Individual and Institutional Conditions of Study-Outcome

Werner Georg – Tino Bargel
AG Hochschulforschung, Universität Konstanz

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Focus of research in higher education

–**Research about "drop-out"**

Leaving higher education without an exam

–**Research about "study success"**

Duration of studying and result of exam

–**Research about "Study-outcomes"**

Subject benefits, abilities and general competencies

Concept of German Student Survey I

Indicators for the cultural dimension of studying at universities

- Access to higher educational institutions
- Choice of training and expectations from higher education
- Teaching situation and quality of study program
- Learning and work behavior; motivation and strategies
- Life situation, financing and gainful employment
- Contacts and communication, counseling
- Difficulties, problems and stress of studying
- Computer and Internet use, new media in teaching
- Wishes and demands for development of higher educational
- Choice of profession and conceptions of professions
- Societal and political conceptions, attitudes and demands
- Social background data and biographical situation

Concept of German Student Survey II

Sample of institutions and students

Survey starting 1982/83, eleven enquiries, last enquete winter 2009/10

Institutions

–Selected 26 of 279 higher educational institutions

–17 universities and 9 universities of applied science

Students

–By chance about 5 percent at every institution

–Invited 28.000 students, participation 7.850 (rate 28%)

Data set: about 95.500 students in all eleven enquiries together

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Concept of German Student Survey III

Theoretical Dimensions of 16 Items for Study-Outcome

I.   **Subject special competence:** (1) subject knowledge, (2) methodological knowledge,

II. **Scientific competence:** (1) capability to do own research; (2) interdisciplinary knowledge,

III. **Intellectual competence:** (1) logical thinking, (2) analyze and solve problems,

IV. **Working competence:** (1) working techniques, (2) planning and organization,

V.   **Personal competence:** (1) autonomy, (2) general education, (3) critical faculty,

VI. **Social competence:** (1) team-work, (2) rhetoric ability, (3) social responsibility,

VII. **Practical competence:** (1) practical abilities (2), professional preparation/employability.

Evaluation of Study-Outcome by Students at German Universities (2009/10)
(selected 10 items)

Study outcome	All students (5. to 12. Sem.)		
	very much	rather much	together
subject-specific benefits	55	41	96
autonomy	49	36	85
intellectual abilities	33	46	79
capacity for teamwork	31	42	73
critical faculties	29	41	70
ability to organize	26	43	69
knowledge of methods	23	45	68
practical abilities	20	41	61
sense of responsibility	20	34	54
ability to do research	14	33	47

Scale from 0 = nothing at all to 6 = very much; percentage for 3 -4 : some , 5 – 6 = very much.

Source: German Student Survey, AG Hochschulforschung, Universität Konstanz, 11. Enquiry 2009/10

Evaluation of Study-Outcome by Students by Field of Subject (2009/10)
(selected 10 items)

Study outcome	Field of study						
	Language	Social	Law	economy	medicine	science	engineering
subject-specific benefits	4,4	4,4	4,5	4,5	5,0	4,8	4,8
autonomy	4,5	4,3	4,2	4,4	3,8	4,1	4,2
intellectual abilities	3,7	3,7	3,9	4,0	2,8	4,2	4,1
capacity for teamwork	3,5	3,7	1,4	3,1	2,7	3,8	**3,9**
critical faculties	3,9	4,0	3,6	3,3	2,4	3,4	3,3
ability to organize	3,4	3,4	3,0	**3,6**	2,7	3,3	3,5
knowledge of methods	3,4	3,6	2,6	3,1	3,0	3,8	3,5
practical abilities	2,8	2,6	2,0	2,2	3,4	3,6	2,9
sense of responsibility	3,1	3,6	2,1	2,1	3,2	2,2	2,2
ability to do research	2,8	2,8	2,0	1,9	2,4	3,1	2,6

Scale from 0 = nothing at all to 6 = very much; percentage for 3 - 6 = rather and very much,

Source: German Student Survey, AG Hochschulforschung, Universität Konstanz, 11, Enquiry WS 2009/10

Model of individual and institutional factors A

Eight individual factors of the students

- intrinsic motivation for choosing a field of study (sample item: "special subject interest"): 3 items,
- extrinsic motivation for the choice of subject area (sample item: "income potential in later profession"): 3 items,
- achievement motivation and ambition (sample item: "I work intensively to get good examination results"): 5 items,
- examination stress (sample item: "before examinations I usually feel stress"): 2 items,
- difficulties with achievement requirements (sample item: "I find it hard to prepare efficiently for examinations"): 3 items,
- communicative difficulties (sample item: "I find it hard to relate to teachers"): 3 items,
- stress due to the overall situation (sample item: "I feel under pressure due to the anonymity of the university"): 3 items,
- future-related stress (sample item: "uncertain professional prospects"): 2 items,

Model of individual and institutional factors B

Four institutional factors of the field of study

- transparency and practicality of the course of study (sample item: "well-organized plan of studies"): 3 items

- performance demands and competition in the course of study (sample item: "high performance norms"): 2 items

- counseling and support by teachers (sample item: "can you obtain personal counseling from college teachers
  if this is necessary for the course of study?"): 6 items

- teaching quality (sample item: "the learning aim of the course is clearly defined"): 7 items

Model 1: Subject specific benefits: subject knowledge, individual level

Predictor	Estimate	Standard Error	P-Value
Individual Level			
Intrinsic motivation	.002	.011	.878
Extrinsic motivation	**-.018**	**.009**	**.035**
Gender	-.063	.057	.264
Grade of gymnasium	-.006	.006	.311
Certainty of being able to study	**.080**	**.036**	**.026**
Considered change of subject	**-.106**	**.022**	**<.001**
Time budget for instruction	**.009**	**.004**	**.022**
Time budget for private study	.003	.003	.362
Gainful employment during semester	-.051	.035	.146
Motivation to succeed	**.036**	**.008**	**<.001**
Grade on intermediate examination	.002	.005	.736
Examination stress	-.002	.008	.830
Performance difficulty	-.005	.021	.816
Communication difficulty	.021	.017	.217
Father's educational attainment	.022	.014	.126
General stress	**-.035**	**.008**	**<.001**
Future related stress	-.020	.013	.119
Financial stress	**.039**	**.014**	**.006**
R2 within subjects	.204		

Model 1: Subject specific benefits: subject knowledge, subject level

Predictor	Estimate	Standard Error	P-Value
Subject level			
Transparency	.079	.041	.089
Achievement norm	.047	.043	.268
Quality of counseling	-.070	.037	.059
Teaching quality	.079	.055	.153
Social Sciences	-.005	.098	.956
Law	-.050	.209	.810
Economics	-.266	.162	.100
Medicine	-.099	.182	.589
Natural sciences	.009	.111	.938
Engineering	-.051	.133	.703
Other subjects	-.051	.155	.743
Intercept	3.046	.699	<.001
Residual variance:			
- individual level	1.152	.054	<.001
subject level	.008	.007	.246
R2 between subjects	.905		
Intra class correlation null model / model	.055 / .032		
N	1765		

Source: German Student Survey, AG Hochschulforschung, Universität Konstanz, 11. Enquiry WS 2009/10

Model 2: social skills as responsibility and teamwork, individual level
Predictors of social skills on the individual and subject level (Bayesian Estimator, one-tailed p-value)

Predictor	Estimate	Standard Error	P-Value
Individual Level			
Intrinsic motivation	.023	.016	.151
Extrinsic motivation	.020	.011	.071
Gender	**.247**	**.084**	**.003**
Grade of gymnasium	**.017**	**.007**	**.019**
Certainty of being able to study	-.003	.042	.937
Considered Change of subject	**-.133**	**.031**	**<.001**
Time budget for instruction	**.012**	**.005**	**.017**
Time budget for private study	-.007	.005	.128
Gainful employment during semester	.039	.050	.438
Motivation to succeed	**.025**	**.012**	**.031**
Grade on intermediate examination	.001	.007	.917
Examination stress	.001	.012	.911
Performance difficulty	.034	.026	.193
Communication difficulty	**-.094**	**.020**	**<.001**
Father's educational attainment	**-.045**	**.021**	**.031**
General stress	**-.024**	**.011**	**.027**
Future related stress	**.035**	**.016**	**.026**
Financial stress	-.009	.023	.687
R2 within subjects	.656		

Model 2: social skills as responsibility and teamwork, subject level
Predictors of social skills on the individual and subject level (Bayesian Estimator, one-tailed p-value)

Predictor	Estimate	Standard Error	P-Value
Subject level			
Transparency	.010	.067	.884
Achievement norm	-.105	.077	.177
Quality of counseling	.050	.053	.348
Teaching quality	.056	.084	.503
Social Sciences	**.635**	**.143**	**<.001**
Law	-.417	.313	.183
Economics	**-.581**	**.200**	**.004**
Medicine	.160	.267	.548
Natural sciences	**-.801**	**.157**	**<.001**
Engineering	**-.850**	**.198**	**<.001**
Other subjects	-.392	.354	.269
Intercept	1.717	1.101	.119
Residual variance individual level	2.496	.072	<.001
Residual variance subject level	.008	.022	.719
R2 between subjects	.992		
Intra class correlation null model / model	.119 / .106		
N	1765		

Source: German Student Survey, AG Hochschulforschung, Universität Konstanz, 11. Enquiry WS 2009/10

Model 3: general scale of study-outcomes, individual level
Predictors of general benefits and study outcomes (Bayesian Estimator, one-tailed p-value)

Predictor	Estimate	Standard Error	P-Value
Individual Level			
Intrinsic motivation	**.213**	**.103**	**.022**
Extrinsic motivation	.051	.075	.239
Gender	-.288	.608	.918
Grade of gymnasium	.053	.051	.147
Certainty of being able to study	.476	.356	.091
Considered Change of subject	**-.931**	**.222**	**<.001**
Time budget for instruction	.054	.038	.071
Time budget for private study	-.024	.032	.325
Gainful employment during semester	.646	.417	.060
Motivation to succeed	**.614**	**.077**	**<.001**
Grade on intermediate examination	-.046	.051	.192
Examination stress	-.024	.091	.398
Performance difficulty	.062	.201	.381
Communication difficulty	**-.781**	**.167**	**<.001**
Father's educational attainment	-.187	.155	.115
General stress	**-.421**	**.081**	**<.001**
Future related stress	.168	.105	.052
Financial stress	.125	.158	.209
R2 within subjects	.174		

Model 3: general scale of study-outcomes, subject level
Predictors of general benefits and study outcomes (Bayesian Estimator, one-tailed p-value)

Predictor	Estimate	Standard Error	P-Value
Subject level			
Transparency	.213	.448	.338
Achievement norm	-.048	.503	.456
Quality of counseling	.482	.415	.149
Teaching quality	**1.201**	**.569**	**.107**
Social Sciences	**1.850**	**1.078**	**.030**
Law	-1.644	2.242	.243
Economics	-1.265	1.560	.221
Medicine	**-7.796**	**2.034**	**<.001**
Natural sciences	**-2.508**	**1.092**	**.015**
Engineering	**-3.362**	**1.378**	**.007**
Other subjects	-2.672	2.366	.155
Intercept	13.382	7.264	.028
Residual variance individual level	124.218	4.233	<.001
Residual variance subject level	.620	.964	<.001
R2 between subjects	.827		
Intra class correlation null model / model	.023 / .052		
N	1743		

Source: German Student Survey, AG Hochschulforschung, Universität Konstanz, 11, Enquiry WS 2009/10

Discussion and Consequences

Quality management and design of the academic studies.

- **Further analysis of the important individual and institutional factors**:
  The indicators normally used for institutional evaluation must undergo an empirical analysis.

- **Clear definition of responsibility and means**:
  It should be defined clearly for which parts of the specific study-outcomes the institution or faculty is really responsible.

- **Involvement and engagement of students:**
  The student is much stronger involved into his own success; therefore the behavior as "customer" displays him to much in a passive social role.

- **Advancement of activity, autonomy and learning**:
  It is necessary to advance the motivation and activity of the students and to enhance their study strategies and learning stiles.