

Selection Processes for Three Types of Academic Jobs

An Experiment among Dutch Employers of Social Sciences Graduates

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In this paper, we present the results of an experiment designed to study the selection behaviour of employers. The aim of the study is to find out whether and to what extent selection processes differ between different types of jobs. In the experiment, we asked employers to select and rank vignettes, each one representing a hypothetical graduate, for different types of jobs. The study is restricted to Dutch employers of academic graduates in social sciences and we study selection processes for three prototypical jobs: management trainee, policy-maker in health issues, and scientific researcher. We expect systematic differences in selection criteria between the three jobs due to differences in the role of specific competence in the selection processes. The results show that the value of screening criteria indeed greatly depends on the vacancy for which the selection is made. Furthermore, the results largely support our hypotheses that specific competences are most important in selection processes for scientific researchers and that general competences are most important in selection processes for management trainees.

Introduction

Transition from higher education to the labour market is often studied by comparing characteristics of the new labour-market entrants with the results of labour-market outcomes, that is by comparing successful with unsuccessful graduates. In this paper, we study allocation processes from a different point of view. We explicitly focus on the selection behaviour of employers. To study the selection processes, we use a vignette-approach. Each vignette represents a hypothetical applicant and Dutch employers are asked to make a selection between the vignettes. We will show that this relatively simple design is a useful one for gaining insight into selection and allocation processes in the labour market.

Because we are especially interested in the transition from university to the labour market, we only

study selection processes for academic-level jobs. The study is also restricted to the selection of graduates in social sciences. More important is that we distinguish between three typical jobs. Each of these jobs represents a particular type of job. The main difference between these three types is the importance of specific (vocational) competences in the selection process. These competences are assumed to be important for one type of job, relevant for another type, and not important at all for a third type of job. We expect these differences in the role of specific competences to cause differences in selection processes between the three types of jobs. Our central research question is: *to what extent do selection criteria differ between the types of vacancies in the academic labour market?*

In the next section, we further elaborate on the selection of academic graduates and possible differences in selection processes. This elaboration results in hypotheses on differences between the three types of jobs. Thereafter, we present our research design, and, in a later section, the results of the study. We end this paper with conclusions and a discussion.

Selection of Academic Graduates

Before we elaborate on possible selection criteria, we want to stress that there is no unique way of ranking graduates on these criteria and that selection processes will differ between different types of vacancies. In this section, we argue that these differences may be caused by a different role of specific qualifications in selection processes in the labour market. As we will see, this idea is closely related to theories about optimal matches between acquired and required skills.

Selection Processes and Types of Jobs

In selection processes, employers rank applicants on their amount of human capital (Schultz, 1961; Becker, 1964; Mincer, 1974) or training costs necessary to carry out a job (Thurow, 1975). In this ranking, employers have to cope with uncertainty and can only use indicators, like educational characteristics, to estimate the (potential) productivity of labour suppliers (Spence, 1973; Thurow, 1975). The choice of these indicators is a central issue in selection processes and the main problem employers face in selection processes is to determine the most reliable indicators of (potential) productivity.

An important additional elaboration of this basic theoretical framework comes from the matching theory. This theory asserts that productivity is not only dependent on the characteristics of employees but also on the match between acquired and required skills (Tinbergen, 1956; Hartog and Visser, 1987; Hartog, 1992). Especially interesting for this study is the acknowledgement that job characteristics – in particular skill requirements are important in selection processes. Some jobs may have an optimal match with some labour suppliers, whereas for other jobs other applicants will be most productive. Thus, if we imagine a labour queue for a specific vacancy

consisting of various applicants, the ranking of these applicants depends on characteristics of the vacancy for which the selection has to be made. Note that this has serious consequences for screening criteria used in the selection of academic graduates. It implies that the value of screening criteria differs between different types of vacancies and that, for example, the advantage of having high grades may be relevant for one type of vacancy and irrelevant for another.

Based on the idea that the match between acquired and required skills is important, it seems relevant to distinguish between different types of jobs, each one being characterized by a different role of educational qualifications. Theorists on labour-market segmentation have a long tradition in this area (Doeringer and Piore, 1971; Lutz and Sengenberger, 1974; and more recently e.g. Breen *et al.*, 1997; Gangl, 1999). With respect to the academic labour market it is useful to distinguish between three types of jobs (see also Silver and Brennan, 1988).

A first type of academic job we refer to as *professional jobs*. Examples of academic-level professional jobs are judges, surgeons, and pharmacists. Other authors define these jobs as being part of the 'occupational labour market' (Lutz and Sengenberger, 1974; Marsden, 1990; Van der Velden and Borghans, 1993; Breen *et al.*, 1997; Gangl, 1999). The basic feature of professional jobs is the importance of specific (vocational) competences. Most of these jobs cannot be fulfilled without specific skills and knowledge. Breen *et al.* even assert that typical of these jobs is 'the emphasis on specific skills which can only be acquired by specific training either in school or as an apprentice' (1997: 429). As a result of the high importance of specific (vocational) competences, entrance is often formalized and institutionalized. For example, in most countries, it is not possible to become a pharmacist without having a degree in pharmacy.

The second type of academic job consists of *general jobs*. General jobs are jobs for which specific competences are not important at all. These may be jobs for which employers prefer to organize specific education themselves (as for example management trainees), or where another kind of competence is more important than specific skills and knowledge learned at school.

A last type of academic job consists of jobs for which specific competences are only partly important. Specific competences for these jobs are not necessary but advisable (see also Silver and Brennan, 1988). We define these jobs as *sector-specific jobs* because, for this type of job, sector-specific knowledge and skills are most relevant. An example of a sector-specific job is a policy-maker in environmental issues. When applying for this type of job, familiarity with the sector or field (in our example, environmental issues) is assumed to be an advantage because this implies lower training costs.

Differences in Selection Processes between the Three Types of Jobs

One of the reasons for introducing the three types of jobs is that we expect systematic differences in the selection behaviour of employers between these types. We expect selection criteria that are most directly related to specific competences to be most important in selection processes for professional jobs and least important in selection processes for general jobs (with sector-specific jobs taking up a position in between). Conversely, we expect that selection criteria that are not unambiguously related to specific competences to be most important in selection processes for general jobs and least important in selection processes for professional jobs (again with the sector-specific jobs taking up a position in between).

A remaining question is which selection criteria employers use in selecting between academic graduates, and, more importantly, which of these criteria are most directly related to specific competences? Obvious characteristics that employers use in selection processes are educational characteristics, such as the field of study, grades, and study duration. In addition, employers use other human-capital indicators, like work experience, and more 'soft' indicators like personality type or outward appearance. Of these selection criteria, we expect the field of study to be most directly related to specific competences. This means that the more important specific competences are in the selection process, the more important a corresponding academic course will be as a selection criterion. This results in the following hypothesis:

H1: A corresponding academic course is most important in selection processes for professional jobs and least important in selection processes for general jobs.

The opposite will hold for the so-called 'soft' characteristics, because these are least directly related to specific competences. This results in a second hypothesis:

H2: 'Soft' characteristics are most important in selection processes for general jobs and least important in selection processes for professional jobs.

The relationship between specific competences and the other human-capital characteristics – such as grades, study duration, and work experience – is less unambiguous. Although it is obvious that there will be a positive effect of human-capital-related characteristics in all selection processes, differences between the three types of jobs are more difficult to predict. The reason for this is that these characteristics can produce different signals. For example, grades and study duration might be used by employers with a professional vacancy to indicate the level of specific competences. The same indicators, however, can be also be used by employers with a general vacancy to gain an idea of the general level of competence of applicants. And for sector-specific vacancies, employers might use them for both reasons. The same line of argumentation holds for work experience. On the one hand, work experience might signal specific competences and will therefore be an important selection criterion in selection processes for professional jobs. On the other hand, work experience might be used as a signal for more general competences (e.g. perseverance) in which it will also be an important criterion in selection processes for general jobs. Because of these different signals, we are not able to present specific hypotheses on expected differences in the use of these selection criteria between the three types of jobs.

Research Design

To gain insight into selection processes and relevant selection criteria, it seems rational to focus on the main actors (employers) and their behaviour. We decided to study the selection behaviour of employers by means of a factorial survey. In this section, we

elaborate on the research design. First, we describe the way we designed the experiment. Thereafter, we describe the choice of the items on the vignettes, followed by a short paragraph about the employers.

Design of the Experiment

We set up a factorial survey (Rossi and Anderson, 1982) to study selection processes. The basic idea of this design is simple. Cards (vignettes), each of which represents a hypothetical applicant, constitute the basic element of the design. They can be constructed by choosing relevant applicant characteristics (the vignette items) and systematically varying their values or categories. Using these vignettes, employers can be asked to make hypothetical selection decisions. A major advantage of a factorial survey is the absence of sample selection bias, allowing an optimal variation in combinations of relevant characteristics. A second important advantage is that its results are assumed to be a better representation of real selection behaviour than those of a traditional survey (e.g. Oosterhuis and Glebbeek, 1990).

In order to come as close as possible to real-life selection processes, we used a two-step selection design. These two steps refer to the two steps normally distinguished in selection processes; (1) a rough selection based on letters of application and curricula vitae, and (2) a final selection based on additional information gathered during job interviews. Employers who participated in the study were first given 20 vignettes describing characteristics that can normally be found in curricula vitae and letters of application. Using these (restricted) vignettes, we asked them to make a selection of those applicants whom they would like to invite for a job interview. There were no restrictions on the number of applicants that could be selected. After employers made a selection, we asked them to extend or restrict the number of selected applicants to six and to rank these six applicants according to their preferences. Subsequently, we replaced the six ordered vignettes by the corresponding complete vignettes, which now included additional characteristics. The employers were asked to make a final ranking using this last set of vignettes.

To test whether selection processes do indeed differ between the three types of jobs, we decided

to study three selection processes (each representing one of the types). Comparisons between these three selection processes are easier when the vignettes are kept as similar as possible. When this is the case, different results will be due to job differences rather than to differences in vignette characteristics. Because of this intended similarity, and because the study was undertaken as part of a larger research programme into the labour market for social scientists, the vignettes in our study each represented a graduate in one of the social sciences. Also based on previous research, we selected the following as prototypical jobs:

1. management trainee (general job);
2. policy-maker in health issues (sector-specific job);
3. scientific researcher (professional job).

The Vignette Items

We have already mentioned three groups of characteristics that might be used as selection criteria: educational characteristics, work (-related) experience, and 'soft' characteristics (which we will refer to as 'personal characteristics'). Of the first group, the educational characteristics, the field of study is an important one because of the expectation that different fields of study are favoured for each of the three distinguished jobs. This can easily be tested in our design by presenting various academic courses on the vignettes. Again, we looked for prototypes of courses, this time in relation to one of the three jobs. We chose two prototypical courses for each job. Table 1 presents the jobs and matching courses.

In order to test the hypothesis that the effect of having followed a matching course differs between the three jobs, we presented all six courses on the vignettes. So, for every job for which a selection had to be made, we gave sets that contained hypothetical applicants from all the courses.

In addition to the course followed, we represented other educational characteristics on the vignettes. The level of education would be a first logical choice, because of its positive effect on expected productivity. But, in our study, the level of education is the same for all the hypothetical applicants (academic level). Instead, we created differences in the nominal years of schooling. This

Table 1. *Type of job and matching courses*

Job type	Prototype job	Matching course
General job	Management trainee	General social sciences; theories Economics; social and institutional economics
Sector specific job	Policy-maker health	General social sciences; organization of health-care Psychology; health and welfare
Profession specific job	Scientific researcher	Social psychology; research Sociology; social researcher

is based on the fact that there are two possible ways to gain entrance to universities in the Netherlands: a certificate from the highest level of secondary school (pre-university education) or a certificate from higher vocational education. These two routes lead to differences in the number of years of schooling. Graduates who took the regular route, and entered university immediately after secondary school, have a nominal study duration of 16 years, while the duration for graduates who entered university after getting a degree from higher vocational education is 17.5 years. We presented both educational routes on the vignettes. Two last educational characteristics we presented on the vignettes are study duration and grades. Study duration was operationalized by a dummy indicating whether a graduate exceeded the nominal duration to gain a degree. Grades were operationalized by using the distinction between average 8 (which is similar to straight As) and average 6 (similar to straight Bs) in order to distinguish between high and low achievers. The two categories of both study duration and grades were randomly assigned to the vignettes.

A second group of items presented on the vignettes refers to work (-related) experience. In the Netherlands, the amount of work experience of academic graduates is usually very small. Some have no work experience at all, some have only done a short internship, while others have some actual work experience. We presented both an internship and one year of work experience on the vignettes, in addition to a reference category of applicants with no work experience at all. In addition, we presented board and committee work on the vignettes (as a dummy).

Among the third group of vignette items, the personal characteristics, are the indicators 'communication skills' and 'flexibility'. The relevance of

these two characteristics was given in interviews we held with some experts prior to the actual study. Outward appearance is another personal characteristic we decided to incorporate into the research design. Appearance may influence productivity as a part of human capital, as is argued by and shown in studies by Hamermesh and Biddle (1994), and Bosman *et al.* (1997). Both studies find a positive effect of outward appearance (beauty) on income. However, these studies do not tell us whether it is 'just beauty' that employers use in their screening processes, or if they use a broader concept of appearance. We decided to test the influence of both beauty and a broader concept, which we call general appearance. We did so by attaching small photographs to the vignettes. Each of these photographs was scored by two panels of eight people. The first panel was asked to assign the photographs a score on beauty, while the second panel was asked to indicate the extent to which they would be eager to employ the person on the photograph (both without knowing any other characteristic of the persons displayed).

Another operationalization of the group of personal characteristics is personality itself. Holland (1985) argues that certain personality types will fit better in certain types of jobs. He constructed a typology consisting of six types of personalities (conventional, investigative, social, enterprising, artistic, and realistic) and six matching occupational types. All the vignettes were randomly assigned one of these six personality types. Following Holland's elaboration, different types of personality are supposed to be favoured for each of the three jobs distinguished. For management trainees, applicants who are 'enterprising, conventional, and/or realistic' are supposed to have the best 'matching' personality. For policy-makers, applicants who are 'social,

Table 2. *Vignette items and their categories*

Item	Categories
Sex	Male/female
Age	22/25/28
Educational characteristics	
Academic course	General social sciences; theories Economics; social and institutional economics General social sciences; organization of healthcare Psychology; health and welfare Social psychology; research Sociology; social researcher
Regular study programme	Vocational route/regular programme
Exceeding study duration	No/yes
Average exam results	6/8 (straight Bs/straight As)
Extra-curricular activities	
Work experience	None/only internship/1 year
Board experience	None/experience in board and committee work
Personal characteristics	
Impression	Businesslike/spontaneous/balanced/confident
Personality	Conventional/investigative/social/enterprising/artistic/realistic
Flexibility	Moderate flexible/flexible
Communication skills	Moderate communication skills/strong communication skills
Appearance	Photograph of which we used standardized mean scores of panel experts on outward appearance and general appearance

artistic, and/or enterprising' constitute the best match, and for scientific researchers 'artistic, investigative, and/or realistic' applicants have the best personality.

A final personality-related item we added to the design is the first impression that applicants make during a job interview. We have no clear expectations of the kind of impression that is most favoured. This item was included as indicative of the general opinion that the selection of applicants is often based on the first impression that employers have during a job interview. Here, we distinguish between businesslike, spontaneous, balanced, and confident.

To enhance the feeling that the employers were dealing with real people rather than anonymous cards, we also presented information on the sex and age of the applicant on the vignettes. In addition to this practical reason, these two indicators were included because they may influence the results of selection processes.

So far, we have mentioned 13 characteristics represented on the vignettes. The values or cate-

gories of these characteristics are given in Table 2. All combinations of categories of the vignette items, as shown in Table 2, make up quite a large 'vignette population'. In most vignette studies, a random sample of this population is drawn. However, before sampling, we removed unrealistic vignettes – as suggested by Faia (1980) – in order to make the conceptualization of the task more serious and the task itself less complicated. The combinations we thought to be unrealistic relate to vignettes representing graduates of age 22 with an excessive study duration.

Removing unrealistic vignettes reduced the number of possible vignettes to 138240. Out of this population, we took a stratified sample of 1080 vignettes. Some categories were over-sampled in order to improve the similarity with the actual population of graduates. We over-sampled the vignettes that represented graduates with an age of 25 (half of the vignettes) and graduates following a regular study programme (two-thirds of the vignettes). The vignette item 'academic course' was not randomly assigned to the vignettes either. Here, we

distinguished between the three jobs for which the selection had to be made. For each one of the jobs, we over-sampled the two matching courses (each 25 per cent).

These activities resulted in three groups of vignettes: a first for the selection of a management trainee, a second for the selection of a policy-maker, and a third for the selection of a scientific researcher. To each vignette we attached one of a set of 40 small photographs.

The Employers

We wanted the participating employers to have professional experience with the selection process for higher-level jobs, as well as experience with the selection of at least one of the three jobs distinguished. To guarantee these two conditions, we used a pool of employers of graduates from the Faculty of Social Sciences at Utrecht University (a similar way of sampling employers is described in Rubery and Wilkinson, 1994: 12). From this pool, we selected three groups of employers: those who employed at least one social-science graduate as a management trainee; those who employed a graduate as a policy-maker in health issues; and those who employed a graduate as a scientific researcher. In addition to these three groups of employers, we selected a fourth group of professional selection organizations to participate in the experiment. The reason for this is that, in the Netherlands, a significant proportion of the selection procedures for academic-level jobs is carried out by such organizations. Out of each of these four employer-groups, we took a stratified sample in order to cover the different organization sizes, non-profit and profit organizations, and the different regions.¹ Over 65 per cent of the employers² were willing to participate in the experiment (27 employers).

As already mentioned, we used a two-step design:

1. a selection between 20 vignettes with a restricted number of characteristics, and
2. a ranking of the six best vignettes (including the personal characteristics).

Every employer was asked to conduct hypothetical selection procedures for two different vacancies of which we gave them a rather basic description.

Each selection procedure took about 20 minutes and an additional questionnaire about 5 minutes. The reactions of the participating employers were very positive. They were also curious about the results because, despite their general experience with selection processes, they were uncertain about the criteria they used.

Results

In the analysis we restrict ourselves to the results of those selection procedures with which employers said they had experience. We did so because we expect the results of experienced employers to be more reliable.³ Out of the 54 selection processes (2 for each of the 27 employers), 31 selection processes involved jobs with which the employers were familiar. This means that 620 of the total group of 1080 vignettes were used for the analyses.

The Probability of being Selected for a Job Interview

The first task of the employers was to make a selection of applicants who they thought of as eligible candidates. Out of the 620 vignettes, 185 were selected. There were small differences between the three jobs: 53 vignettes were selected for the job of management trainee, 79 for the job of policy-maker, and 53 for the job of scientific researcher. The vignettes were given the score 1 if they were selected in this first step, and 0 otherwise. We conducted a logistic regression analysis to determine the odds of being selected for a job interview. The results are presented in Table 3.

In the last column of Table 3, the effects on the odds of being selected is given for the total group of 620 vignettes. Of the eight characteristics we presented on the vignettes, four significantly increase the odds of being selected in the first selection round. These are the two extra-curricular activities (work and board experience) and two of the educational characteristics (a matching course and exam results). Sex and age have no effect. The results also show that having followed a regular study programme and exceeding the nominal study duration do not significantly influence the odds of being selected.

Table 3. *Logistic regression of the vignette items on the odds of being selected in the first selection round (standard errors in parentheses)*

	Management trainee N = 180	Policy- maker N = 280	Scientific researcher N = 160	TOTAL N = 620
Female	-0.16	-0.27	0.05	-0.15
Age	0.58 ~	0.14	-0.23	0.21
Matching course	0.45 A	0.85**	1.44*** B	0.86***
Regular study programme	0.64	0.22	0.38	0.34
Exceeding study duration	-0.24	-0.05	-0.51	-0.21
Exam results	0.73 ~	0.85**	1.90*** C	1.02***
Work experience	0.88***	1.03***	0.47 ~	0.75***
Board experience	2.18*** D	1.23***	0.87*	1.31***
Constant	-4.63	-3.92	-3.14	-3.70
Chi-square (df)	49.3 (8)	59.3 (8)	40.9 (8)	122.1 (8)
Percentage correct	75.6	77.1	74.4	74.5

Note: Differences with total group: A=estimate significant lower at $p < 0.010$; B = estimate significant higher at $p < 0.05$; C=estimate significant higher at $p < 0.00$; D=estimate significant higher at $p < 0.05$.
 ***= sig. <0.001; **= sig. <0.01; *=sig. < 0.05; ~ = sig <0.10.

The results become more interesting if we look at the differences between the three vacancies (columns 2, 3, and 4). A first interesting difference relates to the course of graduation. Table 3 shows that having followed a matching course strongly increases the odds of being selected as a scientific researcher, less strongly increases the odds of being selected as a policy-maker and does not significantly increase the odds of being selected as a management trainee. This is exactly what we expected and confirms our hypothesis that a matching course is most important in selection processes for professional jobs and least important in selection processes for general jobs. Additional tests, in which we included interaction terms of all eight items with the job for which the selection was made, give very similar results. These tests show that in selection processes for scientific researchers, the effect of having followed a matching course is larger than the estimate for the total group ($p < 0.05$), while for management trainees this effect is significantly smaller than for the total group ($p < 0.10$).

We already saw that, of the other educational characteristics, only exam results significantly increase the odds of being selected. Again, there are interesting differences between the three vacancies. The table shows that exam results are more

important in selection procedures for scientific researchers than for the other two types of jobs. Additional tests show a significant positive interaction effect of exam results with the vacancy of scientific researcher ($p < 0.00$). Both findings suggest that employers assume a relation between exam results and specific competences and use exam results to differentiate between high and low achievers with respect to specific competences.

Other interesting differences refer to the two extra-curricular activities: work experience and experience in board and committee work. Again, the magnitude of these effects differs between the three types of vacancies. Extra-curricular characteristics show strong positive effects in selection processes for management trainees and policy-makers, and much smaller and less significant effects in selection processes for scientific researchers. Additional tests show a significant positive interaction effect of board experience for management trainees ($p < 0.05$). The interaction effect of work experience for policy-makers is not significant.

To sum up, the results of the selection task, a task in which employers had to select eligible applicants, show interesting differences between the three types of jobs. The results support our hypothesis that a matching educational degree is most important in

Table 4. Linear regression of characteristics on the ranking score of the ranking without and the ranking with the additional characteristics, unstandardized coefficients (standard errors in parentheses), $N=186$

	Management trainee		Policy maker		Scientific researcher	
	R1	R2	R1	R2	R1	R2
Female	0.27	0.19	-0.35	0.07	-0.53	-0.84
Age	0.35	0.18	-0.09	0.14	0.23	0.08
Matching course	0.33	0.17	0.17	-0.43	-0.19	-0.01
Reg. study prog.	0.26	0.65	0.31	0.92*	0.41	1.30*
Exceed. study dur.	-1.07*	-0.40	-0.41	-0.03	-0.78	-0.31
Exam results	1.45**	0.26	1.24**	0.77 ~	0.97	0.87
Work experience	1.26***	0.22	0.41	0.58*	0.75*	0.28
Board experience	0.57	-1.32*	0.61	0.06	0.44	1.23*
Flexible		-0.64		0.01		-0.20
Communication skills		1.79***A		0.81*		0.57
Appearance		0.14		0.24		0.46 ~
Matching personality		0.91*		0.90*		-0.22 B
Constant	0.02	2.34	1.81	0.63	1.71	1.31
R ²	0.33	0.54	0.21	0.30	0.25	0.33
Adjusted R ²	0.19	0.40	0.12	0.18	0.09	0.10

Note: Differences with total group: A=estimate significantly higher at $p < 0.05$; B=estimate significantly lower at $p < 0.05$.

***=sig. < 0.001; ** = sig. < 0.01; * = sig. < 0.05; ~ = sig. < 0.10.

selection processes for scientific researchers and least important in selection processes for management trainees. Furthermore, good exam results are most important in the selection procedure for scientific researchers (enabling employers to differentiate between good and bad professionals), and extra-curricular activities (like work experience and board experience) are most important in selection procedures for management trainees and policy-makers.

Comparing the First- and Second-Ranking Tasks

After the selection, we asked employers to rank the six best applicants. First, they were presented with the restricted vignettes (first-ranking task) and after that we presented the complete vignettes (second-ranking task). The first-ranking task was experienced as a rather unusual task and found to be quite complicated.⁴ Possible reasons for this might be that employers had to rank previously selected applicants, who more or less fitted the vacancy, and had to make this ranking based on a restricted amount of

information. Furthermore, due to the previous selection, the variation in applicant characteristics is much smaller in the ranking procedure than in the selection procedure. The distributions of the characteristics can be found in Table A1, where we drew a distinction between the mean values before and after the selection was made. The larger the difference between the two mean values, the less variation remained in the categories of the items and, consequently, the lower the possibility for employers to discriminate between vignettes on the basis of this characteristic. This is the reason that we focused particularly on differences between the two ranking procedures and the effects of adding the personal characteristics instead of an explicit focus on the characteristics already used in the previous selection procedure.

Two other remarks must be made before presenting and discussing the results of the ranking procedures. The first remark concerns the difference between the influence of beauty and of general appearance. The effect of beauty turned out to be not significant at all. As beauty and general appearance are correlated, we decided to take up only the

effect of general appearance. A second remark concerns the effect of the first impression on the ranking. After recoding this characteristic into dummy variables (one for each category), no effects were found. This made us decide to exclude this variable from our analyses.

In the analyses we present in Table 4, the ranking scores of the first and the second ranking procedure (R1 and R2) are used as dependent variables in a multiple regression analysis. The ranking scores are coded such that high scores indicate a more favoured applicant. Note that a much smaller number of ranking scores ($N=185$) is a consequence of the fact that only previously selected vignettes can be ranked.

One of the most interesting results in Table 4 is how the total effect of adding personal characteristics differs between the three vacancies. The adjusted R^2 in the selection procedure for management trainees increases from 0.19 to 0.40, which is a much larger increase than for policy-makers (from 0.12 to 0.18) or scientific researchers (from 0.09 to 0.10). These differences suggest that the newly added characteristics do not affect the ordering of applicants for the vacancy of scientific researcher, partly affect the ordering for the vacancy of policy-maker, and strongly affect the ranking of applicants for the vacancy of management trainee. This supports our hypothesis that personal characteristics are most important in selection processes for management trainees and least important in selection processes for scientific researchers.

Studying the newly added characteristics separately also shows some interesting results. First, we see that flexibility is the only characteristic that does not significantly affect any of the orderings. Although flexibility features strongly in discussions on selection procedures, apparently it does not play a significant role in our simulated procedures. The other three newly added characteristics have an effect in at least one of the ranking procedures. The strongest effects and differences relate to communication skills. If we imagine a labour queue of six individuals, having good instead of moderate communication skills causes a shift of almost two places for management trainees, a shift of almost one place for policy-makers, and does not significantly influence the place in the labour queue for scientific researchers. Additional tests (with interactions between communication skills and the vacancy for

which the selection is made) confirm that communication skills are more important in the selection procedure for management trainees than for the other two vacancies (significant at $p < 0.05$).

A matching personality seems to be another characteristic the effect of which differs between the three types of jobs. What we can read from Table 4 is that, for the ranking procedures of both management trainees and policy-makers, having a matching personality causes a shift of almost one place for these two jobs. In the ranking procedure for a scientific researcher, it does not influence the final ranking. Additional tests show a significant negative interaction effect with the vacancy for scientific researcher ($p < 0.05$), which confirms that the effect of having a matching personality is significantly lower for scientific researchers than for the other two jobs. Again, these results indicate that personal characteristics are not very influential in selection processes for scientific researchers, as was expected.

A last remark is related to the positive effect of outward appearance on the final ranking procedure for scientific researchers. Although this effect is small, only slightly significant, and does not significantly differ from the effects in the other two ranking procedures, we are puzzled by it. Because outward appearance is not related to specific competence, we did not expect to find this effect. One possible explanation is that the photographs had a rather prominent place on the vignettes, which might have influenced employers who were not able to discriminate between vignettes on the basis of other characteristics.

To sum up, the ranking procedure proved to be a useful method to find out more about the effects of adding personal characteristics (in our experiment: flexibility, communication skills, outward appearance, and personality). The results largely support the hypotheses that these characteristics have a larger effect on the ranking of management trainees than for policy-makers, and no or small effects for scientific researchers. The major differences concern communication skills and having a matching personality type.

Conclusions and Discussion

In this paper, we present the results of an experimental selection procedure, which we studied in

order to gain more insight in selection procedures for graduates in social sciences in the Netherlands. We studied selection procedures for three typical jobs: management trainee, policy-maker in health issues, and scientific researcher. Our study was carried out by means of a factorial survey, which consisted of two selection steps. In the first step, employers were asked to select vignettes on the basis of a restricted number of characteristics. In the second selection step, additional personal characteristics were added to the vignettes and the participating employers were asked to make a final ranking.

Our major claim is that there are systematic differences in the value of screening devices between the three different selection procedures we studied. Our first hypothesis states that specific competences are most important in the selection procedure for scientific researchers and least important in the selection procedure for management trainees. This claim is largely supported by the results of the study. Having followed a matching academic course strongly increases the odds of being selected as a scientific researcher, less strongly increases the odds of being selected as a policy-maker, and does not increase the odds of being selected as a management trainee. The results also largely support the second hypothesis, in which we formulated the expectation that 'soft' characteristics are most important in the selection procedure for management trainees and least important in the selection procedure for scientific researchers. The characteristics we studied were flexibility, having good communication skills, outward appearance, and personality type. We found that these characteristics do indeed have the largest effects in the selection procedure for management trainees, average effects in the ranking of policy-makers, and hardly affect the selection procedure for scientific researchers at all. Moreover, the results show that communication skills are significantly more important in the selection procedure for management trainees than for the other two procedures, and that having a matching personality is significantly less important for the ranking of scientific researchers than for the other two jobs.

What conclusions can be drawn from this experiment? Theoretically, the most important conclusion is that selection processes differ between different job types. Selection criteria differ in importance

and what seems relevant for one job, may not be relevant at all for another. This result is in line with arguments put forward in labour-market segmentation literature. The implication of this result is that we should be more aware of differences between different segments or different job types instead of focusing on models which implicitly claim to be applicable to all segments of the labour market. By concentrating on the conditions under which some selection criteria become relevant, we can greatly improve our understanding of the selection process.

A second conclusion refers to the explicit focus on the employers' side. Most labour-market research uses data from individual workers or labour-market entrants to draw inferences about the selection and allocation process. Specific models have even been developed to distinguish demand- and supply-side preferences on the basis of individual employee data (cf. the Two Sided Logit Model from Logan, 1996). However a direct focus on the employer side might greatly enhance our understanding of the selection process.

A third conclusion refers to the method used. The vignette approach proved to be a very useful one. It allows the researcher to control the stimuli in an optimal way and to focus on those characteristics which are theoretically relevant. Moreover, by using an experimental design we can effectively control for the typical self-selection bias which is present in both employee and employer surveys. The ranking procedure we used also makes it possible to analyse the relative position of candidates in an imaginary labour queue, a feature that normally remains unobserved. One disadvantage is the relative sensitivity of the method to the specific formulation of the vignette items. In all other aspects, the vignette approach seems to be a very useful method for sociological research.

What are the wider implications of this study? Can the results be generalized to other areas of the labour market? Although we only focused on the labour market for graduates in the social sciences in the Netherlands, we have the opinion that the same underlying mechanism works in other parts of the academic labour market as well. That is, all academic jobs in the Netherlands can be subdivided into general jobs, sector-specific jobs, and professional jobs, regardless of the specific discipline. And for each of these academic jobs, specific competences should be

most important for the professional jobs and least important for the general jobs. Conversely, 'soft' characteristics should be most important for the general academic jobs and least important for the professional academic jobs. In the non-academic labour market, one can also make a distinction between general jobs, sector specific jobs and vocational or professional jobs. However, the general jobs in the non-academic labour market not only comprise jobs for which some level of general competence is required, but also jobs which require no competences at all. These jobs belong to the so-called secondary labour market. Again, 'soft' characteristics may be more important here than in the vocational or professional segment of the labour market, but these will be of a different nature than for the academic general jobs. Characteristics that may be valued here are obedience or trustworthiness rather than having good communication skills or being flexible.

Generalization to other countries might be difficult because the employers' preferences are shaped by institutional differences as well. International comparative research shows a close correspondence between the characteristics of the educational system and the labour-market system (see e.g. Hannan and Werquin, 1999; Gangl, 1999; Müller and Shavit, 1998). Gangl (1999) distinguishes between countries characterized predominantly by occupational labour-market arrangements, like Germany or the Netherlands, and countries characterized predominantly by internal labour-market arrangements, like France and the United Kingdom. One might expect that, in the latter case, general competences are valued more highly even in jobs with a professional character. And conversely, specific competences will be valued more highly in countries with occupational labour-market arrangements even in the case of more general jobs. This makes it interesting to conduct experiments in a cross-country research design.

Finally, some implications can be drawn for educational planning and career counselling. In the public debate, a widespread call for de-specializing academic courses and making them more generic has grown in recent years. Although this may apply to certain segments of the academic labour market, it seems wrong to generalize this to all academic courses. In courses which aim to prepare students

for professional jobs, the attention given to generic competences should not be at the cost of the preparation of specific competences. And given the weight placed on 'soft' characteristics in general academic jobs, this should be an explicit focus in school and career counselling.

Notes

1. The reason for this striking similarity between the actual and sample distribution of employers is that employer characteristics may influence selection processes. Because these effects are interrelated with the effects of the type of job, we did not study them separately.
2. We use the term 'employer' for reasons of simplicity. In every organization, we asked the head of the personnel department to participate in the study. When this was not possible, we asked him or her to mention someone who was able to replace him or her.
3. Analyses with both experienced and inexperienced employers lead to more or less similar conclusions, but can be questioned because inexperienced employers are not so expert as experienced employers.
4. This may be the reason that one employer was not able to perform the first ranking and one employer was only able to indicate the three best and three second-best vignettes. The ranking scores of the former employer were set to system missing values, while we took the average ranking score for the latter employer.

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Table A1. Mean values of the independent variables, both before (I) and after (II) the selection

	Management trainee		Policy maker		Scientific researcher		Total	
	I	II	I	II	I	II	I	II
Sex (0=male; 1=female)	0.50	0.51	0.50	0.48	0.50	0.52	0.50	0.50
Age (0=22; 1=25; 2=28 years)	1.08	1.21	1.05	1.13	1.17	1.06	1.09	1.14
Matching course (0=no; 1=yes)	0.46	0.51	0.45	0.54	0.46	0.60	0.45	0.55
Regular study programme (0=voc. route; 1=reg. Prog.)	0.69	0.72	0.67	0.70	0.69	0.73	0.68	0.71
Exceeding study duration (0=no; 1=yes)	0.46	0.40	0.53	0.49	0.49	0.40	0.50	0.44
Exam results (0= st. Bs; 1=st. As)	0.49	0.62	0.52	0.65	0.47	0.83	0.50	0.69
Work experience (0=none; 1=intern; 2=1 year)	0.96	1.32	1.04	1.51	0.97	1.23	1.00	1.38
Board experience (0=no; 1=yes)	0.51	0.77	0.55	0.65	0.50	0.52	0.52	0.65
Flexible (0=no; 1=yes)	0.57	0.45	0.54	0.62	0.52	0.54	0.54	0.55
Communication skills (0=moderate; 1=strong)	0.49	0.53	0.51	0.51	0.50	0.44	0.50	0.50
Appearance (Z-score)	-0.01	-0.25	0.01	0.09	0.04	0.02	0.01	-0.02
Matching personality (0=no; 1=yes)	0.51	0.49	0.44	0.46	0.53	0.65	0.48	0.52
N	180	53	280	84	160	48	620	185