

ENTRANCE TO HIGHER EDUCATION IN SWEDEN

Christina Stage

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Abstract

The rules for admission to higher education in Sweden are continuously discussed, and they have been changed several times during the last 20 years. Final grades from upper secondary school play an important role in the process of transition to higher education. Firstly, final grades are needed for eligibility for higher education, and secondly, final grades are used as one of the selection instruments. The other selection instrument is an optional entrance test, called the Swedish Scholastic Assessment Test (SweSAT). The admittance rule is that selection is based *either* on grades *or* on test results. Since the grading system in upper secondary school was drastically changed in the middle of the nineties, the situation regarding admittance to higher education is somewhat problematic at present. Students may be admitted to higher education either on the basis of old grades from upper secondary school, on the basis of new grades from upper secondary school, or on the basis of test results. The fairness in this system provides an interesting measurement problem.

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Background

The rules for entrance to higher education should give a guarantee for fairness to the applicants, and at the same time guarantee colleges and universities that the admitted students have the necessary knowledge and study ability. In Sweden the system of admittance to higher education is frequently debated in public, and it has been changed and reconstructed several times during the last decades. Some changes have been caused by changes in the society, and some changes have been attempts to adjust for unfairness or unexpected effects of earlier rules.

Sweden has a long tradition of compulsory, comprehensive education. As early as in 1882 the first law was passed and signed by the king that there should be at least one proper school with a trained teacher in each municipality in the country. Since then, there have been several school reforms, which have tried to create a school system combining quality with equality.

Primary and secondary education is compulsory and common for all children. After nine years of integrated education the students have to choose between different study programs in upper secondary school. Admittance to, or rather placement in upper secondary school is based on average grades from secondary school. Earlier upper secondary school was divided into three years course programs, which were preparing for ensuing studies and two years programs, which were occupationally oriented. In 1994 there was a radical reform of upper secondary school, which resulted in a new curriculum, and after which all study programs continue for three years. One of the main ideas with the reform was to give the students more variety of choices for their studies. At the same time the grading system was changed from a norm-referenced to a criterion-referenced system. After the reform the choices offered in upper secondary school are between 17 different study programs, and about 600 optional courses, which consist of both mandatory and elective subjects. All study programs in principle provide basic qualifications for higher education, two programs, however, the Natural science and the Social science programs, are especially preparing for higher education.

In 1977 an important university reform took place, which implied a widening of the concept of higher education in Sweden. All education that followed upper secondary school was included in higher education. At that time, for example, colleges of nurses and colleges for

teacher training were incorporated into higher education. Some new universities had recently been established and now several local colleges were added. In connection with the reform in 1977, admission to higher education was widened, and a new group of applicants was acknowledged as eligible for higher education. Since 1977 everybody who is at least 25 years old, has at least four years working experience, and confirmed knowledge of Swedish and English, is qualified for admittance to higher education (the 25:4 group). The political interest was to increase access to colleges and universities for older people, who had not had the opportunity to higher education in their young years. Furthermore there should be varied background experiences among those selected. The idea of letting social background have a direct influence on selection to higher education was, however, dismissed in the 1977 reform. Since the factors influencing the choice of education are partly outside the school (parents' education etc.) and partly in the school, it was regarded as more important to influence these conditions earlier in life, than to try to compensate for them afterwards, in the selection situation (SOU 1974:71).

At the same time there was a discussion about average grades as selection instrument. It was argued that for some students grades were unfair. An admission test would give a "second chance" to those, who did not adequately apply to their studies in upper secondary school. A national university assessment test (SweSAT) was introduced in 1977, but at this time only for applicants in the 25:4 group, who did not have formal grades.

After a lot of criticism a new governmental commission proposed that the impact of grades on the selection process should be reduced for the main group of applicants. It was argued that it is important to strive for a broad recruitment basis for higher education, and therefore selection should not be dependent on one single instrument. The use of tests and other qualifications was expected to some extent to work against the biased distribution of social groups. After the proposition of this committee the use of the test was opened for everybody in 1991. Since then selection for higher education has been based either on average grades or results from the SweSAT.

At present there are 10 full universities and 23 local colleges in the country, and each year between 50 and 60 000 new students are accepted. The number of students, who finish upper secondary school each year is between 80 000 and 90 000.

Admission to higher education

Eligibility for higher education is acquired by completing upper secondary school or by belonging to the 25:4 group. As soon as there are more applicants to a study program, than there are study places, selection must take place. Approximately 60 per cent of the study places are allocated on the basis of grades and 40 per cent on the basis of test results. Ten per cent of all study places may be allocated on “special grounds”.

Even though there has been a continuous increase in the number of study places in higher education, there are still several educational programs where there are more applicants than there are study places, and therefore selection is necessary.

School leaving certificate from three years upper secondary school has always qualified for higher education, and average grades from upper secondary school were earlier the only selection instrument.

The applicants who are competing on the basis of grades are divided into three sub-groups: **A**, applicants with final grades according to the new grading system (i.e. goal referenced grades, see p.10) from upper secondary school, or from adult education; **B**, applicants with grades according to the old system (i.e. norm referenced grades) from upper secondary school, or adult education as well as applicants with foreign educational qualifications; **C**, applicants with study assessments from finished folk high school (This group is very small). Study places are allocated to the three groups in proportion to the number of eligible applicants in each group.

The applicants who are competing on the basis of test results are divided into two sub-groups; **A**, applicants who compete on the basis of test results only, and **B**, applicants who have longer work experience, than the four years needed for eligibility, and may get extra credits. In the test group the places are distributed equally between the two sub-groups.

Applicants who have both grades and test results are automatically placed in the group where their chances of being admitted are the greatest.

If an education wants to use any other means for selection than grades or test results, this has to be approved by the National Agency for Higher Education. This possibility is mainly used by some highly competitive educational programs. For example most medical training

institutes in the country have been permitted to do their selection of students in a more elaborate way. The most common way is to make a first choice of twice as many applicants as there are study places on the basis of their test results, and then make the final choice on the basis of an essay and an interview.

The Swedish Scholastic Assessment Test

In the same year as the reform of higher education was implemented, i.e. in 1977, a new selection instrument for higher education was introduced. In the end of the sixties work had begun on developing an entrance test for higher education. One reason for a selection test was to give students from upper secondary school a second chance of being admitted, and hence to reduce the pressure to achieve high grades in upper secondary school. Another reason was the need of an instrument for ranking the applicants in the 25:4 group, who did not have formal grades. Grades from upper secondary school have traditionally been the selection instrument for higher education in Sweden, and until 1977 grades were the only selection instrument.

The test was intended to be valid for applicants to all different kinds of higher education, like the American SAT or ACT. SweSAT was to be used as a selection instrument and, it was to rank the applicants as fairly as possible with regard to their expected academic success. Other requirements on the test were that:

- it should be in line with the aims of higher education,
- it should not have negative effects on courses preceding it,
- it should be possible to mark quickly, inexpensively and objectively,
- it should not be possible to improve test results by mechanical exercises or by learning special principles for solving problems,
- the test should be experienced as meaningful by the test takers, and
- no group should be favoured or discriminated against because of gender or social class.

From the introduction in 1977 until 1990 the test was used only for applicants who fulfilled the 25:4 requirements. In this period there

were approximately 10 000 test takers each year; 6 000 in the spring administration and 4 000 in the fall administration.

In 1991, when the rules for admittance were changed, the number of test takers increased to around 100 000 per year. SweSAT is regarded as a second chance for applicants who have grades, since they are automatically judged on the most favourable condition, and do not have to decide themselves whether to use the grades or test results.

The SweSAT measures verbal and nonverbal abilities, and the capacity to make use of information. Since 1996 the test has consisted of five sub-tests:

WORD, which is a vocabulary sub-test, measures understanding of words and concepts. Mainly Swedish, but also some foreign words are included in the test.

DS, which is a data sufficiency sub-test, aims to measure numerical reasoning ability. The test is designed to put as little premium as possible on mathematical knowledge and skills in favor of problem solving and reasoning.

READ measures Swedish reading comprehension in a broad sense. The test-takers are given five texts and four questions for each text. Each text comprises about one page, and most of the questions require understanding of larger parts of the text or the text in its entirety.

DTM measures the ability to interpret information given in diagrams, tables, and maps. The test consists of ten collections of tables, graphs, and maps, which present information about a topic, and there are two questions to each collection.

ERC measures English reading comprehension. The test consists of eight to ten texts of different lengths, which are followed by two to five questions. One text is of cloze- type, i.e. some words are omitted, and the test-taker is supposed to choose the best word among four given alternatives.

Before 1996 there was a sixth sub-test **GI**, which intended to measure general information, and consisted of 30 items.

Since 1996 the total number of test-items is 122, and the raw score is transferred to a norm scale from 0.0 to 2.0, where 2.0 is the best result (2.0 is usually given for 119 or more correct answers and this result is obtained by 0.6 to 0.9 per cent of the test-takers at each occasion). The test is administered twice a year, once in spring and once in fall. After

the administration the test is made public and it is possible for anyone who is interested to get copies of old test versions. This is probably the main reason why coaching schools have not been a big issue in Sweden. The test is optional unless you belong to the 25:4 group, in which case it is mandatory. You may take the test as many times as you wish, and for those who have many test results it is always the highest result, which is valid.

Grades as selection instruments

Earlier a norm-referenced grading system was used during 40 years. One of the reasons for this grading system was to make it possible to use the grades for selection. An important advantage with a norm-referenced grading system was that comparability between schools could be ensured, and this was done through centrally administered tests in all core subjects (Swedish, English, mathematics, and chemistry)

The grading was made in a quantitative way on a scale from one to five, where five was the highest grade, and three was the mean. The grades of those students in the country, who were studying the same study courses, were intended to be normally distributed as below:

Grade:	1	2	3	4	5
Per cent:	7	24	38	24	7

This grading system was, however, heavily criticized for giving insufficient feed back to students and their parents about the actual knowledge of the students. It was also criticized for causing intra-class competition between the students, and hence a stressful situation in the schools.

After the work of several government commissions a decision was taken to change the grading system to become goal-referenced. The change started in 1994 and was fully implemented in 1997. Nationally decided goals in syllabi, and criteria for the different grades were to provide support for the teachers grading. The grading is made in a qualitative way in four steps: fail, pass, pass with distinction, and pass with high distinction. There are also national tests in the core subjects to support the teachers in the grading process (in Swedish, English, mathematics, and natural sciences).

Even though a goal related grading system might have several educational advantages over a norm related grading system, it is less suited for selection. The norm-related grading system, which was used earlier, was well suited for selection, since it provided comparability over time, between schools, and between different parts of the country. The disadvantage with the goal-related grading system is that it can not provide this comparability, unless the goals are expressed in such a detailed way, that the possibility of different interpretations is prevented.

Grades have remained the most important selection instrument after the change of the grading system, and the new grades were immediately quantified in order to make ranking possible.

Comparisons between the two grading systems and how they function as selection instruments provide interesting measurement research problems.

A comparison has been made between the old (norm-referenced) grades and the new (goal-referenced) grades regarding the ranking of different sub-groups of students (Stage, 2002). The 35 625 students, who finished one of the theoretical study lines (Economic, Humanistic, Natural science, Social science, Engineering) in upper secondary school in 1992 were compared to the 35 324 students, who finished the Natural science or Social science study programs in 1997. The first of these groups had received grades according to the old grading system in secondary as well as in upper secondary school. The second group had received grades from secondary school according to the old system, and grades from upper secondary school in accordance with the new grading system. The two groups are very similar, especially regarding the ranking of the different sub-groups. In all sub-groups females had higher grades than males, and social group I (the parents are university graduates, higher civil servants etc.) regularly had higher grades than social group II (the parents are lower civil servants, school teachers etc.), while social group II had higher grades than social group III (the parents belong to working class).

48 per cent of the students from both groups took part in SweSAT the same year as they finished upper secondary school, i.e. in 1992 and 1997 respectively. The results for the first group is presented in Table 1, and the results for the second group are presented in Table 2.

Table 1. Results (equated scores) on SweSAT, spring 1992, for different sub-groups¹ of the 16 969 students who finished upper secondary school 1992 and took the test in spring 1992.

	I			II			III			Tot		
	M	F	Tot	M	F	Tot	M	F	Tot	M	F	Tot
E	0.95	0.74	0.84	0.91	0.68	0.77	0.88	0.64	0.72	0.92	0.69	0.79
H	1.20	0.89	0.94	1.06	0.82	0.84	0.75	0.77	0.77	1.06	0.84	0.86
S	1.10	0.89	0.96	0.97	0.80	0.84	0.94	0.72	0.76	1.02	0.82	0.87
N	1.39	1.21	1.30	1.30	1.09	1.18	1.22	1.01	1.10	1.33	1.13	1.22
T	1.14	1.00	1.11	1.07	0.90	1.03	1.01	0.85	0.97	1.09	0.92	1.05
Tot	1.18	0.97	1.07	1.07	0.84	0.94	1.01	0.77	0.86	1.11	0.87	0.97

Table 2. Results (equated scores) on SweSAT, spring 1997, for different sub-groups¹ of students who finished upper secondary school in spring 1997 and took the test in spring 1997.

	I			II			III			Tot		
	M	F	Tot	M	F	Tot	M	F	Tot	M	F	Tot
E	0.83	0.74	0.79	0.79	0.67	0.72	0.74	0.65	0.68	0.80	0.68	0.73
H	1.20	1.05	1.07	1.23	0.94	0.97	1.18	0.80	0.82	1.19	0.94	0.97
S	0.99	0.85	0.90	0.90	0.76	0.80	0.76	0.67	0.70	0.90	0.77	0.81
N	1.29	1.22	1.26	1.20	1.09	1.14	1.07	1.02	1.04	1.22	1.13	1.17
T	1.13	1.03	1.12	1.05	1.01	1.04	1.01	1.04	1.01	1.06	1.02	1.06
Tot	1.13	1.01	1.07	1.03	0.87	0.94	0.93	0.79	0.85	1.05	0.90	0.97

1) Social groups: I, II and III. Gender: Males (M), Females (F). Study programmes: Economics (E), Humanities (H), Social sciences (S), Natural sciences (N), Technical (T).

As may be seen by comparing Tables 1 and 2, the similarities in results between the two groups are profound. Not only the total group but almost all the subgroups had the same results in 1992 and 1997. The gender differences were smaller in 1997, but that is due to changes of the test, which were made in 1996. That year a sub-test measuring general information (GI) was abolished, one reason being that the sub-test caused big gender differences.

In Table 3 the correlation coefficients between grades and test results are presented for the two groups.

Table 3. Correlations between grade point average from secondary school (Grade 9), upper secondary school (U. sec.) and SweSAT (Sw) Scores in 1992 and 1997 respectively.

	Grade 9 1989	U. sec. 1992		Grade 9 1994	U. sec. 1997
U.sec 92	.69		U sec 97	.73	
Sw 92	.42	.56	Sw 97	.47	.56
WORD	.34	.45	WORD	.37	.46
DS	.30	.39	DS	.36	.40
READ	.34	.45	READ	.39	.46
DTM	.31	.37	DTM	.38	.44
GI	.31	.40	-	-	-
ERC	.32	.46	ERC	.35	.44

As may be seen in Table 3 the relation between test results and grades have not changed very much either, even though the grading system was changed. The relations between test results and old and new grades from upper secondary school are as similar as the relations between test results and old grades at two different years.

As mentioned earlier, 1997 was the first year in which the new grading system was used all over the country. In Sweden, in difference from most countries in Europe, the teachers are entrusted with the grading; there are no external examiners or central tests. It is possible that the teachers this first year did the grading in much the same way as they had always done, even though the grading system was changed from norm-referenced to goal-referenced, and the grading scale from five to four steps.

Another complication is that, at the same time as the grading system was changed, a new rule was introduced, namely the possibility to acquire additional qualifications for higher education by locally arranged assessments. If the same comparisons between old and new grades are made on later cohorts there will probably be greater differences.

In an evaluation of the new grading system made by The National Agency for Education (2000) it was found that, in contrast to the intentions, the situation in school had become more stressful after the new grading system was introduced. They further found that the students found the grading unfair, and more dependent on the teacher than on their own fulfilment of the goals. They also found different opinions among the teachers about what should count in the grading process. In summary, principal differences were found regarding: the relation between goals and criteria, the level of concreteness, the progression of knowledge, requirements for the same grade level, the relation between national and local criteria, and in the use of criteria.

These problems may be overcome after some years, but the problem of how to ensure comparability of the grades over time and between different schools will remain. Studies of the comparability over time and between schools will provide work for researchers in educational measurement for a long time.

Validity studies

When there are more applicants to an education than there are available study places, some kind of selection must be made. The aim of the selection process is to rank the applicants according to some model. The most common and generally accepted principle is to choose the applicants who are most likely to succeed in the education for which they are applying. Some kind of selection instrument is needed, which can be used to predict study success. The most common selection instruments are:

1. former school results/ grades
2. scholastic aptitude tests
3. intelligence tests
4. specific achievement tests
5. personality test
6. interviews
7. waiting time or lottery

According to most researchers (see e.g. Trost 1995) school-related achievement is not only the most common, but also the best, single predictor of success in higher education, with correlation coefficients varying around and above .50 for short term prediction and around .45

for longer-term prediction. The next best predictors are aptitude or achievement tests, followed by interviews and personality tests.

In Sweden study results in higher education are not graded, but only centrally registered for passed courses, and the students get up to 20 credits per semester depending on how many courses they have passed. Hence there is no good measure of study success as the criterion. Henriksson & Wolming (1998) compared the study success for groups of students who had been selected on the basis of grade point averages with those selected on the basis of SweSAT scores, with and without extra credits for work experience. Academic performance was defined as number of credits achieved each semester and number of students leaving each semester (drop-outs). The main finding was that students admitted with extra credits for work experience were less successful than the other two groups, while no significant difference was found between students admitted on the basis of grades and students admitted on the basis of SweSAT scores.

Svensson et al (2001) made a traditional predictive study on the Engineering and the Law study programs. They did not know by what means the students had been selected, but they had access to grades for everybody, and SweSAT results for 80 per cent of the students, and they also had access to the credits earned during the first year of study. Since the students who did not have SweSAT results must have been selected on their grades, they probably had high grades (since they had not taken the SweSAT, and hence must have been certain of being admitted on basis of their grades). This has probably lowered the correlation coefficients between the test results and earned credits. The correlation coefficients between average grades and number of credits varied between .33 and .52 for the civil engineering students, and between .27 and .45 for the law students. The correlation coefficients between SweSAT results and number of credits varied between .10 and .25 for the civil engineering students and between .15 and .31 for the law students. The conclusion was that grades are better predictors of study success, measured by earned credits, than test results.

Fairness discussions in Sweden

During the eighties and in the beginning of nineties there was an intense debate in Sweden about SweSAT being unfair against females. On average, males outscored females by about half a standard devia-

tion. The difference between the highest and lowest scoring study line in upper secondary school, however, was above one standard deviation. Several bias studies were performed to investigate whether there was unfairness in the test (Stage, 1992). After the change of SweSAT in 1996, when the General information sub-test was abolished the average gender difference decreased to .30 standard deviation. This remaining difference can largely be explained by the different background education of females and males. After that the discussion about unfairness towards females has abated.

The fact that females on average get higher grades has never caused any public discussion. Still, females get higher grades in all school subjects except physics and physical education. This fact also contributes to the gender differences on SweSAT, since females with high grades usually do not take the test, while males with high grades take the test for competitive reasons.

Since selection to higher education to a great extent is based on grades from upper secondary school, on the whole females are favored by the selection system. On average, 56 per cent of the new students each year are females.

Another discussion has been about uneven recruitment to higher education from different social groups. Students with working class background are still underrepresented in higher education. Approximately 26 per cent of all students have working class background, while the same is true for 37 per cent in the entire population of the same age. The SweSAT was intended to promote participation in higher education of people from the working class, and it is therefore regarded as a failure of the test that not much has happened. For the students who finished upper secondary school in 1992, the difference between the average grades of social group I and social group III was .31 standard deviation after secondary school. The difference was .50 standard deviation after upper secondary school, and the average difference in result for those who took SweSAT in 1992 was .49. For the students who finished upper secondary school in 1997, the difference between the average grades of social group I and III was .36 standard deviation in the end of secondary school. The difference between the groups was .53 standard deviation in the end of upper secondary school, and the average difference in results was .51 standard deviation for those who took SweSAT in 1997. The education system does not seem to be able to diminish the differences between social groups, and especially

the change of upper secondary school has not had the effect wished for.

Discussion

The most important criterion for selection is the expected study progress of the applicants. The aim of the selection process could, however, also be to reach some kind of fair distribution of study places on different sub-groups of applicants. These two goals for the selection system have both been expressed in Government Bills, even though the later has mainly been hoped for as a subsidiary effect of the system. As early as in 1977 it was acknowledged that the biased recruitment to higher education, from different social groups, mainly depends on factors preceding the admittance process. All the same, it is more common to blame both the test and the grades for this bias than to seriously try to find out what can be done in the preceding education.

At present expected study progress in higher education in Sweden is predicted by grades or by test results. Several studies (see e.g. Beller, 2000) have shown that the best prediction of study success is achieved by a combination of grades and test results. The insistence on either grades or test results, depends on the wish to broaden the recruitment background, even though there are no findings to that effect. Regarding results for groups with different social background, there are no differences between the outcome of grades and test results, and since the test is optional there are indications that students from social group I are those who really benefit by the test (Gustafsson & Westerlund, 1994).

The latest reform of upper secondary school and the new grading system, has not had any noticeable equalizing effect on the differences between social groups.

The importance attached to the system of entrance to higher education in Sweden is illustrated by a present research program financed by The Bank of Sweden Tercentenary Foundation. The aim of this program (VALUTA) is to validate the system of entrance to higher education within the framework of Messick's (1989) validation aspects. In this comprehensive research program the aim is to study all the parts of the entrance system. The selection instruments i.e. grades from upper secondary school and SweSAT scores will be analyzed. The criterion i.e. traditional as well as non-traditional criteria of study success will be examined. The relation between the selection instru-

ments and the criterion will be studied. The opinions of different interested parties in the entrance system i.e. students, teachers, politicians etc. will be found out.

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