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Classification and explanation of life conceptions using the case of the 14th Shell Youth Study 2002

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Summary

In a re-analysis of the Shell Youth Survey 2002 we construct socio-demographically distinctive structure types regarding life values amongst German youth. First, factor analysis will be applied to 24 items to construct useful scales (sum indices). Subsequently these items will be categorized according to sociological and statistical considerations. Using CFA and multiple correspondence analyses, structure types can be explored (numerically and graphically), corresponding to the interpretations of the authors of the Shell Youth Survey. The structure types we identify are then examined in order to explore the relative explanatory power of socio-demographic characteristics (sex, age, class affiliation and East vs. West German states). We demonstrate that the method of classification trees (CHAID), prediction CFA (Fuchs-Kenett-Residues) and the Kimball-Castellan-Test complement one another. Regarding software use we demonstrate that all the data preparation and statistical tasks can be carried out using the standard statistical software SPSS. We identify four categories of life values, which can be only partly attributed to the respective socio-demographic characteristics, however.

Key words: Youth research, value orientations, factor analysis, SPSS syntax, sum index, profile variable, loglinear model, multiple correspondence analysis (HOMALS), CHAID (AnswerTree), Prediction CFA, Fuchs-Kenett-Residues, Kimball-Castellan-Test

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1. Introduction

This essay deals with a common problem of empirical social research. The social scientific problem that is examined consists of a complex of variables (in data analytical perspective also called dependent variables) and it is assumed that this complex is influenced by a multiplicity of characteristics (independent variables). How such multifactorial and multivariate problems can be handled with a simple and less restrictive methodical strategy is demonstrated using the example of youth value research.

In the 14th Shell Youth Survey, based on a representative sample of the German youth, 24 items of values with importance for life and behaviour are to be rated between (1) "unimportant" to (7) "very important" (Hurrelmann and Albert 2002, 436, question F37: f34_1 to f34_24). We also refer to these value orientations as "goals in life".

First of all an attempt to reduce the multiplicity of items to a few groups of goals in life is undertaken. For this the factor analysis is considered as the statistical instrument. The results of Gensicke´s (Hurrelmann and Albert 2002, p. 155) factor analysis cannot be used because only eleven items (f34_1 to f34_11) are included.

With the factor analysis the authors pursue the aim of grouping the items f34_1 to f34_24. Each group of items represents a certain group of goals in life. By summing up the items of each complex of goals in life found by the factor analysis, the strength of the complexes for each respondent is expressed (sum index). In the next step the sum indices are used to classify the respondents (detection of types of goals in life). First, the sum indices are categorized (dichotomised or trichotomised). With the basic model of the Configuration-Frequency-Analysis (CFA) a simple method of classification is chosen (von Eye 2002; Lautsch and von Weber 1995; Krauth 1993; Krauth und Lienert 1973).

If types are found, the question emerges to what extent they differentiate socio-demographically. The question if the found types of goals in life are socio-demographically homogenous or heterogeneous is answered by the combined use of CHAID (CHisquare Automatic Interaction Detection) und discriminant-CFA.

The single steps of data preparation and data analysis with the goal of identification of types are not carried out by the use of any special software. The software package SPSS (Superior Performance Software System; Bühl and Zöfel 2000, p.16) provides all necessary tools and syntax commands.

2. Exploration of Types

Components / factor analysis (exploration of goals in life-components)

For the exploration of the existence of three components the following is assumed (method of extraction: principle component analysis; method of rotation: Varimax/Kaiser-Normalization): All items with a component loading of less then 0,5 are not shown.

The results of the factor analysis recommend a three-component solution which explains 51,6% of the shared variance. The items are classified in one of the categories in the following order: component loadings $a_{ij} \geq 0{,}50$ (table 1). The characterization of the components/factors is based on the weights of the affiliated items (a_{ij}) and plausibility:

component 1 (LZ1): conventional
component 2 (LZ2): hedonistic, independent and socially integrated
component 3 (LZ3): political and socially engaged

SPSS-Syntax 1:

```
*Exploration of components of goals in life
FACTOR
 /VARIABLES
 f37_1 f37_5 f37_6 f37_8 f37_10 f37_11 f37_12 f37_15 f37_18 f37_19 f37_22 f37_23 f37_21
/MISSING LISTWISE /ANALYSIS
 f37_1 f37_5 f37_6 f37_8 f37_10 f37_11 f37_12 f37_15 f37_18 f37_19 f37_22 f37_23 f37_21
/PRINT INITIAL EXTRACTION ROTATION /FORMAT SORT BLANK(.50)
/CRITERIA FACTORS(3) ITERATE(25) /EXTRACTION PC /CRITERIA ITERATE(25)
/ROTATION VARIMAX
/METHOD=CORRELATION .
EXECUTE.
```

Table 1:
results of component-/factor analysis (rotated component matrix);
explained variance: *51,6%; components - / factor loadings ($a_{ij} \geq 0{,}500$)*

Items	**Components (Factors)**		
	LZ1	**LZ2**	**LZ3**
	a_{ij}		
F37_5 : strive for security	**,734**		
F37_1 : respect law and order	**,700**		
F37_8 : to work hard and be ambitious	**,655**		
F37_15 : conduct a good family life	**,637**		
F37_11 : to enjoy life		**,719**	
F37_12 : live and act responsible for oneself		**,668**	
F37_18 : to have good friends, who recognize and respect oneself		**,661**	
F37_19 : have many contacts to other people		**,659**	
F37_22 : to be independent of other people		**,530**	
F37_21 : to let ones decisions be guided also by emotions	,366	,447	,207
F37_10 : to engage politically			**,804**
F37_6 : to help disadvantaged and social minorities			**,707**
F37_23 : to act with environmental awareness under all circumstances			**,514**

Construction of sum indices

Items with an $a_{ij} < 0{,}50$ are not used for the construction of sum indices (example: F37_21 : „let ones decisions be guided also by emotions“). The sum indices are computed by the use of SPSS syntax and analyzed by the following command:

SPSS-Syntax 2:

```
*Construction of sum indices.
compute LZ1idx = F37_1 + F37_5 + F37_8 + F37_15.
compute LZ2idx = F37_11 +  F37_12 + F37_18 + F37_19 + F37_22.
compute LZ3idx = F37_6 +  F37_10 +  F37_ 23.
execute.
*univariate analysis of sum indices.
frequencies variables = LZ1ids LZ2idx LZ3idx
/order = analysis.
```

The characteristics of the empirical distribution of the sum indices are documented in table 2.

Table 2:
Characteristics of sum indices LZkidx

sum indices LZkidx	**arithmetic mean**	**standard deviation**	**minimum**	**maximum**	**form of distribution**
LZ1idx	22,3	3,8	6	28	rightwards
LZ2idx	28,7	4,1	8	35	rightwards
LZ3idx	12,8	3,1	3	21	symmetric

For the categorization of individuals (respondents) with the CFA the sum indices have to be categorized.

Categorization of sum indices

For the categorization the following criteria are decisive:
- plausibility of categories,
- equivalence to given answers of the items (f34_x): 1 = „*unimportant*“ to 7 = „*extremely important*“ and
- statistically useful frequencies of the categories.

Table 3:
Definition of categories

new categories		**LZ1idx [6;28]**	**LZ2idx [8;35]**	**LZ3idx [3;21]**
1	Range of class Index values	6 to 21	8 to 28	3 to 10
	Equivalence to given answers	1 to 5	1 to 5	1 to 3
	Labels	unimportant to important	unimportant to important	unimportant
2	Range of class Index values	22 to 28	29 to 35	11 to 14
	Equivalence to given answers	6 to 7	6 to 7	4
	Labels	very important to extremely important	very important to extremely important	neither unimportant nor important
3	Range of class Index values	.	.	15 to 21
	Equivalence to given answers	.	.	5 to 7
	Labels	.	.	very important to extremely important

The transformation of index or scale values can be easily carried out as follows:

SPSS-Syntax 3:

```
*Transformation of  sum index values in categories.
recode LZ1idx (6 thru 21 = 1) (22 thru 28 =2) into LZ1_2.
recode LZ2idx (8 thru 28 = 1) (29 thru 35 =2) into LZ2_2.
recode LZ3idx (3 thru 10 = 1) (11 thru 14 =2) (15 thru 21 =3) into LZ3  _2.
execute.
```

Construction of profile variables

The transformed sum indices (LZ1_2, LZ2_2 und LZ3_3) are one-digit variables. These three one-digit variables have to be transformed into a three-digit variable. For this operation the common formula is suggested:

$$X_i^{\text{Profile}} = \sum_{k=1}^{K} x_{ik} * 10^{(K-k)} \quad \text{for} \quad x_{ik} \in \{ 1 (1) 9 \};$$

in this case K = 3 one-digit variables accordingly to

$$X_i^{\text{Profile}} = \sum_{k=1}^{3} x_{ik} * 10^{(3-k)} = x_{i1} * 10^2 + x_{i2} * 10^1 + x_{i3} * 10^0 ,$$

for $k = 1 (1) K$
and $x_{i1} \in \{ 1 (1) 2 \}$; $x_{i2} \in \{ 1 (1) 2 \}$ und $x_{i3} \in \{ 1 (1) 3 \}$.

With the use of SPSS syntax the profile variable (LZ-pro) is constructed.

SPSS-Syntax 4:

```
*construction of profile variables.
compute LZ_pro = LZ1_2 * 100 + LZ2_2 * 10 + LZ3_3 * 1.
execute.
frequencies LZ_pro
/order = analysis.
```

Table 4:
Frequencies of the profile variable: goals in life (LZ_pro)

LZ_pro (Configurations of the three variables: LZ1_2, LZ2_2 und LZ3_3)	Frequencies	
	absolute	relative (%)
111	357	14,8
112	330	13,6
113	132	5,5
121	172	7,1
122	119	4,9
123	69	2,9
211	125	5,2
212	169	7,0
213	174	7,2
221	154	6,4
222	274	11,3
223	345	14,3
total	2420	100,0

Table 4 shows the frequencies of the profile variable (LZ_pro). The categories of the profile variables can be used as nominal categories or also be interpreted as configurations of the three variables LZ1_2, LZ_2_2 und LZ3_3.

To what extent these configurations are statistically significant and can be accepted as types or antitypes can be analyzed with the model of the configuration frequency analysis (CFA).

Exploration of types with configuration frequency analysis (CFA)

The existence of types and antitypes is tested with the log-linear model on the assumption of total independence of the three variables LZ1_2, LZ_2_2 und LZ3_3 (SPSS/ HILOGLINEAR)

SPSS-Syntax 5:

```
*Exploration of types with KFA.
HILOGLINEAR
lw1idx_2(1 2) lw2idx_2(1 2) lw3idx_3(1 3)
/METHOD=BACKWARD
/CRITERIA MAXSTEPS(10) P(.05) ITERATION(20) DELTA(.5)
/PRINT=FREQ RESID
/DESIGN lw1idx_2 lw2idx_2 lw3idx_3.
```

Table 5 is a slight modified print of the Pivot-table of SPSS. Column 6 of table 5 includes the standardized residues std. $res._{ijk}$. The decision if the configurations can be accepted as types (T) or antitypes (AT) is based on the evaluation of these standardized residues by the means of the statistical significance level.

In Table 5 are:
$OBS.Count_{ijk}$: observed frequencies
$EXP.Count_{ijk}$: expected frequencies under the null hypothesis of total independence
Residual : $OBS.COUNT_{ijk} - EXP.COUNT_{ijk}$

Std. Resid. : standardized residues (Std. $Res._{ijk}$) = $$\frac{OBS.Count_{ijk} - EXP.Count_{ijk}}{\sqrt{EXP.Count_{ijk}}}$$

(identical with the X-components test of Lienert)
In the literature this test is recommended mainly for the explorative type analysis. For confirmatory analysis (test of type-hypothesis) better tests (including special software) are available (von Eye 2002, Lautsch und von Weber 1995, Krauth 1993).

The significance level ($u_{\alpha^*;\ \text{two-sided}}$) is adjusted after Bonferroni:

$\alpha^* =$ a / number of cells = $\alpha/12 =$ 0,05/12 = 0,00417;

$u_{\alpha^*;\ \text{two-sided}} = u_{0{,}00417;\ \text{two-sided}} = 2{,}87$.

Table 5: Results of the configuration frequency analysis (CFA)

Variables (categorized sum indices): LZ1_2: dichotom / (1: 6-21; 2: 22-28)
LZ2_2: dichotom / (1: 8-28; 2: 29-35)
LZ3_3: trichotom / (1: 3-10; 2: 11-14; 3: 15-21)

Variables (0)	Code (1)	"KFA-Code» (2)	OBS. Count. (3)	EXP. Count. (4)	Residual (5)	Std. Resid. (6)
LZ1_2	1					
LZ2_2	1					
LZ3_3	1	**111**	357	209,35	147,650	**10,205 T**
LZ3_3	2	**112**	330	231,11	98,886	**6,505 T**
LZ3_3	3	113	132	186,55	-54,550	-3,994 AT
LZ2_2	2					
LZ3_3	1	121	172	184,30	-12,300	-0,906
LZ3_3	2	122	119	203,46	-84,459	-5,921 AT
LZ3_3	3	123	69	164,23	-95,227	-7,431 AT
LZ1_2	2					
LZ2_2	1					
LZ3_3	1	211	125	220,36	-95,359	-6,424 AT
LZ3_3	2	212	169	243,27	-74,268	-4,762 AT
LZ3_3	3	213	174	196,36	-22,360	-1,596
LZ2_2	2					
LZ3_3	1	221	154	193,99	-39,991	-2,871 AT
LZ3_3	2	**222**	274	214,16	59,841	**4,089 T**
LZ3_3	3	**223**	345	172,86	172,136	**13,092 T**

Goodness-of-fit test statistics: Likelihood ratio chi square = 487,58888;
Pearson chi square = 516,35745;df = 7; P = ,000

Positive significant configurations are accepted as types (T): positive std. resid.$_{ijk}$ > 2,87 and negative configurations as antitypes (AT): negative std. resid.$_{ijk}$ < -2,87. Four types of an evaluation of goals in life can be found:

Table 6:
Overview of types of goal in life-evaluations

Types (statistical significant configurations)	**LZ1_2** conventional	**LZ2_2** hedonistic / independent and socially integrated	**LZ3_3** politically and socially engaged
Type I	**1**	**1**	**1**
	unimportant to important	unimportant to important	unimportant
Type II	**1**	**1**	**2**
	unimportant to important	unimportant to important	neither unimportant nor important
Type III	**2**	**2**	**2**
	very important to extremely important	very important to extremely important	neither unimportant nor important
Type IV	**2**	**2**	**3**
	very important to extremely important	very important to extremely important	very important to extremely important

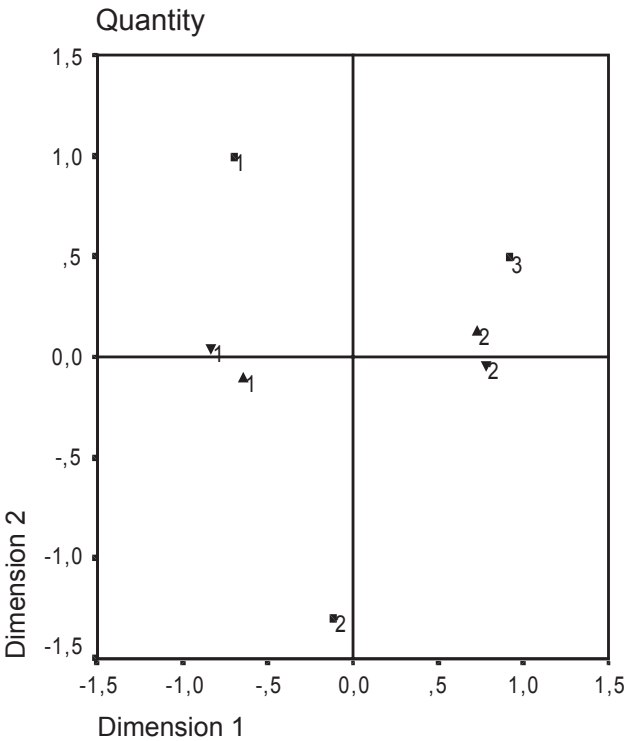
Another method that is also considered useful is the multiple correspondence analysis (also called homogeneity analysis). The multiple correspondence analysis belongs to the family of graphic methods of data analysis and allows a visual presentation of correlation between variables with a low level of measurement (Bühl and Zöfel 2000). For this method SPSS offers the module optimal scaling /HOMALS.

SPSS-Syntax 6:

```
*Exploration of types with multiple correspondence analysis (HOMALS).
HOMALS
  /VARIABLES=lw1idx_2(2) lw2idx_2(2) lw3idx_3(3)
  /ANALYSIS=lw1idx_2  lw2idx_2  lw3idx_3
  /DIMENSION=2
  /PRINT FREQ EIGEN DISCRIM QUANT
  /PLOT QUANT OBJECT NDIM(ALL,MAX)
  /MAXITER = 100
  /CONVERGENCE = .00001 .
```

Graphic 1 shows that type I and type IV are found by the multiple correspondence analysis too, while type II and type III appear less clearly. The graphic particularly emphasizes: Typ I: 111 und Typ IV: 223 are complementary types. The equivalence of both methods becomes more clear if HOMALS includes the third dimension which is not included here for space reasons.

Graphic 1:
Optimal scaling (homogeneity analysis: HOMALS)



▼ : conventional (with codes: 1, 2)
▲ : hedonistic, independent and social integrated (with codes: 1, 2)
■ : politically and socially engaged (with codes: 1, 2, 3)

3. Explanation of types

For the further analysis of the four types the profile variable is reduced to four types and a category "999" (missing data). All remaining configurations are summarized.

SPSS-Syntax 7:

```
string lzpro_4 (A8) .
recode lz_pro
(111='111') (112='112') (222='222') (223='223') (else='999') into  lzpro_4 .
execute .
missing value lzpro_4 (999).
execute.
frequencies variables=lzpro_4.
/order = analysis.
```

Table 7:
Distribution of frequencies of reduced profile variables (LZpro_4) consisting of the categories 111, 112, 222 , 223 und 999 (defined as missing data)

Types and other configurations	Frequencies		
	absolute	relative (%)	relative (%)
Type 1: 111	357	14,8	27,3
Type 2: 112	330	13,6	25,3
Type 3: 222	274	11,3	21,0
Type 4: 223	345	14,3	26,4
other configurations: 999	1114	46,0	-
total	2420	100,0	100

Whether the found types are socio-demographically heterogeneous is tested in the next step of analysis. It is presumed that the following socio-demographic characteristics support the assumption of heterogeneity:

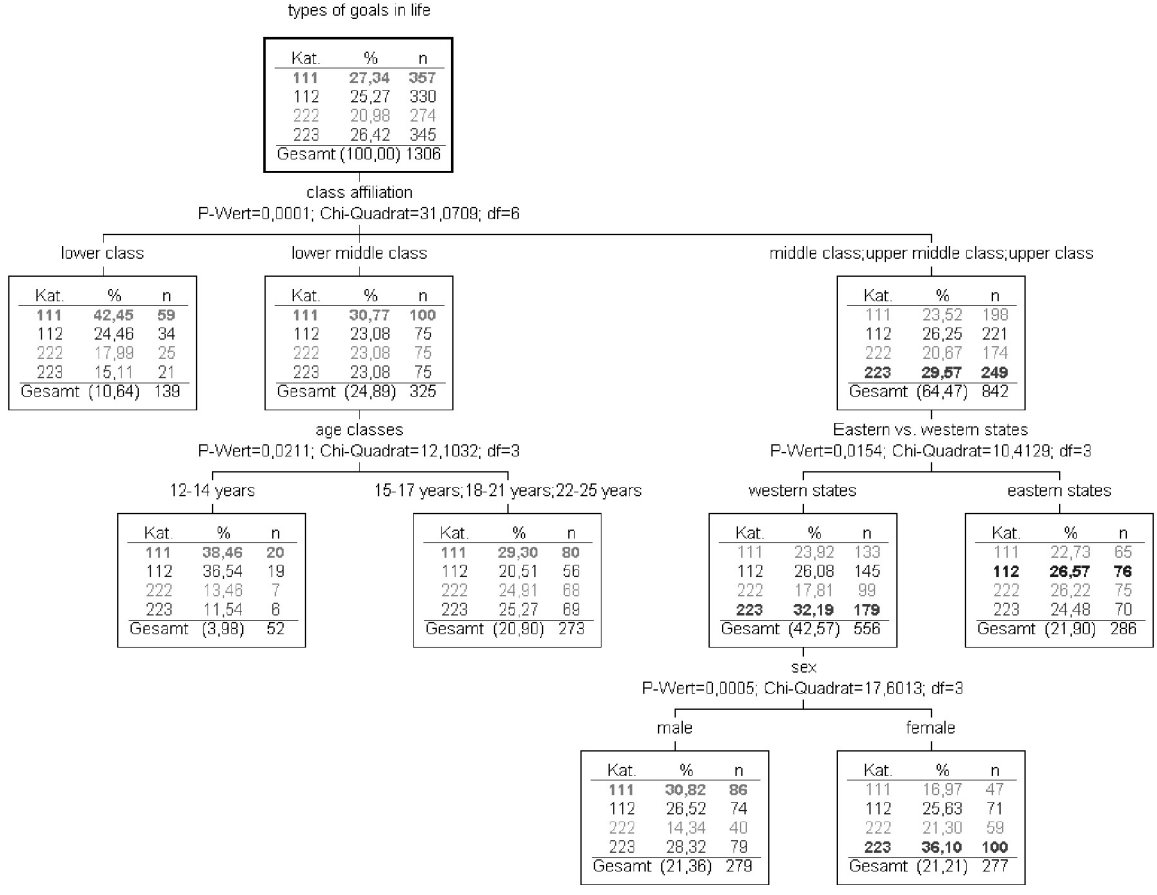
Sex (F06):
1 male
2 female

Age groups (ALTER_N):
1 12-14 years
2 15-17 years
3 18-21 years
4 22-25 years

Class affiliation (SCHICHT):
1 lower class
2 lower middle class
3 middle class
4 upper middle class
5 upper class

Eastern vs. Western States (LAND):
0 western states
1 eastern states

To clarify the problem of socio-demographic differentiation of types of goals in life the SPSS module ANSWER TREE (SPSS Inc. 2001: AnswerTree ® 3.0 handbook) is used. A SPSS syntax report can not be drawn up, because this module works menu-based.



Graphic 2: Tree diagram: CHAID-Model (ANSWER TREE)

The tree diagram shows that the four socio-demographic characteristics support the hypothesis of heterogeneity. Class affiliation has the strongest influence. On the second level, age and regional origin (East vs. West) appear as discriminating factors. An influence of sex is only visible in the subpopulation „middle class and above in western states".

The knots (n=139, n=52, n=273, n=279, n=277 n=286) are ends in the differentiation of socio-demographic subgroups (listed and described in Table 8). The subgroups are defined for the used data by SPSS-syntax. Then it is statistically tested, how much socio-demographic subgroups explain and which goal in life type is significant. Here the method of choice is the prediction CFA.

Table 8:
Membership of socio-demographic subgroups

SDK (knots)	**Socio-demographic Characteristics**				**Frequencies**	
	Class affiliation (Schicht)	**Age classes** (Alter_n)	**State** (Land)	**Sex** (f06)	**absolute**	**relative (%)**
1	1	•	•	•	139	10,6
2	2	1	•	•	52	3,9
3	2	234	•	•	273	20,9
4	345	•	0	1	279	21,3
5	345	•	0	2	277	21,2
6	345	•	1	•	286	21,9

SPSS-Syntax 8:

```
*Socio-demographic configurations (SDK).
compute SDK=0.
if (schicht = 1) SDK=1.
if (schicht = 2 and alter_n = 1) SDK=2.
if (schicht = 2 and (alter_n = 2 or alter_n = 3 or alter_n =4)) SDK=3.
if ((schicht = 3 or schicht =  4 or schicht = 5) and land = 1) SDK=6.
if ((schicht = 3 or schicht =  4 or schicht = 5) and land = 0 and F06 = 1) SDK=5.
if ((schicht = 3 or schicht =  4 or schicht = 5) and land = 0 and F06 = 2) SDK=4.
variable labels SDK "socio-demographic knots".
value labels
1 „lower class (SDK=1)"
2 „lower middle class./12-14 y. (SDK=2)"
3 „lower middle class./15 y. and older (SDK=3)"
4 „middle class and above/west/female. (SDK=4)"
5 „ middle class and above /west/male. (SDK=5)
6 „ middle class and above /east (SDK=6)".
execute.
frequencies variables SDK
/order = analysis
execute.
```

Table 9:
Socio-demographic subgroups

Socio-demographic subgroups (SDK)	Frequencies	
	absolute	relative (%)
SDK=1 lower class	250	9,9
SDK=2 lower middle class./12-14 years	107	4,3
SDK=3 lower middle class./15 years and older	535	21,3
SDK=4 middle class and above/west/female	523	20,8
SDK=5 middle class and above/west/male	530	21,1
SDK=6 middle class and above/east	570	22,7
total	2515	100,0

The explorative prediction CFA is realized over a two-dimensional cross-classification table (SPPS-Syntax 9). The results can be interpreted in table 10.

SPSS-Syntax 9:

```
*Prediction-CFA: types of goals in life with socio-demographic subgroups
CROSSTABS
 /TABLES=sdk  BY lzpro_4
 /FORMAT= AVALUE TABLES
 /STATISTIC=CHISQ
 /CELLS= COUNT ASRESID.
```

Table 10:
Cross-classifications table (LZPRO_4 with socio-demographic knots [SDK]): number and corrected standardized residues [scr_{ij}]

socio-demographic knots [SDK]:		LZPRO_4: Goal in life 4-types model				total (Z_i)
		111	112	222	223	
1 lower class (SDK=1)	number	59	34	25	21	139
	csr_{ij}	***4,2***	-,2	-,9	***-3,2***	
2 lower middleclass/12-14 years (SDK=2)	number	20	19	7	6	52
	csr_{ij}	1,8	1,9	-1,4	-2,5	
3 lower middle class/15 years and older (SDK=3)	number	80	56	68	69	273
	csr_{ij}	,8	-2,0	1,8	-,5	
4 middle class and above/west/female (SDK=4)	number	47	71	59	100	277
	csr_{ij}	***-4,4***	,2	,1	***4,1***	
5 middle class and above/west/male (SDK=5)	number	86	74	40	79	279
	csr_{ij}	1,5	,5	***-3,1***	,8	
6 middle class and above/east (SDK=6)	number	65	76	75	70	286
	csr_{ij}	-2,0	,6	2,5	-,8	
total (S_j)	number	357	330	274	345	1306

The corrected standardized residues (see Fuchs-Kenett-Test in Bortz and Lienert 1998; Lautsch and von Weber 1995) are computed as follows:

$$\text{csrij} = \text{uij} = \frac{n_{ij} - e_{ij}}{\sqrt{e_{ij}\left(1 - \frac{Z_i}{N}\right)\left(1 - \frac{S_j}{N}\right)}}$$

with e_{ij} : expected frequencies under the zero hypothesis of total independence
Z_i : sum of row frequencies
S_j : sum of column frequencies

The question which frequencies of cells are statistically significant is answered by the in-equation: $csr_{ij} > u_{\alpha^*;\ \text{two-sided}} = \mathbf{u0{,}00208;\ two\text{-}sided = 3{,}08}$ (adjusted α after Bonferroni: $\alpha^* = \alpha$ / 24 cells = 0,05/24 = 0,00208).

The Kimball-Castellan-Test (Lautsch 2000) can be used, if it is not only the aim to test whether the two goal-in-life-types 111 und 223 are specific solitary socio-demographic manifestations, but can be found together as complementary prediction types. For this test table 10 is reduced to table 11.

Table 11:
Reduced table

socio-demographic knots (SDK)	LZPRO_4: Goal in life 4-Types model			total
	111	112 & 222	223	
1: lower class (SDK=1)	a = 59	59	b = 21	A = 139
4: middle class and above/west/ female (SDK=4)	c = 47	130	d = 100	B = 277
SDK = 2,3,5,6: others	251	415	224	890
total	C = 357	604	D = 345	N = 1306

Kimball-Castellan-formula:

$$X = \frac{N \times \left(A \times \left(C \times d - D \times c\right) - B \times \left(C \times b - D \times a\right)\right)^2}{ABCD \times (A+B) \times (C+D)} =$$

$$= \frac{1306 \times (139 \times (357 \times 100 - 345 \times 47) - 277 \times (357 \times 21 - 345 \times 59))^2}{139 \times 277 \times 357 \times 345 \times (139+277) \times (357 \times 345)} =$$

= 37,075 (**d**egree of **f**reedom: df = 1).

Because X = 37,075 > $\chi^2_{\alpha=0,05;df=1}$ = 3,84 , it is possible to keep the assumption of two complementaries prediction types.

On the basis of the positive statistically significant csr_{ij} (table 10) and the result of the Kimball-Castellan-test (table 11) it can be stated for the German youth:

1. *Members of lower classes express less concrete evaluations of goals in life and values independently of age, sex and state.*

2. *Girls from the western states and of middle class background and above identify highly with conventional goals in life as well as hedonism, independence and social integration combined with political and social engagement.*

4. Discussion

These final results and outcomes concerning the structure of types and their socio-demographic description do not pass strict inference statistical criteria. A variety of statistical methods are tested with the data set. Therefore the results can at least be interpreted in an exploratory fashion.

The authors suggest considering using a cross validation at the beginning of the data analysis which means to split the set of data randomly. The first set of data is analyzed as demonstrated. The statistical results are used to hypothesize about the structure of types and the socio-demographic diversity of types. The hypothesis is tested with the second set of data by building a two-dimensional cross-classification table and through the use of the inference statistical version of prediction CFA. This procedure allows to speak of "real" statistically significant socio-demographic types of goals in life.

Technically this is a relatively simple procedure of data preparation (construction of two variables) and only a multiple series of a number of reduced subtables of a cross-classification table (inference statistical prediction-CFA).

The first part of this procedure is conducted with the use of a SPSS routine procedure. For the second part SPSS offers only limited possibilities, but for prediction CFA, special software is offered by some CFA authors (http://www.lienert-archiv.de).

The results of this study are not contradictory to the outcomes discussed by Gensicke (2002). The structure of goals in life is confirmed. The extended socio-demographic differentiation is in contradiction to Gensicke multifactorial und multivariate and therefore shows different results.

In this article it is shown that the employed methodological strategy can be used if the depended variable is multidimensional, a multiplicity of influencing factors (independent variables) exists and the knowledge about the subject is limited.

Another aim of this article was to demonstrate that standard software (SPSS) is suitable for the application of special tests and methods in data preparation as well as in data analysis.

References

1. Bortz, J. and Lienert, G.A.: Kurzgefasste Statistik für die klinische Forschung - Ein praktischer Leitfaden für die Analyse kleiner Stichproben. Berlin: Springer-Verlag, 1998.
2. Bühl, A. and Zöfel, P.: SPSS Methoden für die Markt- und Meinungsforschung. New York: Addison Wesley, 2000.
3. Bühl, A. and Zöfel, P.: SPSS Version 10 - Einführung in die moderne Datenanalyse unter Windows. New York: Addison-Wesley, 2000.
4. Hurrelmann, K. and Albert M. (eds.): Jugend 2002. Zwischen pragmatischem Idealismus und robustem Materialismus. Frankfurt am Main: S. Fischer Verlag GmbH: 2002.
5. Gensicke, Th.: Individualität und Sicherheit in neuer Synthese? Wertorientierungen und gesellschaftliche Aktivität. In Hurrelmann, K. and Albert M. (eds.): Jugend 2002 Zwischen pragmatischen Idealismus und robusten Materialismus. Frankfurt am Main: S. Fischer Verlag GmbH: 2002.

6. Krauth, J.: Einführung in die Konfigurationsfrequenzanalyse (KFA) - Ein multivariates nichtparametrisches Verfahren zum Nachweis und zur Interpretation von Typen und Syndromen. Weinheim: Psychologie Verlags Union, 1993.
7. Krauth, J. and Lienert, G.A.: KFA - Die Konfigurationsfrequenzanalyse und ihre Anwendung in Psychologie und Medizin. Freiburg/München: Verlag Karl Alber: 1973.
8. Lautsch, E.: Evaluation von Prädiktionstypen (demonstriert am Beispiel der kriminologischen Forschung). In Lautsch, E. and von Eye, A. (eds.): Configural Frequency Analysis – new approaches and applications. Lengerich: Pabst Science Publishers, 2000.
9. Lautsch, E. and Lienert, G.A.: Binärdatenanalyse. Weinheim: Psychologie Verlags Union, 1993.
10. Lautsch, E. and von Weber, St.: Methoden und Anwendungen der Konfigurationsfrequenzanalyse (KFA). Weinheim: Psychologie Verlags Union, 1995.
11. von Eye, A. Configural Frequency Analysis – Methods, Models and Applicatons. London: Lawrence Erlbaum Associates, 2002.
12. SPSS Inc., Marketing Department: AnswerTree ® 3.0 Handbook. Chicago: SPSS Inc., 2001.