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What is This?
The Role of Selected Team Design Elements in Successful Sibling Teams

Shelley Maeva Farrington¹, Elmarie Venter¹, and Christo Boshoff ²

Abstract

For any team to function effectively, several basic elements need to be present. The extent to which these elements are present increases the chances of a successful team outcome. Since a family business can be viewed as a type of team, the literature on how to design effective teams is also relevant to business families. The primary objectives of this study are to identify the team design elements commonly referred to in the family business literature and to empirically test their influence on the effectiveness of South African sibling teams in family businesses. The empirical findings of this preliminary study show that physical resources, skills diversity, and strategic leadership are important determinants of sibling team success whereas role clarity and competence are not.

Keywords
family business, sibling partnership, team, family team, sibling team

Introduction and Problem Statement

In recent years, the use of teams in many different organizational settings has increased substantially across the globe. This trend is expected to continue as organizations strive to meet the demands of an increasingly complex business environment (Dooleen, Hacker, & Van Aken, 2006; Koizlowski & Ilgen, 2006). The word team is standard terminology in business today, referring to a group of associated persons organized to work together in pursuit of a shared goal (Hogan, 2007; Keen, 2003). As part of a team, members typically share a common culture, a set of rituals and processes, and a philosophy of working together. They are internally accountable to each other, and because each member contributes a special set of skills, the performance of a team is said to be greater than the performance of individuals working alone (Ivanecich, Konopaske, & Matteson, 2005).

Uhlner (2006) asserts that parallels can be drawn between the concepts “business family” and “team,” and describes the “business family” as a subgroup of individuals from the same family who have the common goal of together owning and running one or more businesses. The fact that membership of the family is biologically determined is what distinguishes family business teams from other teams in organizational settings. The values and norms shared by team members because of these biological ties significantly influence decision making as well as the behavioral expectations of family members in family business teams (Sharma & Manikutty, 2005). The concept of “team” has been found in only a few past references in the family business research literature (Ensly & Pearson, 2005; Uhlner, 2006). Ensley and Pearson (2005) describe two types of family teams, namely parental teams and familial teams. Parental teams consist of

¹Nelson Mandela Metropolitan University, Port Elizabeth, South Africa
²Stellenbosch University, Stellenbosch, South Africa

Corresponding Author:
Elmarie Venter, Nelson Mandela Metropolitan University, South Campus, P. O. Box 77000, Port Elizabeth 6031, South Africa
Email: elmarie.venter@nmmu.ac.za
parents and other family members whereas familial teams consist of family members without parental ties. Other types of family teams receiving increased attention in the family business literature are “copreneurships” (Cole & Johnson, 2007; Marshack, 1993; Rutherford, Muse, & Oswald, 2006; Stewart-Gross & Gross, 2007) and “sibling partnerships” (Lansberg, 1999; Nelton, 1996; Ward, 2004). This study will focus on sibling teams in South African family businesses.

Reviewing the evolution of the field of family business research, Zahra and Sharma (2004) observe that it remains preoccupied with the same issues that have dominated its discourse over the past 20 years, namely succession, performance, and governance. With regard to succession, the predominant focus has been on controlling-owner to controlling-owner successions. Few studies have been conducted on next-generation family members or on whether collective systems can work and under what conditions (Goldberg, 1996; Lansberg, 1999). In addition, no established theory has successfully described sibling behavior in family firms (Handler, 1991), and little is understood about the critically important world of adult sibling relationships (Friedman, 1991). Despite this caveat, an increasing number of family businesses are being passed on to teams of siblings during the succession process or are adopting sibling partnerships as ownership structure (Aronoff, Astrachan, Mendosa, & Ward, 1997; Jimenez, 2009; Lansberg, 1999; Ward, 2004). In business practice, there is a poor understanding of the requirements for creating and maintaining such shared leadership arrangements (Gage, Gromala, & Kopf, 2004; Gersick, Davis, McCollom Hampton, & Lansberg, 1999; Ward, 2002). As a result, many sibling partnerships fail and often do not carry on to the next generation (Gage et al., 2004; Ward, 1997).

Given the predicted trend toward team leadership in family firms (Sharma, 2004), the increasing number of family businesses whose management and ownership are being passed on to teams of siblings (Ward, 2004), and the need to integrate the research on teams with research in the field of family business (Uhlaner, 2006), this study investigates the relationship between team design elements and the effectiveness of sibling teams in family businesses. By applying the theories of designing effective teams to sibling teams in family businesses, this study contributes to the effective management of such family businesses.

For the purpose of this study, a “family business” is a business where a single family owns at least 51% of the equity of the business, where a single family is able to exercise considerable influence in the business, and where at least two family members are involved with the senior management of the business. In addition, a “sibling partnership” or “sibling team” refers to a family business where at least two brothers and/or sisters with a familial bond are actively involved in the management and/or decision making of the business, and exercise considerable influence over its strategic direction.

**Primary Objective**

To function effectively, certain basic elements need to exist in the working conditions of a team, and the extent to which these elements are present increases the chances of a successful team outcome (Hofstrand, 2000). It is against this background that Uhlaner (2006) suggests that to provide better insights into the determinants of effectiveness of family-firm teams, the vast body of research on teams should be integrated with research in the field of family business. The primary objective of this study is thus to identify the team design elements that can optimally contribute to the effectiveness of sibling teams in South African family businesses.

**Design Elements of Effective Teams**

A large body of knowledge exists on how to build effective teams and on identifying factors related to team effectiveness (Kozlowski & Ilgen, 2006). This knowledge is based on the classic models of McGrath (1964), Gladstein (1984), Hackman (1987), Campion, Medsker, and Higgs (1993), and Cohen and Bailey (1997). These models are useful for highlighting the important factors to be considered when teams, and the supporting organizational system, are configured (Kozlowski & Ilgen, 2006). Although these models differ in many respects, they address similar issues of importance to all teams, and the suggestions offered can be applied to almost any team in almost any context (Guzzo & Dickson, 1996; Yancey, 1998), including family businesses.

The input–process–output (I–P–O) model, which proposes that inputs lead to processes that in turn lead to outputs, is the most common framework used to explain the way in which team design elements interact to enable effective team outcomes (e.g., Barrick, Stewart, Neubert,
& Mount, 1998; Campion et al., 1993; Gladstein, 1984). Despite some criticism of the I-P-O heuristic, it has frequently been interpreted as a model to be tested (Ilgen, Hollenbeck, Johnson, & Jundt, 2005; Kozlowski & Ilgen, 2006). The I-P-O framework suggests that to improve a team’s effectiveness, changes must be made to its design elements. Guzzo and Dickson (1996) propose that leverage for intervening and enhancing team effectiveness exists through the design of the group and its context. According to Yancey (1998), input variables such as job design, composition, and context can be manipulated and are more directly controllable than, for example, the process variables (Campion et al., 1993). According to Barrick et al. (1998), as well as Kozlowski and Ilgen (2006), inputs refer to the composition of a team in terms of individual characteristics and resources. Cohen and Bailey (1997) aptly label the various input factors as design factors, which refer to features of the task, group, and organization that management can directly manipulate to create the conditions for effective performance.

Against this background, one can conclude that the design elements of a family business team can be manipulated to increase the chances of family business success. According to Uhlaner (2006), the teamwork literature suggests that business families with elements such as a shared vision, clear roles, and a high level of individual talent, are likely to operate more effectively than business families without such characteristics. An attempt to establish whether the literature concerning teams in general is also applicable to family businesses (particularly focusing on the design elements or input variables) would be a fitting start to assess this contention. A substantial amount of research among teams in general has already examined various inputs of the I-P-O model (Howard, Foster, & Shannon, 2005), but as far as can be established, none has been undertaken in the context of family businesses.

The models proposed by Gladstein (1984), Hackman (1987), and Campion et al. (1993), as well as Cohen and Bailey (1997), vary in their descriptions of the various input factors influencing team effectiveness. Gladstein (1984), for example, includes adequate skills, heterogeneity, role clarity, formal leadership, resources available, and supervisory control as input-level factors in her model. Hackman and Walton (1986) suggest that the focus should be on setting up conditions conducive to success in the team and include conditions, such as a clear, engaging direction, an enabling performance situation, group structure, an organizational context, and expert coaching and process assistance in their model. According to the model of Campion et al. (1993), job design, interdependence, composition, context, and process are the five themes that contribute to team effectiveness (Yancey, 1998). Examples of design variables in the model of Cohen and Bailey (1997), include among others, task autonomy and interdependence, diversity, rewards, supervision, and resources.

In identifying the team design elements to be investigated in this study, parallels are sought between the “team” concepts commonly referred to in the family business literature and the design elements identified in the classic models described above. Therefore, the team design elements identified are based primarily on the theories of team effectiveness, but are supported by empirical or anecdotal evidence reported in the family business literature. Claims that an exhaustive coverage of every possible design factor influencing the effectiveness of family business teams are not made. For example, based on the findings of Gladstein (1984) and Campion et al. (1993), who did not find a relationship between task identity and task interdependence and measures of team effectiveness, the nature of the task is not included as a design element in the present study.

Hypothesized Relationships

For the purpose of this study, the team design elements identified as influencing the success of a sibling team are strategic leadership, physical resources, skills diversity, competence, and role clarity. Effectiveness (success) is measured using two dependent variables, namely perceived financial performance and family harmony. The various hypothesized relationships between the independent and dependent variables are summarized in Figure 1. Anecdotal and empirical support for these relationships has been found in both the teamwork and the family business literature and is elaborated on in the paragraphs that follow.

Dependent Variables

Ambiguous definitions and biased perceptions make the assessment and measurement of success a challenging task for any family business (Hienerth & Kessler, 2006). According to Astrachan (2006), no single measure of
performance adequately expresses family and business needs and utilities, and no measure is likely to capture the complexities of the family business in particular. Business performance is commonly regarded as a measure of success, and has been used by several authors to distinguish between successful and unsuccessful successions (Adendorff, 2004; Flören, 2002; Venter, 2003), successors (Goldberg, 1996) and family businesses (Sharma, 2004; Ward, 2004). Both anecdotal (Flören, 2002; Sharma, 2004; Ward, 2004) and empirical evidence (Santiago, 2000; Venter, 2003) suggest that harmonious relationships between family members are important for successful successions and successful family businesses. Therefore, for the purpose of this study, effectiveness or success is measured using two dependent variables, namely perceived financial performance and family harmony. On one hand, perceived financial performance refers to the business being perceived as financially profitable and secure, and is not based on actual financial results. Family harmony, on the other hand, is defined as harmonious relationships among family members, which are characterized by attachment, appreciation, and concern for each other’s welfare.

Several authors suggest that a relationship exists between family harmony and the viability of a family business (e.g., Barach & Gantisky, 1995; Dumas, Dupuis, Richer, & St.-Cyr, 1995; Santiago, 2000). For example, Adendorff (2004) finds a positive relationship between family harmony and profitability and concludes that profitability will increase when the family harmony is enhanced. Similarly, Danes, Zuiker, Kean, and Arbuthnot (1999) find that the total tension level in the family business predicts success in achieving the business’s goals. Given the aforementioned discussion, the following relationship between the two dependent variables in this study is hypothesized:

**Hypothesis 1 (H1):** There is a positive relationship between family harmony and the perceived financial performance of the sibling partnership.

### Independent Variables

#### Strategic Leadership

A team’s leadership is crucial to the effectiveness of the team (Hitt, Miller, & Colella, 2006; Ivancevich et al., 2005), and references to leadership (e.g., formal leadership, supervision) as a team design factor are found in the models of Gladstein (1984) and Hackman (1987) as well as that of Cohen and Bailey (1997). Several studies (e.g., Gladstein, 1984; Guzzo & Dickson, 1996; Kozlowski & Ilgen, 2006) have found support for a relationship between leadership and team effectiveness. Today’s rapidly changing business environment requires that leaders are visionary and long-term orientated. These environmental circumstances have led to new theories of leadership whose proposals have demonstrated that leaders described as charismatic, transformational, or visionary have positive effects on their organizations and followers (Vallejo, 2009). According to Conger and Kanungo (1994), charismatic and transformational leadership are not different leadership styles and the behavioral dimensions associated with these styles are a continuous orientation toward change, formulation of a clear vision, and commitment to that vision.

Studies among teams in general illustrate a relationship between the existence of clear goals and team effectiveness (Doole et al., 2006; Guzzo & Dickson, 1996; Hyatt & Ruddy, 1997). Similarly, for a sibling team to succeed, it is essential that the siblings agree on a common vision (Gage et al., 2004; Lansberg, 1999) and common goals (Hofstrand, 2000). A common vision promotes cooperative behavior (Ring & Van de Ven, 1994) and demonstrates to others that the family is cohesive, and that there is cooperation with respect to realizing their collective goals (Leana & Van Buren, 1999). Against this background, leadership is described as strategic leadership and for the purpose of this study refers to the leader(s) of a sibling partnership as having agreed on the vision and goals for their business as well as having the ability to lead and undertake formal strategic planning. The following relationships are hypothesized.

![Figure 1. Hypothesized model of team design elements influencing successful sibling teams in family businesses](image-url)
Hypothesis 2a ($H^{2a}$): There is a positive relationship between the existence of strategic leadership and the perceived financial performance of the sibling partnership.

Hypothesis 3a ($H^{3a}$): There is a positive relationship between the existence of strategic leadership and the level of family harmony existing in the sibling partnership.

Physical Resources

For a team to perform successfully, an internal organizational context should exist that provides team members with the necessary support and infrastructure to complete the task at hand effectively (Hitt et al., 2006). In general, organizational context variables measure the extent to which a team is provided with the resources or the support it needs to be successful (Doolen et al., 2006). Both Gladstein (1984) and Cohen and Bailey (1997) make reference to adequate resources as important to a team’s design whereas Hackman and Walton (1986), as well as Campion et al. (1993), refer to a supportive organizational context as a condition for team effectiveness. In this study, the factor physical resources refers to the internal environment or context of the sibling partnership, specifically in terms of access to adequate and suitable resources, information, equipment, and working conditions. Against this background, the following relationships have been hypothesized:

Hypothesis 2b ($H^{2b}$): There is a positive relationship between the availability of physical resources in a sibling partnership and the perceived financial performance of the sibling partnership.

Hypothesis 3b ($H^{3b}$): There is a positive relationship between the availability of physical resources in a sibling partnership and the level of family harmony existing in the sibling partnership.

Skills Diversity and Competence

“Team composition” refers to variables that relate to how teams should be staffed and addresses who team members are, and what attributes, skills, abilities, and knowledge they bring to the team (Guzzo & Dickson, 1996). Gladstein (1984) as well as Hackman and Walton (1986) consider competence (adequate skills; sufficient knowledge) in the composition of a team as necessary to create an enabling performance environment. Furthermore, both Gladstein (1984) and Cohen and Bailey (1997) refer to diversity and heterogeneity, respectively, as important elements in a team’s composition. For the purpose of this study, the composition of the sibling team is measured using two variables, namely skills diversity and competence. Skills diversity refers to the extent to which the siblings are competent in different areas whereas competence refers to their ability to carry out tasks. Teams function most effectively when composed of highly skilled and competent individuals, who can bring a diverse set of complementary skills and experiences to the task at hand (Hitt et al., 2006). Team member heterogeneity in terms of abilities and experiences has been found to have a positive effect on team performance (Gladstein, 1984; Hackman, 1987). Similarly, for a sibling partnership to succeed, the siblings should have an even distribution of complementary skills and talents among them (Aronoff et al., 1997; Gersick et al., 1997; Lansberg, 1999). The following relationships are therefore hypothesized:

Hypothesis 2c-2d ($H^{2c}$-$H^{2d}$): There is a positive relationship between the skills diversity and competence of the siblings and the perceived financial performance of the sibling partnership.

Hypothesis 3c-3d ($H^{3c}$-$H^{3d}$): There is a positive relationship between the skills diversity and competence of the siblings and the level of family harmony existing in the sibling partnership.

Role Clarity

In effective teams, members mutually agree on responsibilities (Keen, 2003) and job descriptions, and individual tasks and responsibilities are specified and clearly laid out (Hitt et al., 2006). Studies (e.g., Ancona & Caldwell, 1992) show that functional assignment diversity (distinct organizational roles) affects the performance of a firm. Effective sibling partnerships typically have an explicit agreed-on division of labor so that each of the sibling partners can enjoy a degree of autonomy in his or her specific area (Aronoff et al., 1997; Lansberg, 1999). Handler (1991) concludes that separate positions and areas of responsibility promote a positive relationship among siblings. Gladstein (1984) has included role clarity as an input-level factor in her model that refers to the extent to which each sibling is
assigned a clearly demarcated area of authority and responsibility. For the purpose of this study, role clarity is considered a design factor and modelled as a predictor of team success. The extent to which the sibling partners agree on these areas of authority and responsibility is also incorporated into this construct. The following relationships are hypothesized:

Hypothesis 2e \((H_{2e})\): There is a positive relationship between the extent that role clarity exists among the siblings and the perceived financial performance of the sibling partnership.

Hypothesis 3e \((H_{3e})\): There is a positive relationship between the extent that role clarity exists among the siblings and the level of family harmony existing in the sibling partnership.

### The Measuring Instrument

Each factor under investigation in this study was clearly defined and operationalized using reliable and valid questionnaire items sourced from previous empirical studies as well as several self-generated items based on secondary sources (see Table 1).

Where necessary, the items sourced from elsewhere were rephrased to make them more suitable for the present study. The measuring instrument comprised two sections. Section 1 consisted of 34 statements relating to the various factors under investigation. Using a 7-point Likert-type interval scale, respondents were requested to indicate the extent of their agreement with regard to each statement. Demographic information was requested in Section 2 of the instrument.

### Sampling and Data Collection

A convenience snowball sampling technique was used as the sampling procedure in this study, and in total, 1,323 potential respondents were identified. The sampling process was initiated by contacting family businesses on an existing database (Venter, 2003), as well as those identified via a Google search. Once identified, suitability and willingness to participate in the study were confirmed telephonically. To ensure that the respondents qualified to participate in the study (see definition of family business and sibling partnership), potential respondents were requested to indicate the number of siblings with a familial bond, who had significant influence over the management and/or decision making of the business as well as the amount of family shareholding. Based on these qualifying questions, it was possible to limit response error to a minimum. Respondents were also requested to identify other sibling partnerships that could be approached to participate in this study. This sampling technique and methodology is consistent with that of other family business researchers who have been constrained by the lack of a national database on family firms (Eybers, 2010; Van der Merwe & Ellis, 2007; Venter, 2003).

In the present study, data were collected by means of a survey technique. A self-administered structured questionnaire was distributed to potential respondents. The
data collected from 371 questionnaires, completed by individual siblings, were useable and subjected to various statistical analyses. Because of limited responses by siblings from the same business, the statistical analyses were done at the individual level and not at the team level.

Sample Description
The vast majority of respondents who participated in this study were male (80.6%), White (95.4%), and actively employed (93.3%) in the sibling partnership. An average age of 40 years was reported, with the majority (72.5%) being younger than 45 years. Most respondents (36.7%) were an oldest child, with 33.2% being a middle child, and 30.2% a youngest child. Although 29% of sibling teams consisted of both males and females, the majority (64.2%) of teams consisted of males only. The average team consisted of 2.48 siblings, with a minimum of 2 and a maximum of 6 siblings in a team. The average age difference between siblings involved in the business was 5.66 years. On average, the siblings had been in business together for 11.44 years, with the majority (56.8%) having been in business together for less than 10 years. The majority (73%) of businesses employed 50 persons or fewer, and 24% indicated employment of fewer than 10 employees. Of the businesses participating in the study, 26.7% operated in the agricultural industry, 19.4% in the retail, 15.1% in the manufacturing, and 11.3% in the finance/business services industries. Although most (43%) businesses operated in the Eastern Cape Province, sibling partnerships from each of the other 9 provinces were represented.

Table 2. Descriptive Statistics and Correlations Between Factors

<table>
<thead>
<tr>
<th>Factor</th>
<th>Cronbach’s α</th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Family harmony</td>
<td>.888</td>
<td>5.76</td>
<td>1.19</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Perceived financial performance</td>
<td>.832</td>
<td>5.87</td>
<td>1.10</td>
<td>.44</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Role clarity</td>
<td>.715</td>
<td>5.16</td>
<td>1.18</td>
<td>.73</td>
<td>.45</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Competence</td>
<td>.704</td>
<td>5.93</td>
<td>1.10</td>
<td>.64</td>
<td>.47</td>
<td>.49</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Physical resources</td>
<td>.832</td>
<td>5.95</td>
<td>0.86</td>
<td>.58</td>
<td>.70</td>
<td>.59</td>
<td>.59</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Skills diversity</td>
<td>.756</td>
<td>6.08</td>
<td>0.90</td>
<td>.71</td>
<td>.38</td>
<td>.68</td>
<td>.69</td>
<td>.48</td>
<td></td>
</tr>
<tr>
<td>7. Strategic leadership</td>
<td>.888</td>
<td>5.45</td>
<td>1.22</td>
<td>.82</td>
<td>.50</td>
<td>.84</td>
<td>.60</td>
<td>.65</td>
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</table>

Discriminant Validity and Reliability Assessment
To assess the discriminant validity of the measuring instrument, an exploratory factor analysis was conducted. A principal axis factoring with an oblique (oblimin with Kaiser normalization) rotation was specified as the extraction and rotation method. Bartlett’s test of sphericity returned a Kaiser–Meyer–Olkin of .927 ($p < .001$), which confirmed that the data were factor-analyzable.

In identifying the factors to extract for the model, the percentage of variance explained and the individual factor loadings were considered. Items with a factor loading of less than 0.35 (10 items) were eliminated from further analysis. The items retained for analysis are tabled in Appendix A. Seven factors were extracted, which explained 73.22% of the variance in the data. The factor structure and various factor loadings are reported in Appendix B. Factor loadings of ≥0.35 (Hair, Black, Babin, Anderson, & Tatham, 2006) were considered significant, and were reported for all factors, providing evidence of construct and discriminant validity for the measuring instrument. Cronbach’s alpha coefficients of greater than .70 (Nunnally & Bernstein, 1994) were returned for all constructs, suggesting that reliable measuring scales were used to measure the constructs under investigation (see Table 2).

Empirical Results
The descriptive results for the various factors under investigation as well as their correlation coefficients are reported in Table 2. All the factors are positively and significantly ($p < .01$) correlated. Competence is strongly positively related to physical resources (.593;
Structural Equation Modeling Results

Structural equation modeling was the statistical procedure used to test the significance of the relationships hypothesized between the various independent and dependent variables. The selection of an estimation method in structural equation modeling is influenced by distributional properties of the data (Hair et al., 2006). Before the confirmatory factor analysis was conducted, the multivariate normality of the data was assessed. The null hypothesis considered was that the data demonstrate sufficient evidence of multivariate normality. To assess the multivariate normality of the data (skewness and kurtosis), LISREL 8.80 was used. The test result (skewness and kurtosis $\chi^2 = 4021.76; p < .000$) revealed that the assumption of multivariate normality did not hold for this data set, suggesting that the null hypothesis had to be rejected. As a result of the violation of the assumption of multivariate normality, the more conventionally used maximum likelihood could not be used. Under such circumstances, Satorra and Bentler (1988, 1994) proposed that the robust maximum likelihood estimation method be used. The confirmatory factor analyses model fit statistics of the robust maximum likelihood analysis ($\chi^2 = 468.55; p = .000; df = 231$; root mean square error of approximation [RMSEA] = .055; expected cross-validation index = 1.688) as well as the 90% confidence interval (0.0479, 0.0615), suggest that the measurement model fitted the data closely (Browne & Cudeck, 1992).

With regard to the structural model fit indices, the ratio of $\chi^2$ (Satorra–Bentler scales $\chi^2 = 486.548; p = .000$) to degrees of freedom (231) is 2.10. The normed chi-square ($\chi^2/df$) is slightly higher than the generally acceptable value. Values lower than 2 are indicators of a good fit (Hair, Anderson, Tatham, & Black, 1998). The RMSEA (0.0547) falls within the reasonable fit range of 0.05 and 0.08 (Hair et al., 1998), almost a close fit, whereas the upper limit of the 90% confidence interval for RMSEA (0.0615) is less than 0.08 (Roberts, Stephen, & Ilardi, 2003). The comparative fit index (CFI) of the model is .984. The CFI should be equal to or greater than .90 to accept the model and an index close to 1 indicates a very good fit (Garson, 2009). Although the data do not fit the model perfectly, apart from the normed chi-square ($\chi^2/df$), the other indices both provide evidence of a model with a reasonable fit. In addition, the independent variables explain 49% of the variance in perceived financial performance, and 73.1% of the variance in family harmony.

The empirical findings of this study (see Figure 2) show that physical resources is positively related (path coefficient = 0.62, $p < .001$) to perceived financial performance (Hypothesis 2b) whereas both strategic leadership (path coefficient = 0.55, $p < .001$) and skills diversity (path coefficient = 0.22, $p < .05$) are positively related to family harmony (Hypotheses 3a and 3c). Support was thus found for these hypotheses. The results of this study, however, reveal no empirical support for the hypothesized relationships between the independent variables role clarity (Hypothesis 3e), physical resources (Hypothesis 3b), and competence (Hypothesis 3d), and the dependent variable family harmony. Similarly, no empirical support was found for the hypothesized relationships between the independent variables Role clarity (Hypothesis $H^2c$), competence (Hypothesis $H^{2d}$), skills diversity (Hypothesis $H^{2e}$), and strategic leadership (Hypothesis $H^{2f}$), and the dependent variable perceived financial performance. Furthermore, no support was found for the hypothesized relationship between family harmony and perceived financial performance (Hypothesis 1).
Discussion
This study supports the proposition of Stewart (2006) that for different types of teams, the same determinants of effectiveness do not always apply. The teamwork literature suggests that the design elements investigated in this study are important determinants of team effectiveness. However, the empirical findings show that physical resources, skills diversity, and strategic leadership are important determinants of sibling team success whereas role clarity and competence are not. With regard to role clarity and competence, the findings of this study contradict what is commonly known about designing effective teams and suggest that family business teams may require a different design configuration to ensure success. Furthermore, several authors (e.g., Sharma, 2004; Venter, 2003; Ward, 2004) propose that when family members get along harmoniously, the family business is more likely to perform financially. However, the results of this study indicate that whether or not family harmony exists has no influence on the perceived financial performance of the business.

In this study, competence refers to the ability of the siblings to carry out tasks in their business. The teamwork and the family business literature provide ample support for a positive relationship between the competence of sibling team members and a successful team outcome (Aronoff et al., 1997; Gersick et al., 1997; Gladstein, 1984; Hackman, 1987; Lansberg, 1999). However, the findings of this study report that whether the siblings are competent or not has no influence on the measures of success adopted in this study. A possible explanation as to why competence is not directly related to the dependent variables in this study is because, in most cases, the involvement of family members in a family business is not dependent on their competence, but rather on their familial ties. Thus, the success of the family business is unlikely to be dependent on the competence of family members, but rather on other external or extraneous factors. Further investigation and empirical evidence is required, however, to confirm this contention.

Despite support for a positive relationship between role clarity and a successful working arrangement between people (Ancona & Caldwell, 1992; Aronoff et al., 1997; Lansberg, 1999), no relationship between this design element and the measures of success investigated in this study is reported. For the purpose of this study, role clarity refers to each sibling being assigned a clearly demarcated area of authority and responsibility. As such, aspects of structure or governance can be inferred from this definition. However, a general absence of governance structures has been identified in family businesses (Dunn, 1999; Maas, 1999), and several studies have not found a relationship between governance structures and family business success (Cowie, 2007; Farrington, 2009; Venter, 2003). The aforementioned provide a possible explanation for the absence of a relationship between role clarity and success in this study.

Given that all the independent variables are positively and significantly \( p < .01 \) correlated (Table 2), one could speculate that all the design elements investigated in this study positively affect the effectiveness of a sibling partnership directly or indirectly through the existence of physical resources, skills diversity, and strategic leadership. Further investigation and empirical evidence is, however, necessary to support this claim. Furthermore, the I-P-O model suggests that the influence of role clarity and competence on the effectiveness of a sibling team could be mediated by process variables, such as cohesion, communication, and other intragroup interactions, variables not investigated in this study.

Implications and Contributions
This study provides insights into the conditions that should prevail to improve the chances of a successful working arrangement between brothers and/or sisters and has implications for both the succession strategy and planning processes in family businesses. For example, parents wishing to hand over the family business to more than one of their children, or siblings wanting to go into business together, would do well to ensure that the conditions suggested by this study are in place, or at least possible, should they wish a satisfactory outcome. In addition, family business practitioners should consider the results of this study, suggesting that the same determinants of effectiveness do not always apply to all types of teams (whether they are family members or not). Practitioners should take care when applying established theories and solutions in the teamwork literature to complex family business settings. Interventions should be tailored to individual family business situations and not based on standard solutions.

Both family businesses and family business practitioners should take note that to function effectively and perform satisfactorily financially, a sibling partnership requires the necessary physical resources and working
conditions to complete the task at hand. Appropriate information necessary to make decisions and to complete tasks should be accessible when needed. The extent to which the siblings in a sibling partnership possess diverse skills has a significant positive influence on the levels of attachment, appreciation, and concern for each other’s welfare that exist within the family. Even though the siblings lead the business as a team strategically, skills diversity provides a natural means of dividing responsibilities among the siblings, allowing each to take up separate operational positions within the business. The challenge, however, is to find the position that best fits the competencies, personality, and style of each sibling, as well as their individual interests and needs. It is important that each sibling is willing to accept the position for which he or she is best suited and most competent. To maintain family harmony, siblings working together should undertake formal strategic planning and agree on the vision and goals for their business.

This study has added to the body of family business research by investigating a particularly limited segment of the literature, namely sibling partnerships in family businesses. As such, the study contributes to both theory and practice by focusing on sibling cooperation in partnership rather than on the more common focus of rivalry between siblings. The use of structural equation modeling and a relatively large sample adds to the field of family business that has traditionally been characterized by smaller samples and qualitative research. This study has considered the theories of designing effective teams and has tested these theories among sibling teams in family businesses. By investigating teams in the context of the family business, the study has also modestly contributed to teamwork literature.

**Limitations and Future Research**

The use of snowball convenience sampling, which does not always lead to representative samples (Zikmund, 2003), is a limitation of this study. Future research should strive to develop a more comprehensive database from which probability samples can be drawn. Many studies of teams do not focus on assessing an individual’s perceptions, but rather on those of the team (Doolen et al., 2006; Wageman et al., 2005). Therefore, a limitation of this study is that the analysis was done at the individual level and not at the team level. Future studies on family business teams could assess the perceptions of the team as a whole, by averaging family members’ responses with regard to the constructs under investigation, thus allowing for an all-round perspective and increased validity. Meade, Watson, and Kroustalis (2007) assert that the use of common assessment methods hardly necessitates large and problematic common method bias. In many cases, common method bias may be small and does not necessarily jeopardize the validity of the results. It is, however, acknowledged that common method bias could have influenced the results of this study.

Another limitation of this study is that it focused only on selected team design elements (input factors) and did not investigate process factors, such as mutual respect and trust, open communication, fairness and cohesion, which potentially influence the successful functioning of a sibling partnership. The I-P-O model proposes that inputs lead to processes that in turn lead to outputs, suggesting that input factors only influence outputs through the existence of several process factors. Future studies should investigate these process factors and whether they act as mediators between the team design elements and team success.

The impact of key stakeholders, such as other family and nonfamily members, on the ability of siblings to work together in a family business should also be examined. For the purpose of this study, siblings from small- and medium-sized family businesses were selected as respondents. The study could be replicated nationally and abroad, but with the focus on other family business teams. Owing to the homogeneous nature of the demographic characteristics of the respondents in this study, particularly with regard to gender and ethnicity, the impact of demographic factors on the success of siblings in business together should be further investigated. Specific attention should be given to non-White and female-owned sibling partnerships. This study is a first step toward understanding the factors influencing family business teams, and, if anything, extends the possibility of looking to the teamwork literature for solutions to family business challenges.
Appendix A

Items Retained for the Statistical Analysis

Family harmony
HARM5 Our family members care about each other's welfare.
HARM1 The members of our family are emotionally attached to one another.
HARM4 Our family members appreciate each other.
HARM2 The members of our family are in harmony with each other.

Perceived financial performance
FIN3 Our family business is profitable.
FIN5 I regard our family business as being financially successful.
FIN6 The financial well-being of our family business is secure.

Role clarity
DIV5 In our family business, clearly demarcated areas of authority and responsibility exist between my sibling(s) and I.
DIV4 In our family business, a clearly defined division of labor exists between the siblings working in the business.
DIV6 In our family business, no overlapping of responsibilities exists between the siblings working in the business.
DIV1 My sibling(s) and I have agreed on the roles or positions of each other in our family business.

Competence
COMP1 My sibling(s) and I are all competent in performing our tasks in the family business.
COMP2 My sibling(s) and I have the qualifications that enable us to contribute to the effective functioning of our family business.

Physical resources
CONT2 Our family business has sufficient access to information required to function effectively.
CONT3 Our family business has adequate access to the necessary equipment required to function effectively.
CONT1 Our family business has adequate access to the resources required to function effectively.
CONT4 The physical working conditions in our family business are conducive to the effective functioning of our business.

Skills diversity
SDIV3 My sibling(s) and I bring a diverse mix of knowledge, skills, perspectives, and experiences to our family business.
SDIV2 My sibling(s) and I bring different strengths (abilities) to our family business.

Strategic leadership
LEAD7 The sibling leader(s) in our family business has (have) a vision for our family business.
LEAD5 The sibling leader(s) in our family business has (have) the ability to effectively lead the business.
LEAD8 The sibling leader(s) in our family business ensure(s) that formal strategic planning takes place.
LEAD10 My sibling(s) and I have agreed on the goals for our family business.
LEAD9 My sibling(s) and I have agreed on the vision for our family business.
Appendix B

Factor Structure

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<th>Items</th>
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<th>4</th>
<th>5</th>
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Note. Bolded items are items with factor loadings of greater than 0.35.

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References


**Bios**

**Shelley Maeva Farrington** is a senior lecturer in the Department of Business Management at the Nelson Mandela Metropolitan University, Port Elizabeth, South Africa. She was awarded her Doctorate for her study on “Sibling partnerships”. Her research interests include entrepreneurship, small business and family business. She has also been actively involved in a family business with her two brothers for the past 14 years.

**Elmarie Venter** is a professor in the Department of Business Management at the Nelson Mandela Metropolitan University, Port Elizabeth, South Africa. Her research interests include family business, entrepreneurship and small business. She won the prestigious Best Doctoral Dissertation Award from the Family Firm Institute in 2003. She also serves on the board of the Family Business Association of South Africa.

**Christo Boshoff** holds a PhD from the University of Pretoria (South Africa). He teaches Marketing and Marketing Research at the Department of Business Management at Stellenbosch University, South Africa. His research interests are services marketing and family businesses.