley (Ed.), *Online learning: Personal reflections on the transformation of education* (pp. 299-308) Englewood Cliffs, NJ: Educational Technology Publications.

Sloan Consortium, (2011). Survey of Online Learning 2011.

Stivason T., Saunders G., & Price J. (2008). A comparison of student performance in an online introductory accounting course with traditional classroom students, *College Teaching Methods & Styles Journal,* Volume 4, Number 5, 1-8.

Tallent-Runnels, K., Lan, W., Cooper, S., Ahern, C., Shaw, M., & Liu, X. (2006). Teaching courses online: A review of the research. *Review of Educational Research* 76 (1), 93-135.

Vamosi, A., Pierce, B. G., & Slotkin, M. H. (2004). Distance learning in an accounting principles course-student satisfaction and perceptions of efficacy. *Journal of Education for Business*, 79 (6), 360-366.

Warren, L. L., & Holloman, H. L. (2005). On-line instruction: Are the outcomes the same? *Journal of Instructional Psychology*, 32(2), 148-150.

Weber, J. M., & Lennon, R. (2007). Multi-course comparison of traditional versus web-based course delivery systems. *The Journal of Educators Online*, 4(2), 1-19.

# THE ROOTS OF THE CIO MOVEMENT IN ALIQUIPPA AND AMBRIDGE, PENNSYLVANIA, 1933-1937

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## ABSTRACT

This paper examines how working-class men's anxieties about the experience of gender, class, and power gave rise to worker interest in unionization and the Committee of Industrial Organizations (CIO) in western Pennsylvania steel mill towns during the Great Depression. During the 1930s, working men in the Beaver County steel towns of Aliquippa and Ambridge viewed industrial unions and class struggle as ways to more firmly establish manliness and a sense of male authority since they often confronted experiences of powerlessness and subordination in company town politics, workplaces, and sometimes their own homes.

## INTRODUCTION

In May 1937, steelworkers struck against the Jones & Laughlin Steel Corporation (J&L), in Aliquippa, Pennsylvania, laying the foundations of industrial unionism in western Pennsylvania. The men and women who lived and worked in the borough described J&L as "a tyranny that had held it [the town of Aliquippa] for years" (Brooks, 1940, p. 124). In the months that led up to the strike, a series of changes emboldened the actions of the men and women on the picket lines. Between January and May, General Motors workers and the United Automobile Workers (UAW) won their sit-down strike in Flint, Michigan, the Steel Workers Organizing Committee (SWOC) won 110 contracts with US Steel, and the United States Supreme Court ruled in favor of *NLRB v. Jones & Laughlin Steel Corp.* in April, upholding the National Labor Relations Act (NLRA, or the Wagner Act) which mandated that workers had the legal right to organize unions. However, the independents such as Jones & Laughlin remained opposed to industrial unionism. When negotiations between the SWOC and J&L broke down in May, the union called for a strike. Originally concerned whether or not they could win, organizers reveled in the strike's success. "No one, not even the union," noted SWOC organizer Meyer Bernstein, "believed it possible." In Aliquippa, infamously known as "Little Siberia," the strike exposed the "pent-up" anger of marginalized steelworkers, who had long resented J&L's harsh treatment of workers and their communities. Bernstein asserted, "Men were aching for a fight" (Brooks, 1940, p. 121-127).

Meyer Bernstein's remarks echo the masternarrative of working-class politics in New Deal America: increasingly class-conscious and restive workers initiated grassroots "revolts" in cities, towns, and industries across the United States, throwing off the shackles of employer anti-unionism. Since the 1890s, organized labor had little success in Pittsburgh's Steel Valley. Even the 1919 strike in steel ultimately disintegrated due to ethnic divisions and virulent anti-radicalism (Brody, 1965, p. 129, 191). During the 1930s, however, unionization rebounded. In 1933-1934,

workers launched major strikes in Detroit, Toledo, San Francisco, Minneapolis, Akron, and in the Pittsburgh district. Later, in 1937, the new Committee of Industrial Organizations (CIO) won its first major victories in automobile manufacturing and steel. What propelled the rejuvenation of the labor movement? To explain the widespread labor militancy and class-based politics of the thirties, historians have examined, for example, how forces such as the rise of a homogenizing mass culture, the general failure of 1920s welfare capitalism, the ways the Great Depression destroyed workers' faith in New Era prosperity, and the failure of ethnic institutions to mediate the effects of the economic crisis fostered widespread class consciousness and support for new industrial unions (Bernstein, 1966, p. 65-66; Bernstein, 1970; Cohen, 1990; Gerstle, 1989; Faue, 1991; Zieger, 1995, p. 9-13).

These explanations, however, fail to fully capture what drove the militancy of the workers Bernstein observed and what organized labor's success meant to them. Men, he recognized, wanted something else. In Beaver County steel towns, unionism offered males what they lacked previously, something historical as well as sociological: authority and power as working-class *men*. CIO unionism emerged from an environment where political repression undermined men's claims to civil liberties within their communities, especially the right to organize labor unions, the freedom of assembly, freedom of speech, and the right to vote for political candidates of one's own choosing, and where transformations in women's status during the 1910s-1920s challenged male authority within the home -- all of which were made worse by unemployment and the weakening of male breadwinner identities during the Great Depression. As Joseph Periello, a veteran of the Aliquippa strike and long-time resident of the borough, remembered, working men believed they "lived on their knees." The Steel Workers Organizing Committee (SWOC) and the CIO, however, allowed them to stand up and "fight," to become men (J. Periello, interview, 2000).

This article examines the relationship between gender, class, and the labor movement during the Great Depression. In Beaver County mill towns, masculinity and gender were not primarily bureaucratic impositions that blunted an emancipatory politics of class (Faue, 1991, p. 66-99). Rather, the development of organized labor as a movement and an institution in the 1930s reflected working-class men and women's gendered views of identity, family, community, and labor. In steel, men and women built the gender politics of CIO unionism from the bottom-up. The protracted marginalization of working-class men during the 1910s, 1920s, and early 1930s fueled working-class militancy and the rise of industrial unionism, as well as its masculine overtones, in local mill towns. While persuasively indicating that gender mattered very deeply to working people in the 1930s, and the ways workers' ideas about gender shaped their political actions, historians' explanations for labor's success have underestimated how anxieties about pre-CIO gender politics informed worker actions and the appeal of new unions during the depression. The redemption of working-class manhood rested at the foundation of men's enthusiasm for the SWOC; men in Aliquippa and the neighboring borough of Ambridge brought a past history of wounded masculinities with them to the picket lines during the 1930s. As Periello said, "It made us feel like men" (J. Periello, interview, 2000).

## EMBATTLED MANHOOD IN PRE-CIO BEAVER COUNTY

Discussions of gender and working-class consciousness during the Great Depression era often begin with the ways men experienced a "crisis of masculinity." Due to extensive unemployment, men's identities as breadwinners, workers, and patriarchs became increasingly precarious. This upheaval within society and the family, the argument continues, set the stage for working-class dissent (Faue, 1991, p. 191; Cohen, 1990, p. 246-249). Communist-led Unemployed Councils appeared in major industrial cities across the North and Midwest in 1930, for instance, appealing to men's sense of disaffection. While discussions of a "crisis of masculinity" begin to uncover the gender anxieties of men, scholars have only given it limited significance and defined the concept narrowly. What historians and sociologists saw as a "crisis" in depression-era gender identities and relations may have been the tip of an iceberg; as the case of Beaver County men suggests, worries about gender predated the 1930s and these concerns went beyond the issue of male breadwinner status within the family. In addition to unemployment, other forces laid siege to working-class masculinity before, as well as during, the depression decade.

Three important social and political forces shaped the gender consciousness of working men in Beaver County. First, the authoritarian structure of the mill town marginalized working men in public life. Beginning in the 1910s, the Jones & Laughlin Steel Corporation closely circumscribed the freedoms of men in Aliquippa. Men had no legitimate status or voice in local politics, and company officials and local police sternly monitored steelworkers' actions and behaviors in public space and on the shop floor. Second, social, political, and cultural changes in women's status during the 1910s and 1920s empowered the American-born daughters of previous generations of immigrants. (Simultaneously, however, working-class men viewed their own status as slight). Men found themselves in conflict with women, who they believed had once been less forceful and independent. Finally, the Great Depression weakened the economic and social status of men. With work hard to come by, the ideal of the male breadwinner became difficult to fulfill. As the sociologist Mirra Komarovsky wrote in her 1940 study of manhood and depression-era unemployment: "He [the working man] experiences a sense of deep frustration because in his own estimation he fails to fulfill what is the central duty of his life, the very touchstone of his manhood -- the role of family provider" (p. 74). In the 1930s, men began to look to new institutions such as the Unemployed Councils, and later the CIO, as ways to affirm their sense of manhood.

In Beaver County, working-class men's subordination began in 1910, when the Jones & Laughlin Corporation transformed the small town of Woodlawn into a tightly structured, harshly policed mill town -- reminiscent of the coal mining company towns of southern West Virginia, which were, as Samuel Gompers observed in 1913, decidedly "Russianized" (Norwood, 2002, p. 128-129). Renamed Aliquippa, J&L molded the town according to its own particular ends, cultivating what superintendent Tom Girdler proudly described as a "benevolent dictatorship" (Bernstein, 1970, p. 475). The corporation bought most of the land in the surrounding area, building new residential areas around a series of ethnic-, race-, and class-divided "plans." These manufactured neighborhoods housed (as well as divided) workers and J&L officials. While the company envisioned a progressive, model community for workers and management, they enforced their policies through an omnipresent police force. At the same time, J&L employed spies that kept the company "sufficiently informed as to the likelihood of sedition breaking out" (Wollman and

Inman, 1999, p. 62-79; Fitch, 1989, p. 219). Workers who came to Aliquippa between the 1910s and the 1930s became all too familiar with Jones & Laughlin police chief Captain Harry Mauk's tyrannical, violent control. Company and local police stifled unionists and dissenters, scrutinized social spaces, and entered workers' homes (technically J&L property) at will. Working men argued they were not "free" in Aliquippa; rather, they lived as "serfs" in the J&L fiefdom (Davin, 1999, p. 14, 490).

While workers had it bad, union organizers and sympathizers had it far worse. A union activist of the 1920s and 1930s remembered how J&L officials once told him, "We make the rules. This is not the United States. This is Aliquippa" (Davin, 2000, p. 263). The company exacted a stern control over local working-class residents. During the 1930s, for instance, working men and unionists described a "reign of terror" in Aliquippa, driven by "systematic terror" at the hands of J&L and the police ("Union Lays Abuses," 1934). Violence was common, as the police targeted union organizers and sympathizers for harassment. "They beat you for exercise," Joseph Periello bitterly recalled (J. Periello, interview, 2000). Mike Kellar was one of the union men who experienced J&L violence first-hand. Mary Cozzicoli reported that Kellar "had been abused and beaten" on numerous occasions by company men (M. Cozzicoli, interview, n.d.) J&L policemen entered workers' homes without permission, assaulted or jailed union organizers, and in some cases "railroaded" men into asylums in order to enforce their silence, as they did with George Isosky, a unionist and disabled steelworker, during the early 1930s (Green, 1993, p. 10-11; J. Periello, interview, 2000).

Men and women in Aliquippa found life there demeaning. The company and the police not only victimized men; they also victimized women. Company officials, according to Joseph Periello, sometimes demanded sexual favors from steelworkers' spouses. Moreover, the small number of women, who worked at the Jones mills, was vulnerable to the sexual advances of supervisors. Bosses sometimes visited workers' homes and coerced women into extramarital affairs, forcing some women to meet them at area hotels (J. Periello, interview, 2000). Due to the company's unyielding control, men and women had little recourse. J&L coercion did not stop at matters pertaining to union organizing; it could reach into workers' homes, families, and private lives.

Aliquippa was a company town. Through the local Republican Party, the company controlled borough politics. To maintain the city government as an arm of J&L control, the company dictated how its employees voted during elections. If a man wanted to keep his job, he voted the Republican ticket. Reflecting on local elections during the early 1930s, Joseph Periello remembered how supervisors recruited would-be voters from the shop floor and escorted them to the polls.

> My boss came over, He said, "Joe, at 2 o'clock a car will be outside, and you will go vote." I told him I wasn't 21. I was only 19. I am not registered to vote. He said, "You vote.". . . . I voted Republican like they wanted me to (J. Periello, interview, n.d.)

As men, who lived in the United States, a country where working people hoped to find democracy, J&L workers resented the ways the company arbitrarily restricted their civil rights.
Periello continued,

> When I came back out [of the polling place] . . . I figured a god damn man has a right to do what he wants in this country . . . I said, . . . That's the last time I'll vote for those bastards" (J. Periello, interview, n.d.)

For men and women in Aliquippa, personal freedom and dignity could be meager as they suffered numerous injustices. The company fostered a debasing environment: their practices marginalized men by denying them control over their own votes, made them wholly vulnerable to police violence and intimidation, and J&L officials sometimes forced wives and women workers into unwanted sexual relationships.

Gender not only shaped class relations between working-class women and men and the Jones & Laughlin Steel Corporation, however. Beaver County also witnessed intra-class conflict over the meanings of gender and power. During the 1920s and early 1930s, numerous instances of violent domestic strife appeared in local newspapers and court records. These incidents highlighted an assertive, vocal generation of women and an uneasy generation of men. The women who came of age during the New Era were American women, raised on the pleasures of mass consumerism, urban leisure, and expectations of freedom and empowerment. Since the Progressive Era, women's expanding independence and assertiveness became increasingly visible in urban centers and popular culture (Dumenil, 1995, p. 98-144; Ewen, 1985; Peiss, 1986; Benson, 1986). Reformers in Chicago and New York City, for example, targeted women who did not depend on men for support, demonstrating a negative or fearful reaction to changes in gender relations and women's status during the 1910s and 1920s (Meyerowitz, 1988; Peiss, 1986).

The achievement of the vote was another marker of change for women. As a result of Progressive Era activism and suffrage militancy, women became important players in national politics. While women's political activism waned during the remainder of the 1920s (due to the lack of a central cause that would allow women to unite on the basis of gender), the Nineteenth Amendment symbolically recognized women and men as equals in politics (Chafe, 1972, p. 36-37). Between 1900 and 1930, the high profile of independent women in urban centers and the achievement of the vote signaled change in the status of women across the country. Despite the fact that working-class votes meant little in "Little Siberia," it was the era of the "New Woman."

Between World War I and the Great Depression, the prominence of married women in public life also increased. Due to the rise of mass consumerism, new ideals and aspirations towards a middle-class lifestyle heightened the need for financial contributions from supplementary wage earners. Working men, families discovered, "were not paid enough to support their families according to the American standard of living" (Wandersee, 1981, p. 1-2). Women thus remained important to the family economy. While women's access to jobs varied according to city or region, these changes signal a broader shift in American culture. Women needed, and wanted, to work just as men did. In their study of social and cultural change during the 1920s, the sociologists Robert S.

Lynd and Helen Merrell Lynd concluded that "working for money is becoming larger" among women. "[T]o a greater extent than thirty-five years ago," they wrote, "women share this activity with men" (Lynd and Lynd, 1929, p. 30). Men were perhaps not comfortable with these changes. During the Great Depression, voices in opposition to women's employment not only resonated with the exigencies of the economic crisis -- they also suggested a negative reaction to the previous decades' changes (Faue, 1991; Scharf, 1980). In Beaver County, a region dominated by the steel industry's sexual division of labor, women's assertiveness during the twenties and thirties reflected the impact of these broader revisions in women's range of acceptable activities. While women had severely limited job opportunities in the region, men's actions suggested they were weary of women's new attitudes.

Due to their privileged status as breadwinners, men demanded authority over women and their homes. During the 1920s and early 1930s, as the era of the New Woman unfolded, homes became a site of conflict between men and women in Beaver County. While men dominated work opportunities in the labor market, women nonetheless forged a vocal and forceful role within the family and the home (Kleinberg, 1989). Clinging to notions of patriarchal authority over spouses and homes, men found themselves on new and uncertain terrain. Their fathers' wives were characteristically submissive and "conservative," according to Joseph Periello. However, new "American" ideas gave immigrants' daughters of the 1920s-1930s a set of higher expectations from marriage (J. Periello, interview, 2000).

In Beaver County, instances of violent conflict within heterosocial and homosocial relationships underscored how volatile gender relationships could be during the New Era and the early 1930s. Cases of domestic violence (among men and women, as well as among men themselves) and litigation initiated by wives against delinquent husbands provide a small window into the volatility of gender relations between 1925 and 1933. Daily news reports on crimes committed among men and by men against women appeared often in the *Daily Citizen*, the daily Ambridge newspaper, between 1925 and 1935, calling readers' attention to troubled gender relationships. Within the homosocial culture of working men in Beaver County, men sometimes clashed over the affections of women. Men also violently quarreled over insults, perceived or otherwise, to one's honor. Moreover, these articles highlight patterns of conditional and contested marital arrangements between husbands and wives -- specifically, what men and women believed they were entitled to within the context of their relationships. Husbands could not always count on an evening meal, for example, if they engaged in violent or abusive behavior with their spouses. Reports on these issues appeared frequently in the *Daily Citizen* as well as the Beaver County court dockets, and they portray social spaces and homes as sites where men and women struggled with issues of gender right and power.

In private spaces, family life could be confrontational. During the first years of the Great Depression, newspaper articles highlighted incidents of domestic conflict where relations between husbands and wives had been strained to the breaking point. In 1931, for example, Emery O. Crawford and Clara Crawford's marriage smoldered with tension. When Emery arrived home one night, Clara told him she would make his supper "if he would eat it." Apparently, Emery had refused to eat Clara's meals for some time and Clara was fed up with him. She chastised her husband for his behavior, and their argument quickly escalated. Emery threatened his wife: "I'll

slap your mouth for you," he warned. Clara, however, refused to back down. "I have never yet seen," she declared, "the man big enough to slap my mouth." The pair began fighting in the kitchen. Then Clara's father, John Merriman, who probably lived with the couple, appeared with a gun. He fired, killing Emery. Initially, the Beaver County Court charged that Merriman "willfully . . . did kill and murder." Later, however, the judge sympathized with the older Merriman, lowered his charge to involuntary manslaughter, and gave him ten years of probation ("Merriman Paroled," 1931).

The Crawford case suggests how men and women struggled to negotiate gender and power within marriage, and how these negotiations could violently break down. Clara expressed the limits to what she would and would not do as Emery's wife and caregiver. She did not work away from the home, and as his wife, she readily offered to fulfill her position as homemaker by preparing her husband's supper. Most importantly, Clara expected Emery to allow her to fulfill that task. When Emery belittled her labors by refusing to eat, Clara forcefully challenged his behavior. During the violent confrontation before Emery's death, she attacked the ways men tried to violently subdue her in the past ("I've never seen the man big enough to slap my mouth."). The Crawford incident suggests how women and men could violently disagree over gender right and privilege.

In addition to heterosocial contexts, men often confronted dangerous tensions within homosocial settings. Homosociability did not necessarily provide men with an escape from the tensions of mill town life. In 1925 a group of men who worked at Ambridge's Central Tube Company plant boarded together in a home owned by a man named Tony Raimondi. One evening, three of the roommates (Bruno Fisano, Dominick Page, and Ned Scrivo) engaged in a heated argument over the affections of a young woman in the neighborhood. The disagreement rapidly escalated, and Scrivo drew a thirty-eight caliber handgun and fired twice. Dominick Page died immediately, and Bruno Fisano ended up in the Sewickley Valley Hospital with a bullet lodged in his chest. Scrivo ran from the scene, while Frank Valenti, who also lived in the house, rushed to the police station for assistance ("Shooting Affray," 1925). The incident points to a potentially volatile social world where competition and disagreements among men over issues such as relationships with women could end in death.

The Scrivo shooting reflects themes that repeatedly appeared in the newspapers during the late 1920s and early 1930s. An important component of manliness, as demonstrated by various incidents, revolved around the protection of one's honor. In the social lives of Beaver County men, sociability, alcohol, and insults often led to violent showdowns in public and private spaces ("Failure to Buy Drinks," 1932). In December 1931, for example, John Mattia stabbed and murdered August Nardachia during an argument at a Christmas party. The men may have been acquaintances or friends; the incident occurred while both men were visiting another home in Aliquippa ("Aliquippa Man," 1931). The holidays also saw another potentially disastrous confrontation. In Ambridge, policemen arrested Peter Galloy after he threatened one of his roommates with "a vicious looking hunting knife." Despite these and other incidents, the *Daily Citizen* insisted "the number who celebrated Christmas by getting drunk appeared to be smaller than in past years." It was, in the telling words of the reporter, "a comparatively quiet holiday in Ambridge" ("Threatens Man's Life," 1931).

The early years of the Great Depression certainly made things worse for working men and women in Beaver County. While unemployment hit cities such as Detroit and Chicago with great force, *under*employment beset western Pennsylvania steel towns. In 1930, only 2,920 Beaver County workers had been laid off out of a workforce of 53,465 (5 percent). Of these, 2,719 were men and 201 were women. In Aliquippa itself, only 343 workers had been laid off out of a workforce of 10,311 (3 percent). Just across the Ohio River in neighboring Ambridge, only 400 workers out of a workforce of 7,347 had been discharged (5 percent) [U.S. Bureau of Census, 1931, p. 874, 875]. While area steel mills, to their credit, adopted "share the work" programs to keep workers on the payrolls, wages and hours declined drastically. During 1930-1931, steelworkers, "didn't receive enough working time to feed their families" ("Great Ambridge Strike," 1980). Joseph Periello described how he visited the J&L mills in Aliquippa each day in the hopes of getting day work during the depression years. If jobs were available, he recalled, a young manager would come out and call down to the men, "Any hunkies or niggers want day work" (J. Periello, interview, 2000)? Other times, Periello and others waited outside all day without even seeing a company official. While technically employed in some cases, working-class men had great difficulty securing a steady paycheck.

Contemporaries pointed out how struggling workers had few avenues of relief during the early 1930s. "At the beginning of the Depression," the Beaver Valley Labor History Society recalled, "the workers of Ambridge had no federal, state, county or borough unemployment insurance to fall back on." To alleviate the crisis, workers turned to community institutions. Churches became important sources of relief. In Ambridge, numerous churches served food twice per day to "hundreds" of men and women. The networks of available relief, however, could not end the suffering among workers and their families ("Great Ambridge Strike," 1980).

With work so hard to come by, evidence suggests that some men began deserting their wives and children. Desertion amidst the depression compelled working-class women to act decisively in defense of themselves and their families. Women in Beaver County had far fewer means of economic sustenance within the sexual division of labor found in area steel towns. They depended on husbands' earnings for their own (and their children's) financial support. When a husband abandoned his family and withdrew his wages from the household, many women turned to the local courts in an attempt to mend their situation. Through the courts, abandoned women challenged their husbands' assertions of patriarchal authority and mobility.

In November 1931, for instance, McKensy Edmundson left his wife, Mattie. McKensy had been gone for nearly three weeks, and Mattie decided something had to be done. The deserted wife filed a charge of "Non-Support" at the Beaver County court in Beaver, Pennsylvania. After hearing her case, the court readily acknowledged "that he has deserted her; that she is entirely dependent upon herself for support for the past three weeks and [he] has refused to pay the rent of the house in which she lives." McKensy relented and plead guilty to the charge of non-support. The judge, in turn, ordered him to pay three dollars per week "for the support of his wife" ("Edmundson, McKensy," 1932). In the courts, women found a resource to challenge the imbalance of power among men and women within the region's sexual division of labor.

Not all men deserted their wives, however. Most men looked for other ways to contend with the Great Depression's effects. Working-class men in Ambridge, with the help of Communist activists, formed an Unemployed Council in 1930. The group grew quickly as organizers went to church soup lines, asking people to report evictions and water and gas shutoffs. When evictions occurred, the Council mobilized local unemployed men and forcefully carried the furniture back into the house. "Constables who placed the furniture on the street," according to one account, "were powerless against large groups" ("Great Ambridge Strike," 1980). Unemployed Councils gave suffering men (and women) a way to do *something* about their situation.

A close look at Beaver County steel towns during the 1920s and early 1930s, the years before the rise of the CIO, reveals the sometimes contentious and potentially violent world women and men lived, worked, and played in. Their daily experiences as members of communities, families, and peer groups revealed how men and women struggled over issues of gender right and privilege. Women and men had a lengthy history of struggle under the J&L regime in Aliquippa, men grappled with one another over issues of honor in their social circles, and conflicts between husbands and wives could undermine men's claims to patriarchal authority. The depression further jeopardized men's preferred relationship to their families, undermining men's claims to wage work and identities as breadwinners and patriarchs. In response to the chaos wrought by the Great Depression, organizations such as the Unemployed Councils offered men a new way to challenge some of the circumstances that marginalized them in their own homes and communities. Between 1933 and 1937, however, a reviving labor movement would finally allow them to affirm their manhood.

## THE GREAT AMBRIDGE STRIKE OF 1933

In early October 1933, newspaper readers across the United States learned of a violent strike in the borough of Ambridge, located northwest of Pittsburgh on the Ohio River and directly adjacent to Aliquippa. In the *New York Times*, reporters told of violence between pickets and strikebreakers, and between the pickets and sheriff's deputies in front of the Spang-Chalfant mill. On October 5, just before the strike would be forcefully concluded by police deputies, two men were seriously wounded and several others had been beaten during a confrontation between workers and strikebreakers on the streets of Ambridge, "as industrial chaos spread to the rich Beaver Valley." On that day, when 100 men attempted to cross the picket lines, "a mob of 300 shouting, jeering pickets closed in [and] fists, clubs, and bricks flew" ("One Killed," 1933). Accounts of the 1933 Ambridge strike, such as the ones to be found in the *New York Times*, announced to the entire country that labor's new men were marching into battle, struggling to unionize the western Pennsylvania steel industry and gain influence over their communities.

The Ambridge strike followed on the heels of the National Industrial Recovery Act (NIRA). Passed in June 1933, the NIRA sparked new attempts among steelworkers to organize or join unions. Old unions such as the Amalgamated Association (AA) witnessed a leap in membership. Before the NIRA, the Amalgamated had less than 5,000 members; by April 1934, the old union boasted a membership of at least 50,000 men (Lynd, 1972, p. 38-39). New groups also appeared on behalf of the men in the mills. In Ambridge, Communist organizers, operating under the banner

of the Trade Union Unity League (TUUL), formed the Steel and Metal Workers Industrial Union (SMWIU). The SMWIU and Ambridge workers launched the October 1933 strike. During 1933, the passage of the NIRA set in motion the process of remaking working-class manhood via industrial unionism. The organizing efforts that began during this time set steelworkers on the path towards the Congress of Industrial Organizations and the profound labor victories of 1937.

During the years before the New Deal, revisions in women's status that accompanied the era of the New Woman, political subordination within the company-dominated mill towns, and the onset of the Great Depression challenged working-class manhood. The New Deal era, however, offered men an opportunity to remedy their anxieties about manhood; the new unionism offered men revisions in *their* status. The union struggles of 1933-1934 and 1936-1937 upheld men as citizens, workers, and breadwinners, a marked departure from their troubled past. Furthermore, women embraced their husbands' goals. When men mobilized to strike, a "gendered etiquette" circumscribed the actions of men and women (Stern, 1995, p. 206). This "etiquette" revealed how men demanded a dominant, commanding role in militant unionism, and how women lent their support. Moreover, picket line violence pointed to the sense of urgency men brought with them to the picket lines, and how they looked to seize power and use it. They brutally attacked strikebreakers, for instance, who tried to pass through their lines.

The women and men of Ambridge lived in a borough that was "pre-eminently a manufacturing city," where steel companies provided industrial employment making a variety of products: structural steel for bridges, wire and cables, metal molding, steam, gas, and water pipe, among other commodities. In 1929, the Ambridge Board of Trade praised the community for its "excellent labor market," its factories, its "unexcelled scenic beauty," and its "three strong banks." Ambridge's steel mills provided a beacon of industrial employment, and the town swelled throughout the New Era (Ambridge Board of Trade, 1929). In 1920, 12,730 people lived in the borough, and the number of residents swelled to more than 22,000 by 1929. The Great Depression, however, undermined this growth. By October 1933, the town had become a hotbed of working-class dissent.

During 1933, after the NIRA Section 7(a) had been announced the Communist TUUL launched a new organizing drive in the western Pennsylvania steel industry. Their organization, the Steel and Metal Workers Industrial Union (SMWIU), became a political force in Ambridge. As the October 1933 strike highlighted, women and men supported the SMWIU. The group's organizers had been active with the earlier Unemployed Councils ("Great Ambridge Strike," 1980). The Steel and Metal Workers Industrial Union, like the Unemployed Councils, enlisted the support of both men and women in the "man's fight." In its newspaper, the *Steel and Metal Worker*, the union reported the events of Labor Day 1933: "Not since the great 1919 steel strike has Ambridge seen such an inspiring Labor Day, such a magnificent show of workers' strength." Men and women marched together in a parade through the streets of Ambridge. A dance concluded the day's festivities, where women from Ambridge's National Electric Company signed SMWIU membership cards ("SMWIU Leads," 1933).

"The Great Ambridge Strike" began over the issue of union recognition. Previously, after the announcement of the NIRA Section, 7(a), a majority of steelworkers in Ambridge voted in support of the SMWIU. On October 2, the SMWIU locals held a meeting with respect to the presentation of a list of demands to their various employers: Spang-Chalfant, HH Robertson, Central Tube, Wyckoff, Byers, and National Metal Moulding Works. The locals wanted recognition of their unions under the provisos of the NIRA, as well as improvements in working conditions. They agreed to submit their demands. On October 3, elected committees went to the local steel mills and presented their lists to company officials. Employers asked the committees if they could have time to "think it over." In response, the SMWIU locals decided to "stay out" ("Great Ambridge Strike," 1980). The strike had begun.

Picketing began immediately. Spang-Chalfant became the center of picket activity, while other picket lines appeared in front of the National Electric Products Company factory, the HH Robertson mill, and at Central Tube. That night, pickets materialized at the Wyckoff Drawn Steel Company. Within a twenty-four hour period, workers and SMWIU organizers effectively stopped production in the borough. Strikers refused to allow those who wanted to remain on the job to enter the plants. During the same week, strikes also erupted at the Carnegie Steel Company in Clairton, Pennsylvania, Weirton Steel in Steubenville, Ohio, and Weirton, West Virginia, and among miners across western Pennsylvania ("Coal Peace," 1933).

The tensions on the picket lines quickly escalated. And events in front of the mills demonstrated that picketers and the union understood the struggle to be a "man's fight." SMWIU organizer and a leader of the strike in Ambridge, James Egan, set the tone for the pickets: "We'll have this whole valley shut down until the bosses give you fellows what you're asking for" ("Beaver Valley Groups," 1933). Striking men appeared determined to do exactly that. During the first night, a large assembly of angry men stopped an effort to bring a bus carrying deputy sheriffs into Ambridge. "Threats were made," and the bus quickly turned around. Strikers also assaulted a group of men who approached the lines at the Spang-Chalfant plant. Believed to be strikebreakers, they ended up "bruised and scratched." According to the *Pittsburgh Post-Gazette*, however, the battered victims simply wanted to watch the strike ("Plants Are Closed," 1933).

The readiness of strikers to physically assault other men echoed the potential for violence found in everyday life. When men of working-class backgrounds threatened another's honor, as discussed earlier, Beaver County men demonstrated their tendency to retaliate and punish the offender. In front of the plants in Ambridge, strikers reproduced this dynamic in earnest. On October 4, a group of 300 pickets fell upon 100 men who tried to report for work at Spang-Chalfant. A riot ensued, and two men ended up in the hospital. Pickets violently battered Alton Curry, a would-be strikebreaker. "The most seriously beaten of the workers who tried to enter the plant," Curry suffered serious injuries at the hands of enraged men ("One Shot, Many Clubbed," 1933). Given the exigencies of the Great Depression, when men were losing wage work as a pillar of manhood, violence may have given them a way to experience a sense of control over their surroundings (Connell, 1995, p. 83; Beneke, 1997, p. 34-72; Seidler, 1996, p. 63-75; Messerschmidt, 1998, p. 132, 149).

Women in Ambridge did not experience the strike as striking steelworkers for the most part. Indeed, mill work was regarded as "men's work." Working men, employers, and the state believed that women "did not belong in the steel mills," and as a result, women's employment in steel remained less than 1 percent between 1910 and 1939 (Rose, 1995, p. 24-25). The majority of women who joined the picket lines in Ambridge were married to the men who worked in the mills. While the sexual division of labor in Beaver County determined that women would not share equal status with men, they nonetheless participated in the effort on behalf of their husbands, fathers, and brothers. Women could easily be seen down at the picket lines, leading one reporter to note they were "as militant as their husbands and brothers." At Spang-Chalfant, women distributed copies of the SMWIU demands. The wives of strikers, like their husbands, had a vital stake in the strike's outcome. "I'm tired of being hungry and seeing my kids without clothes," noted one wife and mother. "I'll stand here in this picket line until they give us what we want." Another woman exclaimed, "They think they can starve our men. We'll show 'em!" Not all women were as outwardly expressive, however. Others stood silently nearby, anxiously watching the action ("Militant Women Aid," 1933).

The strike collapsed as a result of police violence. On October 5, an estimated 200 police deputies attacked the pickets massed at the Spang-Chalfant mill, using an arsenal of guns, clubs, and tear gas. They forcefully brought the Ambridge insurgency to an abrupt and brutal conclusion. As a result of the violence, fifteen men were wounded, and one man, Adam Petesuski, died from a gunshot wound to the neck. One steelworker suffered a fractured skull during the fighting, while another was shot in the stomach. The tear gas fog saturated the area near the mill, and strikers and onlookers struggled to get away from the fumes. Blinded strikers and spectators ran headlong into the deputies' lines, suffering beatings as a result: "I ran into two deputies," John Caster, a spectator, told reporters. "One of them hit me on the head with his club. I fell down. When I tried to get up another one hit me two or three times and knocked me out." The picket line collapsed ("One Slain," 1933). While men and women had hoped that union representation would allow men to solidify their jobs (and their identities as workers and breadwinners), the police insisted that the status quo would remain in place. Men were to be subordinated to the order of the mill town.

Despite the strike's violent conclusion, the 1933 Ambridge strike set the tone for steel unionism in Beaver County during the depression decade. SMWIU activity continued, a rank-and-file movement continued to grow within the Amalgamated Association, and by 1936 the SWOC began organizing for the CIO. During 1937, the victorious strike in Aliquippa signaled the greatest successes of the labor movement in steel, and the height of masculine redemption in Beaver County steel towns.

## THE 1937 STRIKE IN ALIQUIPPA AND THE CIO VICTORY

During the 1930s, the borough of Aliquippa served as another important stage upon which several unions would play. A series of organizations came, went, and ultimately stayed. Early attempts to build a union movement in Aliquippa appeared in 1926 when Pete Muselin, a J&L worker, was arrested for possessing Marxist literature. Along with four other men, Muselin received five years

in the Allegheny County workhouse for "attempting to organize a union" (Casebeer, 1995, p. 634-635). During the early 1930s, steel companies, including J&L, installed Employee Representation Plans (ERPs) in response to the passage of the NIRA. The NIRA fervor sparked the growth of the SMWIU, and led to the revival of the Amalgamated. Due to the militancy of the rank-and-file, the Amalgamated Association urged a national strike. Such a demonstration proved too difficult to coordinate, however. The plan never materialized (Lynd, 1972, p. 44-45). In Aliquippa, local unionists formed Beaver Valley Lodge #200 under the auspices of the AA. Due to J&L firings of local unionists, however, Lodge #200 began to lose members and momentum. But in 1936, the Steel Workers Organizing Committee began an organizing drive in western Pennsylvania. In the wake of the successful May 1937 strike in Aliquippa, the SWOC -- later the United Steel Workers of America (USWA) -- became the workers' union.

Despite their approach or structure, their successes or failures, these different organizations did share one goal: They tried, in one way or another, to effect changes in the lives and status of working men in Beaver County mill towns. Unionists in Aliquippa, for instance, struggled to rectify the degrading "tyranny" of the Jones & Laughlin Steel Corporation. Each of these unions, from the Amalgamated to the SMWIU and the CIO, upheld and enhanced the demands of male steelworkers: Working-class men wanted unions that could protect and strengthen their status as workers and breadwinners, the preservation of their identities as patriarchs, and assurance of their civil liberties as residents of the United States. Men wanted greater power and control over matters that affected their daily lives. Union organizers, whatever organization they represented, wanted to help working men secure those demands. The Amalgamated Association, the SMWIU, and the SWOC all affirmed men's notions of manhood.

The 1937 strike in Aliquippa was the crescendo of industrial unionism in Pittsburgh's Steel Valley. As a result of the strike, the SWOC and the CIO emerged as the voice of men in steel, and the organizations won the respect and support of the working-class community. Moreover, whether workers supported the SWOC or not, they would all ultimately enjoy the fruits won during May 1937. With the institutionalization of the CIO in Beaver County through the establishment of the later United Steel Workers of America, all steelworkers came into the orbit of organized labor -- and would gain new rewards through "industrial democracy" via collective bargaining and the election of labor-friendly Democratic Party candidates at the local and national levels. The 1937 strike demonstrated how embattled Aliquippa men finally won long-denied power, status, and influence.

Unionists organized clandestinely in Aliquippa during the early 1930s. With the fervor surrounding the National Industrial Recovery Act's Section 7(a), however, union activities intensified. Between roughly 1933 and May 1937, Aliquippa unionists struggled to conduct business under the probing and vengeful eye of the Jones & Laughlin Steel Corporation. After the NIRA, working-class men and women actually held a parade to demonstrate their support for the New Deal, but J&L "tightened its control over Aliquippa to meet the threat" (Green, 1993, p. 10). However, J&L crackdowns and the new ERP did not stop organizers' activities.

During the mid-1930s, union men fought against J&L on multiple fronts: in local politics, in public space, and on the shop floor. Company efforts to repress unionism continued despite the passage of the 1935 Wagner Act. Between June 1935 and January 1937, the company fired over 100 unionists. Targeted for organizing, union men were discharged for violations of company policy. Thirteen of these workers took charges of unfair labor practices to the new National Labor Relations Board (NLRB). What would become the *NLRB v. Jones & Laughlin Steel Corp.* led to key changes in workers' rights. Clinton Golden, who investigated the situation in Aliquippa as a member of Pennsylvania's Labor Department, substantiated the charges, and hearings began in January 1936 (Casebeer, 1995, p. 658-665; Green, 1993, p. 10). All of the workers who had been fired were members of the Beaver Valley Lodge #200, and J&L repression came to the fore during the proceedings. On April 9, the NLRB ruled that the discharged workers were to be reinstated. That same month, the Supreme Court ruled in favor of the workers in *NLRB v. Jones & Laughlin Steel Corp.*, upholding the constitutionality of the 1935 National Labor Relations Act (Zieger, 1995, p. 60; Casebeer, 1995, p. 664-665). This landmark decision marked a watershed in the history of organized labor. Men finally won the legal right to "self-organization and to have representatives of their own choosing for the purpose of collective bargaining" (Casebeer, 1995, p. 683). Throughout this period, union activists continued to organize in Aliquippa as political and legal changes began to take shape. By 1936, "the CIO [was] on the job" in Beaver County (Vorse, 1985, p. 174).

The Steel Workers Organizing Committee guided Aliquippa from the "non-union" era into the "union" era. During the mid-1930s, unionists believed a new organizing drive had a strong chance to succeed. The timing, organizers believed, was ideal. With an increasingly militant rank-and-file, support from the faltering Amalgamated Association, dissatisfaction within company ERPs, relative autonomy in its actions, the services of veteran organizers from the United Mine Workers (UMW), and a respectable budget, John L. Lewis announced the creation of the SWOC under the auspices of the Committee of Industrial Organizations during June 1936. These changes would have a profound impact on men and women living in "Little Siberia." Within a year, the SWOC and the Democratic Party became the focal points of the social and political transformations in Beaver County steel communities.

In the summer of 1936, the SWOC began its work in the Pittsburgh district. In an attempt to generate momentum, the organization coordinated a massive Labor Day parade in Aliquippa. Beginning in the early afternoon, "thousands of people" marched in a procession through the streets of the town ("Labor Day," 1979). An array of working-class groups and organizations took part: the Amalgamated Association, the International Workers Order, the Workers Alliance of Ambridge, and Farmer Labor activists. Even those who did not march joined in the festivities. "Large numbers of people watched the parade," witnesses noted. "People leaned out windows and stood on the curbsides." In the evening, women and men enjoyed an outdoor banquet in nearby Ambridge. Towards the end of the event, they heard a radio address from CIO chairman John L. Lewis. The large turnout for the parade and the festivities, according to one account, "helped convince steelworkers that the SWOC had a good chance to force companies to sign union contracts" ("Labor Day," 1979).

During the spring of 1937, SWOC won its landmark victories with US Steel. In March, John L. Lewis and US Steel president Myron Taylor renegotiated the terms of employment in the steel giant's facilities: those on the payroll received a 5 percent pay increase, a forty-hour work week, time-and-a-half for overtime, and US Steel officially recognized the SWOC as the workers' bargaining agent. The Lewis-Taylor agreement was a coup for the labor movement. In its wake, steelworkers "flocked into SWOC," while the Little Steel independents "broke ranks" with US Steel, vowing "to fight SWOC to the finish" (Zieger, 1995, p. 58-60). By May, CIO organizers and the Jones & Laughlin Steel Corporation had been in negotiations for weeks. However, the talks broke down, and the SWOC called for workers to strike on May 12 ("Wage Conference Tomorrow," 1937).

"Thousands" of the 32,000 men employed by Jones & Laughlin in Aliquippa and Pittsburgh were now on the picket lines. In Aliquippa, events on the picket lines recalled patterns displayed in the earlier Ambridge strike. Once again, working-class men and women took control of the streets of a Beaver County borough. SWOC organizers reveled in the massive display of working men's newfound strength and power:

> The strike is doing wonders for the men. Remember that Jefferson once said something about a revolution every twenty years or so being a blessing? The same is true of a strike. There is real solidarity now. And certainly no fear. In fact workers go out of their way to thumb their noses at company police by whom they have been cowed for years. Thousands of men have joined the union ("1937 Strike in Aliquippa," 1981).

The organizer's observations captured how working-class men in Beaver County seized upon the strike to build a new "workers' democracy" in what had been known as "Little Siberia." However, picketers in Aliquippa also used the strike as a way to wield the power and control they associated with manhood. The "workers' democracy" offered them a renewed sense of manliness. The SWOC organizer's statement disclosed a newfound sense of strength, bravado, and catharsis ("thumb their noses at company police") among the men. There was no longer any fear, and working men in steel ("thousands") were rushing to join this powerful organization.

On the picket lines, men engaged in acts of violence against those who tried to cross the picket lines that were reminiscent of the earlier strike in nearby Ambridge. "Of course there has been violence," noted SWOC organizer Meyer Bernstein, clearly not surprised by Aliquippa working men's aggression and hostility. "Five old men who had no notion of what was going on tried to get through the picket line" and the workers forcefully turned them back. However, "the return was run through a gauntlet. They were badly beaten and most of them were bloody." In another incident, a foreman who tried to drive through the lines had his windshield "smashed by a picket." Strikers nearly attacked a SWOC organizer who tried to get reinforcements for other picket lines at the J&L mill. One man reported, "Some zealous souls, not knowing who he was, tried to stop him." The organizer "was just barely saved from an attack" ("Settlement Held Near," 1937). Picket line dramas illustrated how men acted militantly and aggressively, reclaiming the control and power that had been withheld for so long. Men remembered J&L worker Pete Cekoric for his incredible bravado. During the strike, "Pete was standing on a picket line . . . when plant guards threatened to shoot at the pickets. Pete stepped forward and said, 'Shoot! Shoot you b----! You can

kill Pete, but you'll never kill the union" ("Pete Cekoric," 1979)! Composed of such men -- men of strength, determination, and passion -- the SWOC and the CIO were thought to be established on the strongest possible foundations.

As men rose to new levels of prominence as a result of the strike, women readily lent their support to the struggle, adopting a visible though auxiliary identity. Women organized food and drink for the men on the picket lines. "We had a place on Kiehl Street we called our club," remembered Mary Cozzicoli, "and they [women] would make sandwiches for the people and hot coffee." While women completed this labor that allowed men to sustain the strike, they also directly asserted themselves into the action on the picket lines, in some ways challenging the strike's subtext of making manhood. Some women literally placed themselves in the middle of the action. To keep policemen away from the strikers, "so that the men wouldn't get beat up," women lined up between the ranks of pickets and the police. "We were down at the tunnel," Cozzicoli asserted, "and if the cops would go after the men, we'd be right there" (M. Cozzicoli, interview, 1975). Women's actions during the Aliquippa strike highlighted extensive, community-based support for husbands', sons', and brothers' demands, as well as a version of labor militancy that allowed for women's auxiliary participation in strikes and steel unionism.

The strike concluded on May 14, some forty hours after it began. However, ill feelings lingered after SWOC and Jones & Laughlin announced the settlement. Crowds of workers refused to leave the mill gates, lingering to jeer and boo company officials and those workers who remained inside the mill during the strike. "CIO leaders became alarmed at the temper of the crowd," noted the *Pittsburgh Post-Gazette*. "Anybody who walked out of the mill was spat on by the women," Irving Bernstein once wrote, "and attacked by the men." State policemen had to hurry to save construction superintendent Robert Blum, who had been "badly beaten" by pickets (Bernstein, 1970, p. 477). Despite the favorable resolution of the strike, men and women's anger with Jones & Laughlin did not immediately evaporate. Given their troubled history with the company, lingering violence underscored the depth of workers' resentment.

Union and government leaders were simply glad the strike ended. Governor George Earle described the strike's resolution as a "favorable omen" for labor-management relations. Emboldened by SWOC's victory, CIO chairman John L. Lewis noted he was pleased by the strike's outcome, adding that Aliquippa would be a "lesson" to other companies who refused to sign contracts with SWOC ("Returning Steel Strikers," 1937). SWOC and the steelworkers won a resounding victory in "Little Siberia." For the first time, J&L submitted to the will of working men. "Think of it," as members of the Beaver Valley Labor History Society recalled years later, "the toughest corporation in America brought to its knees" ("1937 Strike in Aliquippa," 1981). Numerous changes followed the strike's conclusion. J&L announced it would create a common labor rate of five dollars for eight hours of work; but more significantly, workers established SWOC Union Local 1211 with an "overwhelming" 2:1 vote (69.9 percent) on May 20 ("Union Wins," 1937).

Workers also looked to the electoral arena in order to capture and protect their rights. Activists within the orbit of the Amalgamated Association had previously formed the Democratic Social Club in 1934, hoping to expand on the astonishingly low number of 8 registered Democrats in the borough. Support for the group made the organization "the political arm of the union movement in Aliquippa" (Casebeer, 1995, p. 657). The majority of voters in Aliquippa voted Democratic in the 1936 presidential election, and they successfully elected men "into offices ranging from mayor and council down to tax collector and inspector of elections" in 1937. These years witnessed the first Democratic majorities in Aliquippa's brief history (Davin, 2000, p. 256; Casebeer, 1995, p. 657). For working people, the achievement of elected officials of their own choosing was a crucial development. For the first time, elected officials came from the working-class communities of western Pennsylvania. Through their ballots, working men won a voice in the offices that governed them; J&L could no longer control men's political options or voices.

Working-class men's desire to secure power and control as foundations of their manhood were at the center of these social and political changes during the 1930s. In Aliquippa and Ambridge, organizations ranging from the SMWIU, the Amalgamated, the SWOC, the CIO, and the Democratic Party worked to elevate and strengthen the status of the male steelworker. The strike in Aliquippa and its successful conclusion symbolized the attainment of what men had long fought for: the CIO victory conferred new levels of authority and power upon working-class men.

## CONCLUSION

Why was the CIO so popular among working men during the 1930s? In Aliquippa and Ambridge, the fervor surrounding industrial unionism followed in the wake of men's reactions to transformations in the status of women during the 1910s and 1920s, the subordinating effects of political repression in the pre-union steel town, and the tumultuous impact of the Great Depression upon working-class men's preferred identities as workers, earners, and patriarchs. The shortcomings of gender and class relations upset men's notions of power and control, thus making unionization an attractive way to resolve these discrepancies.

In Aliquippa and Ambridge, working-class men and women built the gender politics of the CIO -- which emphasized male authority in the union, the family, and the community, and supporting roles for women -- from the bottom-up. The gender hierarchies that would plague the labor movement in the years after the Great Depression were not imposed on steelworker unionism; instead, working men *and* women actively defined the gender politics that would shape the institutionalization and subsequent history of the CIO (Faue, 1991, p. 192).

While discussions of working men and gender consciousness during the 1930s are by no means new, the case of working men in Beaver County steel towns suggests that historians need to look beyond the depression era's "crisis of masculinity." Anxieties about gender in mill towns like Ambridge and Aliquippa ran deeper than depression-era circumstances. The popularity of the CIO in western Pennsylvania was closely tied to broader conflicts over the meaning of working-class manhood that had been going on for many years.

**REFERENCES**


(26 December 1931). Aliquippa man is stabbed at celebration. *Daily Citizen*.

Ambridge Board of Trade. 1929. *Facts about ambridge* [pamphlet], Jones and Laughlin Library, Ambridge, Pennsylvania.

(3 October 1933). Beaver valley groups strike. *Pittsburgh Post-Gazette*.

Beneke, T. (1997). *Proving manhood: Reflections on men and sexism*. Berkeley: University of California Press.

Benson, S.B. (1986). *Counter cultures: Saleswomen, managers, and customers in american department stores, 1890-1940*. Urbana: University of Illinois Press.

Bernstein, I. (1966). *The lean years: A history of the american worker, 1920-1933*. Baltimore: Johns Hopkins University Press.

Bernstein, I. (1970). *Turbulent years: A history of the american worker, 1933-1941*. Boston: Houghton Mifflin Company.

Brody, D. (1965). *Labor in crisis: The steel strike of 1919*. Philadelphia: Lippincott.

Brooks, R. (1940). *As steel goes, . . . . : Unionism in a basic industry*. New Haven: Yale University Press.

Casebeer, K. (1995). Aliquippa: The company town and contested power in the construction of law. *Buffalo Law Review, 43*:3.

(1979). Pete cekoric. *Beaver Valley Labor History Society Journal, 1*:2, 8.

Chafe, W. H. (1972). *The american woman: Her changing social, economic, and political roles, 1920-1970*. New York: Oxford University Press.

Cohen, L. (1990). *Making a new deal: Industrial workers in chicago, 1919-1939*. New York: Cambridge University Press.

Connell, R. W. (1995). *Masculinities*. Berkeley: University of California Press.

Mary cozzicoli interview transcript. 1975. Courtesy of Joseph Periello.

Mary cozzicoli interview transcript. n.d. Beaver Valley Labor History Society Collection, Box 171, Archives of Industrial Society, University of Pittsburgh, Pittsburgh, Pennsylvania.

Davin, E. Blue collar democracy: Ethnic workers and class politics in pittsburgh's steel valley, 1914-1948. (Doctoral dissertation, University of Pittsburgh, 1999).

Davin, E. (2000). Blue collar democracy: Class war and political revolution in western pennsylvania, 1932-1937. *Pennsylvania History, 67*:2.

Dumenil, L. (1995). *The modern temper: American culture and society in the 1920s*. New York: Hill and Wang.

"Edmundson, McKensy," No. 8, March Term 1932, Dkt. 35, microcard, Clerk of Court's Office, Beaver County Court, Beaver, Pennsylvania.

Ewen, E. (1985). *Immigrant women in the land of dollars: Life and culture on the lower east side, 1890-1925*. New York: Monthly Review Press.

(5 January 1932). Failure to buy drinks results in stab wounds. *Daily Citizen*.

Faue, E. (1991). *Community of suffering and struggle: Women, men, and the labor movement in minneapolis, 1915-1945*. Chapel Hill: University of North Carolina Press.

Fitch, J. (1989). *The steel workers*. Pittsburgh: University of Pittsburgh Press.

Gerstle, G. (1989). *Working-class americanism: The politics of labor in a textile city, 1914-1960*. New York: Cambridge University Press.

(1980). The great ambridge strike of 1933. *Beaver Valley Labor History Journal, 2*:1, 1.

Green, J. (1993). Democracy comes to 'little siberia': Steel workers organize in aliquippa, pennsylvania, 1933-1937. *Labor's Heritage, 5*:2.

Haag, P. (1992). 'The ill-use of a wife': Patterns of working-class violence in domestic and public new york city, 1860-1880. *Journal of Social History, 25*:3.

Kleinberg, S. J. (1989). *The shadow of the mills: Working-class families in pittsburgh, 1870-1907*. Pittsburgh: University of Pittsburgh Press.

Komarovsky, M. (1940). *The unemployed man and his family -- the effect of unemployment upon the status of the man in fifty-nine families.* New York: Octagon Books.

(1979). Labor day, 1936: Labor day parade in aliquippa. *Beaver Valley Labor History Society Journal, 1*:3, 6.

Lynd, R. S. & Lynd, H. M. (1929). *Middletown: A study in american culture*. New York: Harcourt, Brace & World.

Lynd, S. (1972). The possibility of radicalism in the early 1930s: The case of steel. *Radical America, 6*:6.

(17 December 1931). Merriman paroled ten years. *Daily Citizen*.

Messerschmidt, J. W. (1998). Men victimizing men: The case of lynching, 1865-1900. In L. H. Bowker (Ed.), *Masculinities and Violence*. Thousand Oaks, CA: Sage Publications.

Meyerowitz, J. (1988). *Women adrift: Independent wage earners in chicago, 1880-1930*. Chicago: University of Chicago Press.

(5 October 1933). Militant women aid ambridge pickets. *Pittsburgh Post-Gazette*.

Norwood, S. H. (2002). *Strikebreaking and intimidation: Mercenaries and masculinity in twentieth-century america*. Chapel Hill: University of North Carolina Press.

(5 October 1933). One killed, 2 shot in strike clashes. *New York Times*.

"One Shot, Many Clubbed in Battle at Steel Plant; Strike Spread Looms," *Pittsburgh Post-Gazette*, October 5, 1933, 1.

"One Slain, Many Shot in Strike Battles," *New York Times*, October 6, 1933, 4;

Peiss, K. (1986). *Cheap amusements: Working women and leisure in turn-of-the-century new york*. Philadelphia: Temple University Press.

Joseph Periello interview transcript. 1975. Courtesy of Joseph Periello.

Joseph Periello interview with Gregory Wood. 2000. Audiotape in author's possession.

(4 October 1933). Plants are closed in ambridge as steel strike spreads. *Pittsburgh Post-Gazette*.

(15 May 1937). Returning steel strikers to take ballot. *Pittsburgh Post-Gazette*.

Rose, J. (1995). 'The problem every supervisor dreads': Women workers at the u.s. steel duquesne works during world war II. *Labor History, 36*:1.

Scharf, L. *To work and to wed: Female employment, feminism, and the great depression.* Westport, CT: Greenwood Press.

Seidler, V. (1996). Masculinity and Violence. In May, L., Strikwerda, R., & Hopkins, P. D. (Eds.). *Rethinking masculinity: Philosophical explorations in light of feminism*. London: Rowman & Littlefield Publishers.

(14 May 1937). Settlement held near in j&l walkout. *Pittsburgh Post-Gazette*.

(26 October 1925). Shooting affray at 4:30 o'clock last night. *Daily Citizen*.

(1 October 1933). SMWIU leads big labor day parade. *Steel and Metal Worker*.

Stern, S. J. (1995). *The secret history of gender: Women, men, and power in late colonial mexico.* Chapel Hill: University of North Carolina Press.

(8 January 1932). Struggle over revolver ends with shooting. *Daily Citizen*.

(26 December 1931). Threatens man's life with large hunting knife. *Daily Citizen*.

(17 November 1934). Union lays abuses to steel company. *New York Times*.

(2 May 1937). Union wins, 2 to 1, in j&l steel vote. *New York Times*.

U.S. Bureau of Census. (1931). *Fifteenth census of the united states, 1930, unemployment, vol. 1.* Washington, D.C.: United States Government Printing Office.

Vorse, M. H. (1985). Organizing the steel workers. In Garrison, D. (Ed). *Rebel pen: The writings of mary heaton vorse*. New York: Monthly Review Press.

(11 May 1937). Wage conference tomorrow may prevent strike. *Pittsburgh Post-Gazette.*

Wandersee, W. (1981). *Women's work and family values, 1920-1940*. Cambridge, MA: Harvard University Press.

Wollman, D. H. & Inman, D. R. (1999). *Portraits in steel: An illustrated history of the jones & laughlin steel corporation*. Kent, OH: Kent State University Press.

Zieger, R. H. (1995). *The cio, 1935-1955*. Chapel Hill: University of North Carolina Press.

(1981). The 1937 strike in aliquippa. *Beaver Valley Labor History Society Journal, 3*:1, 6.

# OBJECTIVE AND PERCEIVED EXISTENCE OF HIGH PERFORMANCE WORK PRACTICES

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## ABSTRACT

We investigated the effects of objective and perceived existence of high performance work practices (HPWP) on employee satisfaction in workplace with a Chinese sample. The data showed that perceived existence of high performance work practices moderated the relation between the objective existence of HPWP and employee satisfaction.

## INTRODUCTION

The past ten years have witnessed an increasing interest in high performance work practices (HPWP), a set of human resource practices that increase employee involvement, commitment, and empowerment (Pfeffer, 1998), in both academia and practice because it is believed that HPWP can influence firm performance by enhancing employee outcomes such as employee performance (Scotti, Harmon, & Behson, 2007) and organization commitment (Macky & Boxall, 2007).

To achieve these goals of HPWP, it is important to study individual employees' perceptions of HPWP. It is because only by influencing individual employees' perceptions, can employees change their behaviors in accordance with HPWP's intentions. For example, according to Budd's study (2006) on "shared capitalism" (e.g. employee stock ownership plan (ESOP), individual-based and group-based incentive plans), there exist "significant amounts of employee ignorance in both under- and overstating the extent to which such plans (referring to various financial incentives) apply to them" (Budd, 2006, p.1). According to the same study, employee ignorance or false positive (i.e. employees' perceptions that they are covered by a certain practice while it is not true according to their companies) are related to their "willingness to work hard" and their loyalty to the firm with statistical significance (Budd, 2006).

With the purpose of providing a complete picture of how individual perceptions influence the relationship between the objective existence of HPWP and employee performance and satisfaction, we draw upon three alternative theoretical perspectives: the *ability-motivation-opportunity theory*, the *self-fulfilling theory*, and the *social information processing theory*. We see the application of these three alternative theoretical

frameworks to the role of perceptions of HPWP as a significant contribution to the area of HPWP, because it shifts the emphasis of such studies from how HPWP directly affect employee behaviors to the deeper question of how employee behaviors vary according to the differentiated levels of HPWP perceptions in the context of objective HPWP existence. Additionally, the use of three alternative theoretical approaches to answer this larger question follows the research philosophy of the "method of multiple hypotheses" (Platt, 1964, p. 350) and thus the answer is more useful to both researchers and practitioners (Platt, 1964; Shaw, Gupta, & Delery, 2005).

The major theoretical contribution of the present study is the application of the three alternative theoretical perspectives on investigating the question of how perceptions of HPWP influence the relation between objective existence HPWP and employee outcomes. It is worth noting that the predictions from each perspective are not exclusive but rather generally complementary of each other in explaining the relationship of objective existence of HPWP and perceived HPWP to employee outcomes with one exception: the predictions from the ability-motivation-opportunity perspective and the social information processing perspective are opposite when employees are ignorant about the implementation of HPWP. Specifically, the ability-motivation-opportunity theory predicts that HPWP perceptions mediate the HPWP-employee outcome relation; the self-fulfilling prophecy theory predicts that HPWP perceptions moderate the relation; the social information processing theory predicts that the fit between HPWP perceptions and the objective existence of HPWP relates to the most desired employee outcomes. The study thus contributes to the literature of HPWP by examining the validity of these three alternative theories in predicting how HPWP perceptions affect the effectiveness of HPWP's influence on employee outcomes.

## THEORY AND HYPOTHESES

### The Ability-Motivation-Opportunity Perspective

According to the ability-motivation-opportunity framework (the MOA framework), the three components of an individual's implicit information process are necessary conditions for an individual to behave in a certain way (Rothschild, 1999). In this framework, motivation is defined as willingness or desire to behave. Opportunity refers to the lack of the external restriction when an individual has motivation to behave and ability refers to an individual's internal capacity to behave. Although this information processing framework is heavily used in studies of consumer behavior (e.g. Gruen, Osmonbekov & Czaplewski, 2007; Poiesz & Robben, 1996) and social capital (e.g. Adler & Kwon, 2002), it is worthwhile to draw the distinct advantages of this framework into larger inquiry around the effectiveness of HPWP.

According to the HPWP literature, some of HPWP practices enhance employees' ability to accommodate their employers' goals, such as training and job rotation; some motivate employees, such as ESOP and gain sharing; and some provide employees opportunities to act, such as suggestion scheme and employee representatives in board meetings. Applying the MOA framework into the HPWP area, we argue that employee perceptions of HPWP directly influence the necessary conditions for employees to behave in the ways employers hope them to accomplish. In other words, if an employee is not aware of the existence of certain HPWP practices or thinks a practice is badly implemented, he or she will not accomplish the behaviors that the practice hope to promote.

> *Hypothesis1: Perceptions of HPWP mediate the relation between the objective implementation of HPWP and employee outcomes.*

**The Self-fulfilling Prophecy Perspective**

Self-fulfilling prophecy has been demonstrated to have extensive and large effects (e.g. Rosenthal, R. & Jacobson, 1968; McNatt, 2000) across different contexts (Davidson & Eden, 2000). Researchers explained the self-fulfilling prophecy process in this way: people inadvertently behave in a way that creates evidence in support of their beliefs (Merton, 1968, p.477). The implication from the self-fulfilling prophecy is that a person's beliefs are resistant to change, because a person tends to create a good deal of evidence that confirms his/her existent schemas. This process is not a deliberate attempt to confirm the person's schemas; it rather occurs inadvertently and unconsciously. Although usually this theory is applied in the case of supervisor's perceptions of employee performance rather than an employee's perception of HPWP, the empirical evidence suggests that the theory is valid in predicting employee outcomes (McNatt, 2000).

Following the theory's logic, in this study's setting, specifically, a person tends to unconsciously create evidence to support his/her perceptions regarding HPWP. The implication from this psychological process is that the perception of HPWP is related to the extent of effects of the objective HPWP's influence on employee outcomes. For example, if the employee believes that the suggestion scheme is very well implemented and in fact the practice exists, he/she is more likely to use the practice and thus has better employee outcomes. In the same case of the employee having high evaluation of the practice but the organization actually ignores suggestions, the employee will try to raise suggestions but no suggestions will be taken. In contrast, if an employee believes that his/her organization's suggestion scheme is badly implemented or he/she is not aware of the existence of such a practice, the employee will not be likely to take the chance to voice his suggestions regardless of the existence or effectiveness of the suggestion scheme.

Thus, the relation between the objective HPWP and employee outcomes depends on employee perceptions of HPWP. In the case of low perception (i.e. employees believe that a practice is badly implemented or they are not aware of its existence), the relation will be weak. Conversely, in the case of high perception (i.e. employees believe that a practice is very well implemented), the relation will be stronger.

> *Hypothesis2: HPWP perceptions moderate the relation between the objective existence of HPWP and employee outcomes in such a way: the relation is weaker when HPWP perception is low.*

### The Social Information Processing Perspective

The social information-processing perspective argues that individuals encode and interpret the information of risks, costs and benefits of a particular action, and subsequently determine an appropriate response based on their information (Salancik & Pfeffer, 1977, 1978). In this process, judging one's own situation accurately is central to improving the quality of decision making (Klein, 1989), and the quality of decision making is positively related to the effective achievement of desirable outcomes (Kirschenbaum, 1992).

In the context of HPWP, according to the social information processing theory, if a person's perception of HPWP is not consistent with the objective existence, he or she has less desired outcomes.

> *Hypothesis3: Employee outcomes will be better when perceptions of HPWP and objective existence of HPWP are consistent.*

## METHOD

### Sample and Data Collection Procedure

Data were collected from employees and HR managers of multiple organizations in China. A total number of 50 organizations participated in the study. They are from a wide variety of industries. 42.86% of them are from the manufacturing industry; 38.78% from the service industry; 8.16% from the construction industry; 2.04% from the mining industry and 8.16% from the other industries. There are two versions of the surveys: surveys for human resource managers and surveys for employees. The companies' human resource managers were contacted first and they were asked to provide a list of potential participants. The survey for the HR managers included questions regarding the existence of HPWP practices and firm performance. The survey for the employees included

measures of their perceptions regarding their companies' HPWP and their job satisfaction and self-reported job performance.

Surveys were numbered prior to distribution, so that it is possible to match the corresponding HR managers and employees. The HR manager of the companies distributed employee versions of surveys via the company's internal mail system. Employees returned their completed surveys directly to the research team. Around 8 to 16 employees from each organization participated in the study. The employees' average age fell into the category of 26-35, and 55% of them were male. In terms of employees' educational profile, 1.4% had no degree, 15.4% had high school diploma, 70.1% had bachelor's degree, and 12.6% had master's degree or above. On average, employees had worked for their organizations for 7-10 years.

## Measures

### *Perceptions of HPWP*

The practices this study investigates include employee advisory meeting, board-level employee representative, information sharing, employee stock ownership plans (i.e. ESOP), regular training programs, and suggestion scheme rewards. The study measured the employees' perceptions about HPWP by asking according to their knowledge whether there is such a practice in the organization. Then the respondents were asked to rate the HPWP on a scale from 1 (very ineffective) to 9 (very effective), if they think there is such a practice. They were allowed to respond that they are not sure if there is such a practice. In such a case, the responses would be regarded as missing data.

### *Objective existence of HPWP*

The objective existence of HPWP was obtained from the survey of HR managers. They were asked "Have your organization implemented the following practices?". They were instructed to choose the practices that had been implemented. The options are "employee advisory committee", "employee stock ownership plans", "regular employee training programs", "board-level employee representative", "information sharing", and "suggestion scheme rewards". The effectiveness of HPWP implementation was not asked, because of HR managers' social desirability tendency and responses of existence are more objective.

### *Self-Rated Performance*

The employee outcomes we investigated include self-rated performance and perceived pay standing. A performance intention scale used in Shaw et al. (2003) was adapted for the scale of self-rated performance. Respondents were asked to consider the effort they give to their jobs currently, and choose a response from 1 (we give 0%-20% of my effort) to 5 (we give 81%-100% of my effort).

### *Job Satisfaction*

The respondents were asked to indicate how satisfied they were with their jobs, and choose from 1 (very dissatisfied) to 5 (very satisfied).

### *Control variables*

We controlled for employee age, tenure, and gender. In terms of the measurement of employee age and tenure, employees were asked to choose from categories. The categories of age are: (1) 18-25; (2) 26-35; (3) 36-45; (4). 46-55; and (5). above 56. The categories of tenure are: (1) below 1 year; (2) 1-3 years; (3) 4-6 years; (4) 7-10 years; (5) 11-15 years; and (6) above 16 years.

## Analytical strategy

Because the objective existence of HPWP is on organizational level and the perception regarding HPWP is on individual level, the appropriate analytical strategy for the two-level analysis is hierarchical linear modeling (HLM) (Raudenbush & Bryk, 2002). The HLM represents a hierarchical two-level model by two equations estimated simultaneously: the within-unit and the between-unit equations. Here, level 1 is of individual level and level 2 is of organizational level. There are 50 organization groups in level 2.

### *Hypothesis 1*:

The AOM framework predicts that HPWP perceptions mediate the relationship between objective existence of HPWP and employee outcomes (Hypothesis 1). Let "*P*" denote HPWP perceptions, and "*E*" denotes the objective existence of the HPWP. To establish mediation effect, the following condition must hold: first, the independent variable (i.e.

existence of HPWP, "*E*") must affect the mediator (i.e. perceptions of HPWP, "*P*"); second, the independent variable (i.e. existence of HPWP, "*E*") must be shown to affect the dependent variable (i.e. employee outcomes); and third, the mediator (i.e. perceptions of HPWP, "*P*") must affect the dependent variable, employee outcomes, with the independent variable being included (Baron & Kenny, 1986). The whole set of equation tested for this hypothesis is:

Step1:

$$P = \beta 0 + \beta 1 * age + \beta 2 * gender + \beta 3 * tenure + r$$
$$\beta 0 = \gamma 00 + \gamma 01 * E + u0$$
$$\beta 1 = \gamma 10 + \gamma 11 * E + u1$$
$$\beta 2 = \gamma 20 + \gamma 21 * E + u2$$
$$\beta 3 = \gamma 30 + \gamma 31 * E + u3$$

Step 2:

$$Employee\_outcome = \beta 0 + \beta 1 * age + \beta 2 * gender + \beta 3 * tenure + r$$
$$\beta 0 = \gamma 00 + \gamma 01 * E + u0$$
$$\beta 1 = \gamma 10 + \gamma 11 * E + u1$$
$$\beta 2 = \gamma 20 + \gamma 21 * E + u2$$
$$\beta 3 = \gamma 30 + \gamma 31 * E + u3$$

Step 3:

$$Employee\_outcome = \beta 0 + \beta 1 * age + \beta 2 * gender + \beta 3 * tenure + \beta 4 * P + r$$
$$\beta 0 = \gamma 00 + \gamma 01 * E + u0$$
$$\beta 1 = \gamma 10 + \gamma 11 * E + u1$$
$$\beta 2 = \gamma 20 + \gamma 21 * E + u2$$
$$\beta 3 = \gamma 30 + \gamma 31 * E + u3$$
$$\beta 4 = \gamma 40 + \gamma 41 * E + u4$$

***Hypothesis 2**:*

The self-fulfilling prophecy perspective predicts that HPWP moderates the relationship between objective existence of HPWP and employee outcomes (Hypothesis 2). Since in the above equations, we included *E* (the existence of HPWP) as moderators for age, gender, tenure, and perceptions of HPWP, the last equation in step 3 will show the interaction effect between the existence and perceptions of HPWP. Specifically, if *γ41* is statistically significant, Hypothesis 2 will be supported.

***Hypothesis 3**:*

The social information processing perspective predicts that the fit between the objective existence and perceived existence of HPWP results in the most desired employee outcomes (Hypothesis 3). Since both of the variables are dummy variables and thus they already have the same scales, we will not use the polynomial regression approach to test this hypothesis. In order to test this hypothesis, we coded a new variable (*F* in the equation) to represent the fit. When perceptions of HPWP existence and objective HPWP existence are consistent, *F* is coded as 1, otherwise, it is coded as 0. The final equation is:

Step 4

$$Employee\_outcomes = \beta 0 + \beta 1 * age + \beta 2 * gender + \beta 3 * tenure + \beta 4 * A + \beta 5 * F + r$$

$$\beta 0 = \gamma 00 + \gamma 01 * B + u0$$

$$\beta 1 = \gamma 10 + \gamma 11 * B + u1$$

$$\beta 2 = \gamma 20 + \gamma 21 * B + u2$$

$$\beta 3 = \gamma 30 + \gamma 31 * B + u3$$

$$\beta 4 = \gamma 40 + \gamma 41 * B + u4$$

$$\beta 5 = \gamma 50 + \gamma 51 * B + u5$$

## RESULTS

Descriptive statistics and correlations for all variables are shown in Table 1. Table 2-Table 3 replicate the tables shown by Budd (2006) and consistent with his results, the tables show that there exists a noticeable percentage of ignorance or false positive in terms of perceived HPWP.

## TABLE 1: CORRELATIONS AND DESCRIPTIVE STATISTICS

| | M | SD | N | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | 13. | 14. | 15. | 16. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Age | 2.42 | .88 | 579 | 1 | | | | | | | | | | | | | | | |
| 2. Gender | .55 | .50 | 576 | .07 | | | | | | | | | | | | | | | |
| 3. Tenure | 4.14 | 1.58 | 576 | .75** | .01 | | | | | | | | | | | | | | |
| 4. Objective HPWP-staff representative meeting | .96 | .187 | 579 | .10* | .01 | .14** | | | | | | | | | | | | | |
| 5. Objective HPWP-board level representative | .49 | .50 | 579 | -.05 | .04 | -.07 | .19** | | | | | | | | | | | | |
| 6. Objective HPWP-information sharing | .69 | .46 | 579 | .15** | .00 | .11** | .29** | .09* | | | | | | | | | | | |
| 7. Objective HPWP-ESOP | .24 | .43 | 579 | .04 | .02 | .08 | .11** | .28** | -.05 | | | | | | | | | | |
| 8. Objective HPWP-regular training program | .82 | .39 | 579 | -.08 | -.02 | -.19** | -.09* | -.04 | .05 | -.33** | | | | | | | | | |
| 9. Objective HPWP-suggestion scheme rewards | .68 | .47 | 579 | .04 | .03 | -.10* | -.13** | .03 | .30** | -.25** | .46** | | | | | | | | |
| 10. HPWP perceptions-staff representative meeting | 2.75 | 1.48 | 575 | .16** | -.11* | .26** | .34** | -.02 | .05 | .09* | -.16** | -.27** | | | | | | | |
| 11. HPWP perceptions-board level representative | 1.98 | 1.72 | 551 | .04 | -.14** | .12* | .21** | .24** | -.02 | .07 | .01 | -.10* | .59** | | | | | | |
| 12. HPWP perceptions-information sharing | 2.47 | 1.57 | 567 | .08 | -.11* | .26** | .24** | .02 | .13** | .04 | -.10* | -.15** | .71** | .61** | | | | | |
| 13. HPWP perceptions-ESOP | 1.21 | 1.77 | 549 | .04 | -.06 | .09* | .14** | .07 | -.10** | .65** | -.24** | -.35** | .35** | .30** | .28** | | | | |
| 14. HPWP perceptions-regular training program | 3.00 | 1.33 | 574 | .03 | -.13** | .08 | .00 | -.08 | -.04 | -.03 | .13** | -.02 | .41** | .46** | .49** | .18** | | | |
| 15. HPWP perceptions-suggestion scheme rewards | 2.46 | 1.54 | 549 | .03 | -.12** | .09 | .05 | -.13** | -.02 | -.16** | .03 | .08 | .45** | .44** | .50** | .02 | .58** | | |
| 16. Employee performance | 4.38 | .68 | 575 | -.01 | -.15** | .05 | -0.01 | .02 | .06 | -.17** | .13** | .09* | .11* | .16* | .26** | -.15** | .14** | .19** | |
| 17. Job satisfaction | 3.33 | .66 | 575 | -.07 | -.04 | -.04 | -.10* | -.02 | .03 | -.05 | .07 | .02 | .23** | .33** | .32** | .06 | .32** | .30** | .33** |

Note. * Correlation is significant at the 0.01 level. ** Correlation is significant at the 0.05 level (2-tailed).

## TABLE 2: EMPLOYEE-LEVEL COVERAGE, PERCEIVED COVERAGE, AND IGNORANCE RATES OF HPWP

| HPWP Practices | Coverage (company reported) (1) | Perceived Coverage (employee reported) (2) | Mismatches | | |
|---|---|---|---|---|---|
| | | | Overall (3) | Ignorance [a] (4) | False Positive [b] (5) |
| Staff representative meeting | 0.96<br>[50] | 0.831<br>[575] | 0.049<br>[28] | 0.047<br>[27] | 0.002<br>[1] |
| Board-level employee representative | 0.52<br>[50] | 0.487<br>[551] | 0.205<br>[113] | 0.040<br>[22] | 0.165<br>[91] |
| Information sharing | 0.68<br>[50] | 0.739<br>[567] | 0.224<br>[127] | 0.049<br>[28] | 0.175<br>[99] |
| Employee stock ownership plan (ESOP) | 0.24<br>[50] | 0.311<br>[549] | 0.144<br>[79] | 0.022<br>[12] | 0.122<br>[67] |
| Periodic training | 0.82<br>[50] | 0.891<br>[574] | 0.172<br>[99] | 0.029<br>[16] | 0.145<br>[83] |
| Suggestion scheme rewards | 0.70<br>[50] | 0.675<br>[549] | 0.248<br>[136] | 0.064<br>[35] | 0.184<br>[101] |

Notes: This table replicated the Table 1 in the article by Budd (2006).
Sample sizes are in brackets.
a Employees who do not perceive that they are covered when their employer says they are; sample limited to covered employees.
b Employees who perceive that they are covered when their employer says they are not; sample limited to employees reporting that they are covered.

**TABLE 3**: **EMPLOYEES THAT DON'T KNOW ABOUT HPWP**

| | Fraction of Negative Responses that are "Don't Know" |
|---|---|
| Staff representative meeting | 8.52 %<br>(49 / 575) |
| Board-level employee representative | 26.86 %<br>(148 / 551) |
| Information sharing | 11.99 %<br>(68 / 567) |
| Employee stock ownership plan (ESOP) | 13.66 %<br>(75 / 549) |
| Periodic training | 5.57 %<br>(32 / 574) |
| Suggestion scheme rewards | 16.58 %<br>(91/549) |
| Collective bargaining | 24.78 %<br>(138/557) |

Note: This table replicated the Table 2 in the article by Budd (2006).

Table 2- Table 7 show the HLM results for all hypotheses. The results from Step 1, Step 2 and Step 3 are related to Hypothesis 1, the result from Step 3 is related to the testing of Hypothesis 2, and Step 4 is for Hypothesis 3. Observations with missing values for either dependent variables or independent variables were eliminated in analyses so the sample size in the HLM analyses is reduced to 579 and the number of level 2 groups is 50.

## TABLE 4: EMPLOYEE ADVISORY COMMITTEE

| *DV* | *Perceptions of Employee Advisory Committee* | | *Self-Rated Performance* | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Step 1 | | Step 2 | | Step 3 | | Step 4 | |
| | Coefficient | P-Value | Coefficient | P-Value | Coefficient | P-Value | Coefficient | P-Value |
| b0 | 1.94 | 0.20 | 4.36 | .00 | 3.92 | .00 | N/A | |
| γ01 | .57 | .71 | .01 | .98 | .24 | .79 | | |
| u0 | | .00 | | .15 | | .03 | | |
| b1 | .23 | 0.67 | .09 | .76 | .20 | .49 | | |
| γ11 | -.37 | .50 | -.25 | .37 | -.38 | .22 | | |
| u1 | | .06 | | >.50 | | .13 | | |
| b2 | -.96 | 0.28 | -.23 | .63 | .06 | .90 | | |
| γ21 | 1.18 | .19 | .21 | .67 | -.09 | .86 | | |
| u2 | | .00 | | .05 | | .12 | | |
| b3 | -0.00 | 1.00 | .15 | .42 | .08 | .66 | | |
| γ31 | -.07 | .86 | -.11 | .56 | -.03 | .88 | | |
| u3 | | .02 | | >.50 | | .34 | | |
| b4 | | | | | .11 | .68 | | |
| γ41 | | | | | -.05 | .85 | | |
| U4 | | | | | | .02 | | |
| b5 | | | | | | | | |
| γ51 | | | | | | | | |
| u5 | | | | | | | | |
| *DV* | *Perceptions of Employee Advisory Committee* | | *Job Satisfaction* | | | | | |
| | Step 1 | | Step 2 | | Step 3 | | Step 4 | |
| | Coefficient | P-Value | Coefficient | P-Value | Coefficient | P-Value | Coefficient | P-Value |
| b0 | 1.94 | 0.20 | 4.16 | .00 | 3.69 | .00 | N/A | |
| γ01 | .57 | .71 | -.83 | .27 | -.82 | .34 | | |
| u0 | | .00 | | .39 | | .03 | | |
| b1 | .23 | 0.67 | -.09 | .79 | -.12 | .72 | | |
| γ11 | -.37 | .50 | .13 | .70 | .20 | .55 | | |
| u1 | | .06 | | .00 | | .04 | | |
| b2 | -.96 | 0.28 | -.37 | .40 | -.14 | .78 | | |
| γ21 | 1.18 | .19 | .34 | .43 | .11 | .83 | | |
| u2 | | .00 | | >.50 | | >.50 | | |
| b3 | -0.00 | 1.00 | .09 | .64 | .10 | .60 | | |
| γ31 | -.07 | .86 | -.08 | .68 | -.09 | .64 | | |
| u3 | | .02 | | .40 | | .14 | | |
| b4 | | | | | .24 | .31 | | |
| γ41 | | | | | -.07 | .77 | | |
| u4 | | | | | | .10 | | |
| b5 | | | | | | | | |
| γ51 | | | | | | | | |
| u5 | | | | | | | | |

Note. Degree of freedom for regression coefficients= 48; Degree of freedom for variance components=46
Step 4 results cannot be converged due to the high consistency between the objective existence of HPWP and HPWP perceptions

## TABLE 5: BOARD-LEVEL EMPLOYEE REPRESENTATIVE

| *DV* | *Perceptions of Board-Level Employee Representative* | | *Self-Rated Performance* | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Step 1 Coefficient | P-Value | Step 2 Coefficient | P-Value | Step 3 Coefficient | P-Value | Step 4 Coefficient | P-Value |
| b0 | 1.58 | .00 | 4.42 | .00 | 4.32 | .00 | 4.30 | .00 |
| γ01 | .81 | .28 | -.22 | .34 | -1.02 | .03 | -.98 | .03 |
| u0 | | .00 | | .17 | | .08 | | .24 |
| b1 | -.32 | .12 | -.16 | .00 | -.15 | .00 | -.14 | .00 |
| γ11 | -.00 | 1.00 | .05 | .73 | .23 | .09 | .21 | .14 |
| u1 | | .00 | | >.50 | | >.50 | | .16 |
| b2 | -.05 | .70 | -.02 | .73 | .01 | .88 | .02 | .66 |
| γ21 | -.21 | .49 | -.20 | .23 | -.02 | .89 | -.06 | .75 |
| u2 | | .05 | | .06 | | .12 | | .00 |
| b3 | .14 | .09 | .04 | .15 | .03 | .30 | .03 | .42 |
| γ31 | -.01 | .96 | .09 | .18 | .08 | .30 | .09 | .23 |
| u3 | | .02 | | >.50 | | .25 | | .01 |
| b4 | | | | | .00 | .92 | .01 | .55 |
| γ41 | | | | | .17 | .01 | .18 | .00 |
| u4 | | | | | | .07 | | .06 |
| b5 | | | | | | | .02 | .89 |
| γ51 | | | | | | | .03 | .92 |
| u5 | | | | | | | | .00 |
| *DV* | *Perceptions of Board-Level Employee Representative* | | *Job Satisfaction* | | | | | |
| | Step 1 Coefficient | P-Value | Step 2 Coefficient | P-Value | Step 3 Coefficient | P-Value | Step 4 Coefficient | P-Value |
| b0 | 1.58 | .00 | 3.35 | .00 | 3.14 | .00 | 3.16 | .00 |
| γ01 | .81 | .28 | .02 | .93 | -.62 | .50 | -.80 | .01 |
| u0 | | .00 | | .33 | | .01 | | .06 |
| b1 | -.32 | .12 | .01 | .91 | .06 | .45 | .03 | .67 |
| γ11 | -.00 | 1.00 | .11 | .48 | .18 | .28 | .23 | .13 |
| u1 | | .00 | | .00 | | .00 | | .04 |
| b2 | -.05 | .70 | -.02 | .65 | .02 | .70 | .03 | .61 |
| γ21 | -.21 | .49 | -.02 | .87 | .07 | .47 | -.01 | .94 |
| u2 | | .05 | | >.50 | | .31 | | .17 |
| b3 | .14 | .09 | .02 | .64 | -.01 | .75 | -.02 | .68 |
| γ31 | -.01 | .96 | -.03 | .71 | -.01 | .89 | .04 | .63 |
| u3 | | .02 | | .40 | | .16 | | .06 |
| b4 | | | | | .10 | .00 | .10 | .00 |
| γ41 | | | | | .10 | .04 | .14 | .01 |
| u4 | | | | | | >.50 | | .20 |
| b5 | | | | | | | -.03 | .77 |
| γ51 | | | | | | | .18 | .44 |
| u5 | | | | | | | | .11 |

Note. Degree of freedom for regression coefficients= 48; Degree of freedom for variance components=46

## TABLE 6: INFORMATION SHARING

| *DV* | *Perceptions of Information Sharing* | | *Self-Rated Performance* | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Step 1 | | Step 2 | | Step 3 | | Step 4 | |
| | Coefficient | P-Value | Coefficient | P-Value | Coefficient | P-Value | Coefficient | P-Value |
| b0 | 1.93 | .00 | 3.98 | .00 | 3.58 | .00 | 3.54 | .00 |
| γ01 | .16 | .73 | .46 | .03 | .62 | .02 | .68 | .03 |
| u0 | | .00 | | .22 | | >.50 | | .00 |
| b1 | -.09 | .79 | -.08 | .52 | -.03 | .79 | -.05 | .71 |
| γ11 | -.03 | .93 | -.10 | .43 | -.12 | .38 | -.11 | .41 |
| u1 | | .00 | | >.50 | | >.50 | | >.50 |
| b2 | -.28 | .28 | .00 | .99 | .01 | .95 | .01 | .96 |
| γ21 | .15 | .61 | -.04 | .64 | -.06 | .60 | -.07 | .55 |
| u2 | | .04 | | .05 | | .47 | | .00 |
| b3 | .34 | .02 | .06 | .22 | .08 | .29 | .08 | .25 |
| γ31 | -.20 | .20 | -.01 | .87 | -.03 | .66 | -.03 | .65 |
| u3 | | >.50 | | >.50 | | >.50 | | .00 |
| b4 | | | | | .09 | .10 | .10 | .08 |
| γ41 | | | | | .02 | .71 | .02 | .80 |
| u4 | | | | | | >.50 | | .00 |
| b5 | | | | | | | .05 | .72 |
| γ51 | | | | | | | -.13 | .41 |
| u5 | | | | | | | | .00 |
| *DV* | *Perceptions of Information Sharing* | | *Job Satisfaction* | | | | | |
| | Step 1 | | Step 2 | | Step 3 | | Step 4 | |
| | Coefficient | P-Value | Coefficient | P-Value | Coefficient | P-Value | Coefficient | P-Value |
| b0 | 1.93 | .00 | 3.16 | .00 | 2.67 | .00 | 2.51 | .00 |
| γ01 | .16 | .73 | .22 | .51 | .44 | .20 | .62 | .10 |
| u0 | | .00 | | .35 | | .16 | | >.50 |
| b1 | -.09 | .79 | .00 | 1.00 | -.03 | .77 | -.06 | .54 |
| γ11 | -.03 | .93 | .05 | .84 | .08 | .51 | .10 | .36 |
| u1 | | .00 | | .00 | | .05 | | .21 |
| b2 | -.28 | .28 | -.02 | .81 | .01 | .78 | .02 | .67 |
| γ21 | .15 | .61 | -.00 | .96 | -.03 | .62 | -.05 | .43 |
| u2 | | .04 | | >.50 | | >.50 | | >.50 |
| b3 | .34 | .02 | .03 | .62 | -.01 | .93 | .01 | .92 |
| γ31 | -.20 | .20 | -.03 | .69 | .00 | .98 | -.01 | .93 |
| u3 | | >.50 | | .42 | | >.50 | | .17 |
| b41 | | | | | .24 | .00 | .23 | .01 |
| γ41 | | | | | -.11 | .13 | -.10 | .27 |
| u4 | | | | | | .03 | | .00 |
| b5 | | | | | | | .24 | .02 |
| γ51 | | | | | | | -.28 | .05 |
| u5 | | | | | | | | .08 |

Note. Degree of freedom for regression coefficients= 48; Degree of freedom for variance components=46

## TABLE 7: EMPLOYEE STOCK OWNERSHIP PLANS (ESOP)

| *DV* | *Perceptions of ESOP* | | *Self-Rated Performance* | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Step 1 | | Step 2 | | Step 3 | | Step 4 | |
| | Coefficient | P-Value | Coefficient | P-Value | Coefficient | P-Value | Coefficient | P-Value |
| b0 | 1.07 | .00 | 4.40 | .00 | 4.32 | .00 | 4.34 | .00 |
| γ01 | .77 | .13 | -.03 | .87 | .28 | .16 | .20 | .34 |
| u0 | | .00 | | .14 | | .00 | | .00 |
| b1 | .12 | .38 | -.09 | .18 | -.06 | .42 | -.06 | .42 |
| γ11 | -.12 | .53 | -.13 | .17 | -.17 | .14 | -.18 | .14 |
| u1 | | .40 | | >.50 | | .02 | | .00 |
| b2 | -.03 | .76 | -.07 | .15 | -.09 | .09 | -.08 | .15 |
| γ21 | -.16 | .24 | .08 | .43 | .05 | .64 | .07 | .55 |
| u2 | | >.50 | | .05 | | .22 | | .31 |
| b3 | -.01 | .88 | .05 | .16 | .08 | .00 | .07 | .02 |
| γ31 | -.04 | .66 | -.02 | .77 | -.06 | .23 | -.06 | .26 |
| u3 | | .21 | | >.05 | | >.50 | | .36 |
| b4 | | | | | -.03 | .37 | -.05 | .28 |
| γ41 | | | | | -.04 | .54 | -.01 | .82 |
| u4 | | | | | | .01 | | .20 |
| b5 | | | | | | | .01 | .95 |
| γ51 | | | | | | | .06 | .39 |
| u5 | | | | | | | | .28 |
| *DV* | *Perceptions of ESOP* | | *Job Satisfaction* | | | | | |
| | Step 1 | | Step 2 | | Step 3 | | Step 4 | |
| | Coefficient | P-Value | Coefficient | P-Value | Coefficient | P-Value | Coefficient | P-Value |
| b0 | 1.07 | .00 | 3.43 | .00 | 3.36 | .00 | 3.37 | .00 |
| γ01 | .77 | .13 | -.14 | .44 | -.25 | .21 | -.28 | .16 |
| u0 | | .00 | | .36 | | .02 | | .04 |
| b1 | .12 | .38 | .03 | .75 | .00 | .97 | .02 | .85 |
| γ11 | -.12 | .53 | .02 | .90 | .01 | .95 | -.02 | .88 |
| u1 | | .40 | | .00 | | .00 | | .01 |
| b2 | -.03 | .76 | -.02 | .76 | -.02 | .75 | -.03 | .66 |
| γ21 | -.16 | .24 | -.02 | .84 | .05 | .52 | .07 | .37 |
| u2 | | >.50 | | >.50 | | >.50 | | .22 |
| b3 | -.01 | .88 | -.01 | .77 | .01 | .78 | .02 | .70 |
| γ31 | -.04 | .66 | .04 | .54 | .01 | .93 | -.00 | .97 |
| u3 | | .21 | | .40 | | >.50 | | .55 |
| b4 | | | | | .03 | .38 | .05 | .25 |
| γ41 | | | | | .04 | .45 | .01 | .86 |
| u4 | | | | | | .03 | | .09 |
| b5 | | | | | | | -.05 | .78 |
| γ51 | | | | | | | .15 | .52 |
| u5 | | | | | | | | .05 |

Note. Degree of freedom for regression coefficients= 48; Degree of freedom for variance components=46

## TABLE 8: REGULAR TRAINING PROGRAMS

| *DV* | *Perceptions of Regular Training Programs* | | *Self-Rated Performance* | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Step 1 Coefficient | P-Value | Step 2 Coefficient | P-Value | Step 3 Coefficient | P-Value | Step 4 Coefficient | P-Value |
| b0 | 3.16 | .00 | 4.10 | .00 | 4.05 | .00 | 4.07 | .00 |
| γ01 | -.04 | .34 | .41 | .03 | .23 | .38 | .20 | .44 |
| u0 | | .03 | | .21 | | .01 | | .03 |
| b1 | -.16 | .38 | -.26 | .02 | -.28 | .03 | -.28 | .03 |
| γ11 | .01 | .96 | .15 | .21 | .20 | .14 | .21 | .13 |
| u1 | | .00 | | >.50 | | .08 | | >.50 |
| b2 | -.05 | .79 | .17 | .07 | .20 | .07 | .19 | .10 |
| γ21 | .06 | .79 | -.26 | .02 | -.29 | .02 | -.27 | .04 |
| u2 | | .43 | | .10 | | .00 | | >.50 |
| b3 | .03 | .81 | -.00 | .99 | .00 | .97 | .01 | .87 |
| γ31 | .02 | .89 | .05 | .37 | .05 | .37 | .04 | .55 |
| u3 | | .08 | | >.50 | | .05 | | >.50 |
| b4 | | | | | .01 | .92 | .01 | .90 |
| γ41 | | | | | .06 | .32 | .07 | .33 |
| u4 | | | | | | .00 | | .14 |
| b5 | | | | | | | -.06 | .69 |
| γ51 | | | | | | | .08 | .64 |
| u5 | | | | | | | | .27 |
| *DV* | *Perceptions of Regular Training Programs* | | *Job Satisfaction* | | | | | |
| | Step 1 Coefficient | P-Value | Step 2 Coefficient | P-Value | Step 3 Coefficient | P-Value | Step 4 Coefficient | P-Value |
| b0 | 3.16 | .00 | 3.25 | .00 | 2.83 | .00 | 2.78 | .00 |
| γ01 | -.04 | .34 | .16 | .39 | .14 | .63 | .19 | .51 |
| u0 | | .03 | | .32 | | .06 | | .10 |
| b1 | -.16 | .38 | .07 | .45 | .10 | .25 | .10 | .23 |
| γ11 | .01 | .96 | -.05 | .69 | -.04 | .72 | -.04 | .71 |
| u1 | | .00 | | .00 | | .27 | | .05 |
| b2 | -.05 | .79 | .04 | .60 | .05 | .61 | .04 | .60 |
| γ21 | .06 | .79 | -.09 | .34 | -.11 | .28 | -.10 | .32 |
| u2 | | .43 | | >.50 | | .44 | | >.50 |
| b3 | .03 | .81 | -.02 | .77 | -.03 | .60 | -.02 | .68 |
| γ31 | .02 | .89 | .03 | .64 | .05 | .43 | .03 | .55 |
| u3 | | .08 | | .40 | | >.50 | | .19 |
| b4 | | | | | .14 | .01 | .16 | .00 |
| γ41 | | | | | -.00 | .96 | -.02 | .74 |
| u4 | | | | | | .03 | | .20 |
| b5 | | | | | | | .05 | .75 |
| γ51 | | | | | | | -.11 | .59 |
| u5 | | | | | | | | >.50 |

Note. Degree of freedom for regression coefficients= 48; Degree of freedom for variance components=46

## TABLE 9: SUGGESTION SCHEME REWARDS

| *DV* | *Perceptions of Suggestion Scheme Rewards* | | *Self-Rated Performance* | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Step 1 Coefficient | P-Value | Step 2 Coefficient | P-Value | Step 3 Coefficient | P-Value | Step 4 Coefficient | P-Value |
| b0 | 2.82 | .00 | 4.15 | .00 | 3.73 | .00 | 4.08 | .00 |
| γ01 | -.48 | .44 | .31 | .12 | .65 | .03 | .28 | .36 |
| u0 | | .00 | | .21 | | >.50 | | >.50 |
| b1 | -.30 | .12 | -.29 | .02 | -.61 | .32 | -.19 | .24 |
| γ11 | .18 | .44 | .19 | .15 | .07 | .70 | .09 | .58 |
| u1 | | .34 | | >.50 | | >.50 | | >.50 |
| b2 | -.04 | .82 | .10 | .29 | .13 | .29 | .15 | .21 |
| γ21 | .05 | .84 | .19 | .09 | -.23 | .10 | -.25 | .07 |
| u2 | | >.50 | | .10 | | .38 | | >.50 |
| b3 | -.02 | .93 | .01 | .75 | .02 | .77 | -.01 | .87 |
| γ31 | .03 | .87 | .04 | .42 | .04 | .56 | .07 | .34 |
| u3 | | .08 | | >.50 | | >.50 | | .31 |
| b4 | | | | | .09 | .01 | .16 | .01 |
| γ41 | | | | | -.05 | .29 | -.10 | .13 |
| u4 | | | | | | >.50 | | .08 |
| b5 | | | | | | | -.46 | .13 |
| γ51 | | | | | | | .47 | .16 |
| u5 | | | | | | | | .10 |
| *DV* | *Perceptions of Suggestion Scheme Rewards* | | *Job Satisfaction* | | | | | |
| | Step 1 Coefficient | P-Value | Step 2 Coefficient | P-Value | Step 3 Coefficient | P-Value | Step 4 Coefficient | P-Value |
| b0 | 2.82 | .00 | 3.32 | .00 | 2.48 | .00 | 2.74 | .00 |
| γ01 | -.48 | .44 | .06 | .80 | .61 | .03 | .17 | .57 |
| u0 | | .00 | | .32 | | .00 | | .09 |
| b1 | -.30 | .12 | -.00 | .97 | .19 | .09 | .18 | .08 |
| γ11 | .18 | .44 | .06 | .70 | -.12 | .34 | -.10 | .43 |
| u1 | | .34 | | .00 | | .00 | | >.50 |
| b2 | -.04 | .82 | .03 | .69 | .10 | .15 | .10 | .13 |
| γ21 | .05 | .84 | -.08 | .36 | -.13 | .13 | -.14 | .11 |
| u2 | | >.50 | | >.50 | | .28 | | >.50 |
| b3 | -.02 | .93 | -.01 | .80 | -.02 | .65 | -.04 | .38 |
| γ31 | .03 | .87 | .03 | .62 | .04 | .47 | .06 | .28 |
| u3 | | .08 | | .47 | | .21 | | .19 |
| b4 | | | | | .22 | .00 | .28 | .00 |
| γ41 | | | | | -.12 | .02 | .12 | .07 |
| u4 | | | | | | .01 | | .23 |
| b5 | | | | | | | -.40 | .08 |
| γ51 | | | | | | | .72 | .01 |
| u5 | | | | | | | | >.50 |

Note. Degree of freedom for regression coefficients= 48; Degree of freedom for variance components=46

Step 1, step 2 and step 3 are the test results of the mediation effect (Hypothesis 1). The results showed that the mediation effect is not supported because in most of the regressions, the objective existence of HPWP is not related to the HPWP perceptions: this is shown in Step 1, *γ01*

is almost always not significant. However, as shown in the Step 3 (*γ01*), the objective existence of HPWP is related to employee outcomes for "board level representatives," "information sharing," and "suggestion scheme rewards." And the HPWP perceptions are related to employee outcomes (Step 3, *b4*) for "board level representative," "information sharing," "regular training programs" and "suggestion scheme rewards." The result of Step 3 (*γ41*) shows that the moderation effect (Hypothesis 2) is supported for "board level representatives," "information sharing" and "suggestion scheme rewards. The result of Step 4 (*b5*) shows that Hypothesis 3 is supported for "information sharing" and "suggestion scheme rewards."

## DISCUSSION

### Theoretical Implication

The results of this study provide important insights into the high performance work practices and demonstrate the interesting role of employee perceptions regarding the relation of HPWP-employee outcomes in the workplace.

In this study, Hypothesis 1 which states that HPWP perceptions mediate the objective existence of HPWP-employee outcomes relation was not supported.

Hypothesis 2, moderation effect of the HPWP perceptions in the objective HPWP-employee outcomes relation, received strong support for three related HPWPs: "board-level employee representative," "information sharing" and "suggestion scheme rewards." All of these three HPWPs are relevant to employee participation practices. As suggested by the self-prophecy theory, when employees evaluated HPWPs implementation highly, there is stronger relation between the objective existence of HPWP and employee outcomes. But it is not supported for the other HPWPs such as "regular training program," "ESOP" and "staff meeting."

The prediction from the information processing perspective (Hypothesis 3), i.e. the misfit between objective and perceived HPWP results in less desired employee outcomes, received mixed support. The results of "information sharing" and "suggestion scheme rewards" yielded somewhat strong support for this hypothesis, while the results of other HPWPs, provided no support for this prediction.

### Practical Implication

The results of this study have many practical implications. In particular, we provided a nuanced picture of the HPWP-employee outcomes relation: employee perceptions regarding HPWP matter for HPWP to be effective. With the actual existence of HPWP being held constant, there

is an optimal level of HPWP perceptions in terms of maximizing HPWP's outcomes. Attempts to enhance employee perceptions to HPWP, especially those related to decision participation produce more desired results. On the other hand, attempts to adjust employee perceptions regarding the decision participation practices to the actual implementation of these practices may make them more effective. These two conclusions are complement rather than exclusive to each other, although the hypotheses were derived from different theories.

## Limitations and Future Research Direction

Several limitations exist in this research. The human resource managers were just asked about the existence of the HPWP rather than how much effort they devote into the practices. However, due to the reason of social desirability, simple answers to existence of HPWP would be more objective. Another limitation is that, in this study, we only investigated self-report employee performance. But this measure seems to have satisfactory validity since it is positively related to the objective measure of "regular training program" and all other decision participation programs. The measures for these items were obtained from the HR managers and hence the significant positive relation between them proved the scale's validity to some extent. However, future studies with supervisor-rated performance or performance evaluation from other resources are encouraged. Finally, only two employee outcomes were studied. We therefore encourage future research to include more employee outcome variables such as commitment and organizational citizenship behavior in the further investigation of this topic.

## Conclusion

The most important contribution of this paper is that we compared three alternative theoretical perspectives that provide insights into the same topic and empirically tested the predictions derived from them. The results lent most support to self-prophecy theory, little support to the MOA theory, and partial support to the social information processing theory. Also, the validity of these theories is different when they are applied to different types of HPWP. The employee participation practices including "information sharing" and "suggestion scheme rewards" are most consistent with the theories. The results thus offered a nuanced picture of the effects of objective existence of HPWP and HPWP perceptions on employee outcomes and make substantive theoretical clarification in the area of HPWP.

## REFERENCES


Adler, P.S. & Kwon S.W. (2002). Social capital: Prospects for a new concept. *Academy of Management Review.* 27 (1): 17-40.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173-1182.

Budd, J. (2006). Does employee ignorance undermine shared capitalism? Unpublished Manuscript.

Davidson, O. B., & Eden, D. (2000). Remedial self-fulfilling prophecy: two field experiments to prevent Golem effects among disadvantaged women. *Journal of Applied Psychology*, 85(3), 386.

Gruen, T.W., Osmonbekov, T., Czaplewski, A.J. (2007). Customer-to-customer exchange: Its MOA antecedents and its impact on value creation and loyalty. *Journal of the Academy of Marketing Science*, 35(4): 537-549.

Kirschenbaum, S. S. (1992). Influence of experience on information-gathering strategies. *Journal of Applied Psychology*, 77(3), 343.

Klein, G. A. (1993). A recognition-primed decision (RPD) model of rapid decision making. *Decision making in action: Models and methods*, 5(4), 138-147.

Macky, K. & Boxall P. (2007). The relationship between 'high-performance work practices' and employee attitudes: an investigation of additive and interaction effects. *International Journal of Human Resource Management*. 18 (4): 537-567.

McNatt, D.B. (2000). Ancient pygmalion joins contemporary management: A meta-analysis of the result. *Journal of Applied Psychology*. 85 (2): 314-322.

Merton, R. K. (1968). *Social theory and social structure*.

Platt, J. R. 1964. Strong inference. *Science*, 146: 347-353.

Pfeffer, J. (1998). *The human equation*. Boston, MA.

Poiesz, T.B.C., Robben, H.S.J. (1996). Advertising effects under different combinations of motivation, capacity, and opportunity to process information. *Advances in Consumer Research*, 23: 231-236.

Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical Linear Models: Applications and Data Analysis Methods*. Sage Publications.

Rosenthal, Robert, and Lenore Jacobson. "Pygmalion in the classroom." *The Urban Review 3.1* (1968): 16-20.

Rothschild, M. (1999) "Carrots, Sticks, and promises: A conceptual framework for the management of public health and social issues behavior." *Journal of Marketing*, 63, 24-37.

Salancik, G. R., & Pfeffer, J. (1977). An examination of need-satisfaction models of job attitudes. *Administrative Science Quarterly*, 427-456.

Salancik, G. R., & Pfeffer, J. (1978). A social information processing approach to job attitudes and task design. *Administrative Science Quarterly*, 224-253.

Scotti, D.J., Harmon J., & Behson S.J. (2007). Links among high-performance work environment, service quality, and customer satisfaction: An extension to the healthcare sector. *Journal of Healthcare Management*. 52 (2): 109-124.

Shaw, J., Duffy, M., Mitra, A., Lockhart, D., & Bowler, M. (2003). Reactions to merit pay increases: A longitudinal test of a signal sensitivity perspective. *Journal of Applied Psychology*, 88(3), 538-544.

Shaw, J.D., Gupta, N., & Delery, J.E. 2005. Alternative conceptualizations of the relationship between voluntary turnover and organizational performance. *Academy of Management Journal*, 48, 50-68.

# HIDDEN TRADEOFFS IN SUSTAINABILITY INITIATIVES

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## ABSTRACT

Many organizations are adopting "green" initiatives to meet public demand, and different types of green strategic initiatives can be categorized using a competing values framework. There is controversy over how to operationalize those strategies, how to measure them, and what standards to set to determine when a product/service can be certifiably "green." Standards vary widely by the source, product lifecycle stage, and whether indirect effects from the supply chain are assessed. Further, the selective nature of streamlined life-cycle studies often result in the neglect of important environmental impacts. When criteria exclude environmentally destructive direct or indirect effects, accusations of "greenwashing" undermine the drive for sustainability. Consequently standards and regulation seem to be both socially constructed retrospective rationalizations as well as empirically-based science. Implications are discussed.

## CONCEPTUALIZING "GREEN"

As society has become increasingly aware of the extent of damage human activity is having on our planet's environment it has become clear to many that "business as usual" is not compatible with a thriving future for humanity. By the end of the 20th century the consensus in the scientific community was that several alarming global trends are in dire need of remediation including**:** plummeting biodiversity levels, increasing deforestation, loss of arable farmland, disappearing aquifers, increasing desertification, growing oceanic dead zones, increasing numbers of species becoming endangered and/or extinct and overconsumption of non-renewable resources (Black & Phillips, 2010). Both within and without the business world, the overall effect of this is an increased the pressure for businesses to "go green" and take on sustainability initiatives. Powerful external coalitions are emerging to champion sustainability. Today's environmental movement is gaining the support of many groups who, in the past, did not show public support for environmental issues including republicans, religious groups, conservatives, and laborers (Price, 2006; Hirsch, 2006). As Hazell (2009, p. 11) explains, "Sudden dramatic and catastrophic events are expected to become increasingly frequent, so the transformation to a sustainable, green-jobs economy may need to be non-linear." Yet even as organizations have changed their activities they have come under criticism for the supposed mismatch between the magnitude of the problem and the perceived inadequacies of their initiatives.

One point which has proved a stumbling block to these initiatives is that under the currently favored rubric of "sustainability" a large amount of responsibility is required while little guidance is provided on how to achieve their goals (Robbins & Page, 2012). One popular definition of sustainability is "meeting the social and environmental, as well as the economic needs of the present without compromising the ability of future generations to meet their own needs" (World Comission on Environment and Development, 1987). How this general concept can be operationalized remains both confusing and controversial due to its breadth - from industrial to societal to ecological (Sikdar, Glavic & Jain, 2010). This has also resulted in a variety of assessments from a variety of organizations (Klopffer, 2003, Trotta, 2010).

For example, take "green" / sustainable / high performance buildings, defined by the EPA as being designed, built, operated, maintained, renovated, and reused in an "environmentally responsible and resource-efficient" manner. They must feature the efficient use of energy, water, and other resources to reduce environmental impact. In addition, they must reduce a building's operating costs, heighten aesthetic qualities, and not only protect, but even improve the health and quality of life of their occupants (EPA, 2010; Skidmore, 2011). In terms of North American green building standards, they vary by the criteria they use and the difficulty of the thresholds they set - there is no uniform standard. In contrast, the tendency is for major stakeholders to introduce their own standards rather than improve existing standards in the interests of clarity:

- United States Green Building Council's ("USGBC") Leadership in Energy and Environmental Design ("LEED"): third-party certification of sustainable sites, water efficiency, energy and atmosphere, materials and resource, indoor environmental quality, and innovation in design.
- Canada's Green Building Initiative uses the "Green Globes," a convenient online assessment tool that evaluates seven main categories on a 1000-point scale: energy, indoor environment, site, water, resources, emissions, and project/environmental management.
- American Society of Heating, Refrigerating and Air-Conditioning Engineers released "standard 189.1," similar to LEED, but with minimum standards for building greenhouse gas emissions.
- State standards, such as "CALGREEN" in California, and local standards in a variety of major cities, are used in conjunction with, or in place of, the above national standards.

**Lifecycle Complications**

Regardless of the model being used, complexity intensifies when the entire product or service lifecycle is examined. In many green strategic models, clear distinctions across quadrants and along continua often depend on which aspect and phase of sustainability lifecycle is examined. Consequently there are many lifecycle assessments from a variety of organizations, including:

- Environmental lifecycle assessments [(LCA, ISO 14000] which tend to be product-related and focus on energy, resources and waste.

- Economic lifecycle assessments, also known as life cycle costing (LCC), Full cost accounting (FCA) and total cost Assessment (TCA), which explicitly factor in the impact of raw and intermediate materials in the supply chain.
- Social life cycle assessments (SLCA), the least developed aspect of sustainability, primarily because they are difficult to quantify (Hendrickson et. al., 1998; Klopffer, 2003, Trotta, 2010).

Product lifecycle management (PLM) and assessment (LCA) literatures provide a comprehensive inventory to identify the factors which complicate assessing whether a product or service is truly "green" using both lifecycle and systems theory (Rosselot & Allen, 2000; Trotta, 2010), as adapted in Figure 1:

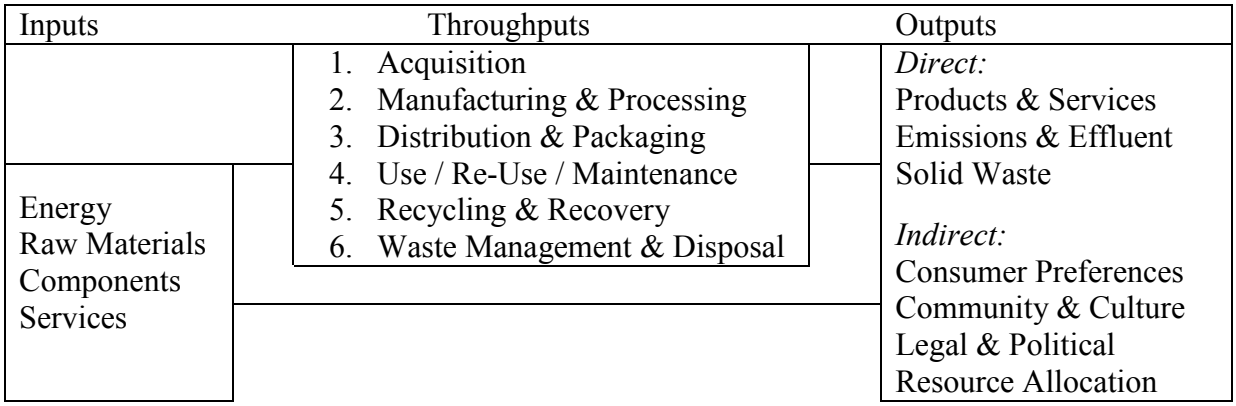


**FIGURE 1**: **LIFECYCLE INVENTORY**

The comprehensive scope of environmental assessment remains more ideal than real for the foreseeable future, particularly since some metrics for measuring indirect effects have proven problematic. Rosselot and Allen (2000, p. 323) note:

> The use of life-cycle studies falls along a spectrum from a complete spatial and temporal assessment of all the inputs and outputs due to the entire life-cycle (which may never be accomplished in practice, both because of a lack of information and because it would require a tremendous amount of effort and expense) to an informal consideration of the environmental stresses that occur over a product or process life-cycle.

Given the resource intensive nature of comprehensive life-cycle assessments, they are rare. Far more common are "streamlined" life-cycle assessments, arguing that only the most important life-cycle stages or type of inputs and outputs causing the most significant environmental issues can be identified for more detailed study. Streamlined life cycle assessment reduces the resource intensive nature of data collection choosing among the following assessment strategies:

- building extensively on previously completed life cycle assessments
- using pre-existing data on energy use
- focusing on toxicity
- omitting certain product components or materials as insignificant
- omitting certain lifecycle stages
- using economic value to assess resource scarcity and ease of manufacturing (Bansal & Hoffman, 2012; Rosselot & Allen, 2000)

## THE STRATEGIC ECO-BUFFET

Given this overwhelming complexity there is no consensus on how to best achieve sustainability, how to measure it, and what standards to set to determine when a product or service has retained that status. In one of the most well-known models (Hart and Milstein, 2003), suggested that green strategic initiatives could be categorized by where they fall along two continua, which they term "creative tensions." Some strategic initiatives focus on the internal operations and processes of the organization, while others target the external impact on and green outcomes in the firm's industrial and general environment. These strategies can also be distinguished by their future orientation - the degree to which they focus on current versus future organizational needs and opportunities. Their model is illustrated in Figure 2:

**Tomorrow**

| **Internal** | | **External** |
|---|---|---|
| ***Clean Technology:*** Sustainable competencies of the future (Clean tech) [Innovation & Repositioning] | ***Sustainability Vision:*** Shared roadmap targeting unmet global needs [Growth Trajectory] | |
| ***Pollution Prevention:*** Minimize waste and emissions from operations to control risk [Cost & Risk Reduction] | ***Product Stewardship:*** Integrate stakeholder views into the business process [Reputation & Legitimacy] | |

**Today**

**FIGURE 2**: **SUSTAINABLE VALUE FRAMEWORK**

In contrast, other researchers have linked green initiatives with various organizational strategies, although they cannot agree on which strategic variables are most pertinent:

- Innovation versus efficiency focus (Williams, Brooks & Page, 2012)
- Product/service versus process innovation (Orsato, 2006)
- Generic sources of competitive advantage (low cost versus differentiation) (Orsato, 2006)
- Degree eco-friendly products/processes differentiate the firm (Ginsberg & Bloom, 2004)
- Relative importance of the market segments involved (Ginsberg & Bloom, 2004)
- Degree of customer-benefit (productivity, costs, etc.) (Siemens 2010; Trotta, 2010)
- Degree of positive environmental impact (Siemens 2010; Trotta, 2010)

Differences in these models will be explored using a "competing values" approach, which captures the inherent paradox involved in organizational effectiveness issues such as sustainability (Quinn & Rohrbaugh, 1983; Quinn, 1991). The classic competing values framework focuses on private sector organizations and the major schools of academic thought that have evolved to study them, as summarized in Figure 3:

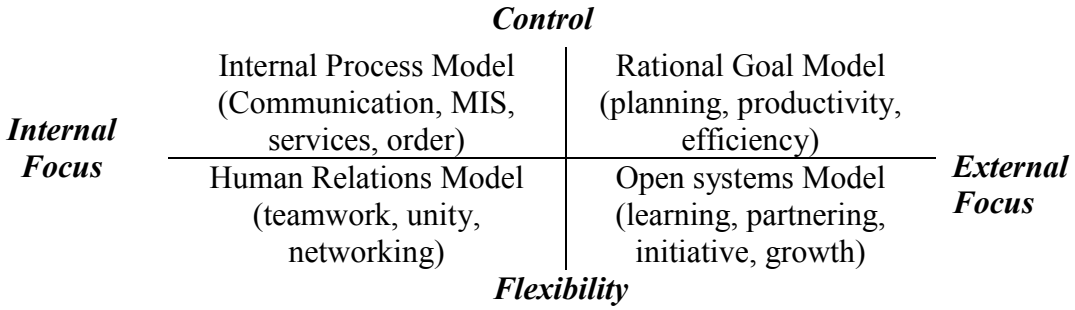


**FIGURE 3**: **COMPETING VALUES FRAMEWORK**

While the terminology and specific sustainability strategies may vary from model to model, underlying general strategic foci are somewhat congruent, and can be categorized using a competing values framework, illustrated in Figure 4:

| | | |
|---|---|---|
| | ***Systemic Green*** | ***Holistic Green*** |
| **Flexibility** (Innovation) | *(System-wide product/process innovation)* | *(Proactive, visionary, radical innovation)* |
| | Clean Technology (Stuart & Millstein) | Sustainability Vision (Stuart & Millstein) |
| | Eco-branding (Orsato) | Environmental Cost Leadership (Orsato) |
| | Shaded Green (Ginsberg & Bloom) | Extreme Green (Ginsberg & Bloom) |
| | Green Solutions (Siemens) | Design to cost (Siemens) |
| | ***Lean Green*** | ***Multi-stakeholder Green*** |
| **Control** (Efficiency) | *(Eco-friendly cost efficiency)* | *(Involve, co-opt & retain key stakeholders)* |
| | Pollution prevention (Stuart & Millstein) | Product Stewardship (Stuart & Millstein) |
| | Eco-efficiency (Orsato) | Beyond Compliance Leadership (Orsato) |
| | Lean Green (Ginsberg & Bloom) | Defensive Green (Ginsberg & Bloom) |
| | Eco-design (Siemens) | |
| | **Internal** Operations | **External** Impact |

**FIGURE 4**: **GREEN INITIATIVES**

**Multi-stakeholder Green**

Green strategies in this quadrant are often characterized by a defensive and/or public relations focus. Due to a crisis, political/legal trends, or competitive threats, these green efforts reflect leveraging green features of the product/ service line more than any fundamental commitment to environmental sustainability. By reaching out to involve a variety of stakeholders, and listening to their feedback, executives hope to placate eco-concerns and either build goodwill or at least minimize future criticism. Large corporations with strong political networks and allies in local, state and federal government can even receive incentives to adopt green alternatives. These strategies are often reactive or precautionary moves to either mitigate damage or protect organizational legitimacy in the minds of consumer segments executives feel they cannot afford to lose (Ginsberg, J. & Bloom, 2004; Hart & Milstein, 2003). Organizations in this quadrant often publicize their efforts to build a greener reputation and consumer goodwill, and may minimize those efforts when they no longer command public attention (Orsato, 2006).

Some of the most popular strategic initiatives in this quadrant involve remediation. Particularly in pollution intensive industries, mangers view and deal with issues of sustainability using a series of ecologically friendly enhancements. Initiatives of this type deal with products and services which continue business as usual, but in a cleaner and more efficient manner. They incorporate tools for cleaning up or containing the messes created more effectively. They retain the same type of inputs and outputs which cause the eco-problems, but try to mitigate the pollutants generated.

One tool for cleaning up "the mess" is the development of super microbes to either digest the toxins, or otherwise neutralize them as stable precipitates (EPA, 2010). This type of tool proved far more effective at removing oil from the Gulf of Mexico's water in the 2010 BP oil spill cleanup than any other alternative. The algae used consumed the oil and excreted water and harmless gases back into the environment (Gautam, 2012). Biotechnology companies have begun to isolate and farm these microorganisms as a crop (e.g. Alabaster, 2010). Similarly, specific varieties of fungi have proven effective at removing the toxins from industrial brownfield sites (Tortella, Diez, & Durá, 2005).

For a more common example, waste to energy has been touted as a more eco-friendly option, but it, too, creates environmental complications. Notably, beginning in 2006 Waste Management (WMI) released numerous advertisements highlighting its efforts towards environmental preservation. Over $90 million was been spent on TV commercials and print advertisements by WMI drawing attention to the practice of incinerating trash to create energy, known as waste-to-energy or WTE (Allen, 2009). Not only does incineration provide energy but there is also the potential to use the ashes produced in the creation of non-hazardous construction materials such as building blocks and reinforced concrete (Swanson et al, 2010).

### *Unintended Lifecycle Complications*

The limits of this approach derive from its instrumentally political orientation. The underlying logic is that of aggregating disparate interests (the interest group view of politics). Green features are valued because they placate a significant constituency's interests, but there is little effort to modify or broaden those interests. Consequently the solutions are likely to be shallow and incremental. Not surprisingly, cleaning and containment solutions often prove inadequate over time. The primary focus of these efforts is on production and emissions, but there is usually more to the story than, for example, simply watching mountains of trash disappear in WTE plants, solving the bulk problem of garbage disposal. Unfortunately burning waste for fuel inevitably produces toxic air emissions and chemical ash residues, including: mercury, lead, and dioxin (Dijkgraaf et. al, 2004). WTE plants cannot be considered a green energy source since they generate more carbon dioxide per unit of electricity than do power plants run on coal (Haight, 2010; Tan, 2010). Also modern incinerators have been identified as a major source of ultrafine particle emissions responsible for a host of ailments including lung disease, heart disease, and cancer (Haight, 2010).

Moreover, many argue that there are serious indirect effects as well. Incineration discourages recycling since incinerator based power plants require a constant flow of garbage and thus can compete with composting, recycling and other forms of waste reduction for trash (Allen, 2009). In contrast, the lifespan of landfills can be significantly extended through aggressive waste reduction programs (Haight, 2010). Incinerators are also quite costly both to build ($650 million per plant) and to operate often consuming billions of dollars of government money in subsidies that could have been applied towards investments in recycling and other forms of waste reduction for a tenth of the cost (Seldman, 2010; Tan, 2010). Approximately 90% of municipal waste can be recycled, re-used or composted and recycling saves three to five times the amount of energy that incineration generates (Haight, 2010; Tan, 2010).

Consequently the total environmental costs for incineration tend to have greater environmental impact than those for land filling per ton of waste unless both energy and materials involved so not produce toxins (Dijkgraaf & Vollebergh, 2004). These remediation strategies often address one problem while creating other direct and indirect negative environmental effects at different stages of the lifecycle.

## Lean Green

These strategies target preventing some of the pollution in the first place, and are very popular among organizations with high processing costs and/or high waste (Orsato, 2006; Hart & Milstein, 2003). This eco-efficient strategic focus is both reactive and precautionary, complying with regulations and finding pre-emptive long term solutions to avoid further regulation and

restriction (Ginsberg & Bloom, 2004). Efficient processes, such as "lean" manufacturing initiatives minimize waste through continuous innovation (Wilson, 2009).

These types of initiatives tend to focus on the short to medium term profitability of specific waste-reduction and cost saving methods (Siemens, 2010; Trotta, 2010). The external validation of this "business case for sustainability" has greatly increased and there has been an explosion of books and articles advising managers on how to identify such profitable environmental initiatives (Holliday, Schmidheiny, & Watts, 2002; Schmidheiny, 1992). These efficiency initiatives can also be extended beyond the individual firm to include more of the value chain. For example, the Green Suppliers Network works with large manufacturers to engage their small and medium-sized suppliers in low-cost technical reviews that focus on process improvement and waste minimization (OPPT, 2010).

Possibly the most well known example of lean green technology involves alternative fuels for motor vehicles. The consumption of petroleum derived fuels is environmentally problematic because of the green house gases (GHG) they create. Collectively motor vehicles represent 60% of the world's total oil consumption, 70% of global carbon monoxide (CO) emissions and 19% of global carbon dioxide ($CO_2$) emissions (Vliet et. al, 2011; Balat, 2009). In dealing with this problem, one primary strategy, which, unlike other proposals, does not require radical redesign of the vehicle, is to simply switch from oil based fuels to bio-fuels (ethanol, biodiesel etc.), hydrogen fuel, electricity or synthetic fuels such as those derived from biomass, coal or gas - all of which feature less toxic emissions (Vliet et. al, 2011).

Among eco-friendly bio-fuels, ethanol is the most widely used alternative. It has several advantages over other bio-fuels, including that it can be mixed with gasoline and used in conventional combustion engines with virtually no modifications. Ethanol results in lower emissions of particulates, sulfur, nitrous oxide and other greenhouse gases when incorporated with conventional fuels and it has no net release of carbon dioxide when burned alone (Balat, 2009). Its inputs, crops, are a renewable resource which can be sustainably developed for future use (Balat, 2009). Moreover, as gas prices remain high and increasing, ethanol usage creates potential economies of scale and scope to the point where some analysts predict ethanol will become cost competitive with oil in the near future (Eisenthal, 2008).

### *Unintended Lifecycle Complications*

Many managers in pollution intensive industries view and deal with issues of sustainability using this "clean brown" perspective. However, because of its focus on cost reduction via waste reduction, this approach is limited by the scope over which these are calculated. If the existing framework for calculating costs is left unchanged and externalized costs remain externalized, then environmental impacts may merely be shifted around rather than actually reduced. While

endeavoring to reduce toxic byproducts and looking for ways to manage the waste they do create managers overlook strategies in other lifecycle stages.
For example, the direct and indirect effects of ethanol production render its lifecycle eco-friendliness problematic, particularly in underdeveloped markets and third world nations (Balat, 2009; Singh et. al, 2011). Ethanol's primary claim to eco-fame - the environmental friendliness of the fuel's emissions - is tainted from a lifecycle perspective. Several studies have indicated that switching over to the ethanol production practices in the U.S. may actually trigger a net increase in global warming due to increased pollution emissions in the supply chain. This is largely due to the increased nitrous oxide emissions caused by the enormous amounts of nitrogen fertilizer used to grow ethanol corn [nitrous oxide is a GHG] (Mosier, 2009; Scharleman, 2008). In a comparative study of 26 different bio-fuels, 12 fuels, including U.S. corn ethanol and Brazilian sugarcane ethanol, proved to have greater environmental costs than fossil fuels when their lifecycle environmental impact is fully tallied (Scharleman, 2008; Balat, 2009; Valdes, 2011).

Another supply chain complication is the increased competition for water supplies due to the water requirements of corn. The National Research Council (Schnoor & Doering, 2007) reports in many regions the water necessary for drinking, industry and such uses as hydropower, fish habitat, and recreation will likely compete with and/or constrain the use of water for biofuel crops. Further, U.S. corn production uses more fertilizers, herbicides and pesticides, and results in more soil erosion and runoff contamination than any other U.S. crop. This pollution will be so massive, it is projected to increase the appearances of “dead zones” - low-oxygen environments lethal for most life forms - which plague large swaths of many regions of water including the Gulf of Mexico and Chesapeake Bay (National Academies, 2007).

One potentially catastrophic indirect effect is that the quantities of crops required cannot be grown without compromising food production (Davey, 2012; Walsh, 2012). Vast tracts of both native and farm land will reserved for ethanol crops, causing food prices to be driven higher (Pineiro et. al, 2009; Sharleman, 2008). This market-mediated response to increased bio-fuel production will translate into nutritional deficits among the poor (Hertel et. al, 2010). This problem is compounded when corn crop yields underperform, as in the U.S. failed corn crop of 2012 (Davey, 2012; Walsh, 2012). With climate change corn crops are not reliable. Furthermore, cellulosic ethanol, a biomass product using agricultural waste inputs that do not compete with the cultivation of food is unlikely to become commercially available for at least a few decades (Pineiro et al, 2009; Balat, 2009).

**Systemic Green**

This quadrant involves significant, system-wide restructuring of product service with green processes as a sustainable competitive advantage (Ginsberg & Bloom, 2004). This represents a significant investment in clean technologies, with the goal of being perceived by eco-conscious consumers as a truly green organization with a distinctive, credible, trustworthy green brand

(Orsato, 2006; Hart & Milstein, 2003). This commitment ranges from take existing products and processes and altering them with as many eco-friendly components and green inputs as possible, to developing entirely new, more eco-friendly processes and production.

Rather than increasing the efficiency of existing processes this type of innovation reconfigures processes to gain system–level efficiencies. Attending to system interdependencies can allow one to "tunnel through the cost barrier" (Hawken, Lovins, & Lovins, 2000). In manufacturing plants, for example, the decisions concerning equipment layout, and choosing a pump to drive fluids to the equipment have traditionally been made independently by different actors. However, it takes less energy to pump a fluid through a straight pipe than a pipe with many turns. By laying out equipment and installing pipes to minimize angles one can install a smaller, less energy intensive pump (Robbins & Page, 2012). Similarly, instead of sizing the HVAC unit for a new commercial building using standard calculations based on square footage, one can "first" invest in increased insulation that not only reduces heat loss but also allows installation of a smaller HVAC unit, saving embedded energy, materials, and money upfront as well as reducing ongoing energy usage (Hawken, Lovins, & Lovins, 2000). Note that such initiatives save energy even when the individual elements (such as pumps and HVAC units) are off the shelf items with only standard environmental performance.

Other innovations extend beyond the technical core to include organizational and governance issues. Benefit Corporations or "B-Corporations" have a social mission explicitly encoded in the corporate charter and submit to periodic audits on social and environmental performance (Robbins & Page, 2012). Already legislation in seven states recognizes B-Corps as a distinct corporate form. The end result is a governance structure that not only allows but mandates (under explicit threat of shareholder lawsuit) management attention to sustainability concerns ("B Corps," 2012; Weber, 2010).

One widely used systematic innovation is genetic modification, which customizes inputs and outputs to maximize the green potential of the system. Are inputs environmentally "dirty?" - modify or replace them to become more eco-friendly with genetically modified organisms (GMOs). Does manufacturing processes create too much waste? Use GMOs to increase the yield of the inputs and to digest the waste. Higher quality inputs will also allow streamlining and downsizing production without sacrificing output. Is disposal an environmental problem? Not when GMOs transform the trash into harmless substances, or recyclable/reclaimable materials. GMOs are touted as having the potential to feed the worlds growing population, increase the availability of medicines and vaccines in a cost effective manner and to mitigate the effects of climate change (Hoffman, 2012; Marvier, 2007).

Food quality would be improved by GM crops through modifications allowing for changes in the protein and micronutrient content of staple crops. This could be used to battle vitamin and mineral deficiencies among populations unable to afford more than the basics for their daily caloric intake. Good illustrations of this technology are iron rich and beta-carotene rich rice

varieties (Bouis, 2003). Food security would also be enhanced through the introduction of crop varieties capable of resisting drought, pests, highly saline environments and disease as well as potentially providing greater crop yields and faster growth rates (Azadi et al, 2010; Bouis, 2003).

GM crops are also capable of manufacturing pharmaceuticals. Pharmaceutical producing plants can literally grow blood thinners, hemoglobin, insulin, growth hormones, cancer treatments and contraceptives. There is also further potential for the manufacture of hepatitis-B, cholera, rabies, HIV, malaria and influenza vaccines, and other therapeutic compounds. Producing vaccines in food plants eliminates the need for refrigeration, a limiting factor for many vaccines worldwide. Furthermore, using plants to produce these substances may reduce the risk of certain viral transmissions to humans via the drugs produced using animal cell cultures (Marvier, 2007).

In addition to these potential benefits to human populations there is the possibility that GM crops can reduce both pesticide use and green house gases simultaneously. Pesticide use on biotech crop areas has been significantly reduced in comparison to non GM croplands by as much as 8.7% (Brookes, et. al., 2011). GM herbicide tolerant crops reduce the greenhouse gas emissions associated with cropping agriculture since tractors no longer have to spray and till as often (Brookes et. al., 2011).

***Unintended Lifecycle Complications***

Since this approach is more cognizant of systemic interactions at the outset (and shifting these interactions is often the intended purpose of the innovation) we might expect it to be less susceptible to blind spots in the LCA than the previous approaches. Yet, as with the Multi-stakeholder Green and Lean Green quadrants, the focal innovators and the major players driving adoption may represent only a part of the system. In the case of GMOs there are a host of worrisome indirect effects. These include potential losses in the biodiversity of both crops and their wild counterparts as well as the contamination of both plants consumed by and areas inhabited by non-target organism. All of these unintended side effects would come as the result the free flow of transgenic crop genes among plant relatives (Gepts et. al, 2003). This is especially important because domestication has resulted in the dramatic bottleneck of genetic diversity among most crops so these wild relatives are the only remaining biodiversity reservoir from which to draw. Many crops, including 12 of the 13 most important crops harvested globally, can easily cross with their wild forebears creating viable and fertile hybrid offspring. This leaves the door open for genetic assimilation or extinction due to the supplanting of wild allelic diversity with transgenes (Gepts, et. al, 2003).

Further, such genetic flow could result in increased numbers of weeds with herbicide resistance. Examples of wild relative crop weeds that could gain pesticide from their crop kin include red rice (a weed of rice) and shattercane (a weed of sorghum). Moreover, such contamination could spell the end of effective herbicide use as a tool for controlling weeds (Gepts, et. al, 2003). The

spreading of genetically modified traits from crops to weeds is well documented and can result in these plants becoming "super weeds" (Hoffman, 2012). Insects are also rapidly developing resistance (Callahan, 2011).

Possibly of even greater concern is the potential escape of genes from the "pharming" crops. Genes dealing with the manufacture of pharmaceutical substances escaping would be of particular concern because several of these crops have been engineered so that vaccines can be delivered through the direct consumption of the crops leaves, fruits or other plant parts without any processing whatsoever (Marvier, 2007). Many such crops are grown in open fields where it is impossible to contain the dispersal of their transgenes via pollen. This can result in the contamination of not only food crops bound for human or livestock consumption with pharmaceutical compounds, but also the wildlife feeding on non-domesticated crop relatives. Underlying these risks is the fact that contamination of crops bound for food manufacture by pharmaceutical crop transgenes has already repeatedly occurred (Marvier, 2007), as has the contamination of crops with GMOs not approved for human consumption (Vogel, 2006). This is particularly serious in under-developed regions that typically lack the capacity to comply with the basic safety regulations occasions (Azadi et. al, 2010; Vogel, 2006; Marvier, 2007).

In the end GM crops have not lived up to their eco-potential, particularly in lowering pesticide use and higher crop yields. In recent studies it has been found that pesticide use has not in actuality been significantly reduced by GM crop utilization. This is due to the rise of secondary pests which require secondary pesticides, the perfect example of an unforeseen ecological change resulting from GM crop cultivation. In a study of GM Bt toxin cotton crops there was no difference in the total number of insecticide applications between non-transgenic cotton and GM varieties (Azadi et. al, 2010). Furthermore, a greater part of GM crops do not actually result in the higher crop yields, which depend on optimal conditions simply not present in most locations.

**Holistic Green**

Many managers are reluctant to adopt green innovation strategies unless there are clear cost benefits from doing so because such short term investments for long term returns are considered risky in corporate environments where performance is judged based on short-term quarterly returns. However, for the adventurous, a holistic integration of green into entire product lifecycle on a global scale is worth tackling because of the growth potential it offers (Ginsberg & Bloom, 2004; Hart & Milstein, 2003). Designing a business model around the needs of the environment, instead of retrofitting existing models to be more eco-friendly, is radically innovation and equally risky. On the other hand, such offerings are likely to command premium prices and industry leadership to those firms brave enough to pursue them (Orsato, 2006). These corporations use green innovation strategies as a competitive advantage and are the most likely to receive government support for their efforts. **S**iemens (2010) cautions that such models are strategically imbalanced, compromising productivity in favor of the environment, and are thus not likely to be viable in the longer-term (Siemens, 2010, Trotta, 2010).

According to the USDA National Organics Standard Board (NOSB) organic agriculture is defined as farming practices that "promote and enhance biodiversity, biological cycles and soil biology activity." This includes soil management, crop rotation and fertilization techniques free of chemically manufactured products (Richford, 2010). Organic farming takes the medium to long term effect of agriculture on the environment into account. It aims to produce food while establishing an ecological balance to prevent loss of soil fertility or pest problems rather than treating the problems after they occur as in traditional farming methods (Food & Agriculture Organization of the United Nations, 2013).

There are many environmental and health benefits associated with organic farming. Crop rotation and fertilization techniques used in organic farming encourage soil fauna and flora biodiversity, improving soil formation and structure as well as leading to a more stable system less prone to soil erosion. As a result of this nutrient and energy cycling is increased and the ability of the soil to retain nutrients and water is enhanced. Furthermore, while with conventional farming methods water pollution by pesticides and fertilizers is a major problem organic farming lowers the risk of groundwater pollution significantly. This is due to the better nutrient retention of the soil and the use of organic fertilizers. Organic farming practices have also proved useful in lowering agrochemical needs, which require large amounts of fossil fuels to be produced, and carbon sequestration in the soil. Soils organic carbon content under organic farming methods are considerably higher than those found under conventional methods because organic farming practices increase the return of carbon to the soil, raising productivity and increasing carbon storage (Food & Agriculture Organization of the United Nations, 2013). Lastly, foods produced organically are safer to eat than those made traditionally. This is in large part due to their containing far less pesticide residue. Organic food production also bans/severely restricts food additives and other chemical food treatments (Richford, 2010).

Unfortunately, certified organic products can be cost prohibitive. They are generally more expensive than their conventional counterparts due to a limited supply compared to demand and higher production costs. Furthermore, since organic products are dealt with in relatively small quantities post-harvest handling, marketing and distribution for organic products is inefficient and costs are higher. Beyond this the cost of organic products includes not only production costs themselves but also an array of other factors not captured in the price of conventional food such as: environmental enhancement and protection, higher standards in animal welfare; avoidance of health risks to farmers from pesticide exposure and rural development from additional farm employment with fair income to producers (Food & Agriculture of the United Nations, 2013).

To be certified organic in the U.S. the use of insecticides, fungicides and herbicides on the products are prohibited. Further, farmers are not able to claim organic status until the land used to grow the produce/livestock has been pesticide-free for at least three years before harvest. One rationale for organic certification is to safeguard against the kinds of self-interest or narrowed horizons that undermine initiatives in the other three quadrants. Though this does not eliminate narrow and self-interested motivations it at least moves decision making into a public forum that mandates (via administrative law) consideration of wider issues and constituents. Yet a positive

outcome is not guaranteed. Unfortunately, there has been a relaxation in federal standards with the USDA significantly expanding their list of non-organic ingredients which are acceptable in organic foods. Originally 5% of a USDA-certified organic product could consist of non-organic substances as long as they were on the approved inorganic substances list of the NOSB. However, this list has expanded from 77 to 245 substances since it was created in 2002 allowing numerous companies to obtain the "USDA Organic" seal on many products despite their inorganic additives. For example, organic beer can now be made from non-organic hops (Kindy & Layton, 2009).

There have also been significant downgrades in standards dealing with pesticide use in organic product production. In 2004, USDA released a directive allowing farmers and certifiers to use pesticides to grow organic crops if "after a reasonable effort" they could not determine whether the pesticide contained chemicals prohibited by the organics law. The USDA also granted producers of organic livestock permission to feed their livestock non-organic fish meal, which can contain mercury and PCBs while still using an organic meat label (Kindy & Layton, 2009). Taken all together the seal of organic under these standards becomes more dubious as large corporations take over the organic product market. Organic food has become a highly profitable business for Big Food which can charge premium price for their organically labeled goods and has assumed an increasingly larger role in setting the standards for what can and cannot be labeled organic (Strom, 2012).

## IMPLICATIONS

The need for the world's industrial companies to transform "from a dead end, eighteenth-century model into a new, sustainable model suitable for the twenty-first, may well be the greatest business opportunity that industry and entrepreneurs have ever seen" (Anderson & White, 2009, p. 212). There is a definite need for new companies to enter the market who already have the knowledge needed to identify new ways to create innovative products from those things which were once another person's trash (Perman, 2006). Environmentally-focused entrepreneurs have an added advantage because they are able to differentiate their businesses and offerings from those companies who are choosing to simply ignore the environmentally sound buying habits of today's consumers (Williams, Brooks & Page, 2011).

Despite this new reality, the strategy of going "green" represents a moving target. As we have seen, while there is some consensus on general strategic goals, there is much more variation in terms of the recommended operationalization of those goals into specific strategic initiatives. Standards are continuously evolving and sustainability varies widely depending upon the product lifecycle stage being analyzed, as well as indirect effects from the supply chain (Ny et. al., 2006; Sikdar, Glavic & Jain, 2010). Further, environmental impact categories are sometimes neglected or manipulated in streamlined life-cycle studies through:

- over-reliance on previously completed life cycle assessments often ignores their limitations and blindspots.
- using pre-existing data on energy use depends on the problematic assumption that products which require little energy do not create serious process wastes.
- focusing on toxicity ignores a host of environmental issues involving the bulk and composition of non-toxic wastes, particularly fine particulates.
- omitting certain product components or materials as insignificant due to the small relative weight of the discharge masks the impact of small amounts of highly toxic material.
- omitting certain lifecycle stages, particularly the direct and indirect effects of the supply chain and disposal activities.
- using economic value to assess resource scarcity and ease of manufacturing. (Bansal & Hoffman, 2012; Ny et. al., 2006; Rosselot & Allen, 2000)

Unfortunately, the selective nature of streamlined life-cycle studies means that potentially important environmental impact categories are sometimes neglected. When streamlined life cycle criteria exclude environmentally destructive direct or indirect effects of the supply chain or production or disposal, accusations of deliberate manipulation surface. This social negotiation naturally creates the possibility of marketing manipulation, commonly referred to as "greenwashing" (Greer & Bruno, 1997; Orange, 2010; Ramus & Montiel, 2005). When products and services "promise more environmental benefit than they deliver," that promotion is an example of "greenwashing" (Dahl, 2010, p. 246);

Greenwashing has become common in recent years, primarily due to a lack of regulation, oversight and monitoring of green marketing claims (Dahl, 2010; Ramus & Montiel, 2005). In the United States and Canada, a total of 2,2192 products making 4,996 green claims were tested by TerrraChoice Environmental Marketing (2009) against best practices, mainly against guidelines of the U.S. Federal Trade Commission, the Competition Bureau of Canada, he Australian Consumer and Competition Commission, and the ISO 14021 standard for environmental labeling. The sampled companies increased advertising claims of green products by 79 percent in a 2 year period, while only 2% of those 2,219 products had the eco-friendly design features and production changes needed to justify their claims.

To the extent that corporate environmental policy statements are not transparent, accessible, and independently verified by credible third parties, the relative effectiveness of the different strategic approaches identified here may never be known - it will be difficult to separate fact from fiction. When Ramus and Montiel (2005) investigated whether public commitment to "green" policies translate into meaningful implementation, the results were not encouraging - commitment to specific environmental policies was relatively consistent across industries, but policy implementation varied widely. As interpretations of "green" product/service criteria become too creative, consumers are becoming increasingly skeptical of "green" claims. The concept is in danger of being marginalized (Orange, 2010).

Consequently, even the lifecycle model may prove inadequate in assessing where products and services are truly green. Current research is moving away from models of linear industrial throughput in which raw materials are extracted, fabricated into products, consumed, and then discarded as waste. Instead the natural environment becomes the fundamental context in which human economic activity occurs, and such activity is dependent upon the health of the environment to an ever increasing extent (Robbins & Page, 2012). More broadly, approaches that draw on systems thinking (Martin, Brannigan, & Hall, 2005) advocate taking into account the various closed loops and complex interdependencies of the natural environment, either as a way to anticipate the behavior of the natural world or as forms of activity to be emulated as fully embedded and dependent on it (Robbins & Page, 2012). The linear lifecycle is recast as a circular amplification loop. Whether this perspective can ever become truly compatible with a "business case" for sustainability remains problematic, and will continue to remain a fertile field for further research.

When it comes to sustainability, consensus tends to occur only when those green ideals remain general, ambiguous, and unanalyzed abstractions. Researchers and practitioners alike are seldom secured in their visualization of what comprehensive, economically feasible, pragmatic "true green" looks like, and their implementation initiatives tend to cause as much controversy as clarity. As the adage notes, "one man's heaven is another man's hell." This same insecurity is manifest in most public policy.

The characteristics of the strategy support and encourage the analyst to identify situations or ills from which to move away rather than goals toward which to move. Even short term goals are defined largely in terms of reducing some observed ill rather than in terms of a known objective of another sort. Policy aims at suppressing vice even though virtue cannot be defined, let alone concretized as a goal; at attending to mental illness even though we are not sure what attitudes and behaviors are most healthy at eliminating inequities in the tax structure even though we do not agree on equity (Braybrooke & Lindbloom, 1963, p. 102).

Given this level of complexity, green sustainability seems trapped in Bonini's paradox: As a model of a complex system becomes more complete and realistic, it loses simplicity and clarity. It tends to become so complicated it is just as difficult to understand as the complex real-world processes it represents (adapted from Starbuck, 1976). In other words, the simple models we often find so compelling unfortunately do not capture enough of reality to be considered accurate.- if they did, they would not be easy to understand. Hence the sociological maxim: "All models are bad, but some are useful." In the absence of adequate, clear models "green" will continue to inhabit a retrospectively rationalized world.

This makes the definition of "green" a socially constructed as much as empirically based assessment. Notice that in the competing values model of green initiatives, three of the four quadrants (multi-stakeholder green, systemic green and holistic green) explicitly include marketing campaigns to build competitive advantage. It is no longer enough to develop green

products and processes; they also require the support of a public relations campaign to make a credible claim on a green reputation. Standards and regulations will be socially negotiated political mandates arising from crisis management and environmental brinksmanship.

In the end that leaves the business case for sustainability - the environment should be treated as one of a number of stakeholders, whose legitimate needs and interests must be balanced against each other. While there certainly is a case for holistic green, it is unlikely to be more than a niche strategy because of the costs and difficulties involved. Siemen's conceptualization of eco-care, explicitly argues that some strategic initiatives are "too green," they sacrifice too much productivity in their quest for eco-friendliness. But only to a point, eventually troublesome direct and indirect effects of product/service lines will become increasingly noticeable as their consequences become increasingly more troublesome and costly and no longer minimized or ignored.

## REFERENCES


Alabaster Corporation. (2010). Industrial class microbial blends. Retrieved from: http://www.alabastercorp.com/Microbial.htm.

Allen, A. (April 2nd 2009). The "green" hypocrisy. Retrieved from: http://www.marketwatch.com/story/the-green-hypocrisy-americas-corporate-environment

Azadi, H. & Ho, P. (2010). Genetically modified and organic crops in developing countries: A review of options for food security. *Biotechnology Advances*. 28, 160–168.

B Corps: Firms with benefits. (2012, January 7). *The Economist*. Retrieved from: http://www.economist.com/node/21542432

Balat, M. & Balat, H. (2009). Recent trends in global production and utilization of bio-ethanol fuel. *Applied Energy*, 86, 2273- 2282.

Bansal, P. & Hoffman, A.J. (2012),. *The Oxford handbook of business and the natural environment* NY: Oxford University Press USA.

Black, J.T. & Phillips, D.T. (2010). The lean to green evolution. *Industrial Engineer*, June, 46-51.

Bouis, H. E., Chassy, B.M. & Ochanda, J.O. (2003). Genetically modified food crops and their contribution to human nutrition and food quality. *Trends in Food Science & Technology***.** 14(5–8**)**. 191–193.

Braybrooke, D. & Lindbloom, C.A. *A strategy of decision*. New York: Free Press, 1963.

Brookes, G. & Barfoot, P. (2007). Global impact of biotech crops: Socio-economic and environmental effects in the first ten years of commercial use. *Agbioforum*. 9(3). 139-15

Brookes, G. & Barfoot, P. (2011). Global impact of biotech crops environmental effects 1996–2009. *Landes Bioscience.* 2(1). 34-46.

Callahan, R. (2011). Major pest may be resistant to genetically modified corn. *The Huffington Post*. Retrieved from: http://www.huffingtonpost.com/2011/12/28/pest-gmo-corn_n_1173321.html

Dahl, R. (2010). Green washing: Do you know what you're buying? *Environmental Health Perspectives*, 118(6): A246–A252.

Davey, M. (2012, July 4). Searing sun and drought shrivel in Midwest. *The New York Times*, pp A9.

Dijkgraaf, H. & Vollebergh, R.J. (2004). Burn or bury? A social cost comparison of final waste disposal methods. *Ecological Economics*. 50, 233– 246.

Eisenthal, J. (2008, August). Studying cellulose: 75 billion gallons feasible by 2030. *Ethanol Today Magazine.* Retrieved from: http://www.ethanoltoday.com/index.php?option=com content&task=view&id=5&Itemid=6&fid=66

Environmental Protection Agency [EPA] (2010), *Green building basic information*, Retrieved from: http://www.epa.gov/greenbuilding/pubs/about.htm

Food & Agriculture Organization of the United Nations.(2013). Organic agriculture. Retrieved From: http://www.fao.org/organicag/oa-faq/oa-faq5/en/

Gautam, N. (2012, January 10). How microbes teamed to clean Gulf. *The Wall Street Journal*, 3.

Gepts, P. & Papa, R. (2003). Possible effects of (trans)gene flow from crops on the genetic diversity from landraces and wild relatives. *Environmental Biosafety Research*. 2. 89–103.

Ginsberg, J. & Bloom, P. (2004). Choosing the right green marketing strategy. *Sloan Management Review* 46(1), 79-84

Greer J & Bruno K. (1997). *Greenwash: The reality behind corporate environmentalism.* New York, NY: The Apex Press;

Haight, L. (2010). Start with waste reduction. *The New York Times*. Retrieved from: http://roomfordebate.blogs.nytimes.com/2010/04/13/

Hart, S. L. & Milstein, M.B. (2003). Creating sustainable value. *Academy of Management Executive*, 17(2), 56-67.

Hawken, P., Lovins, A. & Lovins, L. H. (2000). *Natural capitalism: Creating the next industrial revolution* (1st ed.). Back Bay Books.

Hazell, S. (2009). Green collar revolution. *Alternatives Journal*, *35*(6), 8-11. Retrieved March 26, 2010 from Education Research Complete database.

Hendrickson, C., Horvath, A., Joshi S. & Lave, L. (1998). Economic input-output models for environmental life-cycle assessment *Environmental Science and Technology*, *32* (7), 184A–191A

Hertel, T.W.; Golub, A.A., Jones, A.D., O'Hare, M., Plevin, R.J. & Kammen, D.M. (2010). Effects of US maize ethanol on global land use and greenhouse gas emissions. *BioScience*. 60(3):229.

Hirsch, M. (2006). Green is good: New college's green MBA program offers more than just business as usual. *San Francisco Bay Guardian*. Retrieved from http://www.greenmba. com/index.php?option=com_content&task=view&id= 172&Itemid=67.

Hoffman, B. (2012). Genetic engineering: A food fix? *Forbes Magazine* Retrieved from: http://www.forbes.com/sites/bethhoffman/2012/08/30/genetic-engineering-a-food-fix/

Holliday, C. O., Schmidheiny, S., & Watts, P. (2002). *Walking the talk: The business case for sustainable development*. Berrett-Koehler Pub.

Kindy, K. & Layton, K. (2009) Purity of federal 'organic' label is questioned. *The Washington Post* .Retrieved from: http://articles.washingtonpost.com/2009-07-03/news/ 36836942_1_organic-label-organic-products-usda-organic

Klopffer, W. (2003). Life-cycle based methods for sustainable project development. *International Journal of Lifecycle Assessment*, 8(3), 157-159.

Lyson, T. A. (2004). *Civic agriculture: reconnecting farm, food, and community*. UPNE.

Martin, S., Brannigan, J., & Hall, A. (2005). Sustainability, systems thinking and professional practice. *Journal of Geography in Higher Education*, *29*(1), 79-89.

Marvier, M. (2007). Pharmaceutical crops have a mixed outlook in California. *California Agriculture.* 61(2):59-66.

Mosier, A.R. & Crutzen, P.J (2009).Nitrous oxide's impact on net greenhouse gas savings from biofuels: life-cycle analysis comparison. *International Journal of Biotechnology*. 11: 1/2, 60-74.

National Academies (2007, October 11). Increase in ethanol production from corn could significantly harm water *Quality*.*ScienceDaily*. Retrieved from: http://www.sciencedaily.com/releases/2007/10/071010120538.htm

Ny, H.; MacDonald, J. P.; Broman, G.; Yamamoto, R.; Robérts, K. (2006). Sustainability constraints as system boundaries. *Journal of Industrial Ecology. 10*(1/2), 61-77.

Office of Pollution Prevention and Toxics (OPPT) (2010). Pollution prevention and toxics: Basic information. Retrieved from http://www.epa.gov/oppt/pubs/opptabt.htm.

Orange, E. (2010). From eco-friendly to eco-intelligent. *The Futurist*, Sept.–Oct., 28-29.

Orsato, R. (2006) Competitive environmental strategies. *California Management Review*, 48:2, 127-143

Pang, Y.-P., Singh, S. K., Gao, Y., Lassiter, T. L., Mishra, R. K., Zhu, K. Y., & Brimijoin, S. (2009). Selective and irreversible inhibitors of aphid acetylcholinesterases: Steps toward human-safe insecticides. *PLoS ONE*, *4*(2), e4349.

Perman, S. (2006). From garbage to gold. *BusinessWeek Online*, 12. Retrieved March 25, 2010 from Academic Search Premier Database.

Pineiro, G., Jobba, E.G., Baker, J., Murray, B.C. & Jackson, R.B. (2009). Set-asides can be better climate investment than corn ethanol. *Ecological Applications*. (19)2, 277-281.

Price, T. (2006, December 1). The new environmentalism. *CQ Researcher*, *16*, 985-1008. Retrieved March 25, 2010 from CQ Researcher Online, http://0-library.cqpress.com.www.consuls.org/cqresearcher/cqresrre2006120100.

Quinn, R. E. (1991). *Beyond rational management: Mastering the paradoxes and competing demands of high performance*. Jossey-Bass.

Quinn, R. E., & Rohrbaugh, J. (1983). A Spatial Model of Effectiveness Criteria: Towards a Competing Values Approach to Organizational Analysis. *Management Science*, *29*(3), 363-377.

Ramus, C. & Montiel, I. (2005). When are corporate environmental policies a form of greenwashing? *Business Society,* 44:4, 377-414.

Richford, N. (2010) The difference between organic and non-organic fruits. Retrieved from: http://greenliving.nationalgeographic.com/difference-between-organic-nonorganic-fruits-2883.html

Robbins, G. E. & Page, M.A. (2012). Sustainability initiatives: A competing values framework. *Competition Forum*. 10(1), 176-180.

Romm, J. (2006). The car and fuel of the future. *Energy Policy.* 34, 2609–2613.

Rosselot, K. & Allen, D.T. (2000). Life-cycle concepts, product stewardship and green engineering. http://www.utexas.edu/research/ceer/esm282/dfe/Chap13final.PDF

Runyon, J. (2008). Powering China's first chicken manure-biogas plant. Retrieved from http://www.renewableenergyworld.com/rea/news/article/2008/08/powering-chinas-first-qchicken-manure-biogas-plant-53258

Scharleman, J.P.W. & Laurance, W.F. (2008). How green are biofuels. *Science* (319)43, 43-44.

Schmidheiny, S. (1992). The business logic of sustainable development. *Columbia Journal of World Business*, 27(3/4), 18-24. doi:Article

Schnoor, J.L. & Doering, O.C. (2007). *Water implications of biofuels production in the United States.* Washington, D.C.:National Research Council.

Seldman, N. (2010). A bad economic deal. *The New York Times.* Retrieved from: http://roomfordebate.blogs.nytimes.com/2010/04/13/

Shaheen, S., & Cohen, A. (2007). Growth in worldwide carsharing: An international comparison. *Transportation Research Record*, *1992*(1), 81-89. doi:10.3141/1992-10

Siemens Industry Solutions Division (2010) The eco-care matrix release. Retrieved from: http://info.industry.siemens.com/data/presse/docs/634086505508342006_iis201005406

Sikdar, S. K., Glavic, P. & Jain, R. (2010). *Technological choices for sustainability.* NY: Springer.

Singh, A.; Singh, N.P. & Murphy, J.D. (2011). Renewable fuels from algae: An answer to debatable land based fuels. *Bioresource Technology* (102)12.

Skidmore, B.L. (2011). What is green? The lack of a national uniform standard. University of Houston White Paper RD3. http://www.law.uh.edu/eelpj/publications/5-2/RD3

Starbuck, W.H. (1976) Organizations and their environments; In: M. D. Dunnette (ed.), *Handbook of industrial and organizational psychology* Chicago: Rand, 1069-1123

Strom, S. (2012). Has 'organic' been oversized? *The New York Times*. Retrieved from: http://www.nytimes.com/2012/07/08/business/organic-food-purists-worry-about-big-companies-influence.html?pagewanted=all&_r=0

Swanson, R. L. (2010). Significant advantage. *The New York Times*. Retrieved from: http://roomfordebate.blogs.nytimes.com/2010/04/13/

Tan, A.L. (2010). Incineration remains a serious threat. *The New York Times*. Retrieved from: http://roomfordebate.blogs.nytimes.com/2010/04/13/should-the-u-s-burn-or-bury-trash/

TerraChoice Environmental Marketing. (2009). *The seven sins of greenwashing: Environmental claims in consumer markets*. London: self-published.

Tortella, G., Diez, M., & Durá, N. (2005). Fungal diversity and use in decomposition of environmental pollutants. *Critical Reviews in Microbiology*, *31*(4), 197-212.

Trotta, M.G. (2010). Product lifecycle management: Sustainability and knowledge management as keys in a complex system of product development. *Journal of Industrial Engineering and Management*, 3(2): 309-322.

Valdes, C. (2011). Can Brazil meet the world's growing need for ethanol? Retrieved from: http://www.ers.usda.gov/amber-waves/2011-december/can-brazil-meet-the-world%E2%80%99s-growing-need-for-ethanol.aspx

Vliet, O.V.; Broek, M.V.; Turkenburg, W. & Faai, A.(2011). Combining hybrid cars and synthetic fuels with electricity generation and carbon capture and storage. *Energy Policy, 39*(1), 248.

Vogel, G. (2006). Tracing the transatlantic spread of GM rice. *Science.* 313, 1714.

Walsh, B. (2012, August 6). When the rains stop. *Time*, 180, 36-37.

Weber, J. (2010, October 10). "Impact investing" teeters on edge of explosive growth, 31A.

Williams, K., Brooks, K. & Page, M. A. (2012). Biotechnology: Sustainability's silver bullet. *Journal of Sustainability and Green Business*. 1,103-114.

Wilson, L. (2009). *How to implement lean manufacturing*. New York: McGraw-Hill Professional.

World Commission on Environment and Development. (1987). *Our common future*. New York: Oxford University Press.

# A COMPARISON OF PERCEPTIONS OF SOCIAL MEDIA DURING A CAMPUS CRISIS: USE VERSUS EFFECTIVENESS

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## ABSTRACT

Timing is critical when communicating during a crisis. The Clery Act outlines how universities must communicate information regarding a campus crisis to their stakeholders. College students are key stakeholders in the university community who create online social networks in addition to their interpersonal social networks. By including social media in the crisis communications plan, universities can comply with the Clery Act while reaching a key stakeholder group through their online social networks. The purpose of this study was to explore the extent to which differences existed regarding which types of communications media and tools were used to communicate with students during a campus crisis based upon perceptions of use versus perceptions of effectiveness. Results showed that university relations professionals perceived they used communications media and tools that allowed for almost instantaneous dissemination of messages to their student populations during a crisis. Social media were not rated as high as the university website, e-mail, text, and phone notifications.

## INTRODUCTION

Communicating with speed and accuracy during a crisis is crucial. Organizations must be prepared to quickly put out information to their stakeholders during a crisis. A growing number of individuals receive information about crises through social media (Coombs, 2007) where messages can be shared across large audiences with the click of a mouse (Coombs & Holladay, 2009). Just as outsiders can post information about an organization, organizations can also use social media to communicate with their stakeholders quickly.

The office of university relations plays a key role on campus, serving as the conduit between the university and its publics. This role becomes especially important during a crisis when timely communications are necessary. It's expected that information be communicated to key stakeholders quickly (Jablonski, McClellan, & Zdzarski, 2008).

Students are key stakeholders at universities. The Clery Act states that colleges should communicate crises immediately with the campus community (Security on Campus, 2011). Social media is used as a form of communication for potential students (Graduate Management Admission Council, 2009; Kottner, 2010; Lorenzetti, 2010). This pre-established form of

communication can be used during a crisis. College students, as key stakeholders at colleges, communicate differently than other stakeholder groups. University relations professionals need to recognize these differences and place information where the students will see it quickly. When students receive information about a crisis they will pass it on to others in their social network.

Another key principle of crisis response is that organizations present information in a variety of media channels. Colleges should use redundant methods of communicating (Jablonski et. al., 2008). It is especially important to use social media during a crisis on a college campus. Not all students check e-mail frequently enough to receive breaking messages. Students are connected via phones, tablets, computers, etc. They are constantly connected to their phones and they are constantly connected to each other. They use social media to create friendships and share information (Kavanaugh, Carroll, Rosson, Zin, & Reese, 2005; Sun, Youn, Wu, & Kuntaraporn, 2006). Thus, it is important for universities to use the communications media and tools the students are using.

No one communications media or tool is best for communicating with stakeholders during a crisis. Redundant messages placed in multiple channels will increase the spread of the message. Other channels shouldn't be abandoned, but reinforced.

## REVIEW OF LITERATURE

### Crisis Communications and Social Media

For the purposes of this study, crisis communications is operationally defined using Coombs and Holladay (2010) as "the collection, processing, and dissemination of information required to address a crisis situation" (p. 20).

Effective, timely communication is critical during a crisis. The amount of time an organization has to assess a situation and communicate with its stakeholders has been cut down to mere minutes with the advent of social media. Messages can be delivered almost instantaneously using social media (Wright & Hinson, 2009) and have a higher potential reach than their traditional media counterparts (Breakenridge, 2009).

The number of individuals who turn to social media during a crisis is growing (Coombs & Holladay, 2009; Coombs, 2007). Ongoing updates are shared through social networks (Breakenridge, 2009; Macias, Hilyard, & Freimuth, 2009; Palser, 2010; Procopio & Procopio, 2007). Individuals use different media to meet their "informational, social, and emotional needs of citizens during a crisis'' (Carey, 2002, p. 206).

When a crisis on campus occurs, it is the expectation of stakeholders, including students that information will be communicated instantaneously (Jablonski, et. al., 2008). The Clery Act states that colleges should "immediately notify the campus community upon the confirmation of a significant emergency or dangerous situation involving an immediate threat to the health or safety of students or staff" (Security on Campus, 2011, p. 3).

Crises on college campuses receive wider attention in the Internet age (Catullo, 2008). "Incidents of violence on campus are not new. What is new is the immediacy of the visual and emotional impact of violent acts due to the media and the Internet" (Jablonski, et. al., 2008, p. 30).

**University Relations**

The office of university relations functions, at most colleges, to match strategies with the campus mission, promoting the university to the campus and local community, and prepare for crises (Powell, 2009). Crisis planning helps university relations professionals determine what crises may impact a college in advance of a crisis so that plans can be made and communications can be drafted in advance (Zdziarski, Dunkel, Rollo, & Associates, 2007).

**College students**

College students are among the highest users of social media. Approximately 73% of teens aged 12-17 and young adults aged 18-29 use social networking sites (Pew Research Center, 2010). This percentage increased to 76% in 2012 with 42% of those aged 18-34 reporting that they check social media sites several times a day (Pew Research Center, 2012). They use social media to create friendships and share information (Kavanaugh et. al., 2005; Sun et. al., 2006).

Colleges have recognized this high level of usage and have incorporated social media into recruiting efforts (Graduate Management Admission Council, 2009; Kottner, 2010; Lorenzetti, 2010). These individuals will continue to grow their online social networks as they attend college.

**Research Question**

To what extent do differences exist based upon perceptions of use versus perceptions of effectiveness regarding which types of communications media and tools were used to communicate with students during a campus crisis? Due to the exploratory nature of this

research, there was insufficient prior research to formulate hypotheses. Instead the following research question directed this study:

*RQ1*: What differences exist in the perceptions of use versus the perceptions of effectiveness for social media during a campus crisis situation?

## METHOD

### Participants and Procedure

Participants coded as Chief Public Relations Officers in the Higher Education Publications, Inc.'s Higher Education Directory were asked to participate in this study (Burke & Rodenhouse, 2011). A total of 330 individuals responded for a response rate of 13.57%. Forty-six respondents did not meet the screening criteria and thus did not complete the survey. An additional fifty-six respondents ended the survey before completion.

### Measurement

The questionnaire was designed to measure variables regarding the effectiveness of contacting students during a crisis through various media. Respondents were asked their perceptions of effectiveness using a 5-point Likert scale with "1" being *not effective* and "5" being *frequently effective.* Respondents were asked their perceptions of use using a 5-point Likert-like scale with "1" being *not used* and "5" being *frequently used.*

### Data Analysis Procedure

A number of variables were measured with emphasis being placed on responses relating to perceptions of social media effectiveness and use. Responses were tabulated using frequencies and percentages. Interval data were evaluated using inferential statistics. The extent to which differences exist based on perceptions of use versus perceptions of effectiveness were presented using a series of paired *t*-tests. A level of $< .05$ was used as level of significance.

### Demographic Data

Demographic data collected for this study pertained to institutional characteristics: institutional type; community population; campus enrollment; and the percentage of students living on campus versus off campus.

## RESULTS

A paired-samples t-test was conducted to compare the perceptions of use versus the perceptions of effectiveness. With regards to institutional type, a majority of respondents represented private, four-year institutions (46.3%). A majority of respondents represented campuses with enrollment of 5,000 or less (55.3%). Respondents represented campuses where the percentage of students living on campus was fewer than 24% (39.2%) and 25-49% (25.8%).

### Differences in Perceptions of Use Versus Perceptions of Effectiveness

A comparison between respondents' perceptions of use versus perceptions of effectiveness led to a finding of significant differences in several areas: campus newspapers, $t(228) = 5.781$, $p = .000$, local newspapers, $t(227) = 6.202$, $p = .000$, local television, $t(225) = 3.577$, $p = .000$, university websites, $t(231) = 6.383$, $p = .000$, university dark sites, $t(218)$ -6.135, $p = .000$, YouTube, $t(221) = -5.793$, $p = .000$, blogs, $t(219) = 4.101$, $p = .000$, and email, $t(231) = 9.390$, $p = .000$. Table 1 presents the means of the two variables. A level of $< .05$ was used as level of significance.

Respondents indicated that they used their university's website ($M = 4.81$, $SD = 0.48$), although their perceptions of effectiveness ($M = 4.51$, $SD = 0.73$) were slightly less. Respondents indicated that they perceived dark sites as being neither effective nor ineffective ($M = 2.88$, $SD = 1.61$) for communicating with students during a crisis, but perceptions of use ($M = 2.46$, $SD = 1.67$) were rated with lower frequency. YouTube was perceived as being somewhat effective ($M = 2.11$, $SD = 1.23$), but respondents indicated that use of YouTube ($M = 1.73$, $SD = 1.17$) to communicate with students during a crisis was seldom. Respondents perceived that blogs were somewhat effective ($M = 2.21$, $SD = 1.33$), but indicated that use was seldom ($M = 1.92$, $SD = 1.35$). Email was often used ($M = 4.82$, $SD = 1.47$) to communicate with students during a crisis, but was perceived to not be as effective ($M = 4.26$, $SD = 0.93$) for communicating with students during a crisis. Social media including Facebook, Twitter, text messages and text alerts showed no significant differences in perceptions of use versus perceptions of effectiveness.

The results suggest that communications media and tools perceived to be most effective were also those perceived to be used most often. This list includes university websites, e-mails, text messages, and alerts via phone and texts where the university controls the messages. Facebook was rated lower in terms of perceptions of use and effectiveness. Twitter was rated below local television and radio.

**TABLE 1: DIFFERENCES IN PERCEPTIONS OF USE VERSUS PERCEPTIONS OF EFFECTIVENESS REGARDING MEDIA**

| | | *Means* | | | | |
|---|---|---|---|---|---|---|
| | *n* | Use | Effectiveness | *t* | *df* | *p* |
| Email | 231 | 4.82 | 4.26 | 9.390 | 230 | .000* |
| University Website | 231 | 4.81 | 4.51 | 6.383 | 230 | .000* |
| Alerts (text) | 229 | 4.51 | 4.51 | .000 | 228 | 1.000 |
| Alerts (phone) | 226 | 4.09 | 3.98 | 1.535 | 225 | .126 |
| Facebook | 228 | 3.91 | 3.95 | .639 | 227 | .523 |
| Radio (local) | 228 | 3.23 | 2.89 | 4.909 | 227 | .000* |
| Television (local) | 225 | 3.17 | 2.92 | 3.577 | 224 | .000* |
| Twitter | 226 | 3.11 | 3.06 | .533 | 225 | .581 |
| Univ. Website (for mobile) | 216 | 2.95 | 3.32 | 3.911 | 215 | .000* |
| Newspapers (local) | 227 | 2.61 | 2.16 | 6.202 | 226 | .000* |
| University Dark site | 218 | 2.46 | 2.88 | 6.135 | 217 | .000* |
| Newspapers (campus) | 228 | 2.26 | 1.85 | 5.781 | 227 | .000* |
| Radio (campus) | 219 | 2.19 | 2.12 | .966 | 218 | .335 |
| Television (campus) | 212 | 2.12 | 2.03 | 1.134 | 211 | .258 |
| Blogs | 219 | 1.92 | 2.21 | 4.101 | 218 | .000* |
| YouTube | 221 | 1.73 | 2.11 | 5.793 | 220 | .000* |

*Indicates significant difference at the .05 level.

## DISCUSSION AND CONCLUSION

The rationale of this study was to examine the extent to which differences exist based upon perceptions of use versus perceptions of effectiveness regarding the types of communications media and tools used to communicate with students during a campus crisis.

The findings of this study suggest that the university relations professionals surveyed perceived they used communications media and tools that allowed for almost instantaneous dissemination of messages to their student populations during a crisis, but focused mainly on using their university website, e-mail, and notifications via text and telephone rather than choosing social

media options. Social media such as Facebook and Twitter, where message composition was controlled, but message delivery was not as controlled, were rated lower.

Traditional media channels such as local television, radio, and newspapers were perceived as being more effective than social media such as YouTube and blogs. University relations professionals from institutions with higher enrollments or larger communities responded that they used traditional media more than their counterparts. This is most likely because traditional media are more plentiful in larger towns. While some of the findings of this study supported continued used of traditional media to reach students during a crisis, it is important to note that the actual differences were not significant enough to warrant change in practice and policies.

"No single medium meets all of the informational, social, and emotional needs of citizens during a crisis" (Carey, 2002, p. 206). In the aftermath of campus crises at Virginia Tech and Northern Illinois University, social media, such as Facebook and Twitter, were used to communicate with family and friends that students were safe. They were also used to help students grieve for their fallen classmates (Jones, 2007; Northern Illinois University, 2010). If students do not get the message through one medium, they will receive it on another. They will pass on their information to their friends through texts and their social network. This is especially important because the media that students use may not be the same media used to put out messages.

Using social media increases message reach with message placement occurring in yet another media channel. Social media are a cost-effective, efficient method to deliver crisis information to a large group almost instantaneously. Applications can be configured to deliver messages through multiple platforms instantly. Because social media are an integral part of a college student's online social network, there is an increased chance that the student will actually see the message. They will also pass on information, often in its unadulterated state.

## LIMITATIONS AND FUTURE DIRECTIONS

This study includes a few limitations. It examines university relations professionals' perceptions of the inclusion of various types of media in the crisis communications plan, but does not examine how crises and subsequent messaging were handled at the institutions. This study also focuses on perceptions of university relations professionals and not an institution's crisis communications plan itself.

Responses in this self-report study are limited in that they are indirect measures of behaviors and attitudes. Caution should be taken in generalizations regarding the population's actual behavior. Due to the low response rate of 13.57%, caution should be taken in generalizing these results to a larger population.

Additional study is needed to examine the perceptions and actual actions taken on a university campus during a crisis regarding which types of media work best for communicating with students during a crisis.

## REFERENCES


Breakenridge, D. (2009). *PR 2.0: New media, new tools, new audiences.* Upper Saddle River, NJ: Pearson.

Burke, J. M., & Rodenhouse, M. P. (2011). *Higher education directory*. (29th ed.). Reston, VA: Higher Education Publications.

Carey, J. (2002). Media Use During a Crisis. *Prometheus,* 20(3), 201-207.

Catullo, L. A. (2008). Post-September 11, 2001, through pre-Virginia Tech massacre, April 16, 2007: The status of crisis management preparedness as perceived by university student affairs administrators in selected NASPA member institutions. Florida Atlantic University, Boca Raton.

Coombs, W., & Holladay, S. (2009). Further explorations of post-crisis communication: Effects of media and response strategies on perceptions and intentions. *Public Relations Review, 35*(1), 1.

Coombs, W. T. (2007). Protecting organization reputations during a crisis: The development and application of situational crisis communication theory. *Corporate Reputation Review,, 10*(3).

Coombs, W. T., & J., H. S. (2010). *The handbook of crisis communication*. Chichester, U.K.: John Wiley & Sons, Ltd.

Graduate Management Admission Council. (2009). New media come to business school. [Article]. *Graduate Management News*, 2-2.

Jablonski, M., McClellan, G., & Zdzarski, E. (2008). *In search of safer communities: Emerging practices for student affairs in addressing campus violence* (Vol. Supplement). San Francisco: Jossey-Bass.

Jones, T. (2007). After the gunshots, sounds of sorrow and dauntless youth, *Washington Post*. Retrieved from http://www.washingtonpost.com

Kavanaugh, A. L., Carroll, J. M., Rosson, M. B., Zin, T. T., & Reese, D. D. (2005). Community networks: Where offline communities meet online. *Journal of Computer Mediated Communication, 10*(4).

Kottner, T. (2010). Social media in recruitment and retention: What one university has learned. [Article]. *Recruitment & Retention in Higher Education, 24*(8), 1-6.

Lorenzetti, J. P. (2010). Reaching out to applicants through Facebook. [Article]. *Recruitment & Retention in Higher Education, 24*(2), 1-4.

Macias, W., Hilyard, K., & Freimuth, V. (2009). Blog functions as risk and crisis communication during hurricane katrina. [Article]. *Journal of Computer-Mediated Communication, 15*(1), 1-31. doi: 10.1111/j.1083-6101.2009.01490.x

Northern Illinois University (Producer). (2010, November 17). Crisis communications in action: The tragic Valentine's day shooting at NIU. Retrieved from http://www.niu.edu/pubaffairs/feb14/

Palser, B. (2010). Vital but complementary. [Article]. *American Journalism Review, 32*(1), 44-44.

Pew Research Center. (2010). Social media and young adults. Retrieved from http://www.pewinternet.org/Reports/2010/Social-Media-and-Young-Adults.aspx

Pew Research Center. (2012). Teens 2012: Truth, trends, and myths about teen online behavior. Retrieved from http://pewinternet.org/Presentations/2012/July/Teens-2012-Truth-Trends-and-Myths-About-Teen-Online-Behavior.aspx

Powell, R. S. (2009). The productive PR office. *Chronicle of Higher Education*.

Procopio, C. H., & Procopio, S. T. (2007). Do you know what it means to miss New Orleans? Internet communication, geographic community, and social capital in crisis. *Journal of Applied Communication Research, 35*(1), 67.

Security on Campus, I. (2011) Retrieved January 2, 2011, 2011, from http://www.securityoncampus.org/index.php?option=com_content&view=article&id=345%3A2008cleryactamendments&catid=64%3Acleryact&Itemid=60

Sun, T., Youn, S., Wu, G., & Kuntaraporn, M. (2006). Online word-of-mouth (or mouse): An exploration of its antecedents and consequences. *Journal of Computer Mediated Communication, 11*, 1104-1127.

Wright, D. K., & Hinson, M. D. (2009). An updated look at the impact of social media on public relations practice. *Public Relations Journal, 3*(2).

Zdziarski, E. L., Dunkel, N. W., Rollo, J. M., & Associates. (2007). Campus crisis management. San Franciso: John Wiley & Sons, Inc.

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