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A Bildung-psychological investigation into student motives: McKinsey- or von Humboldt-oriented?

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ABSTRACT

This study examined differential student motives among students from a social sciences bachelor's degree, and whether this difference related to participating in educational programmes for broader intellectual formation (*Bildung*). Survey research was conducted among 432 Dutch students (79.5% female), ranging in age from 17 to 32 years ($M_{\text{age}} = 21.12$, $SD = 2.08$). With five categories of questions, the survey assessed whether study motives corresponded to *Bildung* or vocational preparation. Results indicated an overall twocomponent structure, distinguishing *Bildung* motives (indicated as the von Humboldt component) from vocational preparation motives (indicated as the McKinsey component). In addition, respondents participating in a programme for broader intellectual formation or aspiring a research master's degree programme generally scored higher on *Bildung* and lower on vocational preparation compared to students who were not. Educational consequences of these findings are discussed. The main conclusion is that a von Humboldt perspective is feasible, since a substantial number of students share the von Humboldt perspective.

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Bildung, a German word, refers to a concept that is difficult to translate into other languages. The philosopher and theologian Eckhart von Hochheim (according to historical inferences probably living from 1260–1328), in German usually indicated as *Meister Eckhart*, is considered as the scholar who introduced this concept (Spiel, Schober, Wagner, & Reimann, 2009, p. 5). For Eckhart, *Bildung*

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 Supplemental data for this article can be accessed [here](#).

was a divine process resulting in man becoming as close to the image of God as possible. God offers the image (in German: *Bild*), and to reach that image a process is needed called *Bildung*. So in that sense, *Bildung* leads to the desirable *Bild*. In later centuries the theologian context of the concept was lost, but *Bildung* still refers to a process leading to an ideal *Bild*. Mostly, this *Bild* has been defined in terms of what kind of personality is desirable for society. However, the ideas about what is desirable are changing over time.

Nowadays, the concept of *Bildung* is mostly connected with the work and the person of Friedrich Wilhelm Christian Karl Ferdinand Freiherr von Humboldt (1767–1835). von Humboldt became a very influential official in German education. The Prussian King asked him to lead the directorate of education. He installed a standardized system of public instruction, from basic schools until secondary education, and he founded Berlin University, that today bears the name Humboldt Universität. He created standardized state examinations and inspections and furthermore installed a sub department within the Ministry to oversee and design curricula, textbooks and learning aids.

The Humboldtian model of education goes beyond vocational training. In a letter to the Prussian king, Humboldt wrote:

People obviously cannot be good craft workers, merchants, soldiers, or businessmen unless, regardless of their occupation, they are good, upstanding and – according to their condition – well-informed human beings and citizens. If this basis is laid through schooling, vocational skills are easily acquired later on, and a person is always free to move from one occupation to another, as so often happens in life. (Günther, 1988)

Today, many critics of the European universities are demanding Humboldtian *Bildung* instead of vocational preparation.

One of these critics, the philosopher *Julian Nida-Rümelin*, criticised discrepancies between Humboldt's ideals and the contemporary European education policy. He argued that our modern Bachelor-Master Bologna University system is too much oriented towards the labour market and to a lesser extent towards *Bildung* (Nida-Rümelin, 2009). He urges policymakers to make a choice between von Humboldt and McKinsey, or at least to find an optimal compromise between both positions.

James Oscar McKinsey (1889–1937) was a famous professor of accounting in the University of Chicago School of Business (Flesher & Tonya, 1996), who wrote the first book in history on *management accounting* (McKinsey, 1922), and founded the well-known and still worldwide operating *McKinsey and Company*. He was a university professor and a member of an accountancy practice when he founded McKinsey in 1926 to give financial and management advice to corporations. His firm concentrated on production or pricing, in the context of the political, social, and economic climate. McKinsey was a great example of applying knowledge to business, accounting and management. In that sense he is totally the opposite of von Humboldt, who in the first place valued personal development or *Bildung*, while McKinsey is in the

first place oriented on vocational training, on what is called today knowledge economy. We think that this dilemma is a very important issue for the so-called Bildungspsychology (Spiel et al., 2009). Bildungspsychology is a specific psychological discipline, founded by Spiel and Reimann (2005). Spiel and colleagues developed a model for the study of Bildung as a lifelong learning process. This model is three dimensional, existing of *activity levels* (micro, meso, and macro level), *functional areas* (research, counselling, prevention, intervention and controlling), and the *Bildung-career*, running from infancy and early childhood to advanced adulthood. If Bildungspsychology studies Bildung, then it should go beyond studying the way that individuals are prepared for the labour market, or for the knowledge economy. Looking at the universities, there is indeed a call for more Bildung.

However, this call predominantly comes from policymakers, senior scholars and intellectuals. Very little is known about the motivation and the attitudes of the students themselves. We think that the design of study programmes should be informed by knowledge about students' motivations. It is therefore that we study the opinions and attitudes of university students with respect to the dilemma McKinsey vs. von Humboldt. In other words: Bildung vs. job market and knowledge economy. This research is in the segment of the model of Spiel et al. (2009), that is found by choosing at the level of activity: the micro level (it is about individual attitudes and motivations), the functional area of research (we hope to gather data that can be used in devising university curricula) and looking at the Bildung career it is on the level of the tertiary school.

Bildung at Utrecht University

The Faculty of Social Sciences (FSS) at Utrecht University (UU) offers 7 bachelor programs: general social sciences, cultural anthropology, pedagogical sciences, psychology, sociology and a specific bachelor for the education of future teachers of elementary schools. In addition to these regular bachelor programs students can apply for additional extra-curricular programs that offer general academic formation (Bildung). There are three such programs: the Descartes program, the von Humboldt program and participation in Liberal Arts and Science program.

The Descartes program is for students, who want to participate in a program (in addition to their regular bachelor program) that offers broader multidisciplinary insights (from humanities to physics) and historical and societal contexts. Students are selected from all the disciplines of the University. Within the FSS there is a possibility for so-called honor students to follow in their second and third bachelor years the von Humboldt program offering in total half a year of study in ethical, philosophical and methodological aspects of the social sciences.

The UU also offers a full three year bachelor in Liberal Arts and Science, which offers a multidisciplinary education. There is a differentiation in three groups

of core disciplines: (1) history, language, culture, religion and philosophy; (2) physics, geology and artificial intelligence; and (3) social sciences, geography and economy. Only this last choice is exceptionally combined with a study in one of the social science bachelor programs.

The present study

In the current study, we answer four research questions; the first being whether the questionnaire we developed can be used to assess Bildung or the von Humboldt motive, as well as the contrasting McKinsey motive. In the study reported in this paper we asked Bachelor students in the social and behavioural sciences of Utrecht University to indicate why they studied their particular Bachelor programme. Moreover, we asked them the same questions about their opinion on the relevance of science, the aims of universities, the student's own general academic attitudes. Lastly, we asked them whether they are planning to make the choice for a research master or a professional, in the UU always indicated as 'academic master'. Those who chose the option 'research master' were asked why they made this choice. We hypothesized to find a two-component factor structure across the Likert scales that we used: a component referring to Bildung, which we will call the *von Humboldt component*, and one referring to preparation for the Job Market, to be indicated as the *McKinsey component*. All questions with our hypothesized two-component structure are presented in Table 1.

The second question is about motives and attitudes of the students who are participating in the programmes, which explicitly are offered for students who are longing for a broad intellectual academic formation. We expect, and that is our second hypothesis, that students who already made the choice at our university for special programmes that offer broader intellectual formation will have higher scores on the von Humboldt component than on the McKinsey component, while in contrast their counterparts show the opposite pattern.

Thirdly, we want to compare students who make the choice for applied and practical work and therefore choose a professional oriented master ('academic master') with students who choose a 'research master'. Our third hypothesis states that those students who aspire after a research master will score higher on the von Humboldt component than on the *McKinsey component*, while those aspiring after an academic master will score higher on the McKinsey component than on the von Humboldt component.

To exclude the potential confounding effect of study achievement here, we also expected, and that is the fourth hypothesis, that students who aspire after a research master will score higher on the von Humboldt component than on the *McKinsey component*, and vice versa, even after controlling for differences in study achievement.

Table 1. Questionnaire items including hypothesized component classification (McKinsey vs. von Humboldt).

Questionnaire item	Component classification
<i>Main objective of a bachelor's degree programme</i>	
1. Intellectual education	Hum
2. To develop research skills	Hum
3. Career orientation	McK
4. To prepare for the job market	McK
5. To learn to think critically	Hum
6. To prepare for a specific master's degree programme	McK
7. To learn to see the interconnection between disciplines	Hum
8. To lay a foundation for further specialisation	McK
9. To learn to be sociocritical	Hum
10. To acquire the necessary basic knowledge	McK
<i>Importance of science</i>	
1. To be able to base your assessments on knowledge files	Hum
2. To contribute to democratic political objectives	McK
3. To train critical and outspoken citizens	Hum
4. To allow for technological applications	McK
5. To be able to base decisions on validated knowledge	Hum
6. To encourage critical thinking	Hum
7. To train useful specialists	McK
8. To build a strong knowledge economy	McK
9. To further economic prosperity	McK
10. To create independent, autonomous personalities	Hum
<i>Aim of the university</i>	
1. To train students to practice intellectual professions	McK
2. To strengthen the knowledge economy	McK
3. To create independent 'headstrong thinkers'	Hum
4. To connect and harmonise with the societal requirements	McK
5. To further democracy	McK
6. To be able to practise science independently (free from church and state)	Hum
7. To educate free and universal citizens	Hum
8. To solve societal issues	McK
9. To further freedom of speech	Hum
10. To practice teaching and research comprehensively	Hum
<i>General opinions</i>	
1. An academic degree prepares you for a career of 'lifelong learning'	Hum
2. Academic training is the main objective; being trained for a specific profession is a secondary aim	Hum
3. When I read a scientific article, I find it more important to critically reflect on it than to learn from it	Hum
4. When I study, I find it more important to understand the content than to be able to apply it to other areas	Hum
5. The main objective of an academic degree programme is to learn to theorise creatively	Hum
6. Scientific knowledge is empirically validated knowledge	McK
7. What I learn should be immediately useful; I need to be able to apply it	McK
8. Theories must have a practical use	McK
9. Practical skills are important elements of a scientific education	McK
10. To really understand always means: to be able to apply it in practice	McK
<i>Motivation to pursue a research master's degree programme</i>	
1. To increase my chances on the job market	McK
2. To practice a profession at a higher level	Hum
3. To be able to find a better salaried job	McK

(Continued)

Table 1. (Continued)

Questionnaire item	Component classification
4. To acquire scientific knowledge	McK
5. To be able to critically contribute to the societal debate	Hum
6. To become an independent thinker	Hum
7. To be able to obtain an intellectually superior position	McK
8. To write a research thesis	McK
9. To learn to conduct research independently	Hum
10. To prepare for an academic career	Hum

Note: McK = McKinsey component; Hum = von Humboldt component.

Method

Procedure

An invitational link to an online survey (using the software LimeSurvey) was sent via email to all students attending a bachelor's degree programme at the Faculty of Social and Behavioural Sciences at Utrecht University (total $N = 3359$), the Netherlands. The online survey remained active for 11 weeks between April and July 2015.

Before completing the questionnaire, students were informed on the aim of the study: to investigate student motives and how this correlates to opinions on science and the university. Despite participants' having answered several demographic variables, it was made clear all data would be collected and processed anonymously. Participation was voluntary, could be ended at any point without further notice, and no (monetary) incentive was provided. Respondents who indicated they were interested in the results of this study were requested to send a separate email to one of the authors.

Sample

Out of all the students who received the invitation, 699 students clicked on the survey link (79.2% non-response). Of the students that responded, only students who reported on the key study variables were included for further analyses ($n = 472$). Subsequent screening of the data revealed that 40 respondents did not participate in a bachelor's degree programme. We excluded these respondents from further analyses, yielding a final sample of 432 students, ranging from 17 to 32 years of age ($M_{\text{age}} = 21.12$, $SD = 2.08$, 79.5% female). Respondents were predominantly of Dutch origin (96%) and were distributed among the six bachelor's degree programmes at the Faculty of Social and Behavioural Sciences as follows: General Social Sciences (16.9%); Cultural Anthropology and Developmental Sociology (7.9%); Educational Sciences (5.1%); Pedagogical Sciences (16.2%); Psychology (48%); Sociology (6%). The distribution among the first, second, and third year of the study was 25.5, 26.4, and 48.2%, respectively. Out of the 432 students who replied to the von Humboldt questions, 361

students provided information about whether they are planning to proceed with either an academic master ($n = 298$) or a research master ($n = 63$). The rest of the respondents indicated they don't know yet what to do after finishing their bachelor, or they have other plans like traveling. GPA scores are missing for another six students. We report the exact sample sizes used for each analysis in the tables.

In Table 2, we compared our respondents with the student population on several background characteristics, showing our sample to be representative for the entire population (i.e., bachelor students at the Faculty of Social and Behavioural Sciences in Utrecht). That is, for our final sample ($n = 432$), chi-square goodness of fit tests revealed no significant distributional differences in terms of gender, year of study, and bachelor's degree programme between our sample and the total population of bachelor's degree students ($N = 3359$). We also tested for age differences and our sample was 0.25 years significantly (but not substantially) younger, $t(431) = -2.497$, $p = .013$. More details are provided in the online supplementary materials: questionnaire, data-set and logbook with syntax files and detailed results.

Measures

Student motives were assessed with a custom-made questionnaire using five categories of questions, each consisting of 10 items of which five were intended to measure the von Humboldt component and five to measure the McKinsey

Table 2. Comparison of sample characteristics with population data using χ^2 goodness of fit tests.

	Population ($N = 3359$) N (%)	Sample		χ^2 (df)
		Observed n (%)	Expected n	
<i>Gender</i> ^a		$n = 431$.42 (1)
Male	689 (20.51)	83 (19.26)	88.41	
Female	2670 (79.49)	348 (80.74)	342.59	
<i>Year of study</i> ^b		$n = 432$		5.14 (2)
1st	1019 (30.34)	110 (25.46)	131.05	
2nd	861 (25.63)	114 (26.39)	110.73	
3rd	1479 (44.03)	208 (48.15)	190.21	
<i>Degree</i> ^c		$n = 431$		5.02 (5)
CUL	265 (7.89)	36 (8.35)	34.00	
EDU	170 (5.06)	31 (7.19)	21.81	
GSS	566 (16.85)	73 (16.94)	72.62	
PED	544 (16.20)	63 (14.62)	69.80	
PSY	1611 (47.96)	200 (46.40)	206.71	
SOC	203 (6.04)	28 (6.50)	26.05	

^aIn our sample, 1 respondent indicated having an 'other' gender than male/female. For analytical purposes, this respondent was excluded from the χ^2 test (but not from main analyses).

^bSince respondents were forced to select bachelor year 1–3 in our survey, the 600 students from our population at bachelor year ≥ 4 were merged with the 3rd year students.

^cCUL = Cultural anthropology and developmental sociology; EDU = Educational sciences; GSS = General social sciences; PED = Pedagogical sciences; PSY = Psychology; SOC = Sociology.

component, see Table 1. Two of the authors of this paper (W. K. and C. O.) gathered recent Dutch and German literature on von Humboldt and McKinsey, as far as *Bildung* and vocational formation and economic thinking about knowledge and science are considered. The two authors independently derived from the chosen set of texts the most frequently used adjectives referring to both orientations. For von Humboldt adjectives like democratic, socio-critical, and autonomous were found. For the McKinsey orientation adjectives like useful, practical and technological were found. The common set of adjectives was then used to formulate the items of Table 1. All items were rated on a 5-point magnitude scale (1 = *not important at all* to 5 = *very important*). The first category referred to the opinion on the *main objective of a bachelor's degree programme* (e.g., 'to learn to be socio-critical' for the von Humboldt and 'to prepare for a specific master's degree programme' for the McKinsey component, Cronbach's $\alpha = .66$). For the second category, respondents were asked for their opinion on the *importance of science* (e.g., 'to be able to base decisions on validated knowledge' for the von Humboldt and 'to train useful specialists' for the McKinsey component, Cronbach's $\alpha = .74$). The third category referred to the opinion on the *aim of the university* (e.g., 'to create independent "headstrong" thinkers' for the von Humboldt and 'to strengthen the knowledge economy' for the McKinsey component, Cronbach's $\alpha = .71$). For the fourth category, respondents were asked to what extent they *subscribed to a number of opinions* (e.g., 'when I read a scientific article, I find it more important to critically reflect on it than to learn it's contents' for the von Humboldt and 'practical skills are important elements of a scientific education' for the McKinsey component, Cronbach's $\alpha = .41$). For the fifth, and last, category, respondents who indicated wanting to pursue a research master's degree programme were asked for their motive as to *why they would start a research master's degree programme* (e.g., 'to learn to conduct research independently' for the von Humboldt and 'to increase my chances on the job market' for the McKinsey component, Cronbach's $\alpha = .64$).

In addition, the following demographic variables were assessed: gender (male/female/other; age; native language (Dutch/non-Dutch); year of study (year 1, 2 or 3); year of enrolment (2010–2015); bachelor's degree programme (General Social Sciences/Cultural Anthropology and Developmental Sociology/Educational Sciences/Pedagogical Sciences/Psychology/Sociology); enrolment in a special programme for broader intellectual formation (von Humboldt programme/Descartes programme/Liberal Arts and Sciences); previously completed higher education degree programme (yes/no); involvement in extracurricular activities (e.g., 'membership of a board' or 'committee work'); and finally Grade Point Average (GPA).

Analytic strategy

To assess our first hypothesis whether a two-component structure (von Humboldt vs. McKinsey component) would emerge in our data, separate

exploratory factor analyses (EFA) with direct oblimin rotation and maximum likelihood extraction were conducted for all five categories of questions using IBM SPSS Statistics Version 22. In case the initial factor structure is not readily interpretable in two components but the scree plot, Eigenvalues and factor loadings do indicate two components to be viable, subsequent two-factor EFAs were conducted. In case the initial factor structure was readily interpretable in more than two components, we adhered to this structure. In the main text, we summarized findings of the EFAs and more detailed information can be found in the supplementary materials which includes not only all analytic steps, but also all the results from SPSS.

For our second hypothesis, we expected that students, who already made the choice at our university for special programmes that offer broader intellectual education, would have higher scores on the von Humboldt component than on the McKinsey component. Based on the most viable factor solution, composite factor scores were created for each of the factors. Note that factor scores take cross loading into account. Higher factor scores indicated scoring higher on the von Humboldt component, with zero indicating an average score. Multivariate analyses of variance, corrected for multiple testing (Bonferroni), were used to examine differences between students in special programmes and those who were not.

As third hypothesis, we expected that those students who made the choice for a research master would score higher on the von Humboldt component than on the *McKinsey* component. To test this hypothesis, separate multivariate analyses of variance were used on the factor scores of each of the categories of questions (with, of course, the exception of the pursuit of a research master's degree programme), corrected for multiple testing (Bonferroni).

While multivariate analyses of variance could show strong evidence for an effect of master's degree programme choice on student motives, there is reason to believe this effect might as well be caused by differences in study achievement, as reflected by respondents' GPA. Therefore, for our fourth hypothesis, we conducted the previous analyses of variance for the effect of master's degree programme choice on student motives again, but this time with a posthoc subgroup analysis. Since admission to a research master's degree programme is primarily based on a having a GPA of 3.43 and higher, this criterion was used to distinguish between categories of students that were admissible and/or aspired such a programme. We proceeded with the following variables: academic master and low GPA (Acad/low); academic master and high GPA (Acad/high); research master and low GPA (ReMA/low); research master and high GPA (ReMa/high). More detailed information about these steps can be found in the supplementary materials. Primary interest goes to the comparison of students having a low GPA but also aspired a research master's degree programme vs. students having a high GPA but did not aspire a research master's to exclude the potential confounding effect of study achievement.

More details are provided in the online supplementary materials: questionnaire, data-set and logbook with syntax files and detailed results.

Results

EFA results

Main objective of a bachelor's degree programme

For the first category of questions, referring to the opinion on the main objective of a bachelor's degree programme, the factorability of the 10 items was explored. Initial Eigenvalues and the scree plot were examined, showing two factors with an Eigenvalue larger than 1 that explained 25.5 and 20.9% of the variance respectively. This two-factor solution seemed to be readily interpretable as all items on the von Humboldt component showed high loadings on one factor and low on the other one, while the reverse was found for the items hypothesized belong to the McKinsey component.

Importance of science

With regard to the second category of questions, the opinion on the importance of science, factorability examination revealed no clear component structure in the inter-item correlation matrix. To assess the number of factors to be retained, initial Eigenvalues and the scree plot were examined, showing three factors with an Eigenvalue larger than 1 that explained 30.3, 13.8, and 12.3% of the variance respectively. However, based on the scree plot, a two-factor solution may have also been viable. Therefore, a subsequent EFA with two fixed factors was conducted. This two-factor solution showed two factors with an Eigenvalue larger than 1 to be retained, explaining 30.3 and 13.8% of the variance respectively. However, based on the structure matrix, this two-factor solution did not seem to be easily interpretable, giving preference to the initial three-factor solution. In this solution, the first factor was interpreted to represent economic importance, the second freedom and autonomy, and the third the importance of science and its applications.

Aim of the University

With regard to the opinion on the aim of the university, results showed three factors with an Eigenvalue larger than 1, with the first two factors explaining 29.1 and 13.5% of the variance respectively. In addition, the scree plot supported this two-factor solution. Upon assessing the zero-order correlations, four out of five questions regarding the von Humboldt component had high loadings on one factor and low loadings on the other one. For three out of five questions assessing the McKinsey component, a reverse result was found, leaving three ambiguous loadings on both factors.

General opinion

For the category of questions in which respondents were asked to what extent they subscribed to a number of opinions, results indicated three factors with an Eigenvalue larger than 1, with the first two factors explaining 28.2 and 15.7% of the variance respectively. In addition, the scree plot supported this two-factor solution. Upon assessing the zero-order correlations, four out of five questions regarding the McKinsey component had high loadings on one factor and low loadings on the second one. For all five questions assessing the von Humboldt component, the reverse was found.

Master's degree choice

With regard to the category of questions on which respondents, who indicated wanting to pursue a research master's degree programme, were asked for their motive as to why they would start a research master's degree programme, inter correlations showed signs of a three-factor structure (all p 's < .05). Eigenvalues and the scree plot were examined, showing three factors with an Eigenvalue larger than 1 that explained 25.8, 22.6, and 14.8% of the variance respectively. In addition, the scree plot supported an initial three-factor solution. Based on the structure matrix, the three factors seemed to represent more personal motives for choosing a research master's degree programme, instead of Bildung or vocational motives, with the first factor representing job and economical security, the second factor furthering academic competence, and the third factor representing becoming an autonomous and sociocritical citizen.

Differential study motives by study programme

In this paragraph, the multivariate effects for Special Program on each of the five categories of questions are presented, as summarized in Table 3.

Main objective of a bachelor's degree programme

For the category of questions on the main objective of a bachelor's degree programme, based on the factor scores of the initial two-factor solution, a statistically significant difference in factor scores was found based on enrolment in a special educational programme, $F(2, 429) = 10.09, p < .001$; Wilk's $\Lambda = 0.955$, partial $\eta^2 = .045$. This result indicated that students who participated in one of the programmes at the Faculty of Social and Behavioural Sciences for a broader intellectual formation, compared to those who do not, had stronger motives that correspond to the von Humboldt component when it comes to their opinion on the objective of a bachelor's degree programme. Exactly the opposite holds for the McKinsey component, see Table 3).

Table 3. Multivariate effects for special programme on each of the five categories of questions.

	Special programme					
	Yes			No		
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>
<i>Main objective of bachelor's degree programme</i>	380			52		
1. McKinsey		-.41 ^a	1.09		.06 ^a	0.98
2. von Humboldt		.40 ^b	0.76		-.05 ^b	1.02
<i>Importance of science</i>	380			52		
1. Economy		-.36 ^c	1.14		.05 ^c	0.97
2. Freedom/autonomy		.33 ^d	0.95		-.05 ^d	1.00
3. Science		.39 ^e	0.95		-.05 ^e	1.00
<i>Aim of the university</i>	380			52		
1. McKinsey		<-.01	1.02		<.01	1.00
2. von Humboldt		.14	0.92		-.02	1.01
<i>General opinion</i>	380			52		
1. McKinsey		-.40 ^f	1.00		.05 ^f	0.99
2. von Humboldt		.36 ^g	1.03		-.05 ^g	0.99
<i>Motives to pursue research master's degree programme</i>	25			38		
1. Job security		-.14	0.98		.09	1.02
2. Academic competence		.07	1.13		-.04	0.92
3. Autonomous/critical		.32 ^h	0.88		-.21 ^h	1.03

Note: Means with the same upper script differ significantly ($p < .05$), corrected for multiple testing (Bonferroni).

Importance of science

For the opinion on the importance of science, analyses were based on the initial three-factor solution that was found. Results showed a statistically significant difference in factor scores based on enrolment in a special educational programme, $F(3, 428) = 8.03, p < .001$; Wilk's $\Lambda = 0.947$, partial $\eta^2 = .053$. On closer inspection, it seemed that students from a special educational programme, compared to those who were not, valued the importance of science more in terms of fostering freedom and autonomy, in addition to valuing knowledge-based decisions, that is the importance of science and its applications (in Table 3 simply indicated as 'Science'). On the other hand, students who were not enrolled in a special educational programme had more economical motives for the importance of science.

Aim of the University

With regard to the opinion on the aim of the university, multivariate analyses of variance on the two-fixed factor solution showed no statistically significant difference in factor scores based on enrolment in a special educational programme, $F(2, 429) = .545, p = .580$; Wilk's $\Lambda = 0.997$, partial $\eta^2 = .003$. Accordingly, students from a special educational programme did not seem to differ from students not in a special educational programme on the opinion whether the university should provide vocational preparation or broader intellectual formation.

General opinion

For the category 'which opinions do you subscribe to', analysis on the two-fixed factor solution showed a statistically significant difference in factor score based on enrolment in a special educational programme, $F(2, 429) = 8.68, p < .001$; Wilk's $\Lambda = 0.961$, partial $\eta^2 = .039$. This result seemed to indicate that, in general, students from a special educational programme tended to subscribe more to Bildung-related opinions, referring to the von Humboldt component, whereas students not in a special educational programme subscribed more to practical opinions, referring to the McKinsey component.

Master's degree choice

From the analysis of variance on the three initial factor scores of the pursuit of a research master's degree programme, there was no overall statistically significant difference in factor scores based on enrolment in a special educational programme, $F(359) = 1.78, p = .161$; Wilk's $\Lambda = 0.917$, partial $\eta^2 = .083$. However, upon assessing the pairwise comparisons, it appeared that one effect was significant. Nevertheless, due to our correction for multiple testing we have refrained from interpreting this result.

Differential study motives by master's degree choice

Main objective of a bachelor's degree programme

With regard to the opinion on the main objective of a bachelor's degree programme, results indicated a significant difference between respondents who indicated wanting to pursue a research master's degree programme and those who did not, $F(2, 358) = 18.51, p < .001$; Wilk's $\Lambda = 0.906$, partial $\eta^2 = .094$. This result suggested that students who aspired a research master, scored significantly higher on the von Humboldt component and lower on the McKinsey component compared to students who aspired an academic master (Table 4).

Table 4. Multivariate effects for master's degree choice on opinion on main objective of a bachelor's degree programme (with posthoc analysis).

	N	1. McKinsey		2. von Humboldt	
		M	SD	M	SD
<i>Master's choice</i>					
Academic	298	.20 ^a	0.90	-.03 ^b	0.97
Research	63	-.51 ^a	1.08	.35 ^b	1.00
<i>By subgroup</i>					
Acad/low GPA	227	.16 ^c	0.94	.01 ^f	1.01
Acad/high GPA	58	.34 ^{de}	0.76	-.14 ^g	0.83
ReMA/low GPA	27	-.32 ^d	0.90	.19	1.15
ReMA/high GPA	33	-.64 ^{ee}	0.98	.62 ^{fg}	0.76

Note: Means with the same upper script differ significantly ($p < .05$), corrected for multiple testing (Bonferroni).

Importance of science

For the opinion on the importance of science, the analysis showed a significant overall effect of aspiration for a research master's degree programme, $F(3, 357) = 8.31, p < .001$, Wilk's $\Lambda = 0.935$, partial $\eta^2 = .065$. More specifically, pairwise comparisons indicated that respondents who wanted to pursue a research master had significantly higher scientific motives and lower economical motives than respondents who aspired an academic master's degree. For the third factor, that seemed to reflect motives of freedom and autonomy, no significant differences were found (Table 5).

Aim of the University

On the category of questions regarding the opinion on the aim of the university, an overall significant effect was found by master's degree programme choice, $F(2, 358) = 5.50, p < .01$, Wilk's $\Lambda = .970$, partial $\eta^2 = .030$. However, as indicated by the pairwise comparisons, this effect seemed only to apply to the McKinsey component, where the respondents who indicated wanting to pursue a research's master's degree programme scored significantly lower than students who aspired an academic master (Table 6).

General opinion

Analysis on the factor scores of the last category of questions, those on general opinions on broader intellectual education vs. vocational education, showed a significant effect of the aspiration for a certain type of master's degree programme, $F(2, 358) = 20.33, p < .001$, Wilk's $\Lambda = .898$, partial $\eta^2 = .102$. Here, students who aspired a research master had a significant higher score on the von Humboldt component and a lower one on the McKinsey component, whereas the opposite was found for respondents who wanted to pursue an academic master's degree programme (Table 7).

Table 5. Multivariate effects for master's degree choice on opinion on the importance of science (with posthoc analysis).

	N	1. Economy		2. Freedom/autonomy		3. Science	
		M	SD	M	SD	M	SD
<i>Master's choice</i>							
Academic	298	.12 ^a	0.93	-.03	1.02	-.06 ^b	0.99
Research	63	-.30 ^a	1.21	.11	0.96	.46 ^b	0.96
<i>By subgroup</i>							
Acad/low GPA	227	.12 ^c	0.94	-.04	1.05	-.10 ^d	1.00
Acad/high GPA	58	.08	0.93	.10	0.93	.09	0.93
ReMA/low GPA	27	-.11	1.28	.01	0.83	.36	0.97
ReMA/high GPA	33	-.49 ^c	1.11	.26	1.03	.53 ^d	0.95

Note: Means with the same upper script differ significantly ($p < .05$), corrected for multiple testing (Bonferroni).

Table 6. Multivariate effects for master's degree choice on opinion on the aim of the University (with posthoc analysis).

	N	1. von Humboldt		2. McKinsey	
		M	SD	M	SD
<i>Master's choice</i>					
Academic	298	-.01	0.98	.14 ^a	0.96
Research	63	-.03	1.11	-.31 ^a	1.07
<i>By subgroup</i>					
Acad/low GPA	227	<.01	0.98	.15	0.96
Acad/high GPA	58	-.05	1.00	.01	0.99
ReMA/low GPA	27	<-.01	1.18	-.36	0.83
ReMA/high GPA	33	.13	0.92	-.32	1.18

Note: Means with the same upper script differ significantly ($p < .05$), corrected for multiple testing (Bonferroni).

Subgroup analysis – GPA

Main objective of a bachelor's degree programme

With regard to the opinion on the main objective of a bachelor's degree programme, results indicated a significant difference between respondents within each of the four subgroups (combining type of master's degree with high/low GPA), $F(6, 680) = 6.97$, $p < .001$; Wilk's $\Lambda = .888$, partial $\eta^2 = .058$. Posthoc comparisons showed that the group of respondents from the ReMa/high group scored significantly lower on the McKinsey component and higher on the von Humboldt component than pursuers of an academic master (Table 4). Results also indicated that respondents from the ReMa/low group scored lower on the McKinsey component than respondents from the Acad/high group. For the von Humboldt component, however, no significant difference between these two groups was found.

Importance of science

For the opinion on the importance of science, the analysis showed a significant overall effect of group membership, $F(9, 825.19) = 3.35$, $p < .001$, Wilk's $\Lambda = .916$, partial $\eta^2 = .029$. However, this difference was only significant for the ReMa/high

Table 7. Multivariate effects for master's degree choice on general opinions (with posthoc analysis).

	N	1. McKinsey		2. von Humboldt	
		M	SD	M	SD
<i>Master's choice</i>					
Academic	298	.13 ^a	0.96	-.06 ^b	1.01
Research	63	-.56 ^a	0.95	.40 ^b	0.96
<i>By subgroup</i>					
Acad/low GPA	227	.12 ^c	0.98	<.01 ^f	1.03
Acad/high GPA	58	.10 ^{de}	0.93	-.25 ^g	0.90
ReMA/low GPA	27	-.50 ^{cd}	0.93	.15	0.98
ReMA/high GPA	33	-.53 ^{ce}	0.95	.64 ^g	0.94

Note: Means with the same upper script differ significantly ($p < .05$), corrected for multiple testing (Bonferroni).

vs. the Acad/low group, where the former scored lower on economical motives and higher on scientific motives (Table 5).

Aim of the University

On the category of questions regarding the opinion on the aim of the university, an overall significant effect was found for group membership, $F(6, 680) = 2.14$, $p < .05$, Wilk's $\Lambda = .963$, partial $\eta^2 = .019$. However, as indicated by the posthoc analysis, no significant differences were found between the subgroups (Table 6).

General opinion

Finally, analysis on the factor scores of the last category of questions, those on general opinions on broader intellectual formation vs. vocational preparation, showed a general significant effect of subgroup, $F(6, 680) = 6.76$, $p < .001$, Wilk's $\Lambda = .891$, partial $\eta^2 = .056$. More specifically, students who aspired a ReMa scored lower on the McKinsey component than students who wanted to pursue an academic master, regardless of GPA, where the ReMA/low group also scores significantly lower than the Acad/high group. For the von Humboldt component, only a general significant difference was found for the ReMa groups vs. the Acad groups (Table 7).

Discussion

Our data overall confirms our first hypothesis: there is evidence that students are thinking in terms of von Humboldtian Bildung vs. McKinsey like job preparation. Looking at the student motives to study the bachelor programme of their choice, there is a clear two factor structure with a von Humboldt and a McKinsey component. Further support is offered by the two factor structures for the opinions on the aim of the University and by the two factor structure for the general set of opinions asked. With respect to the motives to pursuit a research master programme, a first factor represents job and economic security, but the other two factors together represent a typical von Humboldt stance: academic competence and becoming an autonomous and sociocritical citizen. It should be realized that the first factor is not necessarily contrasting with the Bildung idea, it is quite probable that students are hoping for a secure job within typical academic (Bildung-) environments instead of hoping for applied practical jobs. Finally, in the structure of the students' opinions on the importance of science a first factor was found that stresses economic value, while the two other factors still stress a Bildung idea: freedom and autonomy, the importance of science and its applications. Opinions on the importance of science may be different from the motives for students' own choices: in their general opinions, economical importance may be accepted by students who are personally striving for Bildung instead of a position on the job market.

Our second hypothesis stated that students who already chose to follow programmes for broader intellectual formation (here further indicated as 'Bildung-students') would have higher scores on the von Humboldt- motives and lower scores on the Mc Kinsey motives compared to students who did not participate in these programmes. Based on factor scores, it is clear that Bildung-students indeed have stronger Bildung motives for their bachelor study than students who do not follow the special programmes. Analysis on the opinions on the importance of science shows that Bildung-students value the importance of science in terms of fostering autonomy and sociocriticism more than their counterparts, who prefer economic motives. With respect to the aim of the university, the Bildung-students and their counterparts do not differ in opinion. Of course, these opinions do not reflect students' personal university aims, but general ones instead. Apparently, both groups accept von Humboldt-as well as McKinsey-values as general aims of the university. With respect to their general opinions, Bildung-students subscribe more Bildung-related opinions, while their counterparts prefer practical opinions. Finally, there is no general difference by Bildung-students who want to pursue a research master's degree vs. counterparts who pursue a research master's degree, but do not participate in special programmes. This suggests that the preference for following a research master programme as such relates to Bildung-motives. The only difference is suggested (but not statistically proven) by the data in Table 7: Bildung students may be more interested in independence and critical thinking.

Our third hypothesis stated that students who aspire to pursue a research master's degree would score higher on the von Humboldt component than on the McKinsey component, and more so than their counterparts who prefer to pursue a professional master (at Utrecht University called 'academic master'). The data on the opinions on the main objectives of a bachelor's degree programme confirms this hypothesis. Data on the opinions of the importance of science confirm the hypothesis too: students who aspire to pursue a research master's degree score higher on scientific and lower on economical motives than their counterparts do. Opinions on the aim of the university differ in the expected direction too: students aspiring after a research master score lower on the factor of vocational education than their counterparts. Finally, for the questions on general opinions, those same students score higher on the von Humboldt component and lower on the McKinsey component than the students who pursue a professional 'academic master'.

Since student motives may be related to their GPA we analysed the differences between four groups of students: (1) students choosing an academic masters with low GPA; (2) idem, but with high GPA; (3) research master with low GPA; (4) idem, but with high GPA. The overall results show that students from groups three and four systematically score higher on the von Humboldt component and lower on the McKinsey component than those of groups one and two. This is independent of the GPA: even students of group three score lower

on the McKinsey component than those of group two. These data quite convincingly show the principal difference in students' perspectives: von Humboldt vs. McKinsey.

Despite these conclusive results, this study has a few limitations. In the first place, the instruments used were devised for this particular research (tailor made), and their psychometric qualities have not been investigated independently from this study. This of course may have consequences for the reproducibility of our findings. Relatedly, we decided to keep all items even if there were high cross loadings. This strategy negatively affects the psychometric properties. More research is needed to find out whether the questionnaire could be improved without the items with such cross loadings. Secondly, our research suffered from a high non-response percentage, although at the same time our final sample turned out to be statistically representative. Furthermore we only investigated the Faculty of Social and behavioural sciences and although that faculty is in between the humanities and the sciences, we cannot be sure that it is representative for the other faculties. Finally, we cannot be sure that the situation at Utrecht University is representative of other European universities. Therefore, substantial research still has to be conducted to permit generalization to other European universities.

Such research would be important for educational purposes. For the education of university students, it is essential to know their motives and attitudes. If we know, as this research indicates, that students differ fundamentally in their appreciation of a von Humboldt perspective and/or a McKinsey perspective, this has consequences for the universities' curricula. If, as nowadays is strengthened in the discussions, we opt for a von Humboldt university conception we should offer the programs that part of the students are longing for.

Following the view of von Humboldt, we conclude with our conviction that *Bildungspsychology* (Spiel & Reimann, 2005) should investigate student motives, in an attempt to realise a mentality of academically studying for *Bildung*, which is lifelong learning with professionalism as a respected, but secondary goal. Happily enough, quite a substantial number of students share this perspective and will be intrinsically motivated to develop themselves as intellectuals.

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