Building Family Functioning Scales into the Study of At-Home Income Generation

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ABSTRACT: This article describes testing of scales designed to measure the ways family members interact in a personal subsystem. The scales are intended to complement data about the managerial subsystem of a family and are to be used in conjunction with a regional research project focused on home-based work. The article includes conceptual underpinnings, construction of measures, and results of factor analysis of the measures administered. Suggestions for use of a family functioning scale in the

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context of a household that has a member working at home are explored in the final section.

KEY WORDS: family affective behavior, family resource management, home-based business.

Introduction

There are several reasons for studying management, productivity, and stability simultaneously in families with members who engage in at-home income generation. The environment that combines work for income, expectations of family members for emotional interaction and the concrete demands of physical maintenance of house, people, and possessions presents several challenges to at-home workers and their families. At-home workers are vulnerable to interruptions by family members and neighbors as well as clients. The demands and temptations of other household activities are difficult to escape. Another challenge is what family members expect as emotional and intellectual interaction. Do members perceive their family as one that shares a lot of time and information or are members highly independent of each other in their thoughts and actions?

These interactions are referred to in this article as the family's affective functioning to distinguish them from the managerial functions of a family. Managerial functions include how family members organize and execute the tasks of household and personal maintenance and those other tasks that must necessarily be done at home or during non-work time to meet the requirements of employment, civic duty, and social interdependence. Affective functioning includes those tasks that family members do to fulfill their emotional needs and to assist each other in their growth and development as persons.

The study reported here explores one way of assessing the family's expectations for affective functioning. It uses data collected for a regional research study of families that had at least one household member who worked at home for income (Stafford, Winter, Duncan, & Genalo, 1992). In the present research, these families are expected to have the conflicts that most families have in synthesizing the values, demands, and priorities of individual members. However, they have an added complication. Because the physical environment contains family members and the means to do family-related work (or recreation) as well as the mechanisms to work for income, members have nearly constant exposure to a choice among activities that have

diverse underlying objectives, potential results, and time lapse before results become apparent. For example, income-producing activities provide tangible, immediate resources for families. Family affective activities, such as reading to children, are usually associated with the immediate satisfaction of shared family time with little perception of long term benefits such as a literate citizenry or productive workforce participants.

The high start-up and failure rates of small businesses in the United States may be ascribed, in part, to families undertaking businesses that conflict with the family's composition or interaction style. This study is a preliminary step to research that will assist in educating potential at-home workers on the benefits and pitfalls of combining work for income and family interaction in a single spatial environment. The scales outlined in this article are to be used to help families assess the fit between specific demands of occupations and the manner in which family members prefer to engage in day to day activities.

The regional study (NE-167, At-Home Income Generation) of the impact of home-based work on family management, productivity, and stability has sought to provide measures of multiple family concepts and issues to aid in the interpretation of the family and work interface. A central organizing framework for this research has been Deacon and Firebaugh's (1981) model for family resource management. In this model, they have defined managerial and personal subsystems that could be used to describe how families accomplish tasks and organize activities. They have specified that these subsystems form an integrated whole within a family's life and have devoted particular attention to the managerial subsystem. The personal subsystem has been only roughly defined; little has been done to explicate this subsystem that informs, and has been enhanced by, activities in the managerial subsystem. The personal subsystem has been the source of values and other intrapersonal attributes which shape the standards that managerial activities are expected to attain as well as, in part, defining the interpersonal conditions under which family managerial activities take place.

The intermingling of activities to produce income and to fulfill affective expectations of family members has been a hallmark of home-based work. This intermingling has brought the relationship between the managerial and personal subsystems into concurrent focus and has heightened the appeal of each set of activities for the simultaneous attention of home-based workers. Study of such a set of fami-

lies has given researchers a unique opportunity to explore the factors that portend how family members weigh the importance of these two sets of activities.

One of the preliminary steps to exploring the dynamic relationship between the personal and managerial subsystems has been to test the measurement of the personal subsystem. This has been achieved through the use of family functioning scales derived from Kantor and Lehr (1975) and Constantine (1986). Brief reviews of literature related to the measurement of family functioning and to the relationship between family functioning and home-based work are provided. The results of factor analysis on family scales are reported. Finally, the various possible uses of a family functioning scale to augment other aspects of a research project on home-based work are proposed.

Measurement of Family Functioning Types

In addition to the more common family life cycle measures, such as demographics and life satisfaction, measures of family management, time and space intrusion, and family affective functioning have been included in the study of home-based work. To design instruments for assessing family functioning, several general theories of family behavior and scores of instruments designed to measure these theories have been reviewed by a team of researchers. To remain consistent with Deacon and Firebaugh's (1981) systems approach to family management, Kantor and Lehr's (1975) theory of family functioning has been used. This theory of family functioning has been considered to be the most consistent with the systemic foundations of Deacon and Firebaugh's (1981) model. As organized by Constantine (1986), Kantor and Lehr's (1975) systemic theory of family affective functioning also has provided information on time perception and space use which supplements the managerial subsystem portion of the research.

A Systems Approach to Family Functioning

Kantor and Lehr (1975) have defined three types of family systems: closed, random, and open. Constantine (1986) has added a fourth, the synchronous family, and has elaborated on how the family types fit together. Kantor and Lehr (1975) and Constantine (1986) have used target and access dimensions to categorize the eight concepts that they observed to differentiate underlying family constructs. Target

dimensions have been those objectives that a family seeks to attain as a result of members' interaction. They have included control, affect (emotional nurturance), content, and meaning. These outcomes have been secured through use of the access dimensions of space, time, matter, and energy.

In the development of measurement items, the genuine though subtle difference between closed and synchronous families has been determined to be too obscure and unique to be measured in a telephone interview. Thus this research on home-based work has studied three of the family types defined by Constantine (1986) as closed, random, and open. Each of these is described below.

Simply defined, a closed family is one that seeks to maintain the status quo. It engages in activities and attends to ideals and values that maintain continuity with the past. Decisions, direction, and roles are delegated based on how things were done in the past and often replay the structures of the families of origin. Analysis of the systems embedded in and around closed families shows that the family, not the individual or the community, is the most distinct unit; that is, the one with the most definite boundary. "Stability through tradition" is Constantine's (1986) phrase for the closed family.

Constantine (1986) has described the random family as the antithesis of the closed one. The random family revels in variety and change. It is oriented to the present and seeks a constant influx of new experiences. Each member is in charge of his or her own direction and action and usually does not coordinate activities with those of other individual members. The individual has the most distinct boundary and interacts within and outside the family with equal freedom. "Variety through innovation" is the random family's motto.

The open family combines aspects of closed and random types. Its members seek to introduce some change into the enduring family unit. In doing so, the open family acknowledges ties with the past and incorporates experiences of the present to build a path to the future. Decisions and direction for the family are negotiated among all members. There is little role delineation inside the family, though some delineation, based on age, may exist. Individual members and the family unit have equivalent boundaries. Members consider the family's identity as important as their own and each other's in determining actions and goals. "Adaptability through negotiation" is the hallmark of processes observed in open families.

Kantor and Lehr (1975) and Constantine (1986) have clearly stated that these family types were not absolute. Families display a mix of

types in their everyday activities. However, they are expected to display a propensity to one type or another. This propensity may be an overall preference for one type or another; it could also display itself in certain dimensions such as being rigidly random or closed. The propensity of a family to one family type or another is expected to illustrate the standards for affective interaction within a family and assist researchers in understanding the relationship among income-producing work, type and size of family, and various satisfaction measures.

Home-Based Business and Family Life

Behr and Lazar (1983) have cited the following reasons for the popularity of working for pay at home: flexibility in meeting household demands, the need for a second income, distaste for commuting, transforming a hobby into income production, a sense of independence, and the desire to spend more time with family members. Thus choosing at-home income generation has pointed to family life as the impetus for this decision. There has nonetheless been a lack of research on the effects of at-home work on the life of the family (Voydanoff, 1987). Only a few scholarly studies have addressed the specific interface of family and work (Beach, 1989; Owen, 1989).

Though based on a small sample, Beach's research (1989) on the family and work interface has provided a striking documentation of the need to consider family concepts in order to fully understand the implications of income generating activities in the home environment. She has cited the variability of both frequency and duration of interruptions by children as a function of gender of the worker, age of children, time of day, and number of household members. Further, she has concluded that there are different levels of family-work interplay based on the level of skill necessary for the work, the amount of concentration required for the tasks, and whether the workers regard work or family as their primary responsibility.

In a study of 12 families, Gray and Owen (1986) have found evidence that some businesses and, by extension, at-home occupations were more appropriate to certain family stages and composition. They have considered the role of resource assessment in determining the ability of the family to maintain both the desired family patterns and income-generating capacities. In particular, the family's paradigm of functioning, that is, how they have related to the outside world, allocated resources, and controlled information, has appeared to have important implications in a family's attempt to generate income and to have a satisfying family life under the same roof.

Gray and Owen's (1986) interviews of families with at least one member who worked at or from home have indicated that the families tended to adopt styles for fulfilling business functions that were consistent with their paradigms of affective functioning. Many of the advantages these at-home entrepreneurs perceived as coming from the business have supported the types of family interaction for which they expressed appreciation; for example, a family who valued an open paradigm for functioning, wherein family members associated extensively with the outside world and shared accounts of these interactions at home with other family members, was successfully involved in a business that required extensive use of family space for both clients and family interaction. In contrast, another family with similar business demands on family space spoke of the intrusion of their members' business on the family and indicated a need to set more exacting limits on the home-based business.

Beach (1989) and Gray and Owen (1986) have conducted qualitative studies of small samples to determine elements that appeared to influence the way families with home-working members met their needs and responsibilities. The research from which the present article derived has employed the concepts that appeared significant in the qualitative studies. It has expanded the knowledge base of family life of home-based workers by combining these family life concepts with family management behavior, business activities, and family satisfaction scales. This article reports the preliminary empirical results of scales that measure family affective functioning as a part of the overall research project.

Methodology and Data

The Data

The data for the study reported here were from a nine-state project focused on households in which at least one individual generated income by working at or from the home. During spring 1989, 30 minute telephone interviews were conducted with the household manager in 899 households in which there was home-based employment (Stafford et al., 1992). The unit of analysis was the household and the data were weighted by the relative importance in the population of the respective states and the rural and urban areas

in the states (Stafford et al., 1992). For more information on sampling, methodology, and definitions, see Stafford et al. (1992).

Of the 899 respondents, 91.5% of the weighted sample (92.5% of the unweighted sample) were self-defined as families and were asked those questions (or scale items) designed to measure family functioning. Because such a large percentage of the sample was family households, the mean values of the subsample used in this analysis vary little from the means for the entire sample. Household size was larger and a higher percentage of the subsample was married; both differences reflected the loss of single person households and of households consisting solely of unrelated individuals.

Definition of Research Variables for Family Functioning

Previous attempts to examine and quantify Kantor and Lehr's (1975) theory concentrated on clinical analysis which presumed assessment of the family's affective functioning style through direct contact with a therapist. In keeping with the telephone interview format of this study, a self-reported measure was used. Three family functioning types were represented: closed, random, and open. The family types were measured by four dimensions conceptualized as being the most discriminating (among the family types) and the least invasive; that is, the ones likely to be answered over the telephone.

The dimensions represented were time and space from Kantor and Lehr's (1975) access dimensions. Representing the target dimensions were pattern (or meaning) and decision-making style, referred to by Kantor and Lehr (1975) as control. Table 1 lists the items used and labels them as to family functioning type and the dimension measured. Wording for the items listed in Table 1 was based on instrumentation by Imig, Owen, and Phillips, documented in Imig and Phillips (1989). Previous attempts at quantification of family functioning (Imig & Phillips, 1989) have indicated that families do not sort neatly into the family types postulated by Kantor and Lehr (1975) and Constantine (1986). Rather, the reality of family life was a mix of styles or paradigms. Furthermore, the variation itself reflected different rationales of diversity. For example, a family may vary on their dominant style with respect to different dimensions; members may appear to structure time use randomly but be quite closed in how they use space. Ages of children may bring out another variation. In a family with children in different age groups, the style is expected to be more closed in activities focused on younger members. Based on discussions in family theory classes, D. R. Imig (personal communication, November, 1989) and I. F. Beutler (personal communication, April, 1988; April, 1990) postulated that the time of week or season of year may result in another variation. Families may be more random during the week or in a season with high activity levels for individual members but more closed on weekends or in a season with fewer demands. This last variation theme reflected a pattern of families responding to external demands but consciously engaged in activities to secure family cohesion. For the home-based work study, the researchers expected the same mixture of styles within a family but anticipated that a measurable range of behavior might exist that would inform their study.

TABLE 1

Family Functioning Items

Family Functioning Style Concept	*Item*	*Wording of Question*
OPEN	TIME	Family members check their schedules with each other regularly.
OPEN	DECISION	Family members usually discuss family activities and decide what to do together.
RANDOM	PATTERN	Your family enjoys finding new ways to do things and new activities to try just to be different.
CLOSED	DECISION	Your family makes decisions by rules you have always used.
RANDOM	SPACE	You often find friends of family members in the house and didn't know they were there.
RANDOM	DECISION	You don't have many family decisions; each of you pretty much does as he/she plans to do.
OPEN	PATTERN	Your family is open to new ideas if they seem practical.
CLOSED	TIME	Your family uses some sort of a master calendar to coordinate schedules.
CLOSED	PATTERN	Your family usually does things the same way time after time.
RANDOM	TIME	Members of your family come and go without knowing much about what each other is doing.
OPEN	SPACE	In your home, friends often drop by and are easily included in whatever your family is doing.
CLOSED	SPACE	People visit your home only when the *family* decides to invite someone.

Confirmatory Factor Analysis

Principal components analysis was used for factor extraction, by means of an adjusted correlation matrix in which the diagonal elements were replaced by corresponding estimates of the communalities (Kim & Mueller, 1981; Rummel, 1970). The initial factoring step determined the maximum number of factors that could adequately account for the observed correlations and also determined the communalities of each item. The next step, rotation of the factors, identified simpler and more easily interpreted factors. Varimax rotation, used here, maximized the variance of the squared loadings for each factor. To simplify inspection of the findings, only factor loadings of more than 0.30 were reported.

Factor analysis assumed that the observed variables were linear combinations of some underlying construct (Kim & Mueller, 1982). Confirmatory factor analysis (principal component analysis with varimax rotation) was used to see if the 12 family functioning items provided empirical confirmation of the theory constructs developed by the research committee. Results were not expected to sort families neatly into family types; rather, certain dominant

TABLE 2

Factor Loadings for Family Functioning Items

Item descriptions	*Factor 1 Random*	*Factor 2 Open*	*Factor 3 Space*	*Factor 4 Closed*
Closed time	−.3394	.5136		
Random time	.7103			
Open time	−.5323	.4211		
Closed decision		.3545		.6738
Random decision	.8089			
Open decision	−.7357	.3119		
Closed space			−.7843	
Random space			.5020	
Open space			.8082	
Closed pattern				.8302
Random pattern		.6344		
Open pattern		.7631		
Eigenvalue	2.85	1.83	1.27	1.05
% of variance explained	23.7	15.2	10.6	8.8
Reliability	.7191	.6601	.5490	.3605

themes that would inform understanding of the relationship between the family and the home-based work were expected.

Results for Factor Analysis of Family Types

Factor analysis of the family functioning items indicated that there were four identifiable factors (see Table 2). Simultaneously considering the statistical evidence and the theoretical constructs, three factors, numbers 1, 2 and 4, did relate to functioning styles. Consistent with previous research, family scores on each of the factors suggested that the families did not sort neatly into one or another type. All the items related to family use of space loaded on the remaining factor, number 3. Closed family scores loaded opposite the random and open family items, indicating that the factor reflected the conceptual dimensions measured rather than the family types. Even in the family type factors, some items weighed most heavily on factors that were contrary to the item's theoretical intent. However, only two items loaded in ways that would contradict theoretical constructs. Table 2 displays the results of the factor analysis.

Interpretation of the Factors Indicating Family Types

Underlying Factor 1 were two dimensions of the random style: time and decision-making. Factor 2 combined three open family dimensions: time, decision-making, and pattern. Factor 4 consisted of two strongly loaded items of the closed family dimensions: decision-making and pattern. Factor 3 included all the items related to space use. Discussion of how the items are related to the factors follows.

Time. Though the open time item loaded positively and sufficiently on Factor 2, it also loaded negatively at nearly the same magnitude on Factor 1. Thus, while checking schedules with each other was something members of open families reported doing, random families were not as likely to be concerned about their association with other family members. This finding indicated that time and its management may be a concise predictor of the autonomy observed in random families. Similar to the manner in which space was a high discriminator for closed families, the independence that random family members displayed in time management may be a key identifier for random families.

Difficulties with time use items in Factor 2 were further compounded by the inclusion of the closed family time item in this factor (loading = .5136). The item on use of a master calendar to keep track of family schedules (the time item hypothesized to reflect a closed family style) loaded on Factor 1 (negatively) and on Factor 2 (positively). Although this result was disappointing to the needs of this research to have a measure of time use by closed families, it was not contradictory to the adaptations families make to current time pressures and needs for interaction with the world outside the family.

Two elements contributed to the weakness of the closed family time item. One was that the use of a master calendar is a practical tool for families to see what is happening and may serve as a source for information in open families. Because the acquisition and use of information was a primary theme for open families (often as an input for its negotiation activities), the master calendar may be a major contributor to this theme. The other element contributing to the inefficacy of this item was that it was not sufficiently exacting to measure a closed family's approach to time. Although the items in the study reported here were phrased to measure a conservative interpretation of a healthy closed family, evidently an item exhibiting a more structured and, perhaps, controlled approach to time use would have been more useful. For example, the statement, "Someone in your family watches family schedules to see that individual activities do not conflict with family activities," would probably have yielded a more discriminating measure.

Decision-making. The open decision-making item, "family members discuss family activities and decide what to do together," displayed enigmatic results. The item loaded positively on Factor 2, the one most closely related to the open family type but it also loaded negatively and more strongly on Factor 1, the random family type. Thus, one of the things random families definitely did not do was discuss and decide together. There was no clear indication of how to better phrase this item.

The closed decision item (decisions reached by using established family rules) also loaded on two family type factors with the loading on Factor 4 being nearly twice as great as the loading on Factor 2. This and the high loading of closed time on Factor 2 indicated that Factor 2 may have actually measured a combined closed-open family type.

Interpretation of the Space Factor

Factor 3, which measured perceptions of space use within a family, showed a high, negative relationship between the open and closed items. The random space item loaded significantly high on this factor (.5020). It loaded with the open space item (.8082) and against the closed space measure (−.7843). This indicated that the respondent families used space in ways that did not distinguish between open and random family types and that the way a closed family used space was distinct from the way the other two family types did.

The fact that the factor analysis grouped the other concepts (time, decision-making, and pattern) into factors associated with family types but identified space as a separate factor, and particularly and strongly distinguished closed family space use, may have indicated that space was a major delineator of closed families. The space dimension, more than time, decision-making, or pattern provided identity and structure for the boundary distinction that closed families held between themselves and the rest of the world.

Anomalous Item Results in the Factor Analysis

Analysis of the items in the underlying factors left only one item that was not readily explicable. The random pattern was defined by responses to the statement: "Your family enjoys finding new ways to do things and new activities to try just to be different." The item loaded strongly on Factor 2, which otherwise designated the open

family type. Two issues were present in this problematic result. One was that here, the key concept was really contained in the phrase "just to be different." A characteristic of random family members was that they thrived on novelty and, therefore, engaged in some activities, not because they could learn something from a new experience, nor because it had the potential for novel sensations (both of which would be reasons for an open family to answer affirmatively to this item) but solely because of their novelty. The phrase probably should have read "just to do something different." Even in its current form, the item might have distinguished the random family if the spoken emphasis was placed on "just" but that was a lot to expect from using one word and its interpretation by different interviewers.

Societal phenomena also moderated the power of descriptors of novelty as they related to the random family type. Contemporary evidence suggested that the trend in the larger culture of the United States has been toward more novelty. This trend was intensified by an economic system that induced more expenditures than were necessary to maintain life. In addition, current cultural norms supported a penchant for change. Even though the random family may not have been extolled as an exemplary family system, it may well be the one most swiftly gaining ground in families' responses to cultural messages or morays. Thus, in concern for a moderate phrasing of the item, the researchers probably erred on the side of being too conservative for the current, though unspoken, cultural standards.

Conclusions and Implications

Use of these scales reported in this article is expected to enhance researchers' understanding of the manner in which home-based work fits into other aspects of family life and to assess the extent to which family themes and objectives for affective companionship are supported or thwarted by home-based work. Specifically, it is hypothesized that certain types of home-based work (Loker & Scannell, 1992) are more supportive of distinct family functioning style than other styles, and that a failure to coordinate the family functioning style with the home-based work chosen will result in conflict and dissatisfaction within the family.

The four factors can be used as indicated in the previous discussion. Factor 1 could be used for a random family score by adding the random time and decision-making values. Factor 2 provides sufficient

empirical grounds to add the open time, decision-making, and pattern items. For a relatively closed family, one in which access is moderately controlled, only the pattern and decision-making items would be added for the score.

Factor 3, measuring space concepts, could be used to assess a family's preference for access to their physical environment by persons other than family members. With reversal of the closed space item, the three space items could be added. Low scores would then indicate that families are unsettled by high access to the home by clients or non-family workers. Because the research project measures such accessibility and has home work occupations specified for each respondent, such analysis is possible. Failure of fit between family type, occupation, and access could be instructive in understanding responses to the satisfaction measures also secured.

Examination of the overlap on scores for the factors indicates that there is a confusion of family functioning type between open and closed families and that few families actually score very high on Factor 4, the one related to closed families. It is expected that further analysis will provide insight into the similarities and distinctions of at-home income generating families in ways that will allow further use of the items and their combinations as presented here. Correlation coefficients between the four factor scores indicate that the correlation between Factors 1 and 2 is so high (.65) that the use of both within the same analysis is prohibited. Therefore, consistent with the observations that families do not sort readily into distinct family types and that there are few highly closed families, the study of home-based work is best accomplished by using a single score that adds items loading on Factor 1.

Random decision-making, space, and time, reverse scales of open time and decision-making, and a reverse scale of the closed time item are added to produce a family autonomy scale. Reliability analysis of the scale is much stronger if the random space item is deleted, which results in a 5 to 25 point scale with a reliability of .71. The family autonomy scale distinguishes between a random family type and one that combines aspects of open and closed families. The resultant scale can be summarized as follows. Autonomy of family members is based on Constantine's (1986) conceptualization of closed, random, and open families. The scale reflects a low score for families that combine negotiation and structured collective behavior and high scores for families in which members display a high degree of individualistic, self-reliant behavior.

This scale, designated as an autonomy scale of family members, will be used to assist in determining if the family affective functioning style interacts with managerial styles, home-based work occupations, measures of conflict about space and vehicle use, and overall family and work satisfaction in ways that enhance overall understanding of the family life of home-based worker households.

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