

**APPENDIX A: LIKERT SCALE INSTRUMENT
QUESTIONNAIRE**

Dear Respondent

As part of my Ph.D. research at the University of Pretoria, I am conducting a survey that investigates the socio-cultural impacts of township tourism in Soweto. Results of the study will be made available to the Soweto Community, Tourism Managers and Planners, involved in township tourism development. With the assistance of my fieldworker I will appreciate it if you could complete the following questionnaire. Any information obtained in connection with this study that can be identified with you will remain confidential. In any written reports or publications, no one will be identified and only group data will be presented. You are free to withdraw your participation at any time. If you have any questions about the research, please call Mr Pranill Ramchander (082 330 4053) or E-mail pramchan@tsa.ac.za.

Thank you very much for your cooperation.

Pranill Ramchander (Researcher)
University of Pretoria, Gauteng

PART A

For statistical purposes only. Place a tick where appropriate.

		For office use
1. Respondent number		V1 <input type="text"/> <input type="text"/> <input type="text"/> 1 to 3
2. Gender : Male	<input type="text"/> 1	Female
		<input type="text"/> 2 4
3. Age (of respondent): _____		V3 <input type="text"/> <input type="text"/> 5 to 6
4. Acquired educational Level:		
No Schooling	<input type="text"/> 1	Primary Schooling
		<input type="text"/> 2 7
High School	<input type="text"/> 3	Technikon/University
		<input type="text"/> 4
5. Is your household income derived in any way from Soweto-based tourism?		
Yes	<input type="text"/> 1	No
		<input type="text"/> 2 8
6. Your household's approximate monthly income in Rands		
Below 2500	<input type="text"/> 1	2500 - 5000
		<input type="text"/> 2 9
5001-7500	<input type="text"/> 3	7501-10000
		<input type="text"/> 4
Above 10000	<input type="text"/> 5	
7. Years of Residence in Soweto: _____ Years		V7 <input type="text"/> <input type="text"/> 10 to 1

PART B

For each of the statements below, please indicate the extent of your agreement or disagreement by placing a tick in the appropriate box.

The response scale is as follows:

1. **Strongly Disagree**
2. **Disagree**
3. **Undecided or Neutral**
4. **Agree**
5. **Strongly Agree**

STATEMENTS CATEGORY: SOCIAL IMPACTS	SCALE	FOR OFFICE USE ONLY
8 Township tourism will encourage an increase in street children along the tourist route	1 2 3 4 5	V8 <input type="checkbox"/> 12
9 The current level of township tourism has significantly improved the standard of living of Soweto residents	1 2 3 4 5	V9 <input type="checkbox"/> 13
10 Family life of local residents has been disrupted by the presence of tourists	1 2 3 4 5	V10 <input type="checkbox"/> 14
11 Community life has become disrupted as a result of the development of tourism in Soweto	1 2 3 4 5	V11 <input type="checkbox"/> 15
12 Local residents view foreign tourists as intruding into their community	1 2 3 4 5	V12 <input type="checkbox"/> 16
13 Residents feel that their safety is affected as more tourists are encouraged to visit Soweto	1 2 3 4 5	V13 <input type="checkbox"/> 17
14 Local people are being exploited because of the growth of township tourism	1 2 3 4 5	V14 <input type="checkbox"/> 18
15 Further growth in Soweto tourism will result in overcrowding of local amenities by tourists	1 2 3 4 5	V15 <input type="checkbox"/> 19
16 An increase in tourists into Soweto will lead to resentment between residents and tourists	1 2 3 4 5	V16 <input type="checkbox"/> 20
17 The Soweto community should take steps to restrict tourism development	1 2 3 4 5	V17 <input type="checkbox"/> 21
18 Local resentment is generated because of the inflated prices for the tourist market	1 2 3 4 5	V18 <input type="checkbox"/> 22
19 Contact with tourists may introduce health risks to the host community	1 2 3 4 5	V19 <input type="checkbox"/> 23
20 Township tourism has resulted in a greater demand for female labour	1 2 3 4 5	V20 <input type="checkbox"/> 24
21 The number of tourists on township tours should increase significantly	1 2 3 4 5	V21 <input type="checkbox"/> 25
22 Township Tourism will gradually result in an increase in municipal rates and taxes	1 2 3 4 5	V22 <input type="checkbox"/> 26

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23	Soweto residents have been consulted and made aware of the tourism development plan for township tourism	1	2	3	4	5	V23	<input type="text"/>	27
24	The current level of township tourism has significantly improved the local community's hospitality toward strangers	1	2	3	4	5	V24	<input type="text"/>	28
25	Local residents oppose the presence of township tourists in the Soweto region	1	2	3	4	5	V25	<input type="text"/>	29
26	The benefits of township tourism outweigh the negatives	1	2	3	4	5	V26	<input type="text"/>	30
27	Township tourism increases the rate of organised crime in the Soweto community	1	2	3	4	5	V27	<input type="text"/>	31
28	Government should restrict further development of township tourism in Soweto	1	2	3	4	5	V28	<input type="text"/>	32
29	Township tourism has increased traffic problems in Soweto	1	2	3	4	5	V29	<input type="text"/>	33
30	The noise levels caused by township tourism is not appropriate for a residential community	1	2	3	4	5	V30	<input type="text"/>	34
31	Tourists taking photographs of local people can cause great offence to locals	1	2	3	4	5	V31	<input type="text"/>	35
32	Locals are barred from using tourist facilities in Soweto	1	2	3	4	5	V32	<input type="text"/>	36
33	Tourists who are seen to be wealthier than the majority of the residential population are more likely to generate resentment.	1	2	3	4	5	V33	<input type="text"/>	37
34	Tourism development increases the development of recreational facilities and amenities for residents	1	2	3	4	5	V34	<input type="text"/>	38
35	Local residents are the ones who really suffer from living in an area popular with tourists	1	2	3	4	5	V35	<input type="text"/>	39
36	Local people are treated equally, rather than as inferiors by tourists	1	2	3	4	5	V36	<input type="text"/>	40

CATEGORY:PHYSICAL/ENVIRONMENTAL IMPACTS								
37	Township tourism has made residents more conscious of the need to maintain and improve the appearance of the area	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	V37	<input type="text"/> 41
38	There are better roads (infrastructure) due to townaship tourism development	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	V38	<input type="text"/> 42
39	Residents are satisfied with the manner in which township tourism development and planning is currently taking place	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	V39	<input type="text"/> 43
40	The development of township tourism has generally improved the appearance of Soweto.	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	V40	<input type="text"/> 44
41	Township tourism in Soweto has lead to more litter in the streets	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	V41	<input type="text"/> 45
CATEGORY: CULTURAL IMPACTS								
42	Tourist interest in culture has resulted in a strenthening of traditional activities and cultural pride	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	V42	<input type="text"/> 46
43	Local people alter their behaviour in an attempt to copy the style of tourists.	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	V43	<input type="text"/> 47
44	Township tourism has stimulated the locals' interest in participating in traditional art forms	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	V44	<input type="text"/> 48
45	Local culture is being renewed as a result of township tourism	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	V45	<input type="text"/> 49
46	Interacting with tourists lead to a deterioration of local languages	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	V46	<input type="text"/> 50
47	Township tourists show respect for the cultural lifestyle of the local people	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	V47	<input type="text"/> 51
48	Traditional African culture in Soweto is being commercialised (sold) for the sake of tourists	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	V48	<input type="text"/> 52
49	Tourism encourages a variety of cultural activities by the local population	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	V49	<input type="text"/> 53
50	Township tourism helps to conserve the cultural identity and heritage of the host population	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	V50	<input type="text"/> 54
51	Locals often respond to tourist needs by adapting traditional practices to enhance their commercial value	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	V51	<input type="text"/> 55
52	Township tourism causes changes in the traditional culture of local residents	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	V52	<input type="text"/> 56
53	Meeting tourists promotes cross-cultural exchange (greater mutual understanding and respect one another's culture	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	V53	<input type="text"/> 57

CATEGORY: SOCIO-ECONOMIC IMPACTS

54 Only a small minority of Soweto residents benefit economically from tourism	1	2	3	4	5	V54	<input type="text"/>	58
55 Income-generating opportunities created by township tourism development are evenly distributed across the community	1	2	3	4	5	V55	<input type="text"/>	59
56 By creating jobs and generating income, township tourism promotes an increase in the social wellbeing of residents	1	2	3	4	5	V56	<input type="text"/>	60
57 Township tourism has led to more people leaving their former jobs for new opportunities in tourism.	1	2	3	4	5	V57	<input type="text"/>	61
58 In addition to payment to tour operators for tour costs, tourists should be advised to make donations for the benefit of the local community	1	2	3	4	5	V58	<input type="text"/>	62
59 Township tourism provides many worthwhile employment opportunities for Soweto residents	1	2	3	4	5	V59	<input type="text"/>	63
60 Township tourism holds great promise for Soweto's economic future	1	2	3	4	5	V60	<input type="text"/>	64
61 Tourism has already improved the economy of soweto	1	2	3	4	5	V61	<input type="text"/>	65
62 The development of township tourism in Soweto benefits the visitors more than the locals	1	2	3	4	5	V62	<input type="text"/>	66
63 Soweto residents have been adequately consulted in participating in entrepreneurial initiatives in township tourism	1	2	3	4	5	V63	<input type="text"/>	67
64 Township tourism in Soweto is in the hands of a few operators only	1	2	3	4	5	V64	<input type="text"/>	68

APPENDIX B: DEFINITION OF KEY TERMS AND CONCEPTS

APPENDIX B: DEFINITION OF KEY TERMS AND CONCEPTS

The development of a conceptual framework is arguably the most important part of any research project and also the most difficult. The following presents a list of definitions of key concepts, selected by the researcher as the 'building blocks' to the study. These concepts are general representations of the phenomena to be studied.

1. Acculturation

Acculturation is the process of borrowing aspects of culture by a subordinate group from a dominant group. Acculturation is what happens when outside influences diffuse in on a large scale and replace traditional cultural patterns (Robinson & Boniface, 1998).

The most glaring example of this is the process of colonisation. What happened to the societies Europeans came into contact with when they began to colonise the rest of the world? Pressure from Europeans brought about changes to language, religion, and political and economic systems to name but a few. Transculturation occurs when an individual moves to another society and adopts its culture. Immigrants who learn the language and take on the cultural patterns of their adopted culture have transculturated.

2. Commodification

The commodification of a destination's culture refers to its transformation into a commodity in response to the perceived or actual demands of the tourist market, and is a major negative socio-cultural impact associated with tourism (Weaver & Lawton, 2003). Culture may be modified in accordance with the demands of the tourist market, and its original significance eroded or lost altogether. Commodification can occur when the community is regularly visited by a large number of tourists. Ceremonies are altered to provide more appeal to tourists, and performances are made at regular intervals suitable to the tourist market. Authenticity thus gives way to attractions of a more contrived nature. Prices are set at the highest possible levels

allowed by the market. Large quantities of cheaply produced souvenirs are made available for sale. According to Greenwood (1989:179), “commoditization of culture in effect robs people of the very meanings by which they organize their lives”.

Tourism can turn local cultures into commodities when religious rituals, traditional ethnic rites and festivals are reduced and sanitised to conform to tourist expectations, resulting in what has been called ‘reconstructed ethnicity’. Once a destination is sold as a tourism product, and the tourism demand for souvenirs, arts, entertainment and other commodities begins to exert an influence, basic changes in human values may occur. Sacred sites and objects may not be respected when they are perceived as goods to trade (United Nations Environment Programme, 2003).

3. Culture

There is no universal definition of culture, although numerous attempts have been made to define this concept. In the context of this study, culture is broadly understood to be the way people express themselves, not only verbally but also through dress, lifestyle, beliefs and practices. Elements of culture that attract tourists are handicrafts, language, tradition, history of the region, heritage, indigenous technology, religion, dress and traditional leisure activities such as song and dance (Fladmark, 1994; Boniface, 1995; Craik, 1997; Richards, 1997; Rojek & Urry, 1997; Eagleton, 2000; Butcher, 2001b; McKercher & Du Cros, 2002; Smith, 2003).

One definition of culture that might be useful as a starting point states that culture is the patterned behaviour and mental constructs that individuals learn, are taught, and share within groups to which they belong (Rojek & Urry, 1997). Culture consists of three component parts:

- ? the sharing of common meaning of which language is the primary transmitter;
- ? the organisation of a society, in terms of such things as family structure, marriage patterns, and form of government;
- ? the distinctive styles and techniques of a society, from architecture to music to agriculture

A society can be defined as a group of people occupying a specific locality who are dependent on each other for survival, and who share a common culture.

4. Cultural tourism

According to Stebbins (1997:948), cultural tourism is “a genre of special interest tourism based on the search for and participation in new and deep cultural experiences, whether aesthetic, intellectual, emotional or psychological”. This definition would seem to include museums, galleries, festivals, architecture and historic sites as well as any experience that brings one culture into contact with another, specifically through tourism.

Richards (1997:24) reports that the European Association for Tourism and Leisure Education provides both a technical and conceptual definition of cultural tourism. The technical definition reads as follows: “All movements of persons to specific cultural attractions, such as heritage sites, artistic and cultural manifestations, arts, and drama outside their normal place of residence”; the conceptual definition is formulated as “[t]he movement of persons to cultural attractions away from their normal place of residence, with the intention to gather new information and experiences to satisfy their cultural needs”.

Cultural tourism is constantly growing as increasing numbers of tourists seek to interact with other cultures and broaden their knowledge and personal experience base (Boniface, 1995). Every culture is different, and curiosity about our world and its many different peoples is a strong motivation for travel. Culture is therefore increasingly being viewed as an asset that communities own and that can be marketed in a way that creates employment and attracts investment. Cultural tourism has many definitions, forms and levels of intensity and, like eco-tourism, means different things to different people in South Africa. Examples of cultural tourism packaging in South Africa include such varied elements as a guided tour of Soweto, watching mine dancers do the gumboot dance at Gold Reef City or visiting the Lesedi Cultural Village.

5. Demonstration effect

It is argued that by observing the behaviours and superior material possessions of tourists, local people may be encouraged to imitate tourists' actions and aspire to ownership of particular sets of goods, such as clothing, that they see in the possession of the visitors and to which they are attracted. This is known as the demonstration effect. In some cases, the demonstration effect can have positive outcomes, especially where it encourages people to adopt more productive patterns of behaviour and where it encourages a community to work towards things that they may lack. More typically, however, the demonstration effect has been characterised as a disruptive influence, as it involves a pattern of lifestyle and associated material ownership that is likely to remain inaccessible to local people for the foreseeable future (Allen et al., 1988; Pearce, 1982a; Pizam & Milman, 1986). This may promote resentment and frustration or, in cases where visitor codes and lifestyles are partially adopted by locals, may lead to conflicts with prevailing patterns, customs and beliefs.

6. Host community

The host community is the resident population in a destination area. The relationship between tourism, tourists and the host community has become a subject of debate in development planning forums (King et al., 1993). The vital role of community involvement and ownership at all levels of tourism development is stressed. The hosts in the tourism industry are the people with whom tourists come into contact when visiting tourism destinations. They range from local community members, tour operators, tour guides and restaurateurs to hotel staff. Hosts greatly contribute to the perceptions tourists develop of the visited destination. Thus, the cultural differences that influence the quality of the interpersonal interaction between tourists and hosts can significantly add to tourist holiday experiences and satisfaction (Reisinger & Turner, 2003).

7. Host perception

The concept of perception was chosen for the purposes of the present analysis due to its appropriateness and the fact that it can be more effectively used in the analysis of

tourist-host contact than the concept of attitude (Ap, 1992). Kurtz and Boone (1984) identify three reasons for this. First, there is a clear distinction between the concepts of perception and attitude. Perception represents the process by which meaning is attributed to an object, event or person encountered in the environment, whereas attitude represents a predisposition to think and act in a certain way towards an object, event or person. An attitude is created on the basis of experience during the process of learning, and acquiring knowledge. Perception, by contrast, can be created without experience and knowledge of the object/person. This is often the case when tourists develop perceptions of a destination prior to actually visiting it. Second, tourists and hosts may attribute meanings to each other (perceive each other) without having previous experience and knowledge of each other. Consequently, they develop perceptions rather than attitudes to each other. Third, not all tourists and hosts meet and experience each other. Those who do may have limited experience, which does not allow for the acquiring of a complete and accurate knowledge of each other and, consequently, attitude development. Fourth (and this is a point with which Reisinger and Turner (2003) concur), the decision to travel comes from a perception in the first instance, and attitudes develop later after travel has commenced.

8. Responsible tourism

The White Paper on the Development and Promotion of Tourism in South Africa proposes responsible tourism as the key guiding principle for tourism development. Responsible tourism implies a proactive approach by tourism industry partners to developing, marketing and managing the tourism industry in a responsible manner, so as to create a competitive advantage. Responsible tourism implies a responsibility on the part of the tourism industry to the environment through the promotion of balanced and sustainable tourism and focus on the development of environmentally based tourism activities. Responsible tourism implies that government and business have a responsibility to involve the local communities that are in close proximity to the tourism plant and attractions through the development of meaningful linkages. It implies the responsibility to respect, invest in and develop local cultures and protect them from over-commercialisation and over-exploitation. It also implies the

responsibility of local communities to become actively involved in the tourism industry, to practise sustainable development and to ensure the safety and security of visitors (South Africa, Department of Environmental Affairs and Tourism, 1996).

9. Socio-cultural impacts

Keyser (2002) defines social impacts as the changes in the norms and values of society that are more apparent in the short term. Cultural impacts have been described by Brunt and Courtney (1999:196) as those “which lead to a longer-term, gradual change in a society’s values, beliefs, and cultural practices”. This is to some extent caused by tourist demand for instant culture and authentic souvenirs, and at the extreme may result in the host society’s becoming dependent on the tourism-generating country.

Fridgen (1991:92) states that social impacts can be thought of as “changes in the lives of people who live in destination communities which are associated with tourism activity”. The same author defines cultural impacts as “the changes in the arts, artifacts, customs, rituals and architecture of a people that result from tourism activity or development” (ibid, 97). In the travel and tourism business, social and cross-cultural interactions will always occur. Such interactions between tourists and the host community often result in social and cultural impacts.

10. Socio-cultural impact assessment

Becker (2001:312) defines social impact assessment as “the process of identifying the future consequences of current or proposed actions, which are related to individuals, organizations and social macro-systems”. Social impact assessment can be implemented in different ways; Becker applies it as a process for analysing current or future actions.

Burdge (1995:12) considers social impact assessment as “the systematic advanced appraisal of the impacts on the day to day life of persons and communities when the environment is affected by a development or policy change”. The same author

further describes social impacts as the consequences to human populations of any public or private actions that alter the ways in which people live, work play, relate to one another, organise to meet their needs and generally cope as members of society. The term also includes cultural impacts involving changes to norms, values and beliefs that guide and rationalise people's cognition of themselves and their society.

11. Sustainable development

Sustainable development has been defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Bruntland, 1987) The concept of sustainable tourism became popular following the release of the Bruntland report in 1987. The concept at its most basic represents a direct application of the concept of sustainable development.

12. Tourist

The commonly although not universally accepted definition of international tourist is that recommended by the United Nations Conference on International Travel and Tourism held in 1963, which stated that a visitor is “any person visiting a country other than that in which he has his usual place of residence, for any reason other than following an occupation remunerated from within the country visited” (Inskeep, 1991). The term visitor includes two distinct types of travellers:

Tourists-Temporary visitor staying at least 24 hours in the country visited and the purpose of whose journey can be classified as:

- Leisure (i.e., recreation, holiday, health, religion, or sport);
- Business;
- Family;
- Mission; and
- Meeting.

Excursionists-Temporary visitors staying less than 24 hours in the destination visited and not making an overnight stay (including travellers on cruises).

13. Tourism and development

If tourism is to be incorporated into a country's development plan it must be organised and developed according to a strategy on sound foundations. These foundations should take account of the coordination of tourism-related sectors, and the supply and demand for the tourism product. The process of development planning involves a wide cross-section of participants who may bring with them goals that are conflicting. Furthermore, different stakeholders may well bring with them incompatible perceptions about the industry and the development process itself (Cooper *et al.*, 1998).

14. Tourism development planning process

The concept of planning is concerned with organising some future events in order to achieve prespecified objectives. Integrated planning and development is a form of comprehensive planning: comprehensive because it integrates all forms of planning – economic, physical, social and cultural. Planning is not a static concept, it attempts to deploy the best strategy in a world of changing internal and external influences. Although planning, as a dynamic concept, can take a variety of forms, there is a consistent structure that can be applied to the process of planning (Cooper *et al.*, 1998).

15. Tourism management

Tourism management is concerned with issues relating to planning, management and sustainability, and is what tourism planners should be engaged in. Because tourism management is multidisciplinary, solutions to problems will increasingly require the co-operation and collaboration of researchers from a number of disciplines (Weaver & Lawton, 2002). Mason (2003) notes that tourism management is concerned with the ways to manage the resources for tourism, the interaction of tourists with physical resources and the interaction of tourists with residents of tourist areas. Tourism management thus focuses primarily on tourism impacts in tourism destinations. It is in such areas that the supply side of tourism (physical resources, built environment and resident population) interacts with the demand side (often summarised as the

market side, but made up of tourists, travel agents, tour operators, transport operators, tourist boards and tourism developers).

16. Township tourism

Burgeoning tourist interest in visiting South Africa's black townships can be ascribed to three primary factors. First, township visits are meant to provide a more authentic and non-performative experience, depicting 'real' history, 'real' people and the 'real' South Africa. Tourists are motivated by interest in the ethnic diversity and rich cultural heritage of townships, manifested in the daily lives and practices of township residents. Second, township tourism offers visitors visual evidence of the deprivation wrought by the apartheid regime. Finally, township tourism offers tourists the opportunity to share the townships' resistance heritage (Witz *et al.*, 1999; Ramchander, 2003).

17. Shebeens

Shebeens primarily sell alcoholic beverages, such as beer, in the townships. Generally they form part of the informal sector. There are different categories of shebeens, which range from a basic bar to an upmarket entertainment centre (Strydom *et al.*, 2000).

18. Spaza shops

Also called tuck shops, these are informal shops selling basic necessities in small quantities in disadvantaged areas of South Africa such as townships. A formal definition of a spaza is a "grocery store in a section of an occupied dwelling or in any other structure on a stand where people live permanently" (Strydom *et al.*, 2000) These stores are located on stands zoned for residential purposes in residential areas, unproclaimed informal residential areas and in hostels engaged in trade in consumer goods. The business practices of spazas entail ordinary retailing, that is, the selling of goods to clients over the counter, on a self-service or on-demand basis (*ibid*).

19. Staged authenticity

Adapting cultural expressions and manifestations to the tastes of tourists or even performing shows as if they were ‘real life’ constitutes staged authenticity. As long as tourists want a glimpse of the local atmosphere, a quick glance at local life, without any knowledge or even interest, staging will be inevitable (United Nations Environment Programme, 2003).

20. Traditional healers

Traditional healers play an important role in the religious and personal life of black communities in South Africa. People in the townships hold their customs and traditions dear. Traditional healers are a source of health care to which Africans have always turned and, even with the expansion of modern medicine, healers are still popular (Township Crawling, 2002). They use important elements of their practice to credibly offer medical assistance and spiritual care. An important element of traditional healing practice hitherto ignored by outsiders is the fact that traditional healers use the evidence of their results in collaboration with others to render medical assistance (ibid). As a result traditional healers are popular, because they provide more spiritual upliftment than other health providers from which patients can choose.

APPENDIX C: OVERALL DISTRIBUTION OF FREQUENCIES

1 MR P RAMCHANDER T03049 ET407336 ETT9004 1
08:59 Friday, August 8, 2003

The FREQ Procedure

V2	Frequency	Percent	Cumulative Frequency	Percent
1	177	50.57	177	50.57
2	173	49.43	350	100.00

V3	Frequency	Percent	Cumulative Frequency	Percent
18	4	1.14	4	1.14
19	11	3.14	15	4.29
20	10	2.86	25	7.14
21	7	2.00	32	9.14
22	11	3.14	43	12.29
23	14	4.00	57	16.29
24	14	4.00	71	20.29
25	10	2.86	81	23.14
26	13	3.71	94	26.86
27	31	8.86	125	35.71
28	27	7.71	152	43.43
29	18	5.14	170	48.57
30	22	6.29	192	54.86
31	6	1.71	198	56.57
32	17	4.86	215	61.43
33	16	4.57	231	66.00
34	14	4.00	245	70.00
35	13	3.71	258	73.71
36	12	3.43	270	77.14
37	11	3.14	281	80.29
38	10	2.86	291	83.14
39	2	0.57	293	83.71
40	11	3.14	304	86.86
41	5	1.43	309	88.29
42	7	2.00	316	90.29
43	7	2.00	323	92.29
44	4	1.14	327	93.43
45	3	0.86	330	94.29
46	3	0.86	333	95.14
47	3	0.86	336	96.00
48	2	0.57	338	96.57
49	1	0.29	339	96.86
50	3	0.86	342	97.71
52	1	0.29	343	98.00
53	1	0.29	344	98.29
56	1	0.29	345	98.57
57	2	0.57	347	99.14
59	1	0.29	348	99.43
64	1	0.29	349	99.71
69	1	0.29	350	100.00

The FREQ Procedure

V4	Frequency	Percent	Cumulative Frequency	Percent
1	36	10.34	36	10.34
2	17	4.89	53	15.23
3	145	41.67	198	56.90
4	150	43.10	348	100.00

Frequency Missing = 2

V5	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	143	40.86	143	40.86
2	207	59.14	350	100.00

V6	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	154	44.64	154	44.64
2	123	35.65	277	80.29
3	52	15.07	329	95.36
4	8	2.32	337	97.68
5	8	2.32	345	100.00

Frequency Missing = 5

The FREQ Procedure

V7	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	3	0.87	3	0.87
2	8	2.31	11	3.18
3	3	0.87	14	4.05
4	9	2.60	23	6.65
5	10	2.89	33	9.54
6	9	2.60	42	12.14
7	7	2.02	49	14.16
8	4	1.16	53	15.32
9	4	1.16	57	16.47
10	15	4.34	72	20.81
11	3	0.87	75	21.68
12	5	1.45	80	23.12
13	7	2.02	87	25.14
14	4	1.16	91	26.30
15	5	1.45	96	27.75
16	2	0.58	98	28.32
17	4	1.16	102	29.48
18	11	3.18	113	32.66
19	4	1.16	117	33.82
20	12	3.47	129	37.28
21	2	0.58	131	37.86
22	9	2.60	140	40.46
23	8	2.31	148	42.77
24	11	3.18	159	45.95
25	14	4.05	173	50.00
26	6	1.73	179	51.73
27	19	5.49	198	57.23
28	15	4.34	213	61.56
29	11	3.18	224	64.74
30	27	7.80	251	72.54
31	5	1.45	256	73.99
32	10	2.89	266	76.88
33	11	3.18	277	80.06
34	9	2.60	286	82.66
35	8	2.31	294	84.97
36	8	2.31	302	87.28
37	10	2.89	312	90.17
38	4	1.16	316	91.33
39	2	0.58	318	91.91
40	8	2.31	326	94.22
41	2	0.58	328	94.80
42	5	1.45	333	96.24
43	3	0.87	336	97.11
45	1	0.29	337	97.40
46	2	0.58	339	97.98
49	1	0.29	340	98.27
50	2	0.58	342	98.84
56	1	0.29	343	99.13
57	2	0.58	345	99.71
59	1	0.29	346	100.00

The FREQ Procedure

V8	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	54	15.47	54	15.47
2	61	17.48	115	32.95
3	28	8.02	143	40.97
4	137	39.26	280	80.23
5	69	19.77	349	100.00

Frequency Missing = 1

V9	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	33	9.46	33	9.46
2	91	26.07	124	35.53
3	27	7.74	151	43.27
4	165	47.28	316	90.54
5	33	9.46	349	100.00

Frequency Missing = 1

V10	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	58	16.62	58	16.62
2	148	42.41	206	59.03
3	33	9.46	239	68.48
4	86	24.64	325	93.12
5	24	6.88	349	100.00

Frequency Missing = 1

V11	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	58	16.62	58	16.62
2	146	41.83	204	58.45
3	32	9.17	236	67.62
4	92	26.36	328	93.98
5	21	6.02	349	100.00

Frequency Missing = 1

The FREQ Procedure

V12	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	65	18.68	65	18.68
2	97	27.87	162	46.55
3	36	10.34	198	56.90
4	126	36.21	324	93.10
5	24	6.90	348	100.00

Frequency Missing = 2

V13	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	61	17.48	61	17.48
2	109	31.23	170	48.71
3	31	8.88	201	57.59
4	111	31.81	312	89.40
5	37	10.60	349	100.00

Frequency Missing = 1

V14	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	51	14.61	51	14.61
2	121	34.67	172	49.28
3	50	14.33	222	63.61
4	88	25.21	310	88.83
5	39	11.17	349	100.00

Frequency Missing = 1

V15	Frequency	Percent	Cumulative Frequency	Cumulative Percent
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1	66	18.91	66	18.91
2	139	39.83	205	58.74
3	31	8.88	236	67.62
4	93	26.65	329	94.27
5	20	5.73	349	100.00

Frequency Missing = 1

The FREQ Procedure

V16	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	52	14.90	52	14.90
2	119	34.10	171	49.00
3	43	12.32	214	61.32
4	111	31.81	325	93.12
5	24	6.88	349	100.00

Frequency Missing = 1

V17	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	125	35.82	125	35.82
2	130	37.25	255	73.07
3	15	4.30	270	77.36
4	56	16.05	326	93.41
5	23	6.59	349	100.00

Frequency Missing = 1

V18	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	41	11.75	41	11.75
2	85	24.36	126	36.10
3	59	16.91	185	53.01
4	133	38.11	318	91.12
5	31	8.88	349	100.00

Frequency Missing = 1

V19	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	30	8.60	30	8.60
2	86	24.64	116	33.24
3	79	22.64	195	55.87
4	115	32.95	310	88.83
5	39	11.17	349	100.00

Frequency Missing = 1

The FREQ Procedure

V20	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	32	9.17	32	9.17
2	75	21.49	107	30.66
3	32	9.17	139	39.83
4	139	39.83	278	79.66
5	71	20.34	349	100.00

Frequency Missing = 1

V21	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	46	13.18	46	13.18
2	46	13.18	92	26.36
3	22	6.30	114	32.66
4	175	50.14	289	82.81
5	60	17.19	349	100.00

Frequency Missing = 1

V22	Frequency	Percent	Cumulative Frequency	Cumulative Percent
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1	21	6.02	21	6.02
2	100	28.65	121	34.67
3	61	17.48	182	52.15
4	125	35.82	307	87.97
5	42	12.03	349	100.00

Frequency Missing = 1

V23	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	122	35.06	122	35.06
2	119	34.20	241	69.25
3	56	16.09	297	85.34
4	42	12.07	339	97.41
5	9	2.59	348	100.00

Frequency Missing = 2

The FREQ Procedure

V24	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	30	8.60	30	8.60
2	67	19.20	97	27.79
3	40	11.46	137	39.26
4	167	47.85	304	87.11
5	45	12.89	349	100.00

Frequency Missing = 1

V25	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	53	15.19	53	15.19
2	169	48.42	222	63.61
3	36	10.32	258	73.93
4	74	21.20	332	95.13
5	17	4.87	349	100.00

Frequency Missing = 1

V26	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	50	14.37	50	14.37
2	127	36.49	177	50.86
3	70	20.11	247	70.98
4	83	23.85	330	94.83
5	18	5.17	348	100.00

Frequency Missing = 2

V27	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	53	15.19	53	15.19
2	118	33.81	171	49.00
3	31	8.88	202	57.88
4	122	34.96	324	92.84
5	25	7.16	349	100.00

Frequency Missing = 1

The FREQ Procedure

V28	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	137	39.37	137	39.37
2	86	24.71	223	64.08
3	18	5.17	241	69.25
4	77	22.13	318	91.38
5	30	8.62	348	100.00

Frequency Missing = 2

V29	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	62	17.77	62	17.77
2	170	48.71	232	66.48
3	48	13.75	280	80.23
4	63	18.05	343	98.28
5	6	1.72	349	100.00

Frequency Missing = 1

V30	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	105	30.09	105	30.09
2	152	43.55	257	73.64
3	49	14.04	306	87.68
4	37	10.60	343	98.28
5	6	1.72	349	100.00

Frequency Missing = 1

V31	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	44	12.61	44	12.61
2	94	26.93	138	39.54
3	41	11.75	179	51.29
4	126	36.10	305	87.39
5	44	12.61	349	100.00

Frequency Missing = 1

The FREQ Procedure

V32	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	80	22.92	80	22.92
2	162	46.42	242	69.34
3	70	20.06	312	89.40
4	30	8.60	342	97.99
5	7	2.01	349	100.00

Frequency Missing = 1

V33	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	31	8.91	31	8.91
2	91	26.15	122	35.06
3	79	22.70	201	57.76
4	115	33.05	316	90.80
5	32	9.20	348	100.00

Frequency Missing = 2

V34	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	7	2.01	7	2.01
2	28	8.02	35	10.03
3	21	6.02	56	16.05
4	215	61.60	271	77.65
5	78	22.35	349	100.00

Frequency Missing = 1

V35	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	37	10.60	37	10.60
2	136	38.97	173	49.57
3	54	15.47	227	65.04
4	92	26.36	319	91.40
5	30	8.60	349	100.00

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V36	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	40	11.46	40	11.46
2	129	36.96	169	48.42
3	63	18.05	232	66.48
4	85	24.36	317	90.83
5	32	9.17	349	100.00

Frequency Missing = 1

V37	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	14	4.02	14	4.02
2	52	14.94	66	18.97
3	24	6.90	90	25.86
4	185	53.16	275	79.02
5	73	20.98	348	100.00

Frequency Missing = 2

V38	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	27	7.76	27	7.76
2	84	24.14	111	31.90
3	37	10.63	148	42.53
4	129	37.07	277	79.60
5	71	20.40	348	100.00

Frequency Missing = 2

V39	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	30	8.62	30	8.62
2	126	36.21	156	44.83
3	79	22.70	235	67.53
4	92	26.44	327	93.97
5	21	6.03	348	100.00

Frequency Missing = 2

The FREQ Procedure

V40	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	20	5.75	20	5.75
2	69	19.83	89	25.57
3	21	6.03	110	31.61
4	166	47.70	276	79.31
5	72	20.69	348	100.00

Frequency Missing = 2

V41	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	109	31.32	109	31.32
2	142	40.80	251	72.13
3	48	13.79	299	85.92
4	40	11.49	339	97.41
5	9	2.59	348	100.00

Frequency Missing = 2

V42	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	8	2.30	8	2.30
2	19	5.46	27	7.76
3	28	8.05	55	15.80
4	196	56.32	251	72.13
5	97	27.87	348	100.00

Frequency Missing = 2

V43	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	26	7.47	26	7.47
2	114	32.76	140	40.23
3	45	12.93	185	53.16
4	123	35.34	308	88.51
5	40	11.49	348	100.00

Frequency Missing = 2

The FREQ Procedure

V44	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	8	2.30	8	2.30
2	24	6.90	32	9.20
3	24	6.90	56	16.09
4	233	66.95	289	83.05
5	59	16.95	348	100.00

Frequency Missing = 2

V45	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	15	4.32	15	4.32
2	55	15.85	70	20.17
3	36	10.37	106	30.55
4	170	48.99	276	79.54
5	71	20.46	347	100.00

Frequency Missing = 3

V46	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	60	17.24	60	17.24
2	140	40.23	200	57.47
3	53	15.23	253	72.70
4	67	19.25	320	91.95
5	28	8.05	348	100.00

Frequency Missing = 2

V47	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	9	2.59	9	2.59
2	31	8.91	40	11.49
3	24	6.90	64	18.39
4	188	54.02	252	72.41
5	96	27.59	348	100.00

Frequency Missing = 2

The FREQ Procedure

V48	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	27	7.76	27	7.76
2	76	21.84	103	29.60
3	44	12.64	147	42.24

4	159	45.69	306	87.93
5	42	12.07	348	100.00

Frequency Missing = 2

V49	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	5	1.44	5	1.44
2	19	5.48	24	6.92
3	24	6.92	48	13.83
4	242	69.74	290	83.57
5	57	16.43	347	100.00

Frequency Missing = 3

V50	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	9	2.59	9	2.59
2	25	7.18	34	9.77
3	35	10.06	69	19.83
4	188	54.02	257	73.85
5	91	26.15	348	100.00

Frequency Missing = 2

V51	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	6	1.73	6	1.73
2	29	8.36	35	10.09
3	42	12.10	77	22.19
4	215	61.96	292	84.15
5	55	15.85	347	100.00

Frequency Missing = 3

V52	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	21	6.03	21	6.03
2	117	33.62	138	39.66
3	56	16.09	194	55.75
4	112	32.18	306	87.93
5	42	12.07	348	100.00

Frequency Missing = 2

V53	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	11	3.18	11	3.18
2	43	12.43	54	15.61
3	34	9.83	88	25.43
4	152	43.93	240	69.36
5	106	30.64	346	100.00

Frequency Missing = 4

V54	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	11	3.17	11	3.17
2	34	9.80	45	12.97
3	31	8.93	76	21.90
4	166	47.84	242	69.74
5	105	30.26	347	100.00

Frequency Missing = 3

V55	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	120	34.58	120	34.58
2	124	35.73	244	70.32
3	61	17.58	305	87.90
4	35	10.09	340	97.98

5 7 2.02 347 100.00

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V56	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	16	4.61	16	4.61
2	22	6.34	38	10.95
3	35	10.09	73	21.04
4	202	58.21	275	79.25
5	72	20.75	347	100.00

Frequency Missing = 3

V57	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	53	15.27	53	15.27
2	99	28.53	152	43.80
3	63	18.16	215	61.96
4	109	31.41	324	93.37
5	23	6.63	347	100.00

Frequency Missing = 3

V58	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	22	6.34	22	6.34
2	32	9.22	54	15.56
3	20	5.76	74	21.33
4	130	37.46	204	58.79
5	143	41.21	347	100.00

Frequency Missing = 3

V59	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	23	6.65	23	6.65
2	57	16.47	80	23.12
3	47	13.58	127	36.71
4	165	47.69	292	84.39
5	54	15.61	346	100.00

Frequency Missing = 4

The FREQ Procedure

V60	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	14	4.03	14	4.03
2	31	8.93	45	12.97
3	33	9.51	78	22.48
4	192	55.33	270	77.81
5	77	22.19	347	100.00

Frequency Missing = 3

V61	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	56	16.14	56	16.14
2	90	25.94	146	42.07
3	75	21.61	221	63.69
4	100	28.82	321	92.51
5	26	7.49	347	100.00

Frequency Missing = 3

V62	Frequency	Percent	Frequency	Percent
1	26	7.49	26	7.49
2	84	24.21	110	31.70
3	46	13.26	156	44.96
4	138	39.77	294	84.73
5	53	15.27	347	100.00

Frequency Missing = 3

V63	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	97	27.95	97	27.95
2	117	33.72	214	61.67
3	56	16.14	270	77.81
4	66	19.02	336	96.83
5	11	3.17	347	100.00

Frequency Missing = 3

The FREQ Procedure

V64	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	15	4.32	15	4.32
2	26	7.49	41	11.82
3	31	8.93	72	20.75
4	164	47.26	236	68.01
5	111	31.99	347	100.00

Frequency Missing = 3

V65	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	24	9.80	24	9.80
2	30	12.24	54	22.04
3	18	7.35	72	29.39
4	32	13.06	104	42.45
5	22	8.98	126	51.43
6	6	2.45	132	53.88
7	77	31.43	209	85.31
8	2	0.82	211	86.12
9	15	6.12	226	92.24
10	10	4.08	236	96.33
11	5	2.04	241	98.37
16	2	0.82	243	99.18
19	2	0.82	245	100.00

Frequency Missing = 105

V66	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	8	5.16	8	5.16
2	8	5.16	16	10.32
3	19	12.26	35	22.58
4	13	8.39	48	30.97
5	14	9.03	62	40.00
6	20	12.90	82	52.90
7	26	16.77	108	69.68
8	2	1.29	110	70.97
9	24	15.48	134	86.45
10	16	10.32	150	96.77
11	4	2.58	154	99.35
27	1	0.65	155	100.00

Frequency Missing = 195

The FREQ Procedure

Cumulative Cumulative

V67	Frequency	Percent	Frequency	Percent
1	3	3.80	3	3.80
2	1	1.27	4	5.06
3	3	3.80	7	8.86
4	8	10.13	15	18.99
5	8	10.13	23	29.11
6	5	6.33	28	35.44
7	16	20.25	44	55.70
8	2	2.53	46	58.23
9	21	26.58	67	84.81
10	10	12.66	77	97.47
11	2	2.53	79	100.00

Frequency Missing = 271

V68	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	1	3.13	1	3.13
4	1	3.13	2	6.25
5	2	6.25	4	12.50
6	1	3.13	5	15.63
7	3	9.38	8	25.00
9	7	21.88	15	46.88
10	9	28.13	24	75.00
11	8	25.00	32	100.00

Frequency Missing = 318

The FREQ Procedure

V69	Frequency	Percent	Cumulative Frequency	Cumulative Percent
4	1	0.40	1	0.40
10	1	0.40	2	0.81
12	29	11.69	31	12.50
13	13	5.24	44	17.74
14	40	16.13	84	33.87
15	5	2.02	89	35.89
16	48	19.35	137	55.24
17	13	5.24	150	60.48
18	23	9.27	173	69.76
19	24	9.68	197	79.44
20	6	2.42	203	81.85
21	2	0.81	205	82.66
22	12	4.84	217	87.50
23	3	1.21	220	88.71
24	5	2.02	225	90.73
25	10	4.03	235	94.76
26	5	2.02	240	96.77
27	8	3.23	248	100.00

Frequency Missing = 102

V70	Frequency	Percent	Cumulative Frequency	Cumulative Percent
12	3	2.07	3	2.07
13	1	0.69	4	2.76
14	10	6.90	14	9.66
15	9	6.21	23	15.86
16	19	13.10	42	28.97
17	5	3.45	47	32.41
18	15	10.34	62	42.76
19	22	15.17	84	57.93
20	1	0.69	85	58.62
21	3	2.07	88	60.69
22	17	11.72	105	72.41
23	2	1.38	107	73.79
25	19	13.10	126	86.90
26	4	2.76	130	89.66

27 15 10.34 145 100.00

Frequency Missing = 205

The FREQ Procedure

V71	Frequency	Percent	Cumulative Frequency	Cumulative Percent
12	1	1.59	1	1.59
13	1	1.59	2	3.17
14	2	3.17	4	6.35
15	3	4.76	7	11.11
16	6	9.52	13	20.63
17	1	1.59	14	22.22
18	5	7.94	19	30.16
19	7	11.11	26	41.27
20	2	3.17	28	44.44
21	1	1.59	29	46.03
22	9	14.29	38	60.32
23	3	4.76	41	65.08
25	5	7.94	46	73.02
26	4	6.35	50	79.37
27	13	20.63	63	100.00

Frequency Missing = 287

V72	Frequency	Percent	Cumulative Frequency	Cumulative Percent
13	1	6.25	1	6.25
17	1	6.25	2	12.50
18	2	12.50	4	25.00
19	2	12.50	6	37.50
21	1	6.25	7	43.75
22	1	6.25	8	50.00
23	1	6.25	9	56.25
25	5	31.25	14	87.50
27	2	12.50	16	100.00

Frequency Missing = 334

**APPENDIX D: THE MEANS AND STANDARD DEVIATIONS
PROCEDURE**

1 MR P RAMCHANDER T03049 ET407336 ETT9004 1
10:25 Monday, August 18, 2003

The MEANS Procedure

Variable	N	Mean	Std Dev	Minimum	Maximum
V3	350	31.34	8.29	18.00	69.00
V7	346	23.66	12.07	1.00	59.00
V8	349	3.30	1.37	1.00	5.00
V9	349	3.21	1.20	1.00	5.00
V10	349	2.63	1.21	1.00	5.00
V11	349	2.63	1.21	1.00	5.00
V12	348	2.85	1.28	1.00	5.00
V13	349	2.87	1.32	1.00	5.00
V14	349	2.84	1.27	1.00	5.00
V15	349	2.60	1.22	1.00	5.00
V16	349	2.82	1.23	1.00	5.00
V17	349	2.20	1.26	1.00	5.00
V18	349	3.08	1.20	1.00	5.00
V19	349	3.13	1.16	1.00	5.00
V20	349	3.41	1.28	1.00	5.00
V21	349	3.45	1.28	1.00	5.00
V22	349	3.19	1.15	1.00	5.00
V23	348	2.13	1.10	1.00	5.00
V24	349	3.37	1.18	1.00	5.00
V25	349	2.52	1.13	1.00	5.00
V26	348	2.69	1.14	1.00	5.00
V27	349	2.85	1.25	1.00	5.00
V28	348	2.36	1.41	1.00	5.00
V29	349	2.37	1.03	1.00	5.00
V30	349	2.10	1.01	1.00	5.00
V31	349	3.09	1.28	1.00	5.00
V32	349	2.20	0.96	1.00	5.00
V33	348	3.07	1.15	1.00	5.00
V34	349	3.94	0.89	1.00	5.00
V35	349	2.83	1.18	1.00	5.00
V36	349	2.83	1.19	1.00	5.00
V37	348	3.72	1.08	1.00	5.00
V38	348	3.38	1.26	1.00	5.00
V39	348	2.85	1.09	1.00	5.00
V40	348	3.58	1.18	1.00	5.00
V41	348	2.13	1.06	1.00	5.00
V42	348	4.02	0.89	1.00	5.00
V43	348	3.11	1.20	1.00	5.00
V44	348	3.89	0.84	1.00	5.00
V45	347	3.65	1.10	1.00	5.00
V46	348	2.61	1.21	1.00	5.00
V47	348	3.95	0.97	1.00	5.00
V48	348	3.32	1.17	1.00	5.00
V49	347	3.94	0.76	1.00	5.00
V50	348	3.94	0.94	1.00	5.00
V51	347	3.82	0.86	1.00	5.00
V52	348	3.11	1.17	1.00	5.00
V53	346	3.86	1.08	1.00	5.00
V54	347	3.92	1.03	1.00	5.00
V55	347	2.09	1.05	1.00	5.00
V56	347	3.84	0.98	1.00	5.00
V57	347	2.86	1.21	1.00	5.00

The MEANS Procedure

Variable	N	Mean	Std Dev	Minimum	Maximum
V58	347	3.98	1.19	1.00	5.00
V59	346	3.49	1.14	1.00	5.00
V60	347	3.83	1.01	1.00	5.00
V61	347	2.86	1.22	1.00	5.00
V62	347	3.31	1.21	1.00	5.00
V63	347	2.36	1.17	1.00	5.00
V64	347	3.95	1.05	1.00	5.00

1 MR P RAMCHANDER T03049 ET407336 ETT9004 3
10:25 Monday, August 18, 2003

----- V5=1 -----

The MEANS Procedure

Variable	N	Mean	Std Dev	Minimum	Maximum
V3	143	32.60	9.31	20.00	69.00
V7	143	22.01	13.31	2.00	59.00
V8	143	2.73	1.41	1.00	5.00
V9	143	3.50	1.09	1.00	5.00
V10	143	2.15	0.90	1.00	5.00
V11	143	2.27	1.01	1.00	5.00
V12	142	2.56	1.25	1.00	5.00
V13	143	2.45	1.15	1.00	5.00
V14	143	2.36	1.10	1.00	5.00
V15	143	2.43	1.10	1.00	5.00
V16	143	2.39	1.01	1.00	5.00
V17	143	1.71	0.89	1.00	5.00
V18	143	2.76	1.11	1.00	5.00
V19	143	2.75	1.14	1.00	5.00
V20	143	3.56	1.20	1.00	5.00
V21	142	3.85	0.97	1.00	5.00
V22	142	3.10	1.01	1.00	5.00
V23	142	2.52	1.14	1.00	5.00
V24	142	3.75	0.88	1.00	5.00
V25	142	2.15	0.84	1.00	5.00
V26	142	3.04	1.07	1.00	5.00
V27	142	2.58	1.13	1.00	5.00
V28	141	1.70	1.06	1.00	5.00
V29	142	2.19	0.85	1.00	4.00
V30	142	1.92	0.87	1.00	5.00
V31	142	2.89	1.14	1.00	5.00
V32	142	2.19	0.85	1.00	5.00
V33	142	2.84	1.08	1.00	5.00
V34	142	4.01	0.79	1.00	5.00
V35	142	2.49	0.88	1.00	5.00
V36	142	3.08	1.16	1.00	5.00
V37	141	3.93	0.94	1.00	5.00
V38	141	3.89	0.99	1.00	5.00
V39	141	3.09	0.98	1.00	5.00
V40	141	3.75	0.99	1.00	5.00
V41	141	2.00	0.93	1.00	4.00
V42	141	4.07	0.81	1.00	5.00
V43	141	2.65	1.06	1.00	5.00
V44	141	3.86	0.76	1.00	5.00
V45	140	3.67	0.98	1.00	5.00
V46	141	2.37	1.00	1.00	5.00

V47	141	4.14	0.82	1.00	5.00
V48	141	3.29	1.02	1.00	5.00
V49	141	4.00	0.59	1.00	5.00
V50	141	4.08	0.73	1.00	5.00
V51	140	3.79	0.72	1.00	5.00
V52	141	2.82	0.98	1.00	5.00
V53	143	3.90	0.98	1.00	5.00
V54	143	3.59	1.04	1.00	5.00
V55	143	2.29	1.02	1.00	5.00

----- V5=1 -----

The MEANS Procedure

Variable	N	Mean	Std Dev	Minimum	Maximum
V56	143	4.02	0.72	1.00	5.00
V57	143	3.10	1.15	1.00	5.00
V58	143	4.06	1.11	1.00	5.00
V59	142	3.79	0.88	1.00	5.00
V60	143	4.08	0.71	1.00	5.00
V61	143	3.15	1.06	1.00	5.00
V62	143	2.99	1.13	1.00	5.00
V63	143	2.80	1.12	1.00	5.00
V64	143	3.83	1.01	1.00	5.00

----- V5=2 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
V3	207	30.47	7.41	18.00	52.00
V7	203	24.83	11.00	1.00	50.00
V8	206	3.70	1.20	1.00	5.00
V9	206	3.01	1.24	1.00	5.00
V10	206	2.96	1.30	1.00	5.00
V11	206	2.88	1.27	1.00	5.00
V12	206	3.04	1.27	1.00	5.00
V13	206	3.16	1.35	1.00	5.00
V14	206	3.17	1.27	1.00	5.00
V15	206	2.73	1.29	1.00	5.00
V16	206	3.11	1.27	1.00	5.00
V17	206	2.54	1.37	1.00	5.00
V18	206	3.31	1.22	1.00	5.00
V19	206	3.40	1.11	1.00	5.00
V20	206	3.30	1.32	1.00	5.00
V21	207	3.17	1.40	1.00	5.00
V22	207	3.26	1.25	1.00	5.00
V23	206	1.86	0.99	1.00	5.00
V24	207	3.12	1.29	1.00	5.00
V25	207	2.78	1.23	1.00	5.00
V26	206	2.45	1.12	1.00	5.00
V27	207	3.04	1.30	1.00	5.00
V28	207	2.81	1.44	1.00	5.00
V29	207	2.50	1.12	1.00	5.00
V30	207	2.23	1.08	1.00	5.00
V31	207	3.23	1.35	1.00	5.00
V32	207	2.21	1.03	1.00	5.00
V33	206	3.24	1.17	1.00	5.00
V34	207	3.89	0.94	1.00	5.00
V35	207	3.07	1.30	1.00	5.00
V36	207	2.66	1.18	1.00	5.00

V37	207	3.58	1.15	1.00	5.00
V38	207	3.03	1.31	1.00	5.00
V39	207	2.69	1.14	1.00	5.00

V5=2

The MEANS Procedure

Variable	N	Mean	Std Dev	Minimum	Maximum
V40	207	3.46	1.29	1.00	5.00
V41	207	2.22	1.14	1.00	5.00
V42	207	3.99	0.94	1.00	5.00
V43	207	3.42	1.19	1.00	5.00
V44	207	3.92	0.90	1.00	5.00
V45	207	3.64	1.18	1.00	5.00
V46	207	2.77	1.31	1.00	5.00
V47	207	3.82	1.03	1.00	5.00
V48	207	3.35	1.26	1.00	5.00
V49	206	3.90	0.86	1.00	5.00
V50	207	3.85	1.05	1.00	5.00
V51	207	3.84	0.94	1.00	5.00
V52	207	3.30	1.25	1.00	5.00
V53	203	3.84	1.15	1.00	5.00
V54	204	4.16	0.96	1.00	5.00
V55	204	1.96	1.05	1.00	5.00
V56	204	3.72	1.11	1.00	5.00
V57	204	2.68	1.22	1.00	5.00
V58	204	3.92	1.24	1.00	5.00
V59	204	3.28	1.25	1.00	5.00
V60	204	3.65	1.14	1.00	5.00
V61	204	2.65	1.28	1.00	5.00
V62	204	3.54	1.21	1.00	5.00
V63	204	2.05	1.10	1.00	5.00
V64	204	4.04	1.07	1.00	5.00

APPENDIX E: RESULTS OF FACTOR ANALYSIS

BMDP4M - FACTOR ANALYSIS

Copyright 1977, 1979, 1981, 1982, 1983, 1985, 1987, 1988, 1990, 1993
by BMDP Statistical Software, Inc.

BMDP Statistical Software, Inc.		BMDP Statistical Software
12121 Wilshire Blvd, Suite 300		Cork Technology Park, Model Farm Rd
Los Angeles, CA 90025 USA		Cork, Ireland
Phone (310) 207-8800		Phone +353 21 542722
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Release: 7.1 (IBM/CMS) DATE: 19-NOV- 3 AT 14:42:37
Manual: BMDP Manual Volumes 1, 2, and 3.
Digest: BMDP User's Digest.
Updates: State NEWS. in the PRINT paragraph for summary of new features.

PROGRAM INSTRUCTIONS

```

/PROBLEM TITLE IS 'THREE FACTORS V20 V32,V38,V52,V56,V57-V59,V60 OUT'.
/INPUT CODE='D2'. UNIT=3. CONTENT='DATA'.
/FACTOR METHOD=MLFA. CONSTANT=1. COMM=SMCS. NUMBER=3.
/ROTATE METHOD=DQUART.
/PRINT FSCORE=0. no corr. no shade. no iter. no mean.
no ezsc. no ecas. no extr. cron. case=0.
/PLOT final=0. fscore=0.
/END.
    
```

PROBLEM TITLE IS
THREE FACTORS V20 V32,V38,V52,V56,V57-V59,V60 OUT

```

NUMBER OF VARIABLES TO READ . . . . . 48
NUMBER OF VARIABLES ADDED BY TRANSFORMATIONS. . . 0
TOTAL NUMBER OF VARIABLES . . . . . 48
CASE WEIGHT VARIABLE. . . . .
CASE LABELING VARIABLES . . . . .
NUMBER OF CASES TO READ . . . . . TO END
MISSING VALUES CHECKED BEFORE OR AFTER TRANS. . NEITHER
BLANKS IN THE DATA ARE TREATED AS . . . . . MISSING
INPUT UNIT NUMBER . . . . . 3
REWIND INPUT UNIT PRIOR TO READING. . DATA. . . YES
NUMBER OF INTEGER WORDS OF MEMORY FOR STORAGE . 745764
    
```

INPUT BMDP FILE
CODE . . IS D2
CONTENT . IS DATA
LABEL . . IS

```

VARIABLES
  1 V8      2 V9      3 V10     4 V11     5 V12
  6 V13     7 V14     8 V15     9 V16    10 V17
 11 V18    12 V19    13 V21    14 V22    15 V23
 16 V24    17 V25    18 V26    19 V27    20 V28
 21 V29    22 V30    23 V31    24 V33    25 V34
 26 V35    27 V36    28 V37    29 V39    30 V40
 31 V41    32 V42    33 V43    34 V44    35 V45
 36 V46    37 V47    38 V48    39 V49    40 V50
 41 V51    42 V53    43 V54    44 V55    45 V61
 46 V62    47 V63    48 V64
    
```

```

VARIABLES TO BE USED
  1 V8      2 V9      3 V10     4 V11     5 V12
  6 V13     7 V14     8 V15     9 V16    10 V17
 11 V18    12 V19    13 V21    14 V22    15 V23
 16 V24    17 V25    18 V26    19 V27    20 V28
 21 V29    22 V30    23 V31    24 V33    25 V34
 26 V35    27 V36    28 V37    29 V39    30 V40
 31 V41    32 V42    33 V43    34 V44    35 V45
 36 V46    37 V47    38 V48    39 V49    40 V50
    
```

```

41 V51      42 V53      43 V54      44 V55      45 V61
46 V62      47 V63      48 V64

NUMBER OF CASES READ. . . . . 350
  CASES WITH DATA MISSING OR BEYOND LIMITS . . . 13
  REMAINING NUMBER OF CASES . . . . . 337

NUMBER OF VARIABLES TO BE USED. . . . . 48
INITIAL COMMUNALITIES ARE SQUARED MULTIPLE CORRELATIONS
OR COVARIANCES.
MAXIMUM LIKELIHOOD FACTOR ANALYSIS IS PERFORMED.
NUMBER OF ITERATIONS FOR INITIAL FACTOR EXTRACTION 25
MAXIMUM NUMBER OF FACTORS . . . . . 3
NUMBER OF FACTORS IS LIMITED TO THE NUMBER OF EIGENVALUES
GREATER THAN 1.000
TOLERANCE LIMIT FOR MATRIX INVERSION. . . . . 0.00010
DIRECT QUARTMIN ROTATION FOR SIMPLE LOADINGS IS PERFORMED.
GAMMA . . . . . 0.0000
MAXIMUM NUMBER OF ITERATIONS FOR ROTATION . . . 50
CONVERGENCE CRITERION FOR ROTATION. . . . . 0.0000100
KAISERS NORMALIZATION . . . . . YES
1PAGE 3 4M THREE FACTORS V20 V32,V38,V52,V56,V57-V59,V60 OUT

```

SQUARED MULTIPLE CORRELATIONS (SMC) OF EACH VARIABLE WITH ALL OTHER VARIABLES, AND CRONBACH'S ALPHA, WITH THAT VARIABLE REMOVED

```

-----
                SMC      ALPHA
1 V8            0.42341  0.9218
2 V9            0.43225  0.9210
3 V10           0.73047  0.9192
4 V11           0.76030  0.9193
5 V12           0.68037  0.9193
6 V13           0.67387  0.9193
7 V14           0.52625  0.9208
8 V15           0.50409  0.9216
9 V16           0.67280  0.9191
10 V17          0.62674  0.9197
11 V18          0.56220  0.9197
12 V19          0.48301  0.9203
13 V21          0.66805  0.9191
14 V22          0.43888  0.9214
15 V23          0.44410  0.9219
16 V24          0.47074  0.9225
17 V25          0.69337  0.9190
18 V26          0.36628  0.9217
19 V27          0.62959  0.9196
20 V28          0.71825  0.9195
21 V29          0.38100  0.9221
22 V30          0.48671  0.9223
23 V31          0.60996  0.9197
24 V33          0.48412  0.9205
25 V34          0.46837  0.9214
26 V35          0.62418  0.9196
27 V36          0.42812  0.9229
28 V37          0.50617  0.9224
29 V39          0.48468  0.9208
30 V40          0.59335  0.9210
31 V41          0.34413  0.9234
32 V42          0.52972  0.9223
33 V43          0.46115  0.9212
34 V44          0.53189  0.9231
35 V45          0.47346  0.9236
36 V46          0.41506  0.9234
37 V47          0.57132  0.9213
38 V48          0.48880  0.9211
39 V49          0.45681  0.9227
40 V50          0.52351  0.9227
41 V51          0.38534  0.9236

```

42 V53	0.44122	0.9225
43 V54	0.47376	0.9223
44 V55	0.40193	0.9223
45 V61	0.49472	0.9209
46 V62	0.54897	0.9205
47 V63	0.54505	0.9210
48 V64	0.49916	0.9218

ALPHA FOR ALL VARIABLES = 0.9227

THIS IS CRONBACH'S STANDARDIZED ALPHA, COMPUTED FROM CORRELATIONS.

COMMUNALITY ESTIMATES ARE SQUARED MULTIPLE CORRELATIONS (COVARIANCES).
 1PAGE 5 4M THREE FACTORS V20 V32,V38,V52,V56,V57-V59,V60 OUT

HISTOGRAM OF EIGENVALUES OF UNALTERED CORRELATION MATRIX

EIGENVALUE	HISTOGRAM
1 11.7412	*****
2 4.68416	*****
3 2.52373	*****
4 2.09120	*****
5 1.81693	*****
6 1.67101	*****
7 1.45583	*****
8 1.27190	*****
9 1.18904	*****
10 1.09603	*****
11 1.04309	*****
12 0.962111	*****
13 0.902980	*****
14 0.831010	*****
15 0.804223	*****
16 0.774820	*****
17 0.764529	*****
18 0.742853	*****
19 0.662978	*****
20 0.647405	*****
21 0.634140	*****
22 0.616336	*****
23 0.587552	*****
24 0.547945	*****
25 0.525041	****
26 0.511362	****
27 0.486450	****
28 0.464096	****
29 0.443624	****
30 0.425669	****
31 0.405088	***
32 0.399984	***
33 0.373267	***
34 0.361912	***
35 0.354732	***
36 0.341383	***
37 0.321139	***
38 0.312236	***
39 0.282952	**
40 0.256928	**
41 0.250961	**
42 0.246021	**
43 0.240234	**
44 0.212344	**
45 0.204253	**
46 0.190934	**
47 0.181339	**
48 0.145009	*

CONDITION NUMBER = 80.97

GOODNESS-OF-FIT CHI-SQUARE = 2949.113 D.F. = 987 P-VALUE = 0.000

CANONICAL CORRELATIONS

0.9773
0.9305
0.8708

COMMUNALITIES OBTAINED FROM 3 FACTORS AFTER 5 ITERATIONS.

THE COMMUNALITY OF A VARIABLE IS ITS SQUARED MULTIPLE
CORRELATION WITH THE FACTORS.

1	V8	0.1856
2	V9	0.2400
3	V10	0.5550
4	V11	0.5216
5	V12	0.5543
6	V13	0.5247
7	V14	0.2442
8	V15	0.2536
9	V16	0.5744
10	V17	0.4636
11	V18	0.4312
12	V19	0.3905
13	V21	0.5463
14	V22	0.2615
15	V23	0.2627
16	V24	0.1852
17	V25	0.6379
18	V26	0.2003
19	V27	0.5442
20	V28	0.6825
21	V29	0.1870
22	V30	0.3020
23	V31	0.4566
24	V33	0.3970
25	V34	0.2876
26	V35	0.5398
27	V36	0.0779
28	V37	0.3236
29	V39	0.2831
30	V40	0.5089
31	V41	0.2109
32	V42	0.4467
33	V43	0.3036
34	V44	0.3518
35	V45	0.2742
36	V46	0.1370
37	V47	0.4758
38	V48	0.2326
39	V49	0.3174
40	V50	0.4445
41	V51	0.1273
42	V53	0.3667
43	V54	0.2351
44	V55	0.2825
45	V61	0.2684
46	V62	0.3270
47	V63	0.3127

FACTOR	VARIANCE EXPLAINED	CUMULATIVE PROPORTION OF VARIANCE IN DATA SPACE	IN FACTOR SPACE	CARMINES THETA
1	11.1336	0.2319	0.6550	0.9295

2	4.0359	0.3160	0.8924
3	1.8289	0.3541	1.0000

TOTAL VARIANCE IS DEFINED AS THE SUM OF THE POSITIVE EIGENVALUES OF THE CORRELATION MATRIX.

UNROTATED FACTOR LOADINGS (PATTERN)

FOR MAXIMUM LIKELIHOOD CANONICAL FACTORS

		FACTOR1	FACTOR2	FACTOR3
		1	2	3
V8	1	0.395	-0.124	0.121
V9	2	0.470	-0.021	0.137
V10	3	0.720	-0.027	-0.191
V11	4	0.712	-0.074	-0.098
V12	5	0.729	-0.144	0.050
V13	6	0.710	-0.078	0.118
V14	7	0.493	0.010	0.039
V15	8	0.337	0.359	0.107
V16	9	0.748	-0.094	-0.077
V17	10	0.617	0.210	-0.198
V18	11	0.648	-0.040	0.098
V19	12	0.576	-0.137	0.200
V21	13	0.729	-0.029	-0.117
V22	14	0.481	-0.105	-0.138
V23	15	0.365	-0.078	0.351
V24	16	0.201	0.377	0.050
V25	17	0.771	-0.122	-0.169
V26	18	0.408	-0.063	0.174
V27	19	0.663	-0.145	0.289
V28	20	0.723	-0.117	-0.382
V29	21	0.271	0.334	0.045
V30	22	0.288	0.352	-0.309
V31	23	0.657	-0.043	0.154
V33	24	0.596	-0.192	-0.072
V34	25	0.357	0.390	-0.089
V35	26	0.714	-0.155	-0.076
V36	27	0.260	-0.091	0.043
V37	28	0.216	0.477	0.221
V39	29	0.494	0.040	0.193
V40	30	0.347	0.483	0.394
V41	31	0.150	0.314	-0.300
V42	32	0.195	0.639	0.021
V43	33	0.501	-0.107	-0.202
V44	34	0.118	0.581	-0.004
V45	35	0.070	0.497	0.151
V46	36	0.096	0.357	-0.005
V47	37	0.334	0.588	-0.138
V48	38	0.478	-0.049	0.044
V49	39	0.180	0.515	-0.141
V50	40	0.169	0.617	-0.187
V51	41	0.235	-0.268	-0.016
V53	42	0.178	0.534	0.222
V54	43	0.337	-0.201	0.285
V55	44	0.305	-0.096	0.424
V61	45	0.497	-0.065	0.131
V62	46	0.565	-0.088	0.009
V63	47	0.433	0.020	0.353
V64	48	0.377	-0.076	0.337
VP		11.134	4.036	1.829

THE VP IS THE VARIANCE EXPLAINED BY THE FACTOR.
IT IS COMPUTED AS THE SUM OF SQUARES FOR THE
ELEMENTS OF THE FACTOR'S COLUMN IN THE FACTOR
LOADING MATRIX.

ROTATED FACTOR LOADINGS (PATTERN)

		FACTOR1	FACTOR2	FACTOR3
		1	2	3
V8	1	0.381	-0.036	0.147
V9	2	0.411	0.083	0.157
V10	3	0.742	0.070	-0.169
V11	4	0.725	0.037	-0.070
V12	5	0.723	-0.008	0.088
V13	6	0.663	0.066	0.150
V14	7	0.449	0.103	0.054
V15	8	0.160	0.433	0.087
V16	9	0.760	0.026	-0.046
V17	10	0.563	0.288	-0.201
V18	11	0.597	0.090	0.124
V19	12	0.534	-0.005	0.234
V21	13	0.731	0.081	-0.093
V22	14	0.530	-0.042	-0.116
V23	15	0.271	0.041	0.377
V24	16	0.041	0.419	0.024
V25	17	0.818	-0.012	-0.137
V26	18	0.356	0.036	0.196
V27	19	0.593	0.016	0.329
V28	20	0.832	-0.048	-0.356
V29	21	0.123	0.388	0.025
V30	22	0.235	0.354	-0.338
V31	23	0.590	0.096	0.182
V33	24	0.650	-0.098	-0.037
V34	25	0.223	0.439	-0.114
V35	26	0.749	-0.041	-0.040
V36	27	0.265	-0.039	0.060
V37	28	-0.029	0.548	0.189
V39	29	0.396	0.157	0.209
V40	30	0.042	0.603	0.369
V41	31	0.116	0.293	-0.329
V42	32	-0.049	0.675	-0.031
V43	33	0.568	-0.049	-0.181
V44	34	-0.094	0.600	-0.053
V45	35	-0.154	0.531	0.111
V46	36	-0.035	0.373	-0.034
V47	37	0.145	0.624	-0.183
V48	38	0.455	0.041	0.064
V49	39	0.027	0.524	-0.185
V50	40	-0.006	0.617	-0.241
V51	41	0.321	-0.228	0.016
V53	42	-0.085	0.599	0.183
V54	43	0.307	-0.098	0.320
V55	44	0.200	0.023	0.451
V61	45	0.454	0.043	0.155
V62	46	0.561	0.012	0.035
V63	47	0.300	0.150	0.372
V64	48	0.285	0.042	0.362
VP		10.065	4.495	1.996

THE VP IS THE VARIANCE EXPLAINED BY THE FACTOR.
IT IS COMPUTED AS THE SUM OF SQUARES FOR THE
ELEMENTS OF THE FACTOR'S COLUMN IN THE FACTOR
LOADING MATRIX.

FACTOR CORRELATIONS FOR ROTATED FACTORS

FACTOR1	FACTOR2	FACTOR3
1	2	3

```

FACTOR1 1 1.000
FACTOR2 2 0.207 1.000
FACTOR3 3 0.205 -0.023 1.000
1PAGE 13 4M THREE FACTORS V20 V32,V38,V52,V56,V57-V59,V60 OUT
    
```

SORTED ROTATED FACTOR LOADINGS (PATTERN)

		FACTOR1	FACTOR2	FACTOR3
		1	2	3
V28	20	0.832	0.000	-0.356
V25	17	0.818	0.000	0.000
V16	9	0.760	0.000	0.000
V35	26	0.749	0.000	0.000
V10	3	0.742	0.000	0.000
V21	13	0.731	0.000	0.000
V11	4	0.725	0.000	0.000
V12	5	0.723	0.000	0.000
V13	6	0.663	0.000	0.000
V33	24	0.650	0.000	0.000
V18	11	0.597	0.000	0.000
V27	19	0.593	0.000	0.329
V31	23	0.590	0.000	0.000
V43	33	0.568	0.000	0.000
V17	10	0.563	0.288	0.000
V62	46	0.561	0.000	0.000
V19	12	0.534	0.000	0.000
V22	14	0.530	0.000	0.000
V42	32	0.000	0.675	0.000
V47	37	0.000	0.624	0.000
V50	40	0.000	0.617	0.000
V40	30	0.000	0.603	0.369
V44	34	0.000	0.600	0.000
V53	42	0.000	0.599	0.000
V37	28	0.000	0.548	0.000
V45	35	0.000	0.531	0.000
V49	39	0.000	0.524	0.000
V55	44	0.000	0.000	0.451
V23	15	0.271	0.000	0.377
V63	47	0.300	0.000	0.372
V64	48	0.285	0.000	0.362
V30	22	0.000	0.354	-0.338
V41	31	0.000	0.293	-0.329
V54	43	0.307	0.000	0.320
V39	29	0.396	0.000	0.000
V26	18	0.356	0.000	0.000
V9	2	0.411	0.000	0.000
V61	45	0.454	0.000	0.000
V8	1	0.381	0.000	0.000
V34	25	0.000	0.439	0.000
V15	8	0.000	0.433	0.000
V48	38	0.455	0.000	0.000
V36	27	0.265	0.000	0.000
V14	7	0.449	0.000	0.000
V46	36	0.000	0.373	0.000
V29	21	0.000	0.388	0.000
V24	16	0.000	0.419	0.000
V51	41	0.321	0.000	0.000
VP		10.065	4.495	1.996

THE ABOVE FACTOR LOADING MATRIX HAS BEEN REARRANGED SO THAT THE COLUMNS APPEAR IN DECREASING ORDER OF VARIANCE EXPLAINED BY FACTORS. THE ROWS HAVE BEEN REARRANGED SO THAT FOR EACH SUCCESSIVE FACTOR, LOADINGS GREATER THAN 0.5000 APPEAR FIRST. LOADINGS LESS THAN 0.2500 HAVE BEEN REPLACED BY ZERO.

CRONBACH'S ALPHA IS THE STANDARDIZED ALPHA, COMPUTED FROM CORRELATIONS. THE FIRST ALPHA IS CALCULATED USING ALL VARIABLES. THE ALPHA FOR EACH INDIVIDUAL FACTOR IS CALCULATED BY USING ONLY CERTAIN VARIABLES CHOSEN FOR THEIR LOADINGS IN THE SORTED ROTATED FACTOR LOADING MATRIX. FOR EACH FACTOR, THE CALCULATION USES ONLY THE VARIABLES DISPLAYING A POSITIVE ROTATED FACTOR LOADING ON THAT FACTOR, AS WELL AS A ZERO LOADING ON ALL OTHER FACTORS. NOTE THAT ALPHA IS UNDEFINED IF ONLY ONE VARIABLE IS USED.

FACTOR	ALPHA	VARIABLES USED
	0.9227	- ALL -
V13	1 0.9208	V25 V16 V35 V10 V21 V11 V12
	V33	V18
V61	V8	V31 V43 V62 V19 V22 V39 V26 V9
		V48 V36 V14 V51
V49	2 0.8295	V42 V47 V50 V44 V53 V37 V45
	V34	V15
		V46 V29 V24
	3	V55

FACTOR SCORE COVARIANCE (COMPUTED FROM FACTOR STRUCTURE AND FACTOR SCORE COEFFICIENTS)

 THE DIAGONAL OF THE MATRIX BELOW CONTAINS THE SQUARED MULTIPLE CORRELATIONS OF EACH FACTOR WITH THE VARIABLES.

	FACTOR1	FACTOR2	FACTOR3
	1	2	3
FACTOR1	1 0.952		
FACTOR2	2 0.212	0.878	
FACTOR3	3 0.202	-0.020	0.772

FACTOR SCORE COVARIANCE (COMPUTED FROM FACTOR SCORES)

	FACTOR1	FACTOR2	FACTOR3
	1	2	3
FACTOR1	1 0.952		
FACTOR2	2 0.212	0.878	
FACTOR3	3 0.202	-0.020	0.772

SCALE EVALUATION

 ROTATED SECOND-ORDER FACTORS CALCULATED FROM THE MATRIX OF FACTOR CORRELATIONS

	2ND-ORDR	2ND-ORDR
	1	2
FACTOR1	1 0.557	0.544
FACTOR2	2 0.905	-0.164
FACTOR3	3 -0.153	0.908
VP	1.153	1.147

THE VP IS THE VARIANCE EXPLAINED BY THE FACTOR. A SINGLE SECOND-ORDER FACTOR WITH A LARGE VP IMPLIES THAT THE FACTORS SHARE COMMON VARIANCE. THIS IS AN INDICATION OF OVERLAPPING DIMENSIONS THAT CONTRIBUTE TO A SINGLE OVERALL DIMENSION. FACTOR ROTATION IS DONE BY THE DIRECT QUARTIMIN METHOD.

NUMBER OF INTEGER WORDS USED IN PRECEDING PROBLEM 13278

**APPENDIX F: RESULTS OF ITEM ANALYSIS (ITEMAN)tm
TEST**

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Conventional Item and Test Analysis Program

Item analysis for data from file d:\old data\take\ramchander\item5.dat
 Date: 19 Nov 2003 Time: 14,46

***** ANALYSIS SUMMARY INFORMATION *****

Data (Input) File: d:\old data\take\ramchander\item5.dat
 Analysis Output File: d:\old data\take\ramchander\item5.out
 Score Output File: NONE
 Exceptions File: NONE
 Statistics Output File: NONE

Scale Definition Codes: DICHOT = Dichotomous MPOINT = Multipoint/Survey

Scale:	1	2	3
Type of Scale	MPOINT	MPOINT	MPOINT
N of Items	28	16	5
N of Examinees	350	350	350

***** CONFIGURATION INFORMATION *****

Type of Correlations: Point-Biserial
 Correction for Spuriousness: NO
 Ability Grouping: YES
 Subgroup Analysis: NO
 Express Endorsements As: PROPORTIONS
 Score Group Interval Width: 1
 Missing Data Option: ITEMWISE DELETION
 Multipoint Scores will be: SUMMED SCALE SCORE

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Item analysis for data from file d:\old data\take\ramchander\item5.dat
 Date: 19 Nov 2003 Time: 14,46

Seq. No.	Scale -Item	Item Statistics				Alternative Statistics		
		Item Mean	Item Var.	Item-Scale Correlation	N per Item	Alter-native	Proportion Endorsing	Key
1(v8)1-1		2.696	1.885	.44	349	1	.20	+
						2	.39	
						3	.08	
						4	.17	
						5	.15	

						Other	.00	
2(v9)1-2		3.212	1.445	.50	349	1	.09	+
						2	.26	
						3	.08	
						4	.47	
						5	.09	
						Other	.00	
3	1-3	3.372	1.472	.73	349	1	.07	+
						2	.25	
						3	.09	
						4	.42	
						5	.17	
						Other	.00	
4	1-4	3.367	1.453	.73	349	1	.06	+
						2	.26	
						3	.09	
						4	.42	
						5	.17	
						Other	.00	
5	1-5	3.152	1.641	.73	348	1	.07	+
						2	.36	
						3	.10	
						4	.28	
						5	.19	
						Other	.01	
6	1-6	3.132	1.736	.70	349	1	.11	+
						2	.32	
						3	.09	
						4	.31	
						5	.17	
						Other	.00	

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Conventional Item and Test Analysis Program

Item analysis for data from file d:\old data\take\ramchander\item5.dat
 Date: 19 Nov 2003 Time: 14,46

Seq. No.	Scale -Item	Item Statistics				Alternative Statistics		
		Item Mean	Item Var.	Item-Scale Correlation	N per Item	Alter-native	Proportion Endorsing	Key
7	1-7	3.163	1.604	.50	349	1	.11	+
						2	.25	
						3	.14	
						4	.35	
						5	.15	
						Other	.00	
9	1-8	3.183	1.496	.74	349	1	.07	+
						2	.32	
						3	.12	
						4	.34	
						5	.15	
						Other	.00	
10	1-9	3.797	1.595	.60	349	1	.07	+
						2	.16	
						3	.04	
						4	.37	

						5	.36	
						Other	.00	
11	1-10	2.920	1.443	.65	349	1	.09	+
						2	.38	
						3	.17	
						4	.24	
						5	.12	
						Other	.00	
12	1-11	2.865	1.349	.60	349	1	.11	+
						2	.33	
						3	.23	
						4	.25	
						5	.09	
						Other	.00	
14	1-12	3.450	1.646	.72	349	1	.13	+
						2	.13	
						3	.06	
						4	.50	
						5	.17	
						Other	.00	

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Conventional Item and Test Analysis Program

Item analysis for data from file d:\old data\take\ramchander\item5.dat
 Date: 19 Nov 2003 Time: 14,46

Seq. No.	Scale -Item	Item Statistics				Alternative Statistics		
		Item Mean	Item Var.	Item-Scale Correlation	N per Item	Alter-native	Proportion Endorsing	Key
15	1-13	2.808	1.330	.53	349	1	.12	+
						2	.36	
						3	.17	
						4	.29	
						5	.06	
						Other	.00	
18	1-14	3.479	1.270	.78	349	1	.05	+
						2	.21	
						3	.10	
						4	.48	
						5	.15	
						Other	.00	
19	1-15	2.690	1.289	.45	348	1	.14	+
						2	.36	
						3	.20	
						4	.24	
						5	.05	
						Other	.01	
20	1-16	3.149	1.559	.67	349	1	.07	+
						2	.35	
						3	.09	
						4	.34	
						5	.15	
						Other	.00	
21	1-17	3.641	1.977	.74	348	1	.09	+
						2	.22	
						3	.05	

						4	.25	
						5	.39	
						Other	.01	
24	1-18	2.908	1.631	.63	349	1	.13	+
						2	.36	
						3	.12	
						4	.27	
						5	.13	
						Other	.00	

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Conventional Item and Test Analysis Program

Item analysis for data from file d:\old data\take\ramchander\item5.dat
 Date: 19 Nov 2003 Time: 14,46

Seq. No.	Scale -Item	Item Statistics				Alternative Statistics		
		Item Mean	Item Var.	Item-Scale Correlation	N per Item	Alter-native	Proportion Endorsing	Key
26	1-19	2.925	1.311	.60	348	1	.09	+
						2	.33	
						3	.23	
						4	.26	
						5	.09	
						Other	.01	
28	1-20	3.166	1.394	.73	349	1	.09	+
						2	.26	
						3	.15	
						4	.39	
						5	.11	
						Other	.00	
29	1-21	2.828	1.409	.31	349	1	.11	+
						2	.37	
						3	.18	
						4	.24	
						5	.09	
						Other	.00	
32	1-22	2.851	1.190	.52	348	1	.09	+
						2	.36	
						3	.23	
						4	.26	
						5	.06	
						Other	.01	
36	1-23	2.894	1.428	.54	348	1	.11	+
						2	.35	
						3	.13	
						4	.33	
						5	.07	
						Other	.01	
41	1-24	2.675	1.363	.51	348	1	.12	+
						2	.46	
						3	.13	
						4	.22	
						5	.08	
						Other	.01	

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Conventional Item and Test Analysis Program

Item analysis for data from file d:\old data\take\ramchander\item5.dat
Date: 19 Nov 2003 Time: 14,46

Seq. No.	Scale -Item	Item Statistics				Alternative Statistics		
		Item Mean	Item Var.	Item-Scale Correlation	N per Item	Alter-native	Proportion Endorsing	Key
44	1-25	2.182	0.736	.30	347	1 2 3 4 5 Other	.16 .62 .12 .08 .02 .01	+
45	1-26	2.894	1.371	.64	348	1 2 3 4 5 Other	.12 .32 .16 .34 .06 .01	+
54	1-27	2.856	1.472	.52	347	1 2 3 4 5 Other	.16 .26 .22 .29 .07 .01	+
55	1-28	2.689	1.454	.56	347	1 2 3 4 5 Other	.15 .40 .13 .24 .07 .01	+
8(v15)2-1		3.395	1.494	.53	349	1 2 3 4 5 Other	.06 .27 .09 .40 .19 .00	+
17	2-2	3.372	1.391	.48	349	1 2 3 4 5 Other	.09 .19 .11 .48 .13 .00	+

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Conventional Item and Test Analysis Program

Item analysis for data from file d:\old data\take\ramchander\item5.dat
Date: 19 Nov 2003 Time: 14,46

Seq. No.	Scale -Item	Item Statistics				Alternative Statistics		
		Item Mean	Item Var.	Item-Scale Correlation	N per Item	Alter-native	Proportion Endorsing	Key

22	2-3	3.628	1.053	.54	349	1	.02	+
						2	.18	
						3	.14	
						4	.49	
						5	.18	
						Other	.00	
23	2-4	3.897	1.009	.51	349	1	.02	+
						2	.11	
						3	.14	
						4	.44	
						5	.30	
						Other	.00	
27	2-5	3.943	0.782	.55	349	1	.02	+
						2	.08	
						3	.06	
						4	.62	
						5	.22	
						Other	.00	
30	2-6	3.721	1.161	.57	348	1	.04	+
						2	.15	
						3	.07	
						4	.53	
						5	.21	
						Other	.01	
33	2-7	3.578	1.399	.63	348	1	.06	+
						2	.20	
						3	.06	
						4	.48	
						5	.21	
						Other	.01	
34	2-8	3.868	1.126	.42	348	1	.03	+
						2	.11	
						3	.14	
						4	.41	
						5	.31	
						Other	.01	

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Conventional Item and Test Analysis Program

Item analysis for data from file d:\old data\take\ramchander\item5.dat
 Date: 19 Nov 2003 Time: 14,46

Seq. No.	Scale -Item	Item Statistics				Alternative Statistics		
		Item Mean	Item Var.	Item-Scale Correlation	N per Item	Alter-native	Proportion Endorsing	Key
35	2-9	4.020	0.784	.65	348	1	.02	+
						2	.05	
						3	.08	
						4	.56	
						5	.28	
						Other	.01	
37	2-10	3.894	0.710	.56	348	1	.02	+
						2	.07	
						3	.07	
						4	.67	
						5	.17	

						Other	.01	
38	2-11	3.654	1.212	.50	347	1	.04	+
						2	.16	
						3	.10	
						4	.49	
						5	.20	
						Other	.01	
39	2-12	3.394	1.451	.46	348	1	.08	+
						2	.19	
						3	.15	
						4	.40	
						5	.17	
						Other	.01	
40	2-13	3.951	0.932	.65	348	1	.03	+
						2	.09	
						3	.07	
						4	.54	
						5	.28	
						Other	.01	
42	2-14	3.942	0.579	.55	347	1	.01	+
						2	.05	
						3	.07	
						4	.70	
						5	.16	
						Other	.01	

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Conventional Item and Test Analysis Program

Item analysis for data from file d:\old data\take\ramchander\item5.dat
 Date: 19 Nov 2003 Time: 14,46

Seq. No.	Scale -Item	Item Statistics				Alternative Statistics		
		Item Mean	Item Var.	Item-Scale Correlation	N per Item	Alter-native	Proportion Endorsing	Key
43	2-15	3.940	0.879	.60	348	1	.03	+
						2	.07	
						3	.10	
						4	.54	
						5	.26	
						Other	.01	
46	2-16	3.864	1.169	.56	346	1	.03	+
						2	.12	
						3	.10	
						4	.44	
						5	.31	
						Other	.01	
16(v23)3-1		2.129	1.210	.59	348	1	.35	+
						2	.34	
						3	.16	
						4	.12	
						5	.03	
						Other	.01	
47	3-2	2.078	1.063	.68	347	1	.30	+
						2	.48	
						3	.09	
						4	.10	

Item No.	Scale	Item Mean	Item Var.	Item-Scale Correlation	N per Item	Alternative	Proportion Endorsing	Key
48	3-3	2.092	1.098	.66	347	5	.03	+
						Other	.01	
						1	.35	
						2	.36	
						3	.18	
						4	.10	
56	3-4	2.357	1.359	.70	347	5	.02	
						Other	.01	
						1	.28	
						2	.34	
						3	.16	
						4	.19	

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Conventional Item and Test Analysis Program

Item analysis for data from file d:\old data\take\ramchander\item5.dat
 Date: 19 Nov 2003 Time: 14,46

Seq. No.	Scale -Item	Item Statistics				Alternative Statistics		
		Item Mean	Item Var.	Item-Scale Correlation	N per Item	Alter-native	Proportion Endorsing	Key
57	3-5	2.049	1.096	.66	347	1	.32	+
						2	.47	
						3	.09	
						4	.07	
						5	.04	
						Other	.01	

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Conventional Item and Test Analysis Program

Item analysis for data from file d:\old data\take\ramchander\item5.dat
 Date: 19 Nov 2003 Time: 14,46

Missing-data option: Compute statistics on all available item responses

There were 351 examinees in the data file.

Scale Statistics

Scale:	1	2	3
N of Items	28	16	5
N of Examinees	350	350	350
Mean	84.589	59.726	10.620
Variance	420.437	92.959	13.121
Std. Dev.	20.505	9.642	3.622
Skew	-0.593	-1.435	0.417
Kurtosis	-0.630	3.007	-0.607
Minimum	29.000	16.000	3.000
Maximum	124.000	79.000	21.000
Median	88.000	62.000	10.000
Alpha	0.936	0.870	0.695
SEM	5.186	3.475	2.001

Mean P	N/A	N/A	N/A
Mean Item-Tot.	0.595	0.547	0.658
Mean Biserial	N/A	N/A	N/A
Max Score (Low)	N/A	N/A	N/A
N (Low Group)	N/A	N/A	N/A
Min Score (High)	N/A	N/A	N/A
N (High Group)	N/A	N/A	N/A

Scale Intercorrelations

	1	2	3
1	1.000	0.293	0.518
2	0.293	1.000	0.129
3	0.518	0.129	1.000

Elapsed Time: 4.766 seconds

**APPENDIX G: ANOVA PROCEDURES (DUNCAN'S MULTIPLE
RANGE TEST)**

1 MR P RAMCHANDER T03049 ET407336 ETT9004 1
09:30 Monday, December 1, 2003

The GLM Procedure

Class Level Information

Class	Levels	Values
V2	2	1 2
V5	2	1 2
TIME	3	1 2 3

Number of observations 350

NOTE: All dependent variables are consistent with respect to the presence or absence of missing values. However only 346 observations can be used in this analysis.

The GLM Procedure

Dependent Variable: FACT1

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	4	29.6739432	7.4184858	16.58	<.0001
Error	341	152.6162381	0.4475550		
Corrected Total	345	182.2901813			

R-Square	Coeff Var	Root MSE	FACT1 Mean
0.162784	22.05664	0.668995	3.033080

Source	DF	Type III SS	Mean Square	F Value	Pr > F
V2	1	0.00015153	0.00015153	0.00	0.9853
V5	1	25.44649838	25.44649838	56.86	<.0001
TIME	2	1.31092209	0.65546105	1.46	0.2326

The GLM Procedure

Dependent Variable: FACT2

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	4	5.2406322	1.3101580	4.17	0.0026
Error	341	107.1806854	0.3143129		
Corrected Total	345	112.4213176			

R-Square	Coeff Var	Root MSE	FACT2 Mean
0.046616	14.94844	0.560636	3.750466

Source	DF	Type III SS	Mean Square	F Value	Pr > F
V2	1	0.61842265	0.61842265	1.97	0.1616
V5	1	4.21715242	4.21715242	13.42	0.0003
TIME	2	0.18833438	0.09416719	0.30	0.7413

The GLM Procedure

Dependent Variable: FACT3

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	4	26.7356768	6.6839192	14.26	<.0001
Error	341	159.8488607	0.4687650		
Corrected Total	345	186.5845376			

R-Square	Coeff Var	Root MSE	FACT3 Mean
0.143290	31.86198	0.684664	2.148844

Source	DF	Type III SS	Mean Square	F Value	Pr > F
V2	1	0.22377599	0.22377599	0.48	0.4901
V5	1	16.35606437	16.35606437	34.89	<.0001
TIME	2	6.05279684	3.02639842	6.46	0.0018

The GLM Procedure
Duncan's Multiple Range Test for FACT1

NOTE: This test controls the Type I comparisonwise error rate, not the experimentwise error rate.

Alpha	0.05
Error Degrees of Freedom	341
Error Mean Square	0.447555
Harmonic Mean of Cell Sizes	172.9769

NOTE: Cell sizes are not equal.

Number of Means	2
Critical Range	.1415

Means with the same letter are not significantly different.

Duncan Grouping	Mean	N	V2	
A	3.04268	175	1	(Male)
A				
A	3.02325	171	2	(Female)

The GLM Procedure

Duncan's Multiple Range Test for FACT2

NOTE: This test controls the Type I comparisonwise error rate, not the experimentwise error rate.

Alpha	0.05
Error Degrees of Freedom	341
Error Mean Square	0.314313
Harmonic Mean of Cell Sizes	172.9769

NOTE: Cell sizes are not equal.

Number of Means	2
Critical Range	.1186

Means with the same letter are not significantly different.

Duncan Grouping	Mean	N	V2	
A	3.79179	171	2	
A				
A	3.71009	175	1	

The GLM Procedure

Duncan's Multiple Range Test for FACT3

NOTE: This test controls the Type I comparisonwise error rate, not the experimentwise error rate.

Alpha	0.05
Error Degrees of Freedom	341
Error Mean Square	0.468765
Harmonic Mean of Cell Sizes	172.9769

NOTE: Cell sizes are not equal.

Number of Means	2
Critical Range	.1448

Means with the same letter are not significantly different.

Duncan Grouping	Mean	N	V2	
A	2.15789	171	2	
A				
A	2.14000	175	1	

The GLM Procedure

Duncan's Multiple Range Test for FACT1

NOTE: This test controls the Type I comparisonwise error rate, not the experimentwise error rate.

Alpha 0.05
 Error Degrees of Freedom 341
 Error Mean Square 0.447555
 Harmonic Mean of Cell Sizes 167.7977

NOTE: Cell sizes are not equal.

Number of Means 2
 Critical Range .1437

Means with the same letter are not significantly different.

Duncan Grouping	Mean	N	V5
A	3.37409	143	1 (Yes)
B	2.79286	203	2 (No)

(On factor 1, the mean of those who derive income from tourism is significantly higher than the mean of those who do not derive income from tourism)

The GLM Procedure

Duncan's Multiple Range Test for FACT2

NOTE: This test controls the Type I comparisonwise error rate, not the experimentwise error rate.

Alpha 0.05
 Error Degrees of Freedom 341
 Error Mean Square 0.314313
 Harmonic Mean of Cell Sizes 167.7977

NOTE: Cell sizes are not equal.

Number of Means 2
 Critical Range .1204

Means with the same letter are not significantly different.

Duncan Grouping	Mean	N	V5
A	3.88558	143	1

B 3.65529 203 2

The GLM Procedure

Duncan's Multiple Range Test for FACT3

NOTE: This test controls the Type I comparisonwise error rate, not the experimentwise error rate.

Alpha 0.05
 Error Degrees of Freedom 341
 Error Mean Square 0.468765
 Harmonic Mean of Cell Sizes 167.7977

NOTE: Cell sizes are not equal.

Number of Means 2
 Critical Range .1470

Means with the same letter are not significantly different.

Duncan Grouping	Mean	N	V5
A	2.43986	143	1
B	1.94384	203	2

The GLM Procedure

Duncan's Multiple Range Test for FACT1

NOTE: This test controls the Type I comparisonwise error rate, not the experimentwise error rate.

Alpha 0.05
 Error Degrees of Freedom 341
 Error Mean Square 0.447555
 Harmonic Mean of Cell Sizes 109.5107

NOTE: Cell sizes are not equal.

Number of Means 2 3
 Critical Range .1778 .1872

Means with the same letter are not significantly different.

Duncan Grouping	Mean	N	TIME
A	3.20831	96	1

B	2.99662	95	3
B			
B	2.94689	155	2

The GLM Procedure

Duncan's Multiple Range Test for FACT2

NOTE: This test controls the Type I comparisonwise error rate, not the experimentwise error rate.

Alpha	0.05
Error Degrees of Freedom	341
Error Mean Square	0.314313
Harmonic Mean of Cell Sizes	109.5107

NOTE: Cell sizes are not equal.

Number of Means	2	3
Critical Range	.1490	.1569

Means with the same letter are not significantly different.

Duncan Grouping	Mean	N	TIME
A	3.79154	96	1
A			
A	3.75341	155	2
A			
A	3.70415	95	3

The GLM Procedure

Duncan's Multiple Range Test for FACT3

NOTE: This test controls the Type I comparisonwise error rate, not the experimentwise error rate.

Alpha	0.05
Error Degrees of Freedom	341
Error Mean Square	0.468765
Harmonic Mean of Cell Sizes	109.5107

NOTE: Cell sizes are not equal.

Number of Means	2	3
Critical Range	.1820	.1916

Means with the same letter are not significantly different.

Duncan Grouping	Mean	N	TIME	
A	2.42292	96	1	(up to 15 years)
B	2.07263	95	3	(31+ years)
B	2.02581	155	2	(16-30 years)

(On factor 3, the mean of those living in the area for up to 15 years is significantly higher than that of those who live there for 16-30 years and those who live there for longer than 30 years. The means of the 16-30 and 31+ groups does not differ significantly)