

# The Family Climate Scales—Development of a New Measure for Use in Family Business Research

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*The article reports on the development of the Family Climate Scales (FCS) questionnaire. The FCS is a multilevel, self-report, whole-family index of aspects of family culture and process for use in nonclinical settings with families where the children may be adults. It was designed to be particularly but not exclusively applicable in the context of family business. The FCS measures on six scales: Open Communication, Adaptability, Intergenerational Authority, Intergenerational Attention to Needs, Emotional Cohesion, and Cognitive Cohesion. Results indicate very high levels of internal consistency. Subscale intercorrelations are also high, with the exception of the Intergenerational Authority subscale. Analyses using structural equation modeling confirmed the hypothesized six-factor structure of family climate. No significant differences in family climate were found between business/nonbusiness families in the sample. Other relationships in the data set lend support to the validity and usefulness of the measure. Implications for family business theory/research and practitioners are discussed.*

The purpose of this article is to describe the development of a self-report measure of whole-family functioning formulated for the field of family business. The case for developing a multidimensional measure for whole-family functioning in the family business context is compelling. Research indicates that family success positively impacts business success, but not vice versa (Masuo, Fong, Yanagida, & Cabal, 2001). It is a well-known phenomenon that poor family functioning and conflicts can tear family firms apart and damage the health of individual members.

Theoretically, this linkage is important. Families have been indicated as a source of agency problems in family firms (Schulze, Lubatkin, Dino, & Buchholtz, 2001), yet there are countervailing arguments for the unique benefits they bring (Habbershon & Williams, 1999; Nicholson, 2005), and empirical evidence to support this position

(Nicholson & Björnberg, 2004). Family climate plays a pivotal role in explaining family business culture and performance, largely through the infusion of family values in the business culture. However, there is a lack of attention in the family business field to the exact nature of the psychological dimensions and mechanisms of family psychology that are most relevant to the family business context. What are these mechanisms? What can the family psychology and family therapy literatures bring to the field of family business? Our aim in this research was to answer these questions, and to create a measure of whole-family functioning with eventual application to family business in mind.

This article is structured as follows. We begin by outlining our rationale for developing a self-report family measure for the family business field, critically examining measures currently

used in family business and family psychology literatures. This leads into a discussion of the theoretical basis for the development of the Family Climate Scales (FCS), reviewing key metrics that have been developed and used in the family field. Then we outline the content and procedure for the selection of scales, dimensions, and items, and of the psychometric properties of the scales. The article concludes with a discussion of the measure and its implications for family firms.

### **Rationale for a Family Climate Measure for Family Business Research and Applications**

Typologies of family firms mostly classify families by reference to their generational history and structure, and measures developed or used in the family business field have had quite specific focus rather than attempting to assess whole-family functioning. Currently available measures have various limitations for research application. Some tests are designed primarily for practice rather than research use; others lack empirical validation or have an insufficiently differentiated approach in terms of scale content. Importantly, no comprehensive measure has been developed to date in the family business field that focuses exclusively on the dynamics and mechanisms of family psychology.

One of the best available tools is the F-PEC (Klein, Astrachan, & Smyrniotis, 2003, 2005), which was developed to measure family influence in the family business system and help researchers move away from the dichotomy of family versus nonfamily definitions, but this does not focus on the dimensionality of whole-family functioning. The Family APGAR (Smilkstein, 1978), used by some family business researchers (Avery, Haynes, & Haynes, 2000; Danes & Lee, 2004; Danes & Olson, 2003) comes closer to a family psychology perspective but it was designed originally for physicians' assessment of family mental health and is not tailored or specifically developed for family business needs or research. Another recent measure is the Aspen Family Business Inventories (Jaffe & Paul, 2005). This does encompass aspects

of family functioning. However, it was not designed as a research tool but as an aid for family business advisors and it does not encompass main dimensions of whole-family functioning.

A model that perhaps comes the closest among family measures to addressing family firms issues and incorporating whole-family functioning is the Family FIRO model (Amarapurkar & Danes, 2005; Doherty, Colangelo, & Hovander, 1991; Stewart & Danes, 2001), which measures dimensions of inclusion, control, and intimacy. It offers a systemic view of family dynamics and change, but it is a clinical assessment primarily formulated for therapeutic and practical applications (Danes, Rueter, Kwon, & Doherty, 2002; Doherty et al., 1991; Parr, 2000) rather than for research applications, and has not received systematic empirical validation (Stewart & Danes, 2001). Its adaptation for use in family firms (Danes et al., 2002) thus far has been restricted to one study of (farming) couples rather than whole families. Smyrniotis et al. (2003) elaborate on a construct of "family strength" adapted from Stinnett and DeFrain (1985), extending an earlier development of an emotional well-being scale relating to the family firm (Karofsky et al., 2001). The authors rename this "family cohesion," yet a closer look at the five items of this measure suggests that it contains elements of related constructs, such as adaptability and expression of affect, rather than cohesion alone.

A review of the family psychometric literature revealed that few self-report whole-family measures have been developed in recent times, and that none is suited for unadapted use in family business research. Most measures have been developed in clinical contexts and contain sensitive items that would not be acceptable to non-clinical populations. It was our judgment that family firms, which are notoriously private, would find them to be intrusive and inappropriate. Additionally, almost all the reviewed measures are confined to and presume the target to be the nuclear family, with no provision for or applicability to the extended family or multiple generations (McGoldrick, Heiman, & Carter, 1993). Exceptions to this are the Personal Authority in the Family System

Questionnaire (PAFS-Q) (Bray, Williamson, & Malone, 1984) and the Inventory of Family Feelings (IFF) (Lowman, 1981).

### Theoretical Basis for the Family Climate Scales

The family psychology and psychometric literature features a multitude of methods, theories, and approaches (Forman & Hagan, 1983; Grotevant & Carlson, 1989; Skinner, 1987; Steinhauer, 1987; Stevenson-Hinde & Akister, 1995; Touliatos, Perlmutter, & Strauss, 1990). As a consequence, this literature is rich and diverse, but sometimes repetitive and contradictory. A comprehensive review of this literature was conducted with the purpose of locating sources of self-report family measurements that might provide a theoretical foundation for the FCS appropriate for a family business context. Fifty-four family measures were found and reviewed. The majority of these were considered inappropriate or were proprietary measures not available in the public domain. A final total of seven measures (five whole-family functioning and two on specific aspects/processes of family functioning) were chosen to act as theoretical guides in the development of items for the FCS. It was our aim to replicate the conceptual content in items that were firmly grounded in accepted theory of family psychology. Selection of the measures was made according to three criteria: the measures all had (1) a solid theoretical underpinning; (2) strong empirical evidence—good levels of reliability and validity; and (3) items appropriate for adaptation for family business research. Below, we discuss the theories of the seven selected measures that underpin our understanding of family functioning.

### Family Systems Theory

Family systems theory, which derives from general systems theory (Bateson, 1972), postulates that families are open systems that depend on the environment for their survival, regulating their interaction both internally and externally to achieve a state of bounded equilibrium. In a family system,

every action and reaction triggers a change in the system as a whole—such is the interdependence of its various subsystems/parts. All measures we selected for theoretical guidance were based on or compatible with family systems theory. Within this framework we concluded that three general themes needed to be captured by our measures.

*Theme 1: the family as a problem solving unit.* Adaptability is fundamental for integrating and regulating change in the family system in relation to its outer and inner environment, and for solving its problems. Equally, cohesion is a prerequisite for the system to remain a unit, since it shapes the boundaries that define it. The Circumplex Model of Family Functioning (Olson et al., 1992) describes family functioning as operating along these two axes, with pathology arising when the family operates at the extreme of either. Based on this theory, the authors created the Family Adaptability and Cohesion Evaluation Scales (FACES II). The Beavers Systems Model (Beavers, 1988; Beavers, Hampson, & Hulgus, 1985; Beavers & Voeller, 1983) is also based on these two axes, but unlike the Circumplex Model, it describes adaptability/flexibility as linear rather than curvilinear (i.e., the more adaptable it is, the healthier the family system). Family interaction style is characterized as centripetal or centrifugal: centripetal families deriving most relationship satisfaction from within the family, and centrifugal families deriving most satisfaction from the outside world.

*Theme 2: interpersonal interaction and social climate in the family.* The interactionist perspective on family functioning addresses the interpersonal atmosphere of the family, highlighting the importance of psychological regulation inside the system. The Family Environment Scale (FES) (Moos & Moos, 2002), uses social-ecological-psychological theory to evaluate relationships, patterns of growth, and organizational features of the family. The McMaster Model of Family Functioning (underpinning the McMaster Family Assessment Device (FAD)) (Epstein, Baldwin, & Bishop, 1983) has a similar orientation,

focusing on members' performance of essential functions and tasks of family adaptation.

Applying a slightly different perspective, the Process Model of Family Functioning (basis for the Family Assessment Measure (FAM III)) (Skinner, Steinhauer, & Santa Barbara, 1983) emphasizes the interaction between individual and family process. The model attempts to bridge the gap between family systems theory and theories of individual development, integrating family systems, psychoanalytic, attachment, social learning, and crisis theories of development and psychopathology (Steinhauer, 1987).

Another crucial aspect of family functioning is the pattern or climate of affect among family members. This is of critical importance in influencing phenomena in the family system (Lowman, 1981). The Multilevel Model of Family Functioning proposes that emotional predispositions are major determinants of an individual's thoughts and behavior, and the Inventory of Family Feelings (IFF) is designed to measure the emotion in family functioning.

*Theme 3: authority and child-rearing/parenting style in the family.* Affection, punitiveness, control, and lax discipline are concepts that consistently figure in the parental child-rearing literature. These are to be found in George and Bloom's (1997) Colorado Child Rearing Scales (CCRS), developed from phenomenology and cognitive-developmental psychology. Similar dimensions recur in the two-dimensional framework and model for parenting style developed by Maccoby and Martin (1983). This builds on Baumrind's classic (1968) distinction between three qualitatively different parenting styles: authoritarian, authoritative, and permissive. Maccoby and Martin claim that Baumrind's categories are three of four outcomes from a  $2 \times 2$  matrix formed from two underlying dimensions: responsiveness (parental reinforcement) and demandingness (number and type of demands made by parents).

These categories are essential in describing authority in the family. However, they are primarily associated with parent-young-child interaction. Contrastingly, the Personal Authority in the

Family System theory (PAFS) (Bray et al., 1984) addresses authority in the intergenerational context, encapsulating adult relationships in the family. PAFS is a synthesizing construct, capturing the inherent tension between differentiation of self and intimacy with others, where the voluntary establishment of boundaries of the self is seen as a fundamental task for psychological health. According to this theory, the development of PAFS emanates from the "*co-evolutionary renegotiation of the patterns of intergenerational relationships and politics, previously established between the first and second generations in the three-generational family life cycle*" (Bray et al., 1984, p. 168). The PAFS Questionnaire measures a continuum with personal authority at one pole and intergenerational intimidation at the other.

### Overarching Categories of Family Functioning

From our analysis of the literature, we elaborated three principal dimensions that we hypothesized would have a strong bearing on family business survival and success. The formulation of these dimensions was also guided by a meta-analysis of contemporary self-report family measures conducted by Grotevant and Carlson (1989), eliciting the overarching categories of Structure, Process, Affect, and Orientation. The dimensions (summarized in Figures 1a–1c) are:

1. *Intergenerational exercise of authority in the family system.* Many family firms fail because of parent-child conflict, and succession failures that stem from an inability to achieve a common view across generations (Schwass, 2005). Personality differences clearly play a part, but it is the process of parent-child interaction that makes them critical. We therefore sought measures that could be adapted to this theme.

2. *Cohesion.* How the family is able to hold together through crises and difficulties is largely a product of the intellectual and emotional "glue" between members. Cohesion may also be excessive, if it means that families are too inward looking, lacking sufficient diversity or openness to outside perspectives (Beavers & Voeller, 1983).

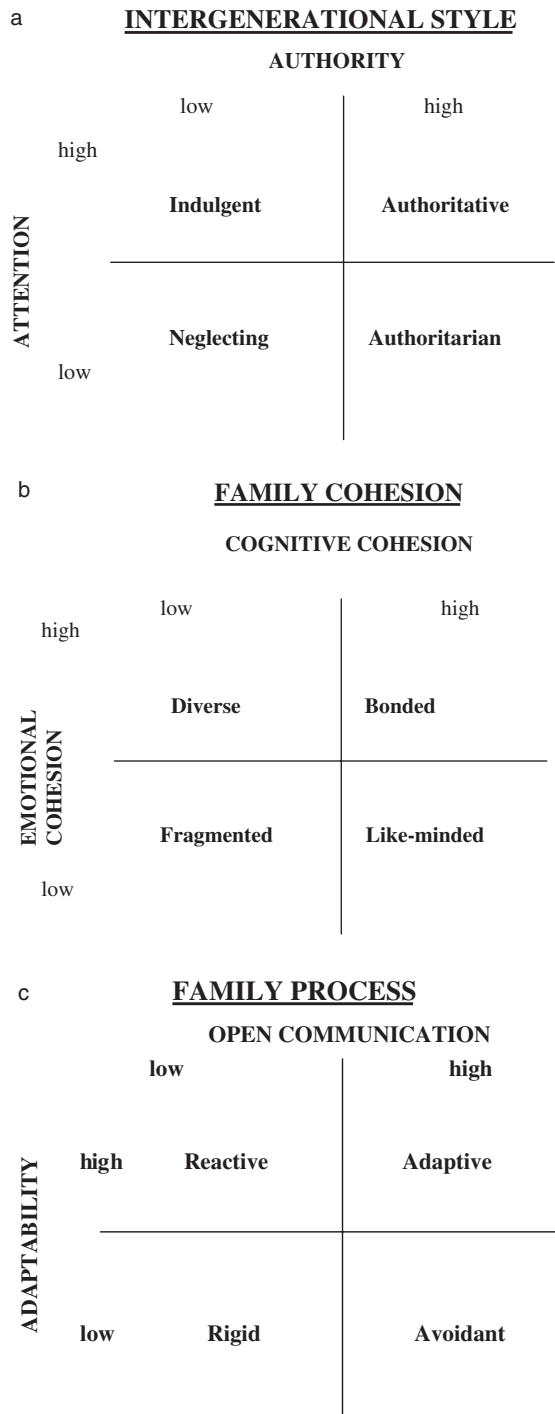


Figure 1 Conceptual Framework for FCS Family Types.

3. *Process*. Authority and cohesiveness can be regarded as, respectively, the psychological “style” and “structure” of the family. These dimensions need to be counterbalanced by process—how people adjust, communicate, and make decisions, especially in the face of the unexpected. From the literature we derive two key subdimensions: the ability to adapt in order to solve problems and the practice of open communications among members (Grotevant & Carlson, 1989; Walsh, 1998).

We define our measure of whole-family functioning and index of “family climate” in these terms: *Measuring aspects of family process, intergenerational style, and cohesion that reflect family climate in order to explain significant aspects of family functioning in family business and nonfamily business contexts.*

### Dimensions of the Family Climate Scales

We have integrated some aspects of all the measures described in the discussion above. Thus, the FCS is eclectic in its sources, but soundly based on family systems theory. Its design was aimed to be sensitive to the situations faced by family firms, yet remain applicable to non-business-owning families (for purposes of comparison, inter alia). Below we outline the relevance of these dimensions in the family business context.

#### Family Process: Open Communication and Adaptability

Open communication is a vital function in healthy family business functioning, particularly since the family business system has to manage more boundaries than just those within the family (Stafford, Duncan, Danes, & Winter, 1999). A business-owning family is exposed to challenges not only in the family system and its life cycle, but also in the business system, where it is more directly sensitive to market trends and forces. Adaptability and open communication also denote the receptivity of a system (Walsh, 1998). A family system with rigid boundaries is more likely

to keep aspects of its environment at a distance, be less likely to seek outside advice or involve nonfamily voices. Equally, less adaptable family systems are likely to render the business system less able to accommodate change or engage in fruitful dialogues around strategic planning. Research on conflict style in family firms and its effect on quality of life (Danes, Leichtentritt, Metz, & Huddleston-Casas, 2000) highlights the importance of family members' ability to face challenges, especially when living and working together puts a strain on the relationships involved.

### **Family Intergenerational Style: Intergenerational Authority and Attention**

In the current measure, parent-child relating is not formulated in terms of parenting style, but in terms of *intergenerational* style. This distinction is vital in the family business context, since the key relationships may involve senior relatives other than parents in relation to adult children. Although intergenerational style is a two-way process, in which both seniors and juniors influence the outcome, our focus is solely on the actions and attitudes of the senior generation, since this is the direction in terms of setting the parameters of family conduct. Disentangling "parent" and "child" behavior is crucial to understanding "parenting" style (Darling & Steinberg, 1993) and its consequences for family leadership in the family firm. Hence, we sought to avoid the ambiguity of who is influencing whom in the relationship by explicitly seeking to measure the all-important "downward" influencing style of senior generations.

Intergenerational authority and intergenerational attention both play a significant part in the greatest challenge facing family businesses: the process of succession. Intergenerational attention is significant in terms of the socialization of potential successors in a family business context (Morris, Williams, & Nel, 1996). Intergenerational style acts as a mold for the structure, that is, roles and expectations that the successor will be

entering into. It defines the leadership model for successors to adapt to, and the model for other relationships that family members may be expected to replicate in the future. A style that is oppressive and overcontrolling may presage a rebellious counterreaction from family members (Walsh, 1998). By these and related means does intergenerational authority determine the degree of liberty or constraint in working relationships from generation to generation.

### **Family Cohesion: Cognitive and Emotional**

The marriage of the rational and the emotional, as described by Murray (2002), is a unique attribute of the family firm. Emotional cohesion is necessary for relationship building, not only within the firm but also with community stakeholders (Nicholson & Björnberg, 2004). Cognitive cohesion is vital for creating a strong and unified leadership based on norms and values that are shared and understood by family, and that can be readily communicated to nonfamily. Deficiencies in either cognitive and emotional cohesion may create a susceptibility to destructive conflicts, putting at risk the security of the family and the business. Relationship conflicts are especially dangerous in groups, as opposed to task and process conflicts (Jehn, 1997). Kellermanns and Eddleston (2004) suggest that relationship conflicts in family firms are moderated by the degree of altruism among family members. In collectivist cultures, strong family commitment, family values, and altruistic attitudes toward family members serve as a grounding force for the family business (Dutta, 1996). However, just as the absence of cohesion may cause fragmentation, dysfunctionally high levels of emotional cohesion may in some cases also lead to the family system becoming rigid and enmeshed (Beavers & Voeller, 1983; Nicholson, 2003).

We have chosen to differentiate between cognitive and emotional cohesion, thus taking the concept of cohesion one step further than is outlined in the Circumplex Model, where "family cohesion" is defined as "*the emotional bonding*

*that couple and members have towards one another*" (Olson & Gorall, 2003, p. 516). The reason for this distinction is to account for family situations characterized by low levels of emotional attachment coupled with high levels of shared worldviews, a scenario perhaps more likely in multigenerational family firms where differing degrees of family ownership and involvement have given rise to more varied orientations. The dimension of "emotional cohesion" is akin to the vertical axis of the Beavers Systems Model that describes centripetal and centrifugal styles of family interaction (Beavers & Voeller, 1983). Here, the dimension incorporates positive and negative emotion as part of how family members view their interaction.

Although the FCS is multidimensional, we make no claim that the measure covers all areas of family climate and functioning. For example, we have not included any measure of marital satisfaction, a widely used concept in the family psychology literature. We opted not to incorporate this dimension since we wished to avoid the presumption that family structures pivot around a husband-wife dyad. We also considered it unlikely that family firm participants would willingly divulge sensitive information pertaining to marital satisfaction. However, we have confidence that the FCS includes those dimensions that explain a significant portion of the activity of the family as a unit (see Forman & Hagan, 1983) that is applicable in a family business context.

## Method

### Item Selection

Selection of items was carried out in three stages. First, as we have described, we reviewed the literature to derive the conceptual model and its dimensions. Second, we generated a large pool of new items, many modified from existing measures. These were recursively revised before and during pretesting of the scales. Third, we checked the conceptual integrity of the dimensions and the content/face validity of the scales by means of Q sort method. The Q sort was administered

blind to four independent raters (students in the organizational behavior doctoral program at London Business School). Results for the first round yielded a percentage agreement ranging from 70.3–85.9%, with an average of 76.2%. We considered these results to be promising but unsatisfactory, having stipulated a minimum requirement of 85% agreement. The Q sort process enabled us to identify and discard or reword the items that consistently elicited low levels of interrater agreement. The second round, conducted with four new independent raters from the same population, elicited percentage agreements ranging from 83.6–97%, with an average of 91.7%. The interrater reliability of the Q sort results from the second round was assessed using Cohen's kappa, giving scores in the range of  $K = 0.80$  to  $K = 0.96$ , with an average of  $K = 0.90$  ( $K = 0.70$  is considered to be satisfactory). We adopted 60 items by this process—10 items per subscale on a 5-point Likert-type response format, each including at least four reverse-coded items, to guard against response set. Subsequently we shortened the scales (see below) to increase reliability and usability. The scales can be found in Appendix A.

### Participants

The Family Climate Scales were tested on a sample of 291 participants from various U.K. institutions of higher education, including staff, faculty, and students. We deliberately used a nonfamily business sample for the development of the scales, since our purpose was to develop a normative baseline of professional people with at least a college degree. This we considered would be relevant for future comparative purposes with the instrument.

The sample brought together three distinct subsets in terms of nationality and socioeconomic background. The first sample, taken from a business school population via a web-based invitation, was highly international and in the middle- to upper-income bracket. The second sample was generated from three U.K. universities; the participants were predominantly British and quite mixed

in socioeconomic background. The third sample was international, with widely varying socioeconomic background and from an undergraduate seminar series at a London university.

### Procedure

The first two samples (247 cases) were reached via an administrator in an electronic mail message containing a link to the online questionnaire, or posted on the university intra-net. The third sample of participants were handed out paper versions of the questionnaire at the end of a seminar on a related topic, with a response rates of 90%. The response rate was impossible to calculate for the online administration, since we have no record of how many participants were reached or how many of them actually saw the online notice.

Participants were instructed to *think about your family and extended family when responding to the statements, and in particular the adult members of your family* when filling out the questionnaires. Our definition of the family intended for this measure thus extends beyond the limits of the nuclear family.

### Background Variables

Background variables included age, sex, nationality, socioeconomic background,<sup>1</sup> family geographic dispersal, birth order, number of siblings, the presence of stepsiblings or stepparents in the family, and whether the family owned a business. Participants were also asked to rate their overall family adjustment and well-being, and how effectively the family had faced emotional, financial, practical, and health-related challenges in the past.

### Statistical Procedures

Initially, to establish the integrity of the scales, reliability and validity were assessed using Cron-

<sup>1</sup> Socioeconomic background was measured using the eight-category *New Socio-economic Classification User Manual* (National Statistics (UK), 2001) on the basis of participants' reports of their mother's and father's occupations.

**Table 1** Reliability: Internal Consistency of the Family Climate Scales

Dimension	Cronbach's Alpha
A. Open communication	$\alpha = 0.847$
B. Intergenerational authority	$\alpha = 0.750$
C. Intergenerational attention	$\alpha = 0.809$
D. Cognitive cohesion	$\alpha = 0.894$
E. Emotional cohesion	$\alpha = 0.894$
F. Adaptability	$\alpha = 0.859$

$N = 291$ .

bach's alpha and correlation analyses. Psychometric properties were further assessed via two multivariate analyses. First, an exploratory factor analysis (EFA) was carried out to test the number of factors underlying the measure, and whether these corresponded to the hypothesized dimensions. One-factor congeneric analyses of the items in each proposed subscale were also conducted to assess the construct reliability. Third, confirmatory factor analyses (CFA) were conducted to verify the proposed six-factor structure.

## Results

### Psychometric Properties of the Scales

**Reliability.** Each scale was reduced in length in order to achieve as high a level of internal consistency as possible. This resulted in a final version of 48 items, selected based on how central each item was to the concept of the scale, using item-whole correlations as a guide. Additionally, we sought to maintain a mix in all scales of reversed and nonreversed items, with no scale having fewer than two reversed items. Tests of reliability for this measure indicate a high degree of internal consistency, with Cronbach's (coefficient) alphas ranging from 0.75–0.90 for all subscales, considered to be more than adequate for nonclinical use.

Results from the one-factor congeneric analyses confirmed the reliability of the scales in terms of regression weights and error variances. However, a low regression weight for one item in the Intergenerational Authority subscale was detected. Replacement of this item did not improve results



from the subsequent CFA; thus our decision was to retain the original item. As we shall see, this scale is the most orthogonal to others, which lends it particular importance in considering family climate. Other statistics support its continued inclusion, despite this slight imperfection.

**Validity.** Results from the correlation analysis of the subscales appropriately indicate a high degree of positive intercorrelation among dimensions—except for Intergenerational Authority, which was negatively correlated to Adaptability and Open Communication. Intergenerational Authority was also orthogonal to Emotional Cohesion, Cognitive Cohesion, and Intergenerational Attention (Table 2).

As Table 3 shows, the ratings of overall family well-being and adjustment support the validity of the scales. These were positively correlated with all the subscale dimensions apart from Intergenerational Authority, where the correlation was negative, as one would predict from family theory.

Looking at the criterion of challenges faced by families, only Adaptability is significantly correlated with emotional and financial challenges, in an inverse direction. This also is favorable to validity, but further work is needed with criterion groups to build on these initial supportive indications.

**EFA.** The EFA (extraction: principal components) applying varimax rotation with Kaiser normalization yielded nine factors with an Eigenvalue over 1, accounting for slightly more than 62% of the matrix variance (Appendix B). This would suggest that the empirical data do not initially resolve to the proposed six-factor model. However, inspection revealed that Factors 7 and 8 were relatively weak and Factor 9 very weak. None of these factors had a clear conceptual reference, and hence could not add to our conceptual understanding of the factor-score interrelationships.

Factor loadings from the rotated component matrix took the following form: the first factor

**Table 2** Subscale Intercorrelations

Subscale	A	B	C	D	E	F
A. Open communication	—					
B. Intergenerational authority	-0.255**	—				
C. Intergenerational attention	0.553**	-0.029	—			
D. Cognitive cohesion	0.460**	-0.081	0.357**	—		
E. Emotional cohesion	0.620**	-0.013	0.563**	0.549**	—	
F. Adaptability	0.508**	-0.137*	0.495**	0.527**	0.655**	—

\* Significant at  $p < 0.05$ .

\*\* Significant at  $p < 0.01$ .

**Table 3** Correlations of Subscales and Background Variables

	Challenges				Overall Well-Being and Adjustment
	Emotional	Financial	Practical	Health	
A. Open communication	-0.109	0.004	-0.009	-0.074	0.404**
B. Intergenerational authority	0.026	0.032	-0.071	0.059	-0.159**
C. Intergenerational attention	-0.063	0.029	0.045	-0.040	0.382**
D. Cognitive cohesion	-0.025	-0.058	-0.021	-0.067	0.299**
E. Emotional cohesion	-0.091	-0.022	0.015	-0.066	0.478**
F. Adaptability	-0.140*	-0.147*	-0.032	-0.109	0.504**
Overall well-being and adjustment	-0.270**	-0.203**	-0.166*	-0.125*	

\* Significant at  $p < 0.05$ .

\*\* Significant at  $p < 0.01$ .

included high positive loadings for items on the Emotional Cohesion subscale. The second factor featured high positive loadings on Cognitive Cohesion. The third factor had high positive loadings on all items in the Adaptability subscale. The fourth factor loaded high and positively on the Intergenerational Attention subscale. The fifth factor had high loadings on Intergenerational Authority, and the sixth factor loaded highly and positively on Open Communication. These six factors accounted for a total of 54.7% of the variance.

Findings from the EFA revealed a clear pattern in terms of all subscales, apart from Intergenerational Authority and Attention, the latent variables of which seem to be split into four categories, two larger and two smaller. These conflicting results raised questions regarding the fit between the theoretical model and the empirical findings. Although results supported the integrity of the scales, the factorial method was failing fully to support the six-factor structure originally hypothesized. The factor analysis method was not able to capture sufficiently the complexity or subtleties of family functioning.

**CFA.** To test our theoretical assumptions, we undertook a more sophisticated test of the hypothesized model, using confirmatory factor analysis with AMOS 5. Two measurement models were tested using this method. The initial model did not separate Intergenerational Authority from the other subscales, and did not yield adequate goodness of fit. A second model was tested, in which Intergenerational Authority was separated from the subscales that it was orthogonal to: Emotional Cohesion, Cognitive Cohesion, and Intergenerational Attention. Regression weights for the amended model were adequate for all items; however, goodness-of-fit statistics were not. Given the excellent internal consistency of the scales and the strength of the conceptual model, we suspected that difficulties might be due to extraneous factors, such as lexical properties of items (e.g., reversed items). Following the method recommended by Kishton and Widaman (1994) in their review, we retested the six-factor model, using

domain representative parceling technique. This procedure involves analysis of truncated scales, and is widely utilized when testing confirmatory factor analysis models (Sass & Smith, 2006), but is effective only if there is both theoretical and empirical support for the representativeness of the items (Little, Cunningham, Shahar, & Widaman, 2002; Sooyeon, 2001). The domain representative parceling solution entails the random assignment and summation of items into a set of parcels for each construct, based on the knowledge that each construct-relevant item accurately represents the dimension in question, which our scaling had confirmed. Each parcel contains the sum of an equal numbers of items, ensuring that each parcel is equally representative of its dimension. Trial items were randomly assigned to two parcels per dimension, each containing four items. The six-factor model was then retested (Figure 2), the results indicating a high level of goodness of fit and clear support for the model (Table 4).

Indices used as criteria for goodness of fit of the proposed model, compared to an independence (null) model in which the variables are assumed to be uncorrelated with the dependent variables, were the IFI = 0.985, TLI = 0.976, and CFI = 0.985. The rule of thumb for these indices is that values close to 1 indicate a very good fit. Parsimony indices based on predicted versus observed covariance included the root mean square error of approximation (RMSEA = 0.052), where a value of roughly 0.05 or less indicates a close fit of the model in relation to degrees of freedom. Other parsimony indices were PFNI = 0.615 and PCFI = 0.627. There is no commonly agreed cut-off value for acceptability for these parsimony indices, but higher values reflect a better fit.

## Results: Background Data

Participant mean age was 34 years ( $SD = 8.4$ ), with a range of 20 to 64 years. Average number of siblings was 2.8 ( $SD = 1.75$ ). It was most common for the participants to be the first child (39%), followed by being second (24%) and then only child (11%). The distribution in terms of socioeco-

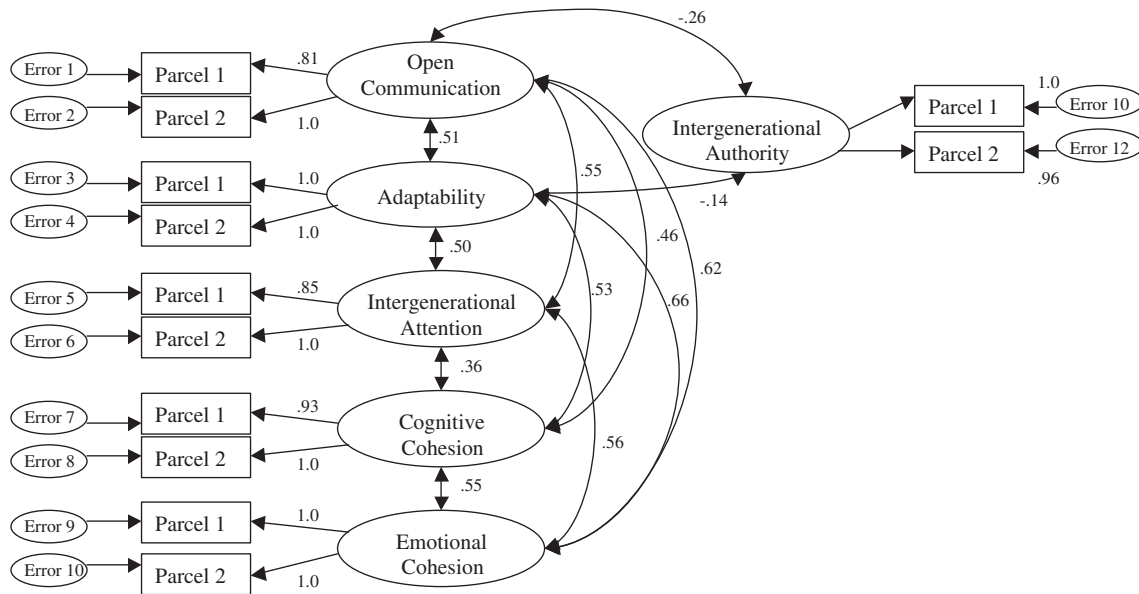


Figure 2 Family Climate Is a Six-Factor Model.

Table 4 Goodness of Fit of the Parceled Model

<i>N</i>	$\chi^2$	df	<i>p</i>	$\chi^2/df$	RMSEA	TLI Rho2	IFI Delta 2	CFI	PRATIO	PCFI	PNFI
291	74.837	42	<0.001	1.78	0.052	0.977	0.985	0.985	0.636	0.627	0.615

conomic background was skewed, as one might expect from a higher-education-based sample.

Close to a third (29%) of the sample reported that their family had a business, and we conducted independent samples *t* tests to test whether they differed from the remainder of the sample in family climate or background factors. No significant differences were found. This provides clear support for the appropriateness of the sample for its intended purpose: to be applicable to both business and nonbusiness families.

## Discussion

This study proposed a six-factor model of family climate, as measured by the Family Climate Scales, developed particularly to serve the needs of family firm researchers and advisors. Empirical data gave support to the proposed model, as well as to

satisfactory reliability and validity levels of the measure. Thus we can assume that the FCS is a potentially useful measure of whole-family functioning in a family business context.

## Business-Owning Families Versus Non-Business-Owning Families

A key result is that business ownership in the family made no difference to perceptions of family climate. Business-owning families may have specific experiences that influence factors such as frequency, type, and intensity of interaction among family members, yet it appears that these do not differentiate them from others in terms of perceived family functioning. Mausio et al. (2001) found that family success positively impacts business success, and the present results show that there is no consistent impact in the opposite direc-

tion, from business involvement to family climate. Further research is needed to investigate the effects of family functioning on business functioning, particularly with regard to leadership and succession, taking business and family life stage into account. The FCS is a potentially useful tool for this purpose.

### **Intergenerational Authority Has a Special Place in the Family System**

Perhaps the single most important outcome of this study is the discovery that intergenerational authority is orthogonal to three of the subscales: Emotional Cohesion, Cognitive Cohesion, and Intergenerational Attention. It would appear that the authority of senior generations has a special significance in the family system. This idea is important in understanding the leadership of senior family members, the autonomy of juniors, and the consequences this has for interaction in family firms. Significant negative correlations of intergenerational authority with both open communication and adaptability suggest that families with high levels of intergenerational authority are more rigid, closed, and less able to cope with change. This is unrelated to the degree of cohesion (both cognitive and emotional) and the amount of attention the senior generation pays to the needs of the younger generation. Looking at the background variables, intergenerational authority is the only variable that correlates negatively with self-rated overall family health and adjustment. This further underlines the special position of intergenerational authority in the family system.

### **The Distinction Between Emotional and Cognitive Cohesion**

Another important finding is the differentiation between cognitive and emotional cohesion. These facets have been treated as an undifferentiated whole in measures of family functioning. Although highly intercorrelated, they are distinctive properties and deserve to be treated as such. We believe that for families working together, this is a very important nuance. Ruptures or conflicts

in the family system may stem from an absence of shared values and ideas, rather than from a lack of positive emotional bonds. Family members may erroneously perceive these issues as resulting from a deficit in emotional cohesion, a belief that could make it difficult for them to reach a more harmonious co-existence. Instead of falsely attributing a difficult situation to personality conflict, understanding this distinction may give the family a chance to reinterpret conflicts more accurately and effectively as process or task conflict (De Dreu & Weingart, 2003).

### **Family Climate and Family Firm Culture**

The infusion of family climate into firm culture is not a straightforward process and there is a need to explain the relationship between family climate, family firm culture, and business success. There are numerous examples of how the family business literature has sought to describe the paradoxical character and seemingly opposing attributes of family firm cultures and the role they play in success or failure of family firms (see, e.g., Ainsworth & Cox, 2003; Allio, 2004; Denison, Lief, & Ward, 2004; Dyer, 1988; Kets de Vries, 1996; Koiranen, 2003; Nicholson & Björnberg, 2004; Tagiuri & Davis, 1996). We believe that family climate, as operationalized by the FCS, can represent and measure some of this complexity. Additionally, family climate contributes to and sometimes shapes the inimitable, rare, and valuable behavioral and social resources that family firms possess (Habbershon & Williams, 1999).

### **Context and Application of the Family Climate Scales**

Our theoretical model assumes that the dimensions of family functioning used in the FCS are universal, but we would expect the patterns of family climate, their meaning, and outcomes to differ from one culture to the next. An example in the literature of this was Baumrind's (1972) observation that authoritarian parenting was associated with assertiveness in African-American girls, but resulted in fearful, timid behavior among

their white European counterparts. This argues strongly for interpretation of family data using the scales to factor in awareness of what is normal for a family in a given historical and cultural context. Family functioning should also be interpreted in its surrounding context, taking into account norms of openness and availability of social support in the local environment (see, e.g., Bloom & Naar, 1994; Steinhauer, 1987; Walsh, 1998).

The contribution of the FCS lies in its unique approach and potential for application: investigating normal family functioning where the family is *part of an organization* that is *owned and/or run* by the family itself. Having established baseline data from a random sample of both business-owning and non-business-owning families, we see it as contributing to practice. Self-report measurement is accessible, inexpensive, and easy to administer. It can be used to add rigor, and complement, qualitative case studies in family business research. It can also be used as a framework and a tool for advisors/consultants to family firms, facilitating the benchmarking of family climate, providing insight into the functional dimensions of the family system, and pointing out the potential benefits and disadvantages of the family for the business system.

### Limitations

Self-report measures of whole-family functioning have limitations as well as benefits. They are necessarily unable to capture fully the complexities and subtle levels of family functioning, which require the synthesis of multiple forms of data. Our scales can be completed only by adolescents and adult family members. They are also unable, due to their design, to capture “in-event” (real-time) family interactions. As with most measures of group climate, the respondent is requested to make summary judgments based on a history of interaction and a life-long acquaintance (Grotevant & Carlson, 1989).

Validation of this measure can be extended. At present, the internal consistency and integrity of

the scales have been established, but the longitudinal stability of the scales has yet to be demonstrated. There are some indications of construct validity from the scale correlates, but further work is needed with well-defined groups to establish discriminative, concurrent, predictive, and criterion-related validity.

Although the sample used in this study had considerable breadth in terms of nationality and age groups, the size was not great, though sufficient to establish the measure. Further testing on a larger sample of business-owning families will be sought in the future. The current sample was also somewhat skewed in terms of socioeconomic background, though this is not out of line with the target of business-owning families for research applications.

In conclusion, the FCS is a working tool that has sufficient robustness, integrity, meaning, and theoretical underpinning for use in research and practice. It also gives us some fresh insights into family dynamics and, in particular, into the dangers of excessive intergenerational authority. This may be especially noteworthy in family businesses where economic power can act as a magnifier of personal power.

## Appendix 1. The Family Climate Scales—Full List of Items

### Open communication

In this family . . .

1. people don't openly express their opinions (*R*)
2. we keep our views pretty much to ourselves (*R*)
3. we are polite rather than honest in how we communicate with each other (*R*)
4. we regularly talk about things that concern us
5. people are not interested in each others' opinions (*R*)
6. we take time to listen to each other
7. we bring issues out in the open, good or bad
8. we are frank with each other

### **Intergenerational authority**

In this family . . .

9. the younger generations try to conform with what the older generation would want
10. the wishes of the older generation are obeyed
11. the authority of the older generation is not questioned
12. family members of the older generation set the rules
13. we make decisions with every person having an equal say, regardless of seniority (*R*)
14. older and younger members have equal amounts of power (*R*)
15. the word of the older generation is law
16. the younger generation is encouraged to freely challenge the opinions of the older generation (*R*)

### **Intergenerational attention**

In this family . . .

17. the older generation takes a close interest in the activities of the younger generation
18. the older generation shows an active concern for the welfare of the younger generation
19. the younger generation are expected to look after their own interests (*R*)
20. older members have a protective attitude toward the younger members
21. the young adults are left to their own devices (*R*)
22. the older generation is highly supportive to the goals of the younger generation
23. the older generation is very responsive to the needs of the younger generation
24. older family members are attentive to the concerns of younger family members

### **Cognitive cohesion**

In this family . . .

25. we have similar views on things
26. we tend to have widely differing views on most social issues (*R*)

27. we have shared interests and tastes
28. our attitudes and beliefs are pretty similar
29. we do not have much in common (*R*)
30. we think alike
31. we have radically different perspectives on things (*R*)
32. our values are very similar

### **Emotional cohesion**

In this family . . .

33. for many of us our strongest emotional ties are outside the family (*R*)
34. the emotional bond between us all is very strong
35. we usually feel happy to be with each other
36. we miss each other when we're apart for a while
37. family members make each other feel secure
38. family members feel warmth for each other
39. we are not emotionally close (*R*)
40. we feel a lot of love for each other

### **Adaptability**

In this family . . .

41. we face challenges very effectively
42. we are flexible and adaptable in how we deal with difficulties
43. we are poor at dealing with the unexpected (*R*)
44. we are always able to help each other when the need arises
45. in solving problems, we are not often willing to change our routines (*R*)
46. we approach problems with a positive mindset
47. we know we have the power to solve major problems
48. when we face difficulties we work together effectively

**Appendix 2. Correlation Matrix for the EFA, Varimax Rotation**

	Components								
	1	2	3	4	5	6	7	8	9
<b>Extraction Sums of Squared Loadings</b>									
Total	13.687	3.745	3.072	2.3	1.872	1.556	1.401	1.204	1.035
% of Variance	28.515	7.801	6.4	4.791	3.9	3.242	2.918	2.508	2.157
Cumulative %	28.515	36.317	42.717	47.508	51.408	54.65	57.568	60.076	62.233
<b>Rotation Sums of Squared Loadings</b>									
Total	5.181	4.942	4.37	3.959	3.4	3.31	1.824	1.59	1.296
% of Variance	10.794	10.296	9.105	8.248	7.083	6.895	3.8	3.312	2.7
Cumulative %	10.794	21.09	30.195	38.443	45.526	52.421	26.22	59.533	62.233
<b>Item</b>	<b>Rotated Component matrix</b>								
a1	0.108	0.215	0.035	0.034	-0.205	<b>0.623</b>	0.183	0.138	0.094
a2	0.132	0.084	-0.002	0.375	-0.165	<b>0.496</b>	-0.070	0.001	0.085
a7	0.178	0.099	0.108	0.071	-0.224	<b>0.656</b>	-0.035	0.266	-0.211
a8	0.413	0.108	0.196	0.096	0.044	<b>0.507</b>	0.034	0.018	0.384
a9	0.298	0.246	0.390	0.247	-0.079	0.206	0.036	0.106	0.395
a10	<b>0.471</b>	0.181	0.332	0.242	0.016	0.273	0.094	-0.017	0.364
a12	0.214	0.085	0.163	0.151	0.135	<b>0.756</b>	0.021	0.001	0.167
a13	0.192	0.097	0.178	0.267	-0.027	<b>0.801</b>	0.007	-0.032	-0.052
b1	-0.030	0.180	-0.015	0.032	<b>0.608</b>	-0.178	0.191	0.128	0.061
b2	0.105	0.081	0.088	-0.009	<b>0.801</b>	-0.031	-0.061	0.112	0.097
b4	0.101	-0.113	0.212	-0.010	<b>0.721</b>	-0.026	-0.183	-0.065	-0.090
b5	0.047	0.024	-0.100	-0.024	<b>0.746</b>	-0.035	-0.186	0.010	0.020
b6	-0.120	-0.151	-0.295	-0.190	0.030	-0.095	<b>-0.571</b>	0.012	-0.269
b7	-0.014	-0.059	-0.056	-0.038	0.240	-0.003	<b>-0.790</b>	-0.015	0.099
b8	0.047	-0.015	-0.053	-0.019	<b>0.809</b>	-0.027	-0.021	0.106	-0.142
b9	-0.049	-0.179	-0.178	-0.263	0.218	-0.311	-0.417	0.040	-0.441
c1	0.088	0.179	0.153	<b>0.607</b>	-0.076	0.116	-0.065	0.028	0.066
c3	0.163	-0.012	0.217	<b>0.723</b>	-0.021	0.110	0.050	0.031	-0.177
c5	0.064	0.018	0.080	0.164	0.109	-0.003	-0.042	<b>0.807</b>	0.062
c6	0.170	0.031	-0.064	<b>0.602</b>	0.252	0.136	-0.013	0.258	-0.083
c7	0.130	-0.036	0.000	0.177	0.204	0.260	0.082	<b>0.704</b>	-0.071
c8	0.167	0.152	0.216	<b>0.681</b>	-0.051	0.084	0.177	0.090	0.158
c9	0.221	0.096	0.173	<b>0.725</b>	0.020	0.128	0.086	0.082	0.142
c10	0.274	0.163	0.215	<b>0.699</b>	-0.053	0.162	0.123	0.075	0.116
d1	0.142	<b>0.646</b>	0.115	0.019	0.181	0.223	0.104	-0.111	0.103
d2	0.011	<b>0.801</b>	0.138	0.053	-0.077	0.047	-0.100	0.119	0.146
d3	0.237	<b>0.636</b>	0.093	0.069	0.059	0.028	0.120	-0.039	-0.027
d4	0.092	<b>0.764</b>	0.108	0.166	0.070	0.143	0.092	-0.091	-0.035
d5	0.351	<b>0.684</b>	0.242	0.141	-0.131	0.095	-0.029	0.052	-0.035
d6	0.171	<b>0.731</b>	0.102	0.039	0.109	0.018	0.180	0.086	0.138
d7	0.129	<b>0.729</b>	0.190	0.057	-0.104	0.094	-0.130	0.080	0.068
d9	0.275	<b>0.666</b>	0.179	0.200	0.058	0.044	0.122	-0.055	-0.172
e1	<b>0.483</b>	0.152	0.206	0.083	0.023	0.056	-0.222	0.252	0.195
e2	<b>0.635</b>	0.174	0.069	0.222	0.023	0.169	0.101	0.098	-0.189
e3	<b>0.590</b>	0.274	0.364	0.111	0.055	0.077	0.169	-0.049	-0.013
e5	<b>0.754</b>	0.190	0.076	0.145	0.158	0.169	0.004	0.008	0.063
e6	<b>0.537</b>	0.118	0.395	0.315	0.176	0.097	0.226	-0.061	0.094
e7	<b>0.676</b>	0.205	0.297	0.272	0.042	0.088	0.038	0.011	-0.003
e9	<b>0.742</b>	0.158	0.090	0.154	-0.076	0.245	-0.048	0.121	0.146
e10	<b>0.759</b>	0.218	0.194	0.163	0.095	0.174	-0.011	0.041	-0.011
f2	0.146	0.143	<b>0.656</b>	0.096	0.071	0.197	0.107	-0.085	-0.037

**Appendix 2. (Continued)**

	Components								
	1	2	3	4	5	6	7	8	9
<b>f3</b>	0.060	0.159	<b>0.731</b>	0.083	0.130	0.090	-0.033	-0.025	0.065
<b>f5</b>	0.152	0.241	<b>0.615</b>	0.146	-0.195	-0.048	-0.054	0.094	0.215
<b>f6</b>	0.317	0.109	<b>0.480</b>	0.342	-0.050	0.015	0.219	0.100	-0.255
<b>f7</b>	0.105	0.103	<b>0.627</b>	0.184	-0.132	0.150	-0.069	0.108	0.012
<b>f8</b>	0.231	0.217	<b>0.569</b>	0.214	0.034	0.016	0.233	-0.002	0.138
<b>f10</b>	0.406	0.207	<b>0.513</b>	0.198	0.086	-0.006	0.267	0.124	0.060
<b>f11</b>	0.377	0.141	<b>0.622</b>	0.070	0.145	0.130	0.157	0.034	-0.060

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