university of groningen

Framework for admission to fixed quota degree programmes

14 November 2023

INTRODUCTION

The 'Act on the reintroduction of drawing lots for fixed quota degree programmes' once again permits the decentralized drawing of lots as an admission method for degree programmes with a fixed quota (numerus fixus). Since 2013, it has only been possible to select students based on at least two qualitative criteria. The aim of the new law is to allow for greater customization in the way admissions procedures are organized and to increase equal opportunities for prospective students. The admission process must be carried out as carefully as possible, as it can shape the rest of a student's life. The bill was passed by the House of Representatives on 14 February 2023 and by the Senate on 16 May 2023. The law came into force on 1 September 2023.

Key points

- Under this UG framework, the standard admission method for fixed quota degree programmes is an unweighted lottery system, in line with the UG's strategy and the aim of the law.
- The Board of the institution has the authority to decide on the admission methods used by degree programmes.
- If a degree programme wishes to deviate from the standard admission method and wants to accept students through selection, this must be substantiated in the annual planning letter (Planbrief) and the selection method must meet the new UG criteria. These criteria aim to promote equal opportunities as well as increase the validity and efficiency of the selection process.

Development of the framework

The framework was prepared by a Working Group comprising members of the central University Services' (US) SES+SIA+BJZ departments, with input from the faculties offering fixed quota programmes. Draft versions were submitted to the University Committee for Education (UCO) and the Education Council, both of which issued favourable opinions. The framework was adopted by the Board of the University on 14 November 2023. The framework restricts the permitted admission methods for fixed quota programmes to three forms: decentralized selection, an unweighted lottery system, and a combination of decentralized selection and an unweighted lottery system. Limiting the possibilities to these three options ensures that 1) inequality of opportunity is minimized, 2) the selection procedures are transparent for both Dutch and international students, 3) the quality of the selection procedures is guaranteed, and 4) services remain affordable.

Reading guide: how to read this document

The framework is set out in this memorandum on the next page (p.1). Appendix 1 to the memorandum provides an overview of the statutory admissions options. The responses to the UCO's questions of May 2023 (Appendix 2) and the Working Group's analyses (Appendix 3) provide further background and justification. In responding to these questions and conducting the analyses, the Working Group drew on, among other things, input from expert researchers as well as people involved in and best practices of the UG's Psychology degree programme, the Selection Procedures for Higher Education Handbook (2023), research by the Education Inspectorate, and a literature review.

Framework for admission to fixed quota degree programmes

(*substantiation provided in italics in brackets*)

1. The general principle behind lottery/selection for fixed quota degree programmes is to maximize equal opportunity and minimize inadvertent inequality of opportunity (*in line with UG's vision on inclusion and diversity and the amended legislation*). The standard admission method is an unweighted lottery system (*the instrument that can best ensure equality of opportunity. Note: with an unweighted lottery system without a distinction between regular and international tracks, there is a chance that the proportion of international students will increase).*
2. For each fixed quota programme, Faculty Boards can choose from three options: unweighted lottery, selection, or a combination of selection and unweighted lottery (*a weighted lottery is not an option because the various objectives of equal opportunities and selection counteract each other*). The admission method must be commensurate with the objective. One objective may be to select candidates on the basis of expected academic performance. The Faculty Board's request – via the planning letter – to accept students through selection must be substantiated, after which the Board of the University will make a decision (*the Board of the institution is the decision-making authority. Programmes must justify the selection procedure and reflect on the criteria*).
3. Rules for the application of selection (*advice can be requested from the Psychology department)*:
    a. Candidates are ranked on the basis of a variety of tests that are representative of the teaching programme (*the most valid selection instrument for academic performance, but also the most time-consuming*).
    b. Interviews, letters of motivation, and CVs may only be used as a conditional requirement and must not count towards the ranking score (*these instruments are poor predictors and are susceptible to bias, but can be used as an effort requirement*). These instruments do not count as one of the two qualitative selection criteria.[1]
    c. Secondary school grades should only be used as a selection criterion if there is not a significant proportion of candidates with foreign pre-university qualifications (*there is no valid tool for comparing international grades*).
4. The University Services' SIA department, mandated by the Board of the University, is the central body responsible for the facilitation and execution of placement, as well as for the notary for the drawing of lots (*efficiency and safeguarding procedures*). It also ensures that the unweighted lottery, selection, and selection + unweighted lottery methods are technically possible: SIA agrees the required functionalities with the SIS supplier. By centralizing the lottery system at SIA, a notary will be able to process all degree programmes using a lottery in one half-day. The Regulations for selection and placement will be updated.
5. The admission method will be communicated to candidates by each degree programme and published on the UG website prior to the start of the application period (*transparency and timely communication as required by law).* The degree programme will also offer free preparatory activities, such as an introductory lecture (*promoting equal opportunities).*

In setting up the new procedure for the drawing of lots, the UG must take into account legal aspects such as appeals and objections from students who wish to know how their rank number was determined. Students must be informed in good time that admission to a particular degree programme is based on an unweighted lottery and what this means for their chances of admission. This information must also be provided to Studiekeuze123/Landelijk Centrum Studiekeuze and the Ministry of Education, Culture, and Science so that it can be included in their communications to students.

[1] Here the difference between selection tool and selection criterion is important. When selecting on 'motivation' it is required to assess e.g. a motivation letter. If selection is not specifically on the criterion of 'motivation,' then it is an effort requirement only and the motivation letter cannot count as one of the two qualitative selection criteria. If the combination of selection + unweighted lots is used, then a grade list + requesting a motivation letter does not meet the legal requirement of two qualitative selection criteria.

Appendix 1. Overview of the law on drawing lots

The law lists the following options for the selection of candidates for fixed quota degree programmes (see also the overview published by the Ministry of Education, Culture, and Science and the explanation of the amendment to the Regulations on application and admission to Higher Education):

1. Decentralized selection based on at least two qualitative selection criteria.

2. Unweighted lottery. In this option, all candidates are selected by drawing lots, with everyone having an equal chance of being allocated a place.

3. A combination of at least two qualitative selection criteria and a drawing of lots. This combination can be implemented in several ways:

    a. Some of the candidates are allocated a place based on at least two qualitative selection criteria. The remaining candidates are selected by an unweighted lottery.
    b. Some of the candidates are allocated a place based on at least two qualitative selection criteria. The remaining candidates are selected by a weighted lottery: candidates are assigned a certain weighting in the draw based on at least two qualitative selection criteria.
    c. A fully weighted lottery: candidates are assigned a certain weighting based on at least two selection criteria, after which the drawing of lots takes place.
    d. Some of the candidates are allocated a place based on at least two qualitative selection criteria. Candidates not awarded a place on the basis of the qualitative selection criteria may subsequently be excluded from the weighted or unweighted lottery. The rejection of candidates prior to the lottery is based on their scores on the qualitative selection criteria.[2] This may include missing scores, for example because a candidate did not participate in a particular component or did not submit the correct documents. Candidates may never be rejected on the basis of their previous grades alone, as there must be at least two qualitative selection criteria. Grades must therefore always be considered in combination with another qualitative selection criterion.

The qualitative selection criteria used in selection procedures must be the same for all candidates and at all stages of the procedure.

[2] In this context, the UNL and the NFU established in a letter to the minister that they interpret the 'lowest scoring group' as the group that did not meet effort obligations in the selection procedure. See also Parliamentary Papers II 2022-2023, 35 765, no. 19, p. 4.

Appendix 2. The Working Group's responses to the UCO's 17 May 2023 questions

1. *What is the purpose of the law? How can it promote equality?*

The purpose of the law is twofold. Firstly, the introduction of this law allows for more than just decentralized selection, thereby allowing for greater customization in the design of selection procedures and better alignment with the nature of the degree programme. Secondly, the law aims to increase equal opportunities for prospective students. The 'Internationalization in Balance' bill also expresses a preference for an unweighted lottery on the grounds of equal opportunity.

An unweighted lottery is the most efficient admission method for promoting, or at least ensuring as far as possible, equality of opportunity. Equal opportunity is not the same as representativeness and diversity. In fact, an imbalance has already emerged in the preceding stages of primary and secondary education, rendering the population of applicants unrepresentative of society. Among prospective students, there is inequality of opportunity due to differences in prior education, learning conditions, social networks, and development of self-efficacy. Drawing lots cannot compensate for this inequality. However, selection can lead to self-selection (deterrent effect), amplify existing inequalities, and homogenize the student population. The effects of selection on different groups are difficult to measure because personal data are difficult to obtain due to legislation and data privacy. However, it has been established (e.g. by the Education Inspectorate) that more selection leads to greater inequality of opportunity. There are ways to make selection more efficient and reduce negative effects on equality and diversity: mainly by testing skills broadly and avoiding potential bias in selection methods (see also point 5).

2. *What should we do about Dutch-taught and English-taught tracks?*

A selection or lottery procedure takes place at degree programme level. Therefore, it is not currently possible to have a different procedure for each track. The 'Internationalization in Balance' bill proposes making it possible to set a fixed quota at track level. This would make it possible to apply different procedures for Dutch-taught and English-taught tracks. The internet consultation for this bill opened on 14 July 2023 and will close on 15 September 2023. The subsequent timetable is currently unclear. Given the collapse of the government, it is possible that the bill may be declared controversial.

3. *How should we treat Dutch and international qualifications?*

The same selection criteria and selection procedure must be applied to students with Dutch qualifications and students with foreign qualifications. This must be taken into account when communicating to students about their application to the UG. International students have to undertake additional steps to complete their enrolment. This includes submitting documents for admission and possibly obtaining a visa or residence permit. A selection or lottery procedure is on top of all this. The following applies when comparing the substance of Dutch and foreign qualifications: Nuffic provides guidelines, but there is no valid instrument for comparing Dutch and international grades. Selection based on school grades is therefore not recommended if there are international candidates. Skills testing avoids this problem, although in the case of international candidates, their previous education may be less compatible with 'Dutch' modes of assessment. In other European countries, the average national secondary school grade is most commonly used for admission to higher education. Additional tests of general cognitive ability are rarely used, as selection is not based on educational level but on curriculum. For Master's degree programmes, completion of a specific Bachelor's degree with a minimum average grade, letters of recommendation, and standard tests such as the Graduate Management Admission Test® are often used.

4. *How should students who are already enrolled be treated in relation to new students?*

A selection or lottery procedure should be the same for all participants. This means that students already enrolled in another degree programme who wish to transfer to the fixed quota degree programme and new students must be treated the same.

5. *How effective is selection?*

The effectiveness of selection depends on the objective/perspective. The Selection Procedures for Higher Education Handbook (2023) provides guidance and points to consider when setting objectives and developing selection procedures. Key questions here are: What is the expected starting level, to what extent should skills and knowledge actually be developed during the degree programme, how reliable is a single assessment to determine level and learning ability, and to what extent do efforts on the part of the degree programme and the student outweigh the information those efforts yield?

Appendix 3 provides a comprehensive overview of the effectiveness and perspectives (in terms of education, equality of opportunity, academic performance, cost of education). This paragraph is just a summary. To be highly effective, selection instruments should be fit for purpose, consistent with the teaching content of the degree programme, evidence-based, and standardized. The most effective method for selecting students on the basis of academic performance is the use of a set of tests that is representative of and appropriate to the degree programme. This method is also a good way of introducing and *matching* the student to the degree programme. For UG best practices for this type of selection, see the Psychology degree programme. Secondary school grades are also an excellent indicator of later academic performance. General knowledge tests are much less effective because secondary education already makes this pre-selection. Selection instruments such as letters of motivation, CVs, and personality questionnaires are more likely to lead to inequalities of opportunity and are not or are less effective because of potential bias (what are you measuring, what are you comparing it to?), *'faking good'* (socially desirable answers), and high risk of 'fraud' (AI tools, commercial training, help from parents, etc.). These types of instruments are more suitable for conditional selection (an initial filter based on do/don't submit, i.e. without a score/grade).

6. *Is using two or three options too limited?*

An initial inventory of existing admission methods and preferences for future methods shows that all options are represented (lottery, selection, and a combination of both). The method and the aim must be aligned; this is highly dependent on the context of the degree programme. If capacity is the only reason, then an unweighted lottery should generally be sufficient. If academic performance and aptitude are factors, then selection is the best method. Combinations of selection + lottery and weighted lottery have potentially conflicting aims (adding chance to selection based on ability). Therefore, the proposal is to limit the options to three: unweighted lottery, selection, and selection combined with unweighted lottery. Limiting the number of options creates greater clarity for degree programmes and prospective students. This involves several considerations (see below).

The analysis in Appendix 3 gives rise to the following considerations, which have been incorporated into the framework:

- One of the aims of the adaptation of the legislation is to promote equal opportunities.
- For the UG, equal opportunities primarily relates to first-generation students, students with disabilities, and students who are reluctant to take out loans, and less so to migrant backgrounds. Accompanying policies for these target groups can increase equality of opportunity regardless of selection methods.
- Selection methods used by sister degree programmes at other universities affect the composition of applicants for UG degree programmes.
- Selection is perceived as being fairer by individuals (ownership, own performance, ability). The unweighted drawing of lots is fairer if it is motivated by group interests to promote equality of opportunity.

- It is a legal requirement to take functional impairments into account in the selection process. A general rule of thumb is that candidates should be offered the same facilities during the selection process as they are offered during the degree programmes.
- Unweighted lotteries may result in a sharp increase in the proportion of international students if it is not possible to distinguish between tracks. Selection by means of tests held on site raises the threshold for international students to apply.
- Switching from selection to lottery is likely to lead to lower academic performance and success rates, and therefore higher educational costs.
- Designing and implementing valid selection tests costs a degree programme time, money, and effort. Selection tests also cost prospective students (travel) time and money. An unweighted lottery can largely be conducted centrally and requires less effort.
- All lottery and selection objectives ('study success', 'best-fit student', 'diversity', 'equal opportunities') can be linked to the 2021-2026 Strategic Plan:
    - '*Student success (the personal and social maturation of the student's performance) and study success (effectively helping as many students as possible to obtain their degree) remain the main focus of our education system*.'
    - '*Moreover, we believe that student success goes beyond study success as measured by grades, drop-out rates, and graduations. We support the success of our students by working on a realistic expectation of university education, personal and academic development, leadership skills, and intercultural competences. To make these facilities accessible to all students, the UG pays close attention to its students' mental and physical well-being, social inclusion, and social safety.*'
    - '*UG's research and degree programmes are able to attract talented individuals from all over the world to the Northern Netherlands, boosting both the University and the region. Thanks to the diversity of our academic community and the opportunities we can offer to gain international experience, UG students can develop a global perspective and acquire intercultural skills. This enables our students to engage with society and to contribute towards societal challenges later in their professional careers.*'

Appendix 3 Analysis of the effects of lottery and selection

This analysis is based on input from researchers involved in and best practices of the UG's Psychology degree programme, the Handbook - Selection Procedures for Higher Education (2023) published by the *Centre for Academic Teaching and Learning* at Utrecht University, research by the Education Inspectorate, and a literature review of research on the impact of selection methods on equal opportunities and diversity (primarily in the context of medical degree education). The conclusions are summarized in the table below and listed by perspective.

Table – General conclusions by admission method

	Positive	*Negative*
Unweighted lottery	-Applicant's background has least effect on chances of admission	-Students who perform less well (e.g. study delays) are also admitted, which may result in lower success rates. -Applicants perceive selection methods based on chance as unfair compared to selection based on ability
Weighted lottery	-Applicants perceive selection methods based on ability as fairer (however, there is an element of chance in a weighted lottery which may be perceived as unfair)	-Self-selection: certain groups of people do not apply. -Applicant's background influences likelihood of selection -Selection aims and methods may work against each other (chance factor added to selection based on ability) -Inequality occurs at arbitrary category boundaries -Many selection instruments for determining ability are not very reliable or lack validity and can lead to biased outcomes
Selection	-Applicants perceive selection methods based on ability as fairer -The most able students may be selected.	-Self-selection: certain groups of people do not apply. -Applicant's background influences likelihood of selection -Many selection instruments for determining ability are not very reliable or lack validity and can lead to biased outcomes

Conclusions on the effectiveness of selection methods

Selection methods and criteria are rarely designed or tested on the basis of evidence. Criteria prove difficult to substantiate and are open to potential bias. Selection is often carried out in a non-standardized environment where the knowledge and skills of the prospective student are not tested in a valid way. If prospective students have a more supportive home environment than others, this gives them an advantage in writing letters of motivation, for example. Some tests, such as knowledge tests, are also vulnerable to commercial training and therefore the financial means of candidates. The addition of selection and testing tends to foster self-selection, among other reasons because students feel they do not fit the intended 'profile', there are alternative degree programmes that do not use selection, and extra time and effort is required.

In terms of programme content, selection works best when there is good alignment between the selection method (criteria, instruments, and process) and the learning outcomes, educational activities, and the testing of the curriculum of the specific degree programme, and preferably also professional practice after graduation. This gives the degree programme a good picture of the student, but also gives the student a good picture of the degree programme and helps them to make informed decisions.

The Psychology degree programme is an example of best practice at the UG for admissions by selection. Scientific research, practical experience, and statistical evaluation and monitoring show that a test (or rather a set of tests) that is representative of the curriculum (both in terms of skills and content) has a high predictive value for later academic performance. This form takes into account many factors that directly or indirectly influence study success (motivation, skills, existing knowledge, aptitude, learning ability, language skills, interest). Based on the total score of the various tests, a high/low ranking is made, on the basis of which candidates are selected. The aim of the selection process for the Psychology degree programme is to enhance study success. In terms of student performance and success rates, selection can be highly effective. Students consider selection methods to be fairer than lotteries because they can influence the outcome. Secondary school grades are also a good predictor of academic performance. More information: *New rules, new tools: Predicting academic achievement in college admissions*, A. Susan M. Niessen, University of Groningen, 2018 (a.s.m.niessen@rug.nl)

Letters of motivation, matching, personality questionnaires, CVs, and unstructured interviews are not effective or predictive. Although candidates value interviews and feel they can express themselves, identifying characteristics is difficult. This is due to a lack of standardization (what are you comparing to what?), the possibility of 'faking good' (socially desirable answers), the influence of coaching (paid or unpaid) beforehand, and potential and unintentional bias by individual selectors. However, a letter of motivation can be useful as a matching tool, for example as a low-stakes condition for selection or a lottery. There is currently no established method for validly measuring non-cognitive traits such as conscientiousness and motivation in high-stakes situations. The value of such tests in predicting subsequent performance is low. Another concern when determining selection methods is that letters of motivation and online tests are open to fraud, especially when some content can be easily generated using AI tools. This can be partly countered by limiting the duration of the test, taking the test at the same time, using open-book modes of assessment, and monitoring validity. On-site testing reduces this risk but creates a travel barrier (which is higher for international applicants, especially those who live far away) and has a negative impact on sustainability.

It is possible to combine selection and drawing lots: for example, using a test to admit some of the applicants directly, to reject some directly, and to draw the remainder by means of a weighted or unweighted lottery. One advantage of this is that a group of highly qualified applicants and a group of less qualified or unqualified applicants can be filtered out. The drawbacks are that different methods and objectives are used interchangeably, and that the dividing line between 'qualified' and 'unqualified' is still arbitrary for individuals who just make/just miss out on selection. If selection is used for the entire group, the cut-off is more fairly determined by the number of places available. Weighted lotteries make an imperfect instrument even more imperfect, with underrepresented groups more likely to fall into the low-scoring categories.

Effectiveness by perspective

- In terms of programme content, selection works best when there is good alignment between the selection method (criteria, instruments, and process) and the learning outcomes, educational activities, and the testing of the curriculum of the specific degree programme, and preferably also professional practice after graduation. The best way to do this is to use a set of tests that is representative of the degree programme.
- In terms of equal opportunities, the unweighted lottery is the best instrument if selection has no other purpose than to limit admissions on the basis of capacity and to control intake.
- In terms of diversity and representativeness, it is difficult to justify the adjustment of instruments. The group of prospective students is not representative of society. It is very difficult

to determine whether candidates decide not to apply or suffer from bias due to a lack of data. The degree of diversity could be increased by selecting on the basis of personality traits, but this is difficult to substantiate and validate.

- In terms of academic performance/success rates/study success, selection is the best instrument. Done well, selection can be a good predictor of later academic performance.
- It is difficult to substantiate selection from a 'matching/best fit/most suitable' perspective. For many instruments, it is not clear whether bias plays a role. It is difficult to test validly without differences in scores between individuals from different backgrounds (and thus differences in chances of being allocated a place).
- Regarding the cost of education, a switch from selection to lottery has a negative impact on academic performance, success rates, and funding levels.
- Weighted lottery is a hybrid form where the element of chance is applied to the selection process via ranking. This makes it possible to partly reward effort/qualifications. Inequality in the sense of unfair cases is therefore concentrated around the thresholds. In this respect, it represents a partial shifting of the problem. Underrepresented groups often rank low in a ranking, which can reinforce inequality. A combination of selection and lottery can bring perspectives together, but can also lead to a dovetailing of methods/objectives. Candidates who fail to meet an effort requirement in the selection process may be excluded from the lottery.
- Student experience: According to prospective students, taster tests and interviews are the most desirable selection methods, and the lottery the least desirable.

Literature review on equal opportunities and diversity (context: medical degree programmes)[3]

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Concerns about the fairness and justness of selection procedures have led some researchers to describe selection as an 'expensive lottery' (Norman, 2004; Groves et al, 2007). It has also been noted that selection is an inefficient way of selecting the diverse future workforce needed to meet the needs of a changing society (General Medical Council, 2009). Research also shows (Wouters et al., 2018) that selection in some methods only produces small gains compared to a lottery-based admission procedure. The outcome of selection depends on the quality of the process, including how rigorous the selection is. Student diversity may also be compromised in a selection-based procedure. For example, there is evidence that students from ethnic minorities or lower socio-economic backgrounds have more negative perceptions of selection procedures (Greenhalgh et al., 2004; Kelly et al., 2018; Wouters et al., 2017). There is also evidence that the presence of a selection procedure can lead to students at risk of delaying their studies not applying if a less demanding alternative is available in the form of a lottery-based admission procedure (Vos et al., 2019). In this sense, a selection procedure may therefore create inequalities of opportunity as students exclude themselves through self-selection (Mulder et al., 2022b).

Furthermore, multi-cohort studies on equality in HPE (Health Professional Education) at Dutch universities show that selection procedures can unintentionally affect student diversity and influence equality. For example, it was found (Mulder et al., 2022b) that regardless of the type of selection/lottery, individuals with one or more parents who were healthcare professionals, individuals with one or more parents in the top 10% of the population in terms of wealth, and individuals who were female were over-represented. In a hybrid lottery/selection procedure, applicants who are female or have one or more parents in the top 10% of the population in terms of wealth have a better chance of being admitted. This

[3] Almost all of the research consulted on effects of selection methods on equity and diversity was conducted specifically in the context of medical education. Therefore, the conclusions are not necessarily true for all degree programmes.

was also the case for procedures that only involved selection, with the addition that applicants with one or more parents who were healthcare professionals also had a higher chance of being accepted, whereas applicants with a migrant background had a lower chance. Mulder and colleagues (2022b) therefore conclude that the likelihood of being admitted to HPE is more strongly influenced by the applicant's background the more selection is involved. For example, first-generation Western immigrants and applicants with foreign qualifications are less likely to be selected (Fikrat-Wevers et al., 2023b). However, this inequality of opportunity may also be due to poorer access to prior education, for example among people from lower socio-economic backgrounds (Cohen et al., 2002), or a lack of social networks that provide access to relevant information and foster a sense of self-efficacy (Mulder et al., 2022a). Compared to traditional criteria, broader criteria may reduce some performance gaps related to socio-economic status, but have no effect on inequalities based on ethnicity (Fikrat-Wevers et al., 2023b). Furthermore, preparatory activities offered free of charge by the institution may also be offered to prospective applicants, as there is evidence that this may contribute to the likelihood of selection of underrepresented and non-traditional students and thus have a positive effect on student diversity in HPE (Fikrat-Wevers et al., 2023a).

Schripsema's (2017) PhD research shows that different admission procedures are associated with differences in academic performance. Students who were admitted to a medical degree programme on the basis of their average grade performed best (this effect is also found more widely in the literature; see, for example, Frikrat-Wevers, 2023a; Niessen & Meijer, 2017). Students who were admitted on the basis of a lottery only scored the lowest in terms of performance. However, in the longer term (e.g. grades for clinical placements, drop-out rates, doing an MD/PhD, and probability of graduation), there were no differences based on different admission procedures (Schripsema, 2017). However, it was found that a selection instrument based on personality profiles can be a good instrument to ensure that candidates with suitable personality profiles are admitted for the intended profession. It was also found that certain non-cognitive forms of selection (e.g. a situational judgement test or interviews) can influence the admission of individuals with certain characteristics by being designed in such a way that these individuals simply score better on them. The added value of these types of non-cognitive selection instruments is also not always clear (Niessen & Meijer, 2016). Schripsema (2017) further concludes that there is insufficient evidence to favour selection-based admissions over lottery-based admissions for medical degree programmes, as there are only small but sometimes significant differences between groups admitted on the basis of selection, lottery, or average grade. In the end, Schripsema concludes (2017; see also Hubbeling, 2017; Niessen & Meijer, 2017) that the introduction of selection instead of a lottery does not necessarily improve the admission system, as selection instruments can give a distorted picture due to the fact that validity and reliability are not always up to scratch.

Overall, therefore, it is argued that until a selection procedure is developed that does not disadvantage certain types of students, preference should be given to a lottery-based admission procedure (Wouters et al., 2018; see also Benbassat & Baumal, 2007; Brown & Lilford, 2008; Hubbeling, 2017; 2018).A random lottery is therefore more likely to result in a student population that is more representative. However, it is important to note that this will only be representative of the group of individuals who applied. In turn, however, it is also highly unlikely that this group is representative of the population as a whole due to a lack of diversity as a result of self-selection, whereby certain groups simply do not apply for a particular degree programme (Mulder et al., 2022b; see also Greenhalgh et al., 2004; Kelly et al., 2018; Vos et al., 2019; Wouters et al., 2017). Therefore, it is also important to take into account the diversity of the applicants themselves in admission procedures. Furthermore, it is worth noting that a lottery or selection based on characteristics that an applicant can no longer influence, such as average grades in secondary school, is perceived by students to be unfair compared to ability-based selection methods such as interviews and taster assignments (see Fikrat-Wevers et al., 2023c; Niessen et al., 2017).

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