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# DATA QUALITY IN MAWI AND CAWI

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## CAWI and MAWI

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ü CAWI – Computer-Assisted Web Interview

(Web interview conducted via computer or laptop)

ü MAWI – Mobile-Assisted Web Interview

(Web interview conducted via cell phones)

# Experiment

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Two-factor experiment, with two levels of each factor:

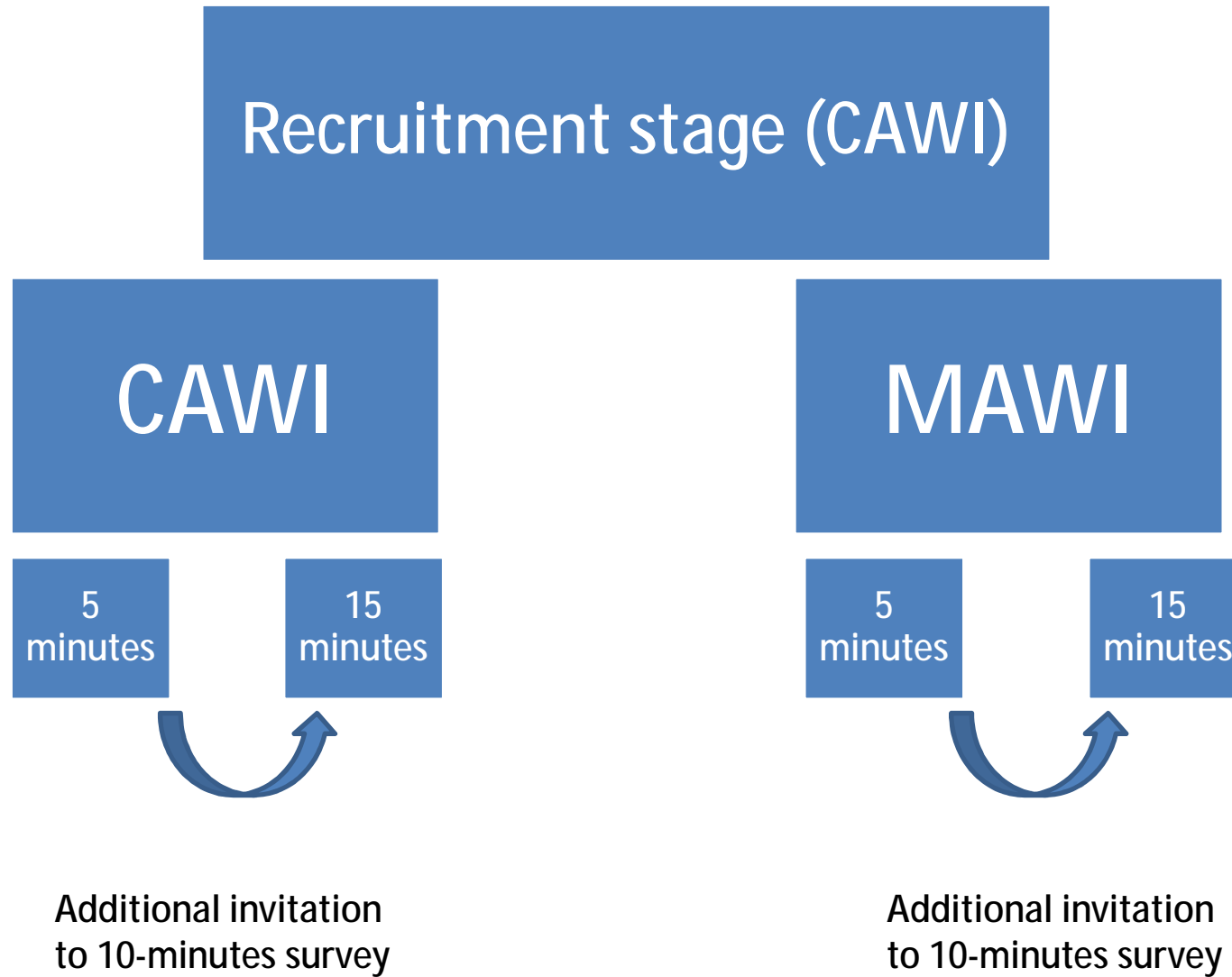
ü Mode of data collection: CAWI and MAWI.

ü Length of the questionnaire: 5 minutes, 15 minutes.

Object: Cell phone owners aged at least 18 y.o. who used mobile Internet in their phones for the last 30 days.

# Experimental Design

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## Fieldwork Time and Procedure

ü Fieldwork time: November 24 to December 8, 2011, by *Online Market Intelligence (OMI)*.

ü Geography: Russia.

ü Recruitment Stage: Random invitations among the participants of OMI online access-panel according to the gender and age profile of the mobile Web population in Russia in 2011 (provided by Fund of Public Opinion).

ü Main Survey: MAWI respondents received invitation by SMS on their cell phones, CAWI respondents received invitation to their e-mails.

ü Software: Kinesis.

## Data Quality. Indicators

1. Response rates.
2. Response-order effects.
3. Non-substantive responses.
4. Social desirability.
5. Length of open-ended questions.

## Number of the Respondents

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	<b>Survey Mode</b>	
<b>Survey Length</b>	CAWI	MAWI
Short	532	481
Long	513	415

Total number of the respondents – 1013

## Questionnaire

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ü Short questionnaire: 21 questions.

Mobile Web usage patterns, questions about life satisfaction and health estimation, demographic questions.

ü Long questionnaire : 54 questions.

Short questionnaire + additional questions about health, statements which indicated the confidence of the respondents in future and self-reliance, block of sensitive questions with the acceptance of deviant behavior and attitude towards deviant practices.



## Response Time

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	Survey Mode	
Survey Length	CAWI	MAWI
Short	5.28 min.	15.46 min.
Long	9.66 min.	29.46 min.

## Profile of the Respondents

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There were statistically *significant differences* between the modes concerning:

- üage,

- üeducation,

- üfrequency of mobile Web usage,

- üsmartphone ownership.

Respondents *did not differ* in:

- ü gender,

- ümobile Web usage experience.

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# 1. Response Rate

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# Response Rates

	CAWI			MAWI		
	Short	Long	TOTAL	Short	Long	TOTAL
<b>Recruitment Stage</b>						
Number of the invitations	1,963	1,963	3,926	11,163	11,162	22,325
N (number of the completes)	360	380	740	1,048	1,052	2,100
Start Rate	29.5% (580)	30.8% (604)	30.2% (1184)	28.3% (3163)	28.9% (3222)	28.6% (6385)
Response Rate (RR <sub>1</sub> ) <sup>***</sup>	27.8% (545)	29.3% (576)	28.6% (1121)	24.4% (2728)	25.0% (2790)	24.7% (5518)
Droupout Rate <sup>***</sup>	6.0% (35)	4.6% (28)	5.3% (63)	13.8% (435)	13.4% (432)	13.6% (867)
Agreement Rate (AR) <sup>***</sup>	98.6% (572)	98.5% (595)	98.6% (1167)	45.1% (1428)	44.6% (1437)	44.9% (2865)
<b>Main Stage</b>						
Number of the invitations	360	372	722	625	609	1,234
N (number of the completes)	266	266	532	247	234	481
Start Rate <sup>***</sup>	83.9% (302)	80.1% (298)	83.1% (600)	49.0% (306)	49.3% (300)	49.1% (606)
Response Rate (RR <sub>2</sub> ) <sup>***</sup>	83.3% (300)	78.2% (291)	81.9% (591)	41.0% (256)	39.2% (239)	40.1% (495)
Droupout Rate <sup>***</sup>	0.7% (2)	2.3% (7)	1.5% (9)	16.3% (50)	20.3% (61)	18.3% (111)

\*\*\* p < 0.001 - Chi-squared test, comparing MAWI and CAWI (two-tailed)

## Response Rates

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The *final response rate* which takes into account response rate at the recruitment stage, agreement rate to participate in the main survey and response rate in the main questionnaire:

üCAWI: 23.1%

üMAWI: 4.5%

## Additional Survey

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Participation in the additional survey.

üCAWI – 95.1%

üMAWI – 81.8% (Chi-square= 22.70,  $df = 1$ ,  $p < 0.001$ )

No effect of age, gender, education, cell phone features and experience with mobile Web usage on decision to participate in additional survey in both survey modes.

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## 2. Response Order Effects

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# Response-Order Effects

## Ordinal Logistic Regression Coefficients Predicting Response-Order Effects

	Average usage of mobile Web		Experience in using mobile Web		The frequency of mobile Web usage yesterday		Time spent in mobile Web yesterday		Satisfaction with the life		Life in the next 12 months	
	CAWI	MAWI	CAWI	MAWI	CAWI	MAWI	CAWI	MAWI	CAWI	MAWI	CAWI	MAWI
<b>Reverse Order</b>	0.26 (0.16)	0.08 (0.19)	0.63 (0.16)	0.02 (0.17)	0.24 (0.16)	0.07 (0.16)	0.76 (0.17)	0.46 (0.17)	0.21 (0.16)	0.09 (0.17)	0.10 (0.17)	0.13 (0.18)
<b>Wald Chi-Square (df=1)</b>	2.65+ (n.s.)	0.20 (n.s.)	15.75**	0.02 (n.s.)	2.41 (n.s.)	0.19 (n.s.)	20.17**	7.64*	1.65 (n.s.)	0.27 (n.s.)	0.34 (n.s.)	0.50 (n.s.)
<b>N</b>	532	481	532	481	532	481	450	447	525	476	492	434

+ p < 0.10, \*\* p < 0.01, \*\*\* p < 0.001 (two-tailed)  
Standard errors reported in parentheses

- All coefficients are positively signed which shows primacy order effects in both survey modes.
- Although the effects are rather small in both survey modes and vary from one question to another, they are slightly stronger in CAWI.



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## **3. Non-Substantive Responses**

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# Non-Substantive Responses

		CAWI		MAWI		Chi-square, <i>df</i> = 1
		%	N	%	N	
Non-sensitive questions. Difficult to answer						
Level of satisfaction with the life		1.2%	7	1.0%	5	0.09 (n.s.)
Evaluation of the life of family in the next 12 months		8.0%	45	9.8%	47	1.04 (n.s.)
Frequency of eating healthy food		1.2%	7	1.7%	8	0.33 (n.s.)
Evaluation of the health		0.8%	2	0.9%	2	0.02 (n.s.)
Sensitive questions. Difficult to answer						
Stealing in the shop		3.9%	21	3.6%	15	0.05 (n.s.)
Neighbour shouts at children	a	1.5%	8	2.2%	9	0.63 (n.s.)
	b	0.9%	5	2.9%	12	5.17*
Sexual molestation	a	2.4%	13	2.4%	10	0.00 (n.s.)
	b	0.9%	5	1.2%	5	0.17 (n.s.)
Elderly woman steals cheese	a	8.9%	48	7.0%	29	1.16 (n.s.)
	b	1.7%	9	1.4%	6	0.08 (n.s.)
Youngsters shout at foreign-born woman	a	3.7%	20	2.4%	10	1.30 (n.s.)
	b	0.7%	4	2.2%	9	3.55 (n.s.)
Neighbour beats his children	a	2.8%	15	1.7%	7	1.25 (n.s.)
	b	1.1%	6	1.9%	8	1.08 (n.s.)
Teenage pregnancy	a	8.5%	46	10.4%	43	0.93 (n.s.)
	b	1.5%	8	1.7%	7	0.06 (n.s.)

\**p* < 0.05 (two-tailed), \*\*\**p* < 0.001 (two-tailed)

a – attitude to deviant behavior, b – occurrence of deviant behavior

# Non-Substantive Responses

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	CAWI		MAWI		Chi-square, <i>df</i> = 1
	%	N	%	N	
<b>Income</b>					
Difficult to answer	9.8%	55	4.0%	19	13.28 <sup>***</sup>
Out-of-range values	2.1%	12	1.9%	4	0.05 (n.s.)
<b>Non-sensitive questions. None of the above</b>					
Web-sites respondents use in their cell phones	0%	0	0%	0	
Procedures respondents followed to feel healthy	0.6%	3	1.9%	8	3.87 <sup>*</sup>

\**p* < 0.05 (two-tailed), \*\*\**p* < 0.001 (two-tailed)

a – attitude to deviant behavior

b – occurrence of deviant behavior

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## 4. Social Desirability

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# Social Desirability

	CAWI	MAWI	Chi-square, <i>df</i> = 2
<b>Stealing in the shop</b>			
Yes	27.3%	32.3%	2.84 (ns)
No	68.8%	64.1%	
Difficult to answer	3.9%	3.6%	
<b>Abortions</b>			
Always permissible	6.7%	8.9%	1.68 (ns)
Permissible only in certain circumstance	75.0%	72.8%	
Never permissible	18.4%	18.3%	
<b>Homosexual relationships</b>			
Always permissible	13.5%	16.6%	2.19 (ns)
Permissible only in certain circumstance	27.8%	28.7%	
Never permissible	58.6%	54.7%	
<b>Sex with other partners if people are married</b>			
Always permissible	13.2%	12.8%	0.28 (ns)
Permissible only in certain circumstance	47.7%	49.4%	
Never permissible	39.1%	37.8%	

# Social Desirability

		CAWI		MAWI		Chi-square
		%	N	%	N	
1. Neighbour shouts at children	a	97.2%	524	95.4%	396	2.32 (ns), <i>df</i> =2
	b	27.6%	149	19.0%	79	13.74**, <i>df</i> =2
	c	90.2%	486	90.6%	376	0.05 (ns), <i>df</i> =1
2. Sexual molestation	a	93.7%	505	94.0%	390	0.05 (ns), <i>df</i> =2
	b	73.7%	397	72.3%	300	0.34 (ns), <i>df</i> =2
	c	83.7%	451	82.7%	343	0.18 (ns), <i>df</i> =1
3. Elderly woman steals cheese	a	85.7%	462	84.6%	351	4.36 (ns), <i>df</i> =2
	b	18.2%	98	16.6%	69	0.49 (ns), <i>df</i> =2
	c	38.2%	206	31.1%	129	5.24*, <i>df</i> =1
4. Youngsters shout at foreign-born woman	a	94.1%	507	95.1%	397	1.43 (ns), <i>df</i> =2
	b	18.4%	99	17.3%	72	3.64 (ns), <i>df</i> =2
	c	83.7%	451	83.6%	347	0.00 (ns), <i>df</i> =1
5. Neighbour beats his children	a	96.1%	518	97.3%	404	1.31 (ns), <i>df</i> =2
	b	33.4%	180	27.0%	112	5.29 (ns), <i>df</i> =2
	c	88.7%	478	86.7%	360	0.82 (ns), <i>df</i> =1
6. Teenage pregnancy	a	73.7%	397	72.3%	300	0.93 (ns), <i>df</i> =2
	b	27.6%	149	25.8%	107	0.45 (ns), <i>df</i> =2
	c	57.9%	312	54.9%	228	0.10 (ns), <i>df</i> =1

\*  $p < 0.05$ , \*\*  $p < 0.01$  (two-tailed)

a – % reporting attitudes to deviant behavior as “bad” and “very bad”

b – % reporting the occurrence of deviant behavior (“sometimes” and “often”)

c – % reporting they were annoyed by deviant behavior

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## 5. Acquiescence Response Style: MCA

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Table: Distribution of variables, Computer (first line) and Mobile (second line, in italics) in percent ( $N = 954$ )

Variable	Absol. agree	agree	disagree	Absol. disagree	Statistics
I have little influence over things that happened to me	5.9	14.3	47.1	32.7	$X^2 = 6.8$
	3.9	16.9	41.2	38.1	n.s.
I can always execute my plans	21.7	65.1	12.2	0.9	$X^2 = 1.4$
	19.5	67.5	12.5	0.5	n.s.
I always feel helpless when problems appear in my life	2.8	12.4	53.6	31.2	$X^2 = 1.8$
	3.6	10.4	52.5	33.5	n.s.
What happens to me in the future in large parts depends on me	58.1	35.3	5.9	0.7	$X^2 = 3.6$
	61.4	34.5	3.9	0.2	n.s.
What I can do changes my life very little	1.7	8.5	45.1	44.7	$X^2 = 0.7$
	1.2	8.4	47.2	43.1	n.s.



Figure: MCA, Computer

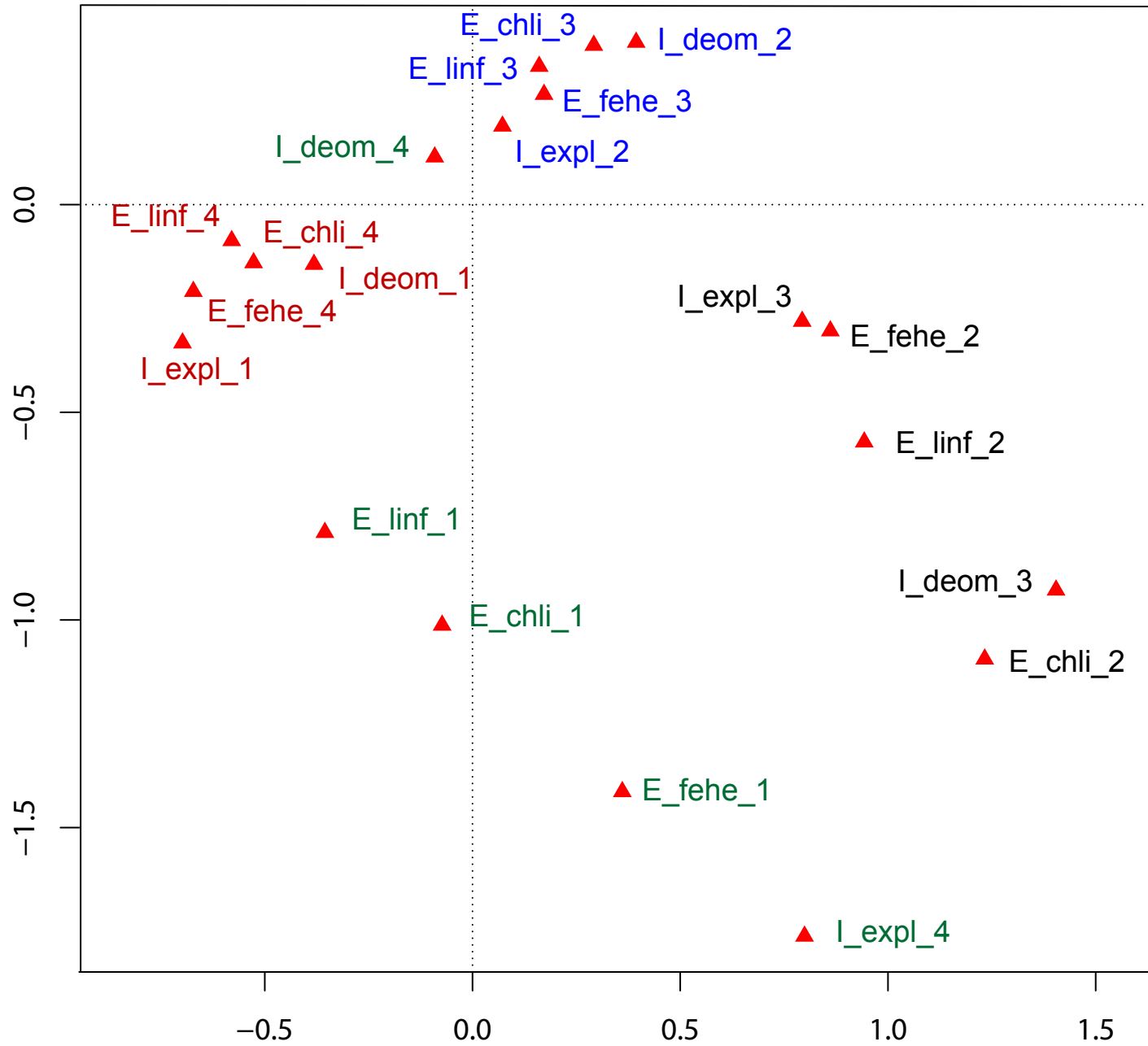


Figure: MCA, Mobile

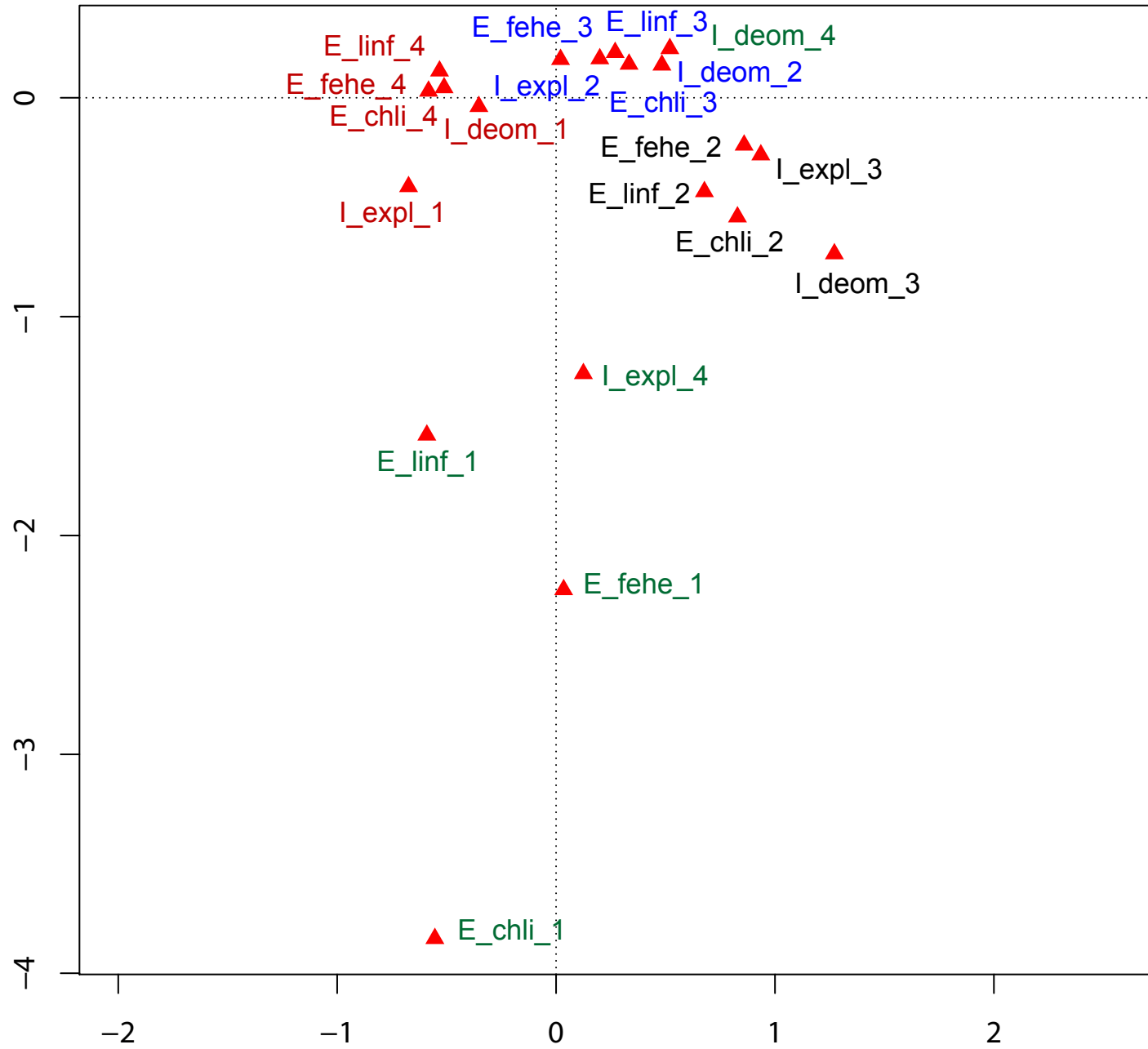


Table: Decomposition of Inertia, Computer vs. Mobile

Modell	N of Dim.	D1		D2		Total	
		Abs.	In %	Abs.	In %	Abs.	In %
<b>Computer</b>							
All Categories	15	0.250	32.5	0.131	17.0	0.770	100.0
Absolutely agree	5	0.077	48.8	0.035	22.1	0.157	20.4
Agree	5	0.079	59.6	0.021	16.1	0.132	17.1
Disagree	5	0.042	40.8	0.026	25.6	0.103	13.4
Absolutely disagree	5	0.049	34.8	0.039	28.0	0.141	18.3
<b>Mobile</b>							
All categories	15	0.217	28.7	0.133	17.6	0.755	100.0
Absolutely agree	5	0.113	63.8	0.027	15.2	0.178	23.6
Agree	5	0.064	51.8	0.024	19.0	0.125	16.6
Disagree	5	0.051	47.1	0.020	18.2	0.110	14.6
Absolutely disagree	5	0.045	32.6	0.040	29.3	0.137	18.1