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Garry L. White

Texas State University, San Marcos

Karen H. Smith

Texas State University, San Marcos

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Leadership Characteristics and Team Outcomes in the Development of a Marketing Web Page

Garry L. White
Texas State University – San Marcos
USA

Karen H. Smith
Texas State University – San Marcos
USA

ABSTRACT

Team structures are changing under the pressures of e-commerce and globalization. Today teams have to manage the challenges of working across functional boundaries, such as marketing and web development. In such an environment, research in the disciplines of management and psychology have found that shared leadership among team members may be superior to traditional leadership by a single team member, but this notion has not been tested in the contexts of marketing and web development. This paper presents the results of an empirical study showing that teams with shared leadership exhibited better performance and greater member satisfaction than teams with clear leaders. In addition, no relationship was found between the education, experience, Internet self-efficacy, or personal style of leaders and team outcomes of structure, performance, or satisfaction. This research suggests that the superiority of shared leadership found in the areas of management and psychology is applicable to teams in technical areas, such as web development and marketing. The reported study confirms previous research and applies it in an under-research context, marketing web page development.

INTRODUCTION

The Internet is changing how consumers shop. Globally, over 85% of the online population has used the Internet to make a purchase. More than half of these Internet users have made at least one purchase in the past month via the Internet. In the last two years, Internet shoppers increased 40% (Nielsen Media Research, 2008). The Internet allows businesses and consumers to buy and sell anytime, anywhere, and to anyone worldwide. E-commerce requires new marketing tactics and innovation that take advantage of new technical tools. Customers can now easily access and interact directly with advertisements found on a web site. To attract new consumers, a web site must provide a positive shopping experience, from both marketing and information technology perspectives. Web site design impacting consumer's intention to return to the site is important in electronic commerce (McCarthy et al., 2004).

Web development team structures are changing under the pressures of e-commerce. Today teams have to manage the challenges of working across functional boundaries (Jones, 2006), such as marketing and information technology. Such team innovation and performance have become increasingly important as organizations move to the development of new solutions to new complex problems (Bligh et al., 2006). As these tasks increase in complexity, the team leader is less likely to have the competencies, knowledge, skills, and abilities to lead the team in completing the task successfully (Bligh et al., 2006; Pearce & Manz, 2005). This is true with

cross-functional tasks involving marketing tactics and web development. The work requires the knowledge and skills of a variety of individual team members from different areas, and these disciplines have their own vocabularies, acronyms, and technical terms (Baltzan & Phillips, 2008). The team leader is the individual who emerges as most preferred by other team members to work with and, therefore, as most influential on the other members.

Regardless of the homogeneity or diversity of team member backgrounds, the critical issues are the team's leadership and performance (Seers et al., 2003). Will a leader, one who influences the actions of others, emerge from such a diverse group? Or will there be shared leadership, where influence is dispersed among all team members? If a leader emerges from the group, will such a leader be business oriented (marketing) or technical oriented (web development)? What impact will leadership have on performance? There has been little empirical research directed toward understanding team leaders (Gemmill & Wilemon, 1994) in the context of web development. However, past research in team leadership from managerial psychology and the literature on social systems (Bligh et al., 2006; Aboelela et al., 2007; Leinhardt, 1977; Pearce & Conger, 2003) has suggested that shared leadership can be superior to leadership by an individual member of the team.

Appelbaum & Gonzalo (2007) found the least important factor for an individual leader of a technical project was technical skill. Therefore, a team member, with a strong marketing background but lacking in technical skills, might emerge as the team leader for a marketing project involving the web. In contrast, a leader may emerge with strong Internet self-efficacy and weak marketing skills. A third possibility is that leadership is shared among all members in order to optimize the strengths and minimize the weaknesses of individual members of the team. Shared leadership is most essential for organizations that require continuous innovation in order to offer the best products and services to their customer, as well as remain competitive in quickly changing environments (Pearce & Manz, 2005). Shared leadership may be the answer for diverse teams that work on complex tasks (Bligh et al., 2006).

Bligh et al. (2006 p. 297) stated "we have little insight into how individual-level constructs that members bring to the team may influence the development of constructs such as shared leadership at the team level." Past studies generally focused on homogeneous teams to study leadership and effectiveness. "Researchers in the project management need to help practitioners understanding the impact of different principles on the success of IS development" (Tesch, Ireland, & Liu, 2008). And project management practices and the role of the project managers are of interest at institutions of higher education (Johnson & Wierschem, 2007).

Therefore, the purpose of this paper is to investigate (1) whether there are differences in the background characteristics, such as technical skills or other constructs, between leaders and non-leader team members; (2) whether shared leadership is related to improved team outcomes, and (3) whether leader characteristics are related to team outcomes in the context of teams with diverse membership.

LITERATURE REVIEW

Teams – New Demands

“Corporate America has replaced traditional work groups with the team structure. The major differences between a team and a traditional work group are the interdependent nature of the members’ work and the joint accountability” (Buhler, 2007, p. 19). Many teams now have to work across functional boundaries (Jones, 2006) such as marketing and technology to be competitive on the Internet. Therefore, the team requires a variety of skills and personalities on that team (MacInnis, 2004). The members are interdependent with one another to ensure coverage of all skills and knowledge needed for an Internet project. This has led to diverse teams and a new type of required team member, the knowledge worker.

A cross-functional team is composed of members who each have diverse and unique knowledge, skills, and backgrounds. This can be a problem with leadership of the team. “The team leader has to have the technical background to understand both the subject and the contributions made by people from a variety of backgrounds” (Appelbaum & Gonzalo, 2007, p. 36). Leadership of a diverse, cross-functional, team is more difficult. Cross-functional team members’ perception of team leadership behavior predicted customer, managerial, and team self-ratings of effectiveness and accounted for more variance than formal leadership (Pearce & Sims, 2002). “Trust and leadership are not the only important elements of an effective cross-functional team. Other key components include empowerment, training, a clear goal, a right mix of people, and an adequate reward system.” (Appelbaum & Gonzalo, 2007, p. 36). These are new challenges, especially in organizations that reward vertical leadership and individual innovation and individual performance (Bligh et al., 2006). In a diverse team, which lacks a formally appointed leader and is highly dependent on the team members’ unique knowledge, shared leadership may be the desired leadership style (Bligh et al., 2006).

Teams – Success Factors

Success factors for leading and working in such a complex team include: (1) communication, (2) effective use of technology, (3) flexible leadership, and (4) shared responsibility for leadership (Jones, 2006).

Communication is essential to have effective teamwork (Buhler, 2007). But what if the team members are of different backgrounds, technical and business? Too often, people simply assume that others understand what they are saying and that they understand what others are saying (Buhler, 2007). Technology personnel must understand the business if the organization is going to determine which technologies can benefit the business (Baltzan & Phillips, 2008). Business personnel must seek to increase their understanding of technology. Although they do not need to know every technical detail, it is beneficial to understand what technology can and cannot accomplish (Baltzan & Phillips, 2008).

Personal Style (Merrill & Reid, 1981) is an inventory of an individual’s decision-making style and need for control that is used to describe how people interact with others and to improve interaction among people in a work environment. The inventory segregates individuals along

two dimensions: assertiveness, which is the degree to which people publicly make their opinions about issues clear to others, and responsiveness, which is the degree to which people respond with emotion in social situations. Individuals high in assertiveness tend to speak out, make strong statements about issues, and exhibit a take charge attitude; whereas less assertive people tend to keep opinions to themselves and rarely take control in a social situation. Responsive individuals often express emotions such as joy or anger in public, show greater concern for others, and are less formal in social situations; less responsive people are more cautious, intellectual, serious, and formal. Combining the two constructs results in four categories of personal style: Drivers, Expressives, Amiables, and Analyticals. Expressives score high on both assertiveness and responsiveness; thus, they tend to be competitive and impatient, yet warm and approachable. Analyticals are low on both assertiveness and responsiveness; they like facts and logic and tend to be quiet and formal. Drivers (high on assertiveness & low on responsiveness) tend to make swift and efficient decisions based on facts and to be competitive and direct. Amiables are low on assertiveness but high on responsiveness, and, therefore, believe that close cooperation and relationships are important, tend to make decisions slowly, and try to avoid conflict.

Effective use of technology is dependent on computer self-efficacy. Self-efficacy is defined by Bandura (1986) as “People’s judgments of their capabilities to organize and execute courses of action required to attain designated types of performances. It is concerned, not with the skills one has, but with judgments of what one can do with whatever skills one possesses” (Bandura, 1986, pg. 391). It is the belief regarding a person’s own capability to accomplish a specific task. Computer self-efficacy is defined as the judgment of one’s capability to use an information technology. (Compeau & Higgins, 1995). The higher the individual’s self-efficacy, the higher his/her performance related outcome expectations and use of computers (Compeau et al., 1999). Computer experience has shown to be positively related to computer self-efficacy and usage (Fagan et al., 2003; Igarria & Iivari, 1995). Computer self-efficacy was found to be significantly related to outcome expectations. Self-efficacy with information and communication technology, as well as outcome expectations, impact an individual’s behavioral reactions to information technology such as the Internet (Compeau et al., 1999).

Business students possess a significantly higher degree of computer self-efficacy and attitudes toward computers than non-business students, (Chung et al., 2002) which is important because business students will be used in this study.

Perhaps, even more relevant to the present study is Internet self-efficacy, which is the belief in one’s capabilities to organize and execute courses of Internet actions required to produce given attainments. Internet self-efficacy is a potential factor that separates experienced Internet users from Internet novices. (Eastin & LaRose, 2000).

Flexible leadership with shared responsibilities: There is a need to develop leaders at all levels of an organization, particularly when dealing with knowledge workers. (Pearce & Manz, 2005). Attending only to technical dimensions of the team leader’s responsibilities presents an incomplete view of leadership. Effective leaders understand a wide range of hidden interpersonal issues that can undermine project performance (Gemmill & Wilemon, 1994). “You need people

who are good leaders and communicators, but you also need the techie, heads-down worker bees” (MacInnis, 2004, p. 32). Leaders are only as good as their followers.

With cross-functional teams, it is impossible for the leader to know all aspects of the project. How can a team be effective with a leader when no one member knows all aspects of the project? Sharing knowledge of the project will be required. Therefore, the answer may be shared or collective leadership.

The epicenter of collective leadership is not the role of a formal leader, but the interaction of team members to lead the team by sharing in leadership responsibilities (Hiller et al, 2006). Shared leadership is “when team members are encouraged to lead themselves and share influence with their peers in defining problems, making decisions, solving problems and identifying opportunities and challenges both now and in the future, creativity and innovation is more likely to result” (Bligh et al.,2006, p. 309). When all members of a team are fully engaged in the leadership of the team, shared leadership entails a simultaneous, ongoing, mutual influence process within a team, and fully developed empowerment in teams (Pearce & Manz, 2005). Shared leadership is a good predictor of team effectiveness (Erex et al., 2002; Hiller et al., 2006; Pearce & Sims, 2002). Shared leadership is important with team-based knowledge work (Pearce & Manz, 2005).

Social Network Analysis

Social Network Analysis is a way to evaluate who the team leader is. A social network is defined as a group of collaborating entities who are related to each other (Aviv, et al 2003). Pearce & Conger (2003) defined social network as “a set of individuals with a routine and established pattern of interpersonal contacts who can be identified as members of a network exchanging information, resources, influence, affect, or power.” Cartwright & Harary (1977) developed a sociogram of points and lines to represent the network of relations among group members which can be analyzed. The links between the points (members) show the interactions of influence related to the leadership process within the team (Pearce & Conger, 2003)

Social network analysis (SNA) is the mapping and investigating of the relations among group members. These relations can be friendship and communications (Scott, 2000). SNA focuses on social structure by studying patterns in the relational ties between social entities such as human interactions (Aboelela et al., 2007). Details of paired entities are studied. The usual data structure is a matrix with the rows and columns denoting the entities and the cell entries denoting relationships. (Leinhardt, 1977). In this case, the entities are the members of the team, and the links among them are those interactions of “influence” related to the leadership process within the team (Pearce & Conger, 2003). Generally, each member of a team is asked to name two other members they prefer to work with, establishing links among team members.

An asymmetry link refers to a one-directional relationship. For example, member X chooses member Y, but member Y does not choose member X. This is an important feature of ties in networks of influence, because most relations tend to be asymmetrical. The fact that member A influences member B does not necessarily mean that member B influences member A (Pearce & Conger, 2003). A symmetry link refers to a bi-directional/reciprocal relationship. Both members

choose each other. A problem here is that social cliques can form. A group of three members choose only each other. There is a lack of outside influence for these three.

A graph is a set of dots, generally representing individuals, connected by edges that represent links of influence (Aboelela et al., 2007). By using graph theory, a sociogram can be developed that represents the network of relationships among group members and can be analyzed by using the methods and techniques of social network analysis (Cartwright & Harary, 1977). A sociogram can indicate how people relate to each other, where the power lies, and who talks to whom (Anonymous, 1991). A sociogram can show relationships between group cohesion and performance and how group structures are a critical factor for performance (Yang & Tang, 2004). Thus, the sociogram indicates whether all members are connected and whether subgroups or cliques exist with the team (Aboelela et al., 2007).

A team with centralized leadership is one in which one or two members are selected by most of the group members, and, therefore, take on most of the leadership in the team. Team centralization is a measure of compactness. It describes the distribution of network ties and whether these links are organized around particular focal points (Pearce & Conger, 2003). Sherif's (1956) research used SNA to show that a team with one or two clear leaders, where most members tended to choose the same person, had less group unity. The group that was less stratified was a closer knit group and was more productive.

SNA has been used in recent research as well. The research of Carter et al. (2007) with logistics and supply chain teams demonstrated that group structure, as defined by SNA, can influence the success or failure of a project. Long & Siau (2007) used SNA to show how, over time, groups tended to decentralize from a core of a few key members to a somewhat larger group in open source software development teams. Masquefa (2008) used SNA to study relational patterns in top management evaluation of performance. Mead (2001) studied communication among individuals and groups, studied the range of an individual's influence, identified key members in a group, and examined how lines of communication change during the course of a project. In an information system development team performance study, Yang & Tang (2004) found that group cohesion related positively to performance and that group structure, as defined by SNA, was important to good performance.

New demands in marketing on the web – marketing web page development teams

A Web development project requires expertise in marketing, advertising, web development and other computer technologies. A diverse team consists of members with different backgrounds, but the literature shows little insight as to how individual factors and backgrounds influence the development of shared leadership within a team (Bligh et al., 2006; Gemmill & Wilemon, 1994). While several studies in the managerial psychology field have demonstrated the superiority of shared leadership (Jones, 2006; Pearce & Manz, 2005; Erex et al., 2002; Hiller et al., 2006; Pearce & Sims, 2002), this phenomenon has not been investigated in the context of marketing web page development teams.

Questions this research will address are:

- 1. With a mix of people with different backgrounds, will a leader emerge? Or will the group shift to shared leadership?**
- 2. Based on how the team develops, what impact of leadership is there on outcomes, such as effectiveness and member satisfaction?**
- 3. What background factors, such as experience and Internet self-efficacy, relate to how leadership of the team develops and to the team's effectiveness?**

These research questions are presented as testable hypotheses below. This research will test three hypotheses regarding the relationships among the input variables of leader characteristics, team structure, and the outcome variables of team effectiveness and member satisfaction. Team Structure indicates the extent to which leadership is centralized or decentralized (shared) among all members and is a continuous variable. Leadership Status defines whether a team member served as team leader or not; thus it is a dichotomous variable. Leader characteristics (Internet Self-Efficacy and Personal Style) are operationalized as education (number of months of courses in computers, web development, marketing, & advertising), experience (number of months of internship or work experience in computers, web development, marketing, & advertising), Personal Style, and Internet Self-efficacy. Team Performance is defined as effectiveness of a created web page based on form and content from a consumer's standpoint. Team Satisfaction is defined as the ability of the team members to work together without conflict.

Hypotheses

- H1: Leaders will not differ from non-leaders in terms of background characteristics (education/experience in marketing and technology, internet self-efficacy, and personal style).**
- H2: Teams with shared leadership will have greater Team Satisfaction and Team Performance than teams with distinct leadership.**
- H3: Teams whose leaders are more knowledgeable in marketing and technology will perform no better than teams whose leaders are less knowledgeable.**

METHODOLOGY

Sample and Procedure

Today's business students are tomorrow's business leaders. These students will have varying backgrounds in the Internet and new technologies, such as smart phones and social networks. They will enter the professional world with their attitudes, leadership styles and marketing technology skills and, thus, they will have a strong impact on the workplace. Therefore, a sample of business students with diverse backgrounds in marketing, advertising, computers, and web development working on a marketing web page project was appropriate for testing the hypotheses. Research articles in this field have used college students as subjects in business research (Nicholson et al., 2009; Shayo et al., 2000; Crossland et al., 2000). Furthermore, this

sampling of undergraduate students is consistent with other research cited in this study (Eastin & LaRose, 2000; Mead, 2001; Yang & Tang, 2004).

Data were collected from a sample of 179 upperclassmen business students with varying majors, comprising 26 teams, at a large state university located in the southwest United States over a seven-month period (Summer & Fall 2008). This sample was specifically selected for several reasons. First, one of the college of business administration's major learning goals is for graduates to acquire and use the skills needed for effective teamwork and to understand the importance of group dynamics in achieving organizational goals. Second, the specific course of Consumer Behavior was chosen as the sampling frame because (1) the course required a team project that included development of a marketing web page, (2) students with different marketing and web development backgrounds take the course, and (3) the data could be collected as part of the course assignments. Student teams from two sections of the course taught in the summer semester and three sections taught in the fall semester participated in the study.

Data were collected from those Consumer Behavior students consenting to participate in the study via two online surveys, a survey of background characteristics administered at the beginning of the semester and a project outcomes survey given at the end of the semester. To create diverse teams, groups of approximately seven members were assigned based on their responses to the background survey variables: major field of study, Personal Style, Internet Self-efficacy, and education/experience in different areas related to the project. Individuals were assigned so that teams were fairly balanced with respect to the above characteristics (e.g., low versus high experience, low versus high Internet self-efficacy) to ensure a diverse group. Actual sizes of the 26 teams ranged from six to eight members depending on the number of students in each class and student withdrawals.

Teams were assigned a term project in which they collected data on consumer behavior and developed a promotional (i.e., informational) web page. At the end of the semester, team web pages were graded by the instructor and were evaluated by three independent evaluators using a common evaluation rubric (see the following section for a detailed description). Team members then completed a follow-up survey assessing outcomes of the team experience.

Measures

Leader characteristics. Internet Self-efficacy was measured with the nine-item, 7-point Likert-type, scale from Eastin and LaRose (2000), with items such as "I feel confident understanding terms/words relating to Internet hardware" and "I feel confident using the Internet to gather data" (Cronbach alpha = .91). Personal Style (Merrill & Reid, 1981) was determined by responses to thirty items assessing assertiveness and responsiveness of the individual. Based on responses to these items, individuals were placed into one of four categories: Driver (strong willed & emotionally controlled), Expressive (outgoing & emotional), Amiable (easy going & supportive), and Analytical (serious & precise). Most participants were Expressives (51%) or Amiables (37%), with 7% Drivers and 5% Analytics.

Measures of education and experience were developed for the current study based on four background areas of relevance to the task of creating a marketing webpage. Education was

measured with questions asking for the number of semesters of high school and college courses the participant had in web development, other computer courses, marketing, and advertising. To make the measure of educational background consistent with the measure of experience, the number of semesters of high school and college were summed and multiplied by four to convert these data into months of education for each of the four areas. Experience was measured with questions requesting the number of months of work experience and internship experience the participant had in web development, other computer courses, marketing, and advertising. These responses were summed for each of the four areas. These educational and experience background items resulted in eight variables: Web Education, Web Experience, Other Computer Education, Other Computer Experience, Marketing Education, Marketing Experience, Advertising Education, and Advertising Experience.

Leadership Status and Team Structure. SNA (Sherif, 1956; Pearce & Conger, 2003) was used to create a sociogram that determined Team Structure and Leadership Status. The item, “Of all the members in your group, which two do you prefer to work with,” was used to create the sociogram. This indicates the willingness of the team member being influenced by another team member. Leadership is the influencing others.

Most team members reported the names of two members they preferred to work with, but some only chose one member. As mentioned earlier, the procedures of Sherif (1956) and Pearce & Conger (2003, p. 201-203) were followed, such that each team member’s choices were tallied and plotted on a graph to form the sociogram.

Leader Status is a dichotomous variable determined by whether team members received a majority of votes; members chosen by four or more of their team members were designated as leaders and those with fewer than four were designated non-leaders. Team Structure was determined by computing the variance in the number of times each team member was chosen. Thus, Team Structure was a continuous variable, with low variance indicating shared leadership and dispersed influence. A high variance indicated a leader in the group and centralized influence.

Team outcomes. Team satisfaction was measured with two scales adapted from Markulis et al. (2006): team effectiveness and extent of conflict. Team effectiveness was measured with eleven items ($\alpha = .93$), such as “Our group worked on all the parts of the project as a team” and “There was good communication among our team members.” Extent of conflict was measured with two items ($\alpha = .88$): “there was conflict in our group” and “Our group had a high level of tension.”

Team Performance was also assessed with multiple measures. First, the instructor graded each team webpage using a common rubric evaluating design and content elements. Design was evaluated on five dimensions: relevant to target audience, layout (how text and graphics are arranged on the pages), easy to navigate (including no broken hyperlinks), 8-second rule (loads quickly), and audience appeal (visually attractive, consistent font size/style, no typo/spelling/grammatical mistakes, good use of graphics & color). With respect to content, web pages were graded on the five dimensions: useful and current information, easy to find information/well-organized content and links, clarity (information is clear, concise, & makes

sense), professional tone (not conversational), and interesting and/or entertaining. In addition, three independent evaluators, business graduate students, scored each team webpage. Evaluators rated web pages, on a 7-point scale with 1 being “very poor,” 4 being “average,” and 7 being “excellent,” using the same dimensions related to design and content from the instructor’s rubric. Scores were computed for design (Design Score, $\alpha = .64$) and for content (Content Score, $\alpha = .69$) by summing the ratings from the three evaluators. Therefore, there were three measures of performance: Instructor Grade, Design Score, and Content Score.

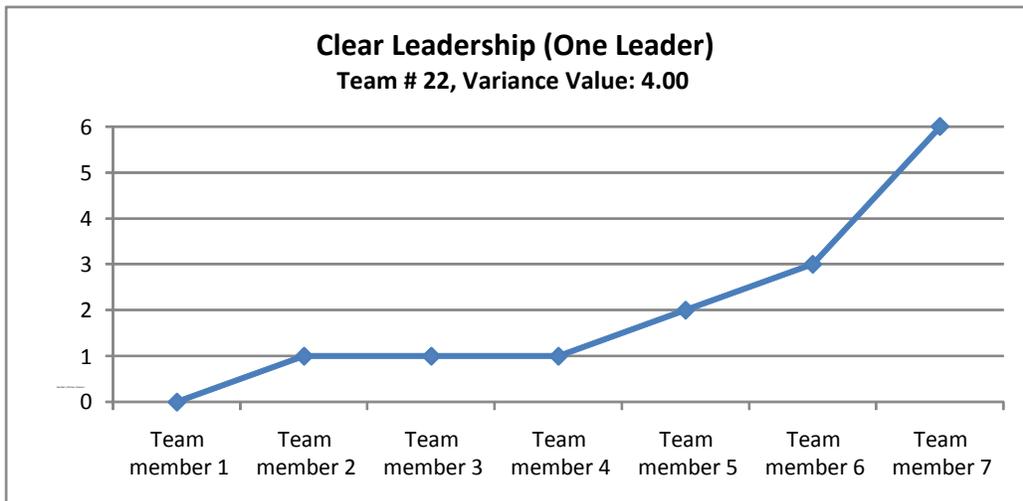
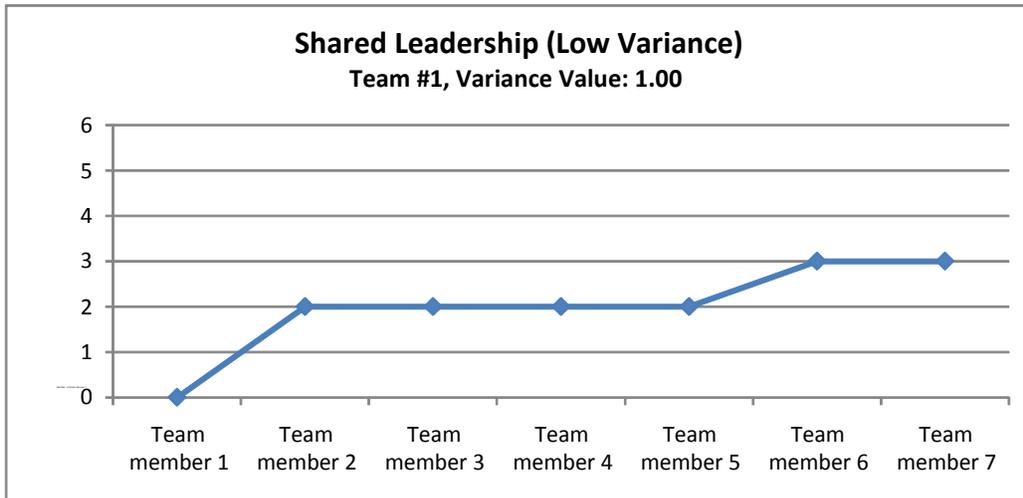
RESULTS

The 179 students were assigned to 26 teams, ranging from six to eight members, with most teams having seven members. As mentioned previously, teams were assigned to achieve as much diversity among members as possible, given the constraints of the student sample in the course. Twenty-seven participants were identified as leaders. Six teams had no clear leader, thirteen teams had one leader, and seven teams had two leaders. Team Structure ranged from a low of 1.00 to a high of 6.33. Low variance indicates a strong degree of shared leadership and the six teams with no clear leader had Team Structure of 2.40 or less. Figure 1 illustrates Team Structure graphically using three extreme examples from the teams in the sample. For the first team example, “shared leadership” in Figure 1, all but one team member was chosen at least two times, suggesting that influence flowed collectively back and forth among the team members. The second team example in Figure 1 had one clear leader who was chosen by all six of his/her team mates; other team members were chosen by three or fewer team mates. The third team in Figure 1 had two leaders, each being chosen by six team members; a third team member was chosen twice but the other four members were not chosen by any team members.

Characteristics of leaders and non-leaders

H1 stated that background characteristics would not differ between leader and non-leader team members. To test H1, the data were subjected to a multivariate analysis of variance (MANOVA) with Leader Status (leader, not leader) as fixed factor and Internet Self-efficacy and the eight education and experience variables as continuous dependent variables. In addition, a cross-tab analysis of Leader Status and Personal Style was run with a chi-square test because Personal Style is a nominal variable. The MANOVA showed no overall significant relationship between Leader Status and member background (Wilks’ Lambda = .93, $F = 1.15$, $df = 11$, $p = .33$). In addition, between-subjects tests indicated no significant differences between leaders and non-leaders at the .05 level. One variable, web education, approached significance ($F = 3.53$, $p = .06$). As shown in Table 1, the means for the nine continuous background variables showed little difference between leaders and non-leaders. Similarly, the chi-square statistic for the cross-tab analysis of Personal Style and Leader Status was non-significant. Therefore, H1 was supported.

Figure 1: Number of times team members were chosen by other members.



Team member 1
Team member 2
Team member 3
Team member 4
Team member 5
Team member 6
Team member 7



Team member 1
Team member 2
Team member 3
Team member 4
Team member 5
Team member 6
Team member 7

Relationships among team outcomes

H2 stated that teams with shared leadership will have greater Team Satisfaction and Teams Performance than teams with clear leaders. As mentioned previously, Team Satisfaction was assessed through two variables, Team Effectiveness and Extent of Conflict; Team Performance was assessed by three variables, Instructor Grade, Design Score, and Content Score. Pearson correlation coefficients, determined through bivariate correlation analysis, were used to test the hypothesis.

Table 1: H1: Characteristics of leaders and non-leaders.

Means for Background Variables						
	Leaders		Non-Leaders		All Team Members	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Internet Self-Efficacy	4.19	1.02	4.12	1.22	1.13	1.19
Web Education	10.96	5.16	13.74	7.35	13.32	7.12
Web Experience	0.00	0.00	0.09	0.75	0.08	0.69
Computer Education	18.22	6.96	17.76	8.30	17.83	8.09
Computer Experience	3.96	10.26	2.01	7.91	2.30	8.30
Marketing Education	16.15	7.06	18.47	8.25	18.12	8.10
Marketing Experience	3.89	10.13	3.73	11.12	3.76	10.95
Advertising Education	8.89	4.20	9.92	4.06	9.77	4.09
Advertising Experience	1.11	2.89	0.42	1.96	0.53	2.13
N	27		152		179	

Personal Style				
	Leaders		Non-Leaders	
	Number	%	Number	%
Driver	0	0%	12	8%
Expressive	14	52%	77	51%
Amiable	12	44%	55	36%
Analytic	1	4%	8	5%

Note: Results for Analysis of Variance and Chi-square tests were not significant.

As shown in Table 2, H2 was supported by results for four of the five outcome measures. The bivariate correlations between Team Structure and the two satisfaction variables were significant. Team Structure was negatively correlated with Team Effectiveness ($r = -.17, p < .05$) and positively correlated with Extent of Conflict ($r = .18, p < .05$), indicating that lower variance in leadership is associated with greater effectiveness and less conflict. This suggests that shared leadership among team members is more satisfying than leadership by one or two individuals. Two of the three measures of performance were significantly correlated with Team Structure. Instructor Grade had the strongest correlation ($r = -.34, p < .01$), followed by Design Score ($r = -.20, p < .01$). Content Score was not significantly correlated with Team Structure.

Table 2: H2: Correlations between team structure and team outcome variables.

Team Outcomes	Correlation with Team Structure
Team Satisfaction:	
Team Effectiveness	-0.17*
Extent of Conflict	0.18*
Team Performance:	
Instructor Grade	-.34**
Design Score	-0.20**
Content Score	0.00
N	179

Note: * $p < .05$; ** $p < .01$.

Relationships among leader characteristics and team outcomes

H3, which posited no significant relationship between leader characteristics and team outcomes, was supported. The six variables representing team outcomes of Team Structure, Team Performance, and Team Satisfaction were correlated with the nine continuous leader characteristic variables. In addition, MANOVA with Personal Style as the fixed factor and the six team outcome variables as dependent variables was conducted. The sample size was the number of leaders (27). Statistical analyses showed that the team outcome variables were not significantly related to any of the leader characteristic variables at the .05 or better level.

DISCUSSION

Team members varied from little or no education or experience in web development, other computer technology, marketing, and/or advertising to many months of education/experience. In addition, some members had high knowledge in one area but low knowledge in the others. There was less diversity in Personal Style, with most members being Expressives and Amiables. Profiles of the 26 teams also varied in terms of Team Structure and the number of leaders, if any.

In this study, team leaders were determined by the number of members who were most willing to be influenced by the leader over other members team members who emerged as leaders did not significantly differ in their background characteristics from non-leaders. Even though teams were formed so that members would differ in the level of web/computer and marketing/advertising education and experience, as well as Internet Self-efficacy, members with stronger backgrounds were no more likely to emerge as leaders than other members. Also, Personal Style was not a factor in leadership. A possible explanation is that whereas Personal

Style deals with how one expresses oneself, leadership involves influencing others which is accomplished by listening and sharing.

Furthermore, leader background characteristics were not found to be significantly related to Team Outcomes. Teams whose leaders had more education, experience, and/or Internet Self-efficacy performed no better than other teams. Likewise, leaders' Personal Style was not significantly associated with Team Outcomes. It appears that Team Outcomes are heavily influenced by listening and sharing.

In contrast, Team Structure was found to be the most important variable in how teams functioned. Team Structure was defined as the degree to which influence is dispersed or concentrated within a team. Low variance indicates shared leadership where collective influence flows from all or most team members. High variance denotes that influence is centralized, such that one or two clear leaders influence the other members. The data showed that Team Structure was significantly related to Team Satisfaction and Team Performance. Team Structure was negatively correlated with Team Effectiveness and positively correlated with Extent of Conflict. This suggests that shared leadership (teams with low variance) have greater perceived effectiveness and less conflict than teams with clear leadership. With respect to Team Performance, two of the four measures were positively, and significantly, correlated with Team Structure, suggesting that teams with dispersed leadership may perform better.

Through member interaction, the idea may have emerged that no one person is an expert in both marketing and Internet technology. Hence, each person realized the need to listen to others' unique knowledge, and that the members are interdependent with one another. This is consistent with Bligh et al. (2006) findings. What can be inferred through this is that diverse technical backgrounds, Internet self-efficacy, and personal style of team members does not necessarily impact effectiveness of the team nor whom the leader will be. When influence flows back and forth among all group members, rather than from one person, there is high group cohesion. All have equal opportunity to influence the group. This leads to team effectiveness. This cohesion may lead to less uncertainty through shared communication in the project team. Uncertainty has been found to be a mediator variable in negative productivity (Chen et al., 2004).

There is a need to know all the important requirements before the development life cycle of a project; need to go beyond the documented requirements of an application. Some requirements can be missing. (Nindel-Edwards & Steinke, 2007). This team cohesion may also lead to better understanding of the project's important requirements.

LIMITATIONS OF STUDY AND FUTURE RESEARCH

Unlike teams in business organizations, classroom teams are characterized by inequitable distribution of the workload, lack of member commitment to team goals, and low levels of communication and cooperation among members. (Markulis et al., 2006). However, research articles have used college students as subjects in business research (Nicholson et al., 2009; Shayo et al., 2000; Crossland et al., 2000). Although such practices are acceptable in business research, business students lack the maturity of business employees. However, the issues are team performance, team structure, and willingness to be influenced by another team member; the same

issues business employees face every day. Business employees also have the same influences from friendships, popularity, or other social factors at the work place. Future research should repeat the methodologies of this research in a business environment to determine whether these findings hold beyond an academic setting.

Another limitation is the sample size. Although the power of the statistics was low for Beta errors, significances were found beyond Alpha errors. It should also be noted that getting statistical significance with a small sample shows robustness of the results. A larger sample size might have shown Web Education significant ($p < .06$). However, since the other p values were extremely large, a larger sample would most likely not be significant with these other variables.

CONCLUSIONS

One of the most critical issues facing firms today is team leadership and performance (Seers et al., 2003). This study examined a heterogeneous team comprising various backgrounds in marketing and Internet web development of members. The results are consistent with prior literature demonstrating that shared leadership promotes greater team effectiveness (Erex et al., 2002; Hiller et al., 2006; Pearce & Sims, 2002;). This research confirms previous research from outside the use of web technologies. This study extends prior literature by showing that the superiority of shared leadership also applies to technical projects. Furthermore, this study suggests that members with the greatest technical expertise may not emerge as team leaders.

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