Assessing applicants for PhD-positions: How to pick the right one?

Jonas Johansson, Ívar Örn Benediktsson, and Bjarne Husted

***Abstract*— This study focuses on the assessment and selection of applicants for doctoral positions. The empirical data was gathered through a survey among faculty staff at Lund University, Sweden. The findings are also contrasted against the literature within the subject area, which is surprisingly scarce. One interesting finding of the survey is the frequent use of interviews and infrequent use of other assessment methods, such as personality tests or tasks, to assess applicants. Further, interviews are believed by the respondents to have a high predictive value on the applicants' performance in a doctoral program, despite doubts in the literature. These results seem to be in contrast with the experience and common practice outside academia. This might be attributed to the fact that all doctoral recruitments are carried out by supervisors and co-supervisors, who are usually not professionally trained in assessing and selecting applicants - concluding that there seems to be opportunity for improvements.**

***Index Terms*— Assessing; Recruiting; Selecting; Survey; PhD; Doctoral; Graduate; Student; Higher Education**

I. Introduction

The assessment and selection of applicants for doctoral positions are critical for all organizations, including higher education institutions, and have been widely studied (c.f. Bratton and Gold, 2007). The weakness of single assessment measures has become recognized, and so-called assessment centers, where different techniques are combined and applied, are increasingly used as they facilitate the use of objective techniques and allow for a dialogue between the applicant and the employer (Bratton and Gold, 2007).

The assessment and selection of doctoral candidates seems to differ somewhat from recruitments on the general job market. Whilst (larger) companies spend much time on testing applicants to make sure they have an attitude that matches the companies' profile (Bratton and Gold, 2007), the right abilities and effective communication with supervisor(s) are considered more important for PhD-students than fitting the organization. Although research into the recruitment and assessment of general job candidates is quite extensive (e.g. Fletcher, 1990, Anderson, 1992, Bratton and Gold, 2007), specific studies of the assessment and selection of applicants for doctoral positions in higher education are very limited (Anderson and Shackleton, 1990, Anderson et al., 1999). This stresses the importance of research into this subject and indicates a need for using other methods and human resource technologies along with traditional interviews in the recruiting, screening, and selection process of candidates for doctoral positions in higher education (Chapman and Webster, 2003).

The aim of the study is to recognize the most common criteria and methods currently used at Lund University, Sweden, when supervisors assess and selects applicants for doctoral positions, identify their potential advantages and drawbacks, and finally suggest improvements for doctoral recruitment processes.

II. Methods and Materials

The empirical data was gathered through a survey in the spring of 2014, sent to about 100 senior academics at three different faculties at Lund University, Sweden, in the form of a questionnaire. The questions related to attitudes were based on an ordinal Likert-type scale (Allen and Seaman, 2007) consisting of four categories with no "neutral choice", i.e. a forced choice scale, and a fifth category if the question item was considered not relevant or never used. The questionnaire was anonymous and consisted of four main parts; a) background information about the respondent, b) recruitment processes and reasons for premature termination of PhD-students, c) criteria and methods used and their predictive value when assessing applicants for PhD positions, and finally d) open question regarding the recruitment process. The results from the survey are also contrasted against a conducted literature review of the field.

III. Results

At total of 30 valid survey answers were gathered, giving a response rate of roughly 30%. Of the respondents, 60% belonged to the faculty of engineering, 33% to the faculty of science and 7% to the faculty of medicine, a result biased by the authors´ professional network. Furthermore, 80% of the respondents are male and 20% female, which seems relatively representative as, of senior staff, 35% at Lund University, 23% at faculty of engineering, and 27% at faculty of science are female. A majority (75%) of the respondents is above 40 years of age and about 70% has had an academic career of over 10 years. Further, about 80% of the respondents hold an Associate Professorship or a Professorship and 77% of the respondents are also Docent

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For more in-depth empirical data, results, and discussion regarding this study, please see: http://journals.lub.lu.se/index.php/KG/article/view/10288

(reader) competent. It is hence believed that the survey result hold some validity.

Noteworthy is the fact that the supervisor (90%) or co-supervisor (10%) is the main responsible for the assessment of PhD-applicants, i.e. there is a clear coupling between the person carrying out the assessment and the person later responsible for the supervision – having a positive effect on the validity of the study. None chose the categories Head of Department, Head of Division or External recruitment body as main responsible for the recruitment. The respondents had recruited and supervised a total of 231 PhD-students, of which 92 (40%) was currently enrolled and 16 (7%) had prematurely terminated their studies. On average, each respondent had recruited and supervised 8 PhD-students with 3 PhD-students currently enrolled (Fig. 1). About 37% of the respondents have had one or several PhD-students prematurely terminating their studies.

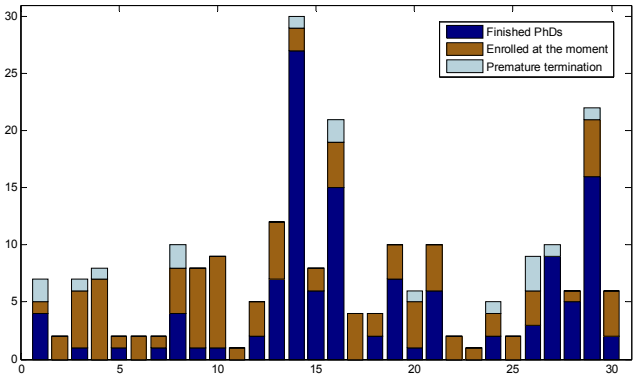

Fig. 1 Number of finished, currently enrolled, and prematurely terminated PhD-students (y-axis) for each of the respondents (x-axis).

The main reasons for why PhD-students prematurely end their studies (from the view of the respondent) seem to be related to the lack of motivation (30%), the ability of the student (30%) (roughly equally distributed among lacking writing, learning or social abilities), and employment outside the university (24%). Family (7%), health issues (3%), change of university (3%) and misunderstanding of the PhD-education (3%) are other, less frequent, reasons.

The result concerning methods used and their perceived predictive value are given in Fig. 2 and 3. For some of the statistical analysis it is assumed that the ordinal Likert-type data also can be used as interval data, which might not be accurate (Allen and Seaman, 2007). However, the median values in Fig. 2 can be used to draw valid conclusions regarding rank comparisons. A few of the respondents also added that they use task-oriented evaluations and back-ground checks of the applicant as evaluation methods.

In total seven open reflections on the recruitment process was also gathered. Some indicated that it was difficult to make a good assessment of actual contribution of previous work by the applicant, e.g. grades from abroad, and applicant's ability to think, plan and work independently. One pointed out that since assessment is hard; the doctoral project often has to be adapted to the student's ability rather than the other way around. Some also stated that many recruitments are internal (i.e. previous knowledge of the applicant), which is also the method with highest predictive value, i.e. a "safe" choice for supervisors, but might lead to a less diversity than actually desired.

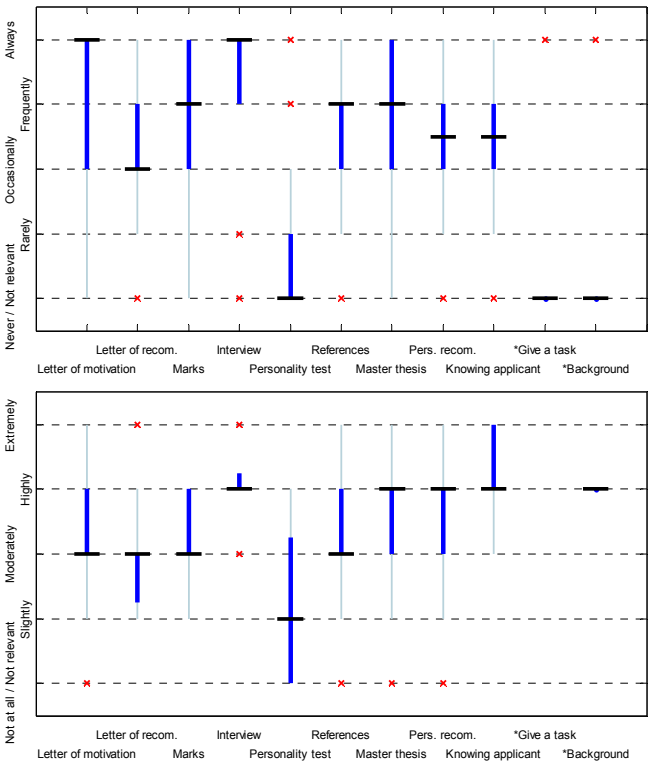

Fig. 2 (Upper) The frequency of use of criteria/methods when assessing applicants for a PhD position. (Lower) The predictive value of the criteria and methods used when assessing PhD applicants for their performance in a PhD program. (Both) Black mark is median, dark blue line 25th and 75th percentiles, light blue thin lines indicates most extreme points not considered as outliers, and red 'x' are outliers (approximately outside +/-2.7 standard deviations or 99.3% of the values if normal distribution).

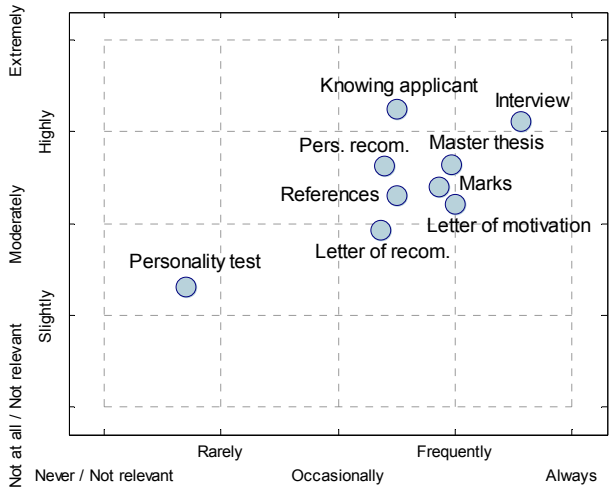

Fig. 3 Correlation between the use of the methods (x-axis) and their predictive value (y-axis) based on mean values of the respondents answers.

IV. Discussion

Based on the four research questions behind the study the results are discussed below:

What is the main reason for PhD students terminating their study prematurely? The conducted survey only included 30 responses from staff at three faculties at Lund University; hence its generalizability is hard to validate. However, the results related to the frequency (7% dropout rate) and reasons of premature termination, as viewed by supervisors, seem to largely be congruent to findings from a survey aimed at PhD-students (Högskoleverket, 2010). However, supervisors gave lack of ability (30%) as a main reason while PhD-students gave insufficient support from

thesis advisor (40%) as a main reason. This might be an interesting conflict for further studies.

Which methods are most frequently used at Lund University to select and assess applicants and what is their perceived predictive value? The most frequently used methods used for assessing applicants for a PhD-position are: interview, master thesis, marks, and letter of motivation. Knowing the applicant was the method perceived to have the highest predictive value, closely followed by interview. One surprise of the result is the very infrequent use and perceived predictive value of personality tests for assessing applicants; something in stark contrast to the general job market (Arthur et al., 2001, Bratton and Gold, 2007). The perceived predictive value had a positive correlation against how frequently they were used.

Are the methods used and their perceived predictive value in agreement with the scientific literature in the subject area? The selection interview is the oldest and most widely used selection technique, along with application forms (CVs) and letters of reference. In literature, interviews are supremely dominant as a tool to select employees and prominent in research on recruitment and selection while other methods are largely ignored (Bratton and Gold, 2007, Diekmann and König, In press). This agrees in part with our survey as it clearly shows a frequent use of interviews when selecting doctoral students, and their strong belief in its predictive value. However, doubts have long been raised on the predictive value of selection interviews, partly due to the possibility that interviewees can manipulate outcome results (Bratton and Gold, 2007, Basco et al., 2008, Shulruf et al., 2012), but also because of poor processing of information or poor interviewer skills. Other methods, such as letters of reference are only occasionally used by the survey respondents while the literature indicates a more common use (Bratton and Gold, 2007). The same applies to personality testing, which is remarkably seldom used among the survey respondents, although it is receiving renewed attention in selection and employment (Arthur et al., 2001). However, the predictive value of personality testing is still poorly known and decision-making on the basis of test results need to be better understood (Diekmann and König, In press). We are however tempted to speculate that the supervisors' and co-supervisors' lack of knowledge on personality tests is the main reasons for why they are so rarely used. Marks and master thesis are also used among the survey respondents to assess applicants for PhD positions, and are also considered quite predictive. This correlates well with the results of Shulruf et al. (2012), who found that GPA (grade point average) is most predictive of students' performance and that previous professional achievements (e.g. master thesis) remains the best measure of subsequent student achievement. We surmise that our respondents use certain methods more frequently than others because they are assumed to be predictive of the students' subsequent performance, rather than having that support according to recent research.

How can the assessment and selection of applicants for doctoral positions at Lund University be improved? We have identified some ways in which the assessment and selection of applicants for doctoral positions can be improved. Firstly, selection interviews can be effective and predictive of students' future performance as long as the interviews are well structured and the interviewers competent, well prepared and aware of the limitations of interviews as a selection method (Bratton and Gold, 2007). Interviewees may deliberately give a falsely positive impression on an interview (Anderson et al., 1999) and thus, using personality testing (e.g. Myers-Briggs type indicator or Five Factor Model) along with selection interviews is highly recommended, e.g. to enable detection of potential faking and to determine if interview questions were answered honestly (Arthur et al., 2001). Personality testing may also allow for the matching of students with the "right" supervisors, or vice versa (e.g. Bratton and Gold, 2007). Hence, traditional selection interviews must be complemented with other methods for a more comprehensive assessment and better selection of students with desirable skills (Basco et al., 2008, Shulruf et al., 2012).

V. Conclusions

It is clear that the traditional selection interview is the predominant choice of method and that it is believed to have a high predictive value. In order to assess and select PhD-applicants in a good manner it is concluded that several different methods and techniques should be used, as they assess different abilities of the applicant. Since the persons conducting the assessments, academic supervisors and co-supervisors, are not trained professionals in this field it is recognized that there are opportunities for improvements and increased professionalism in doctoral recruitments.

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