

# AN ANALYSIS OF LEARNERS' SELF-ASSESSMENTS IN COMPARISON WITH THEIR ACTUAL PERFORMANCES IN THE SUBJECT OF ECONOMICS

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**Abstract** This study compares vocational college learners' self-assessments of their abilities and their performances with their actual examination results. Until now, the ability to self-assess has principally only been addressed in the primary school sector. However, it is of central importance specifically in the vocational college sector, where the focus is on career choice. We hypothesize that 1. Students with a lower level of education self-assess themselves more incorrectly or they overestimate their abilities and that 2. Female students self-assess themselves more realistically than male students do. Our hypotheses are tested and confirmed in different vocational colleges and classes. This study, then, is an important first contribution to indicating the risk of an inappropriate career choice particularly for weaker students. Furthermore, our study can provide a starting point for examining whether the focus on support and assistance for female students in their career choices means that appropriate measures in the planning of school and educational careers for male students have been neglected.

**Keywords:**  
education self-assessment,  
vocational training.



## 1 Current state of research

Students at vocational colleges are in a situation where they have chosen an occupation or need to choose one. A student's own abilities and competencies play a major role in this decision making process. It is, therefore, vital that students are in a position to be able to self-assess their strengths and weaknesses if they are to select a suitable occupation. To do so, students have to consciously consider their own abilities but also their personal weaknesses. The development of the self-assessment process of one's own abilities and skills already begins in childhood, changing with increasing age.

Several studies and analyses have established that children of primary school age frequently over- or under-estimate their self-assessments and that it is only towards the end of their time at primary school that a more precise self-assessment gradually emerges (cf., e.g., Lohbeck 2014:20). It has also been established that, in line with the self-enhancement approach, a pupil's concept of self has an impact on her/his performance up to the 4th grade. After the 4th grade, however, the skill development approach becomes dominant, whereby the influencing occurs in the opposite direction, with the performance influencing the self-concept and, thus influencing the degree of over- or under-estimation. A positive performance and success lead to a more positive self-concept and to a potential over-estimation. With increasing age and because of the increased judgement from others, a student's self-concept becomes more differentiated and more realistic (cf. Hellmich after Lohbeck 2014:21). The development of a career wish runs parallel to the development of the self-assessment process. At the age of 9 to 13, children start to make a connection between education and career, and after the age of 14 they start to consciously consider what a suitable career might be for them (cf. Ratschinski 2009:55/56).

## 2 Research gap

Research on the topic of self-assessment with regard to level of performance has, up to now, principally had its focus on primary school and up to the 10th grade. In the context of vocational colleges, there exists a research gap. In addition, in the context of career choice, the ability to self-assess is a relatively new topic of research. Students at vocational colleges frequently realize after they have made their career choice that the chosen occupation or vocational programme is not suitable for them.

However, unsuit-able career choices might be avoided from the onset if a good self-assessment process were in place. The research gap in the context of vocational schooling, where the self-assessment process is of central importance on account of the progressing career path, has aroused our interest and motivated us to address this topic thoroughly. The degree to which students' self-assessment corresponds to their actual performance (in the form of examination results) will be examined with the help of the following survey.

### **3 Derivation of hypotheses on self-assessment and self-concept**

In the literature, we find several synonyms for “self-assessment”, such as “self-concept” and “self-evaluation”. Yet all of them define the self-assessment process as the “involvement of learners in making judgements about their achievements and the outcomes of their learning” (Wride 2017:1). It also involves knowledge about oneself and one's own abilities and, in a next step, the judgement of one's own abilities. In addition, knowledge about one's own “inclinations, interests and typical behaviour”<sup>1</sup> (Lohaus/Vierhaus/Maas 2010:165) is part of a person's self-concept. In a learning context, self-assessment plays an important role, since it involves a student having to address their own learning progress and having the ability to evaluate their own skills. Self-assessment is composed of the two concepts “self-evaluation” and “self-observation” (cf. Suschlik 2015:31). Self-observation entails recording one's own actions and one's own behaviour. If these are transferred to the context of an environment and its value system, a self-evaluation occurs. The ability to self-assess is important in as far as self-assessment enables an understanding and interpretation of new experiences and, with a view to the future, an assessment of the latter (cf. Rustmeyer 1982:40). Thus, to a high degree, self-assessment serves self-organization. With the help of self-assessment, a person can structure her experiences, steer her actions and make decisions (cf. Stiglbauer 2017:53). Self-assessment, then, no longer only implies being aware of one's own abilities but also assessing them. Various perspectives are available for assessing one's own abilities. For instance, a person can orient herself toward specific criteria, can compare her own achievement with an earlier achievement or can consult the environment as a gauge for assessing her own abilities (cf. Wolny 1983:19).

The influence that a person's self-concept has on their CV is of great significance, and the more realistic this assessment is, the fewer poor decisions that person will

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<sup>1</sup> Authors' own translation from the German.

make. Frequently, a person's CV will then be straightforward. This applies for both a school and a career context.

### **3.1 Self-assessment in dependency of the level of education**

Because of the demographic change and the shortage of skilled workers, students are particularly interested in finding a suitable occupation for themselves (cf. Schleithoff 2015:1). However, in order to find the right career, it is vital that students are able to recognize and to assess their own strengths and weaknesses. This avoids the risk of the difference being too extreme between the demands of a particular occupation and the students' abilities. The same applies for an academic career. Through self-assessment, students can better organize and understand their own needs better and can thus communicate them more effectively (cf. Wride 2017:3). In this way, it is also easier for teaching staff to develop individual and appropriate support measures together with the students as well as supporting them in their learning processes. This also includes reducing differences between a person's self-assessment and assessment by others, e.g. by a company.

In both a school and a working context, the topic of self-assessment plays an elementary role because it can have a positive or a negative impact on the performance and examination results of students. In the research, there is broad consensus "therein that confidence in their own abilities can help children and young people to cope with the demands of school"<sup>2</sup> (Lohbeck 2014:VII). An unrealistic self-assessment in the form of an under-estimation of one's own performance leads to self-doubt, and it impacts negatively on the performance of students. On the other hand, an over-estimation leads to a lack of motivation to learn or to students being over challenged. A certain degree of confidence in one's own performance protects against examination anxiety and, subsequently, against limited action competencies and the feeling of helplessness. For this reason, the building of self-confidence is also a "(...) main objective of pedagogical measures for reducing examination anxiety" (Wolny 1983:2)<sup>3</sup>.

In line with their origins, self-concept and a person's performance should not be observed independently of each other, since they are mutually dependent and they

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<sup>2</sup> Authors' own translation from the German.

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influence each other. The form of self-concept, i.e. positive or negative, usually stems from experience of previous performance and previous examination results and it, in turn, influences future performance, since a high self-concept leads to a greater likelihood of success on account of the positive attitude (cf. Rustmeyer 1982:46).

In their search for a suitable career, self-assessment offers young people an orientation and, in addition to other factors such as social recognition, it narrows down the choice of suitable occupations. With the help of self-concept, a systematic elimination of unsuitable occupations takes place (cf. Ratschinski 2009:57). But why, then, do so many young people change their traineeship/apprenticeship, their job or their university programme of study?

In his analysis, Schleithoff (2015:8) found that secondary school students taking their *Abitur* (university entrance qualification in Germany) often over-estimated their performance. Particularly among the weaker students, the expected *Abitur* grade differed from the one that was actually achieved. This leads on to our first hypothesis to be tested:

*H1: Students with a lower level of education self-assess themselves less accurately in the subject of economics than students with a high level of education do..*

### **3.2 Gender differences in the ability to self-assess**

However, it is not only the level of education that appears to influence self-assessment positively or negatively.

There are various other factors that influence students' self-assessment: e.g., there are physical differences, i.e. the characteristics of the actual place of learning, different rituals in the school system or differences in the type or form of school. Furthermore, the way in which a lesson is organized and the social interaction of the teacher influence students' self-assessments (cf. Wolny 1983: 54 f). According to Suschlik (2015:32), particularly attachment figures within the social environment also have an influence on students' self-assessment. Many studies emphasize the particular significance of gender on the development of self-assessment. Just as specific gender stereotypes are created through society, human beings form a gender-specific self-concept. This self-concept has a high relevance for the choice

of career and is influenced by our society's expectations and requirements (cf. Stiglbauer 2017:55).

Studies provide evidence that girls of today perform on average better at school (cf. Lohbeck 2014:22) than boys do, whereby the performance does not only apply to the achieved grades themselves but also to their school and education careers. It is only in natural science and mathematics subjects that male students have a superior performance. The verbal and mathematical self-concept of students is thus either positively or negatively influenced at a young age depending on gender. In the empirical research, "Gender-specific differences (...) for school-related self-concepts have been empirically well demonstrated"<sup>4</sup> (Lohbeck 2014:22). Furthermore, Maccoby and Jacklin (1978), in their 1970s' studies on self-assessment of men and women found that, in practically all cases, men assessed their performance and ability more highly than women did theirs (cf. Rustemeyer 1982:43). In light of these findings, the poorer school performance of young males sheds doubt on realistic self-concepts. Furthermore, the question arises as to whether this difference in self-assessment still plays a relevant role, since in the course of emancipation the perception of women has changed considerably. This leads us to our second hypothesis:

*H2: In the subject of economics, female students self-assess themselves more realistically than male students do.*

#### **4 Research design**

The data required in order to answer the research question were collected via a quantitative process. Students received a questionnaire either on the day before their examination or on the actual day. The respective teachers had held the previous series of lessons.

In order to enable a comparison between the students' self-assessments, classes were selected as homogeneously as possible with regard to age, gender and previous education. The grouping into different levels of education, as required for hypothesis 1, was undertaken for each student separately by their answering the question about their respective previous education. The questionnaire used is in two parts

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<sup>4</sup> Authors' own translation from the German.

containing personal questions and behavioural questions. With regard to the former, age, gender, vocational programme and previous education were surveyed in four items, while the behavioural questions are directly related to the research topic. The answers to these questions provide information about students' interest in the examination topics, their assessment of how thoroughly they had prepared themselves for the examination and what examination grade they expected to achieve.

With regard to the personal questions, these were structured in such a way that there were three open questions and a polytomous nominal scale with five choices. The self-assessment part is divided into three parts. The first part contains items five to 13 and is a 6-point Likert scale ranging from "totally disagree" to "totally agree". In order to force respondents to express their opinion, an even number of question responses were selected (cf. Porst 201, p. 82). Respondents have two items on career choice. With the help of a dichotomous nominal scale, we ask respondents whether, with their current state of knowledge, they would choose their current training/apprenticeship programme again. Subsequently we gave them the opportunity to respond to an open question with their reason for their answer. Finally, by means of an ordinal scale question, we ask respondents for the grade that they expect to achieve in the upcoming exam.

When distributing and collecting/evaluating the questionnaires, we ensured that the respondents were aware of the fact that their teachers would not have any access to the evaluation. We did so in order to avoid having respondents not responding truthfully out of fear of negative consequences and thus to ensure that we had as many valid and reliable data as possible.

One disturbance factor beyond our control might be in the different examination level in relation to the quality of teaching and the feedback culture of the teacher. It can be assumed that those students who regularly receive feedback from the teacher and who take a fair examination are going to self-assess more realistically than those for whom it is not the case.

The questionnaires were evaluated by the statistic software SPSS.

First, the collected data are prepared for the following tests. The testing of the main hypothesis consists of a t-test and a multiple regression analysis. In order to test the first hypothesis—whether students with a lower level of education estimate their achievements in the subject of economics less accurately than students with a higher level of education—we use multiple regression analysis. The dependent variable is the squared difference between self-assessment and grades awarded by the teacher. The independent categorical polytomous variable “school leaving qualification” is transformed by dummy coding into five dichotomous variables and can thus be incorporated in the multiple regression.

In order to answer the second hypothesis on whether female students self-assess themselves more realistically in the subject of economics than male students do, we conducted a t-test with independent samples.

This involved our calculating the difference between the actual grade achieved and the estimated grade. To avoid any problems with signs, squaring was done. The root of the squared difference between the awarded grade and the self-assessment represents the dependent variable in the t-test and “gender” represents the independent variable.

For conducting the t-test, the following assumptions must be met: there is a normal distribution and independent measured values. Moreover, the dependent variable is metric and there is homogeneity of variance.

For a sample size of  $> 30$  subjects per group, the t-test is robust against a violated normal distribution. As the sample group is  $> 30$ , the first assumption should be met.

Should the Levin test lead to a violation of the assumption of homogeneity of variance, the degrees of freedom will be adapted so that this assumption also holds. Furthermore, the difference between the awarded grade and the estimated grade, as independent variable, is metric and the measured values are independent because there is no multiple testing of one individual.



Apart from the main testing, additional analyses take place which examine, inter alia, whether males and females over- or under-estimate their abilities and whether females in comparison with males achieve better or worse grades.

## 5 Evaluation

In total, 136 students from four different vocational colleges were surveyed. The result was 126 correctly filled-in questionnaires, which took part in the evaluation, because some of the questionnaires had not been completely filled in or the actual examination grades of some students were not available, due to illness for example. The group of the surveyed students was composed of 70 female students and 56 male students. The average age was 19.6 years (cf. Table 1).

**Table 1: Age structure of the surveyed students**

	<b>Female</b>	<b>Male</b>	<b>Total</b>
<b>Average age</b>	19.7	19.7	19.6
<b>Range</b>	16-41	16-32	16-41
<b>Standard deviation</b>	3.4	3.2	3.3

The largest groups were those from the vocational programme of the Commercial school (39.7%) and the traineeship programme Real estate management assistant (18.3%). In addition to these, students from the traineeship programmes Retail assistant, Office management assistant and Drugstore assistant were surveyed (cf. Table 2).

**Table 2: Overview of the programmes**

Programmes (cluster)	Frequency	Percentage
Vocational college programme <sup>5</sup>	6	4.8
Office management assistant	14	11.1
Drugstore assistant	17	13.5
Retail assistant	16	12.7
Commercial school programme <sup>6</sup>	50	39.7
Real estate management assist.	23	18.3
<b>Total</b>	<b>126</b>	<b>100.0</b>

Most of the female students were in the programmes *Höhere Handelsschule (Commercial school)* (34.3%) und Drugstore assistant (22.8%). The male students chose most frequently the programmes *Höhere Handelsschule* (46.4%) und Real estate management assistant (23.2%) (cf. Table 3).

**Table 3: Overview of the programmes according to gender**

Programmes (Cluster)	Female		Male	
	Frequency	Percentage	Frequency	Percentage
Vocational college prog. <sup>5</sup>	4	5.7	2	3.6
Office management assist.	9	12.9	5	8.9
Drugstore assistant	16	22.8	1	1.8
Retail assistant	7	10.0	9	16.1
Commercial school prog. <sup>6</sup>	24	34.3	26	46.4
Real estate man. assist.	10	14.3	13	23.2
<b>Total</b>	<b>70</b>	<b>100.0</b>	<b>56</b>	<b>100.0</b>

From the data on school leaving qualifications, we know that 19% of the respondents have passed their *Abitur* examination (entitlement to study at university) and 20% their *Fachabitur* examination (entitlement to study at polytechnic); thus, these respondents have a high level of education. For 12% of the respondents, the

<sup>5</sup> *Berufsfachschule*

<sup>6</sup> *Höhere Handelsschule*

*Hauptschulabschluss* (end of 9<sup>th</sup> grade) is their highest school leaving qualification. Most of the students (49.2%) held the *Realschulabschluss* (end of 10<sup>th</sup> grade) as their highest school leaving qualification (cf. Table 4).

**Table 4: Overview of school leaving qualifications**

School leaving qualification	Frequency	Percentage
<i>Hauptschulabschluss</i> (end of 9 <sup>th</sup> grade)	15	11.9
<i>Realschulabschluss</i> (end of 10 <sup>th</sup> grade)		
<i>Fachhochschulreife</i> (entitlement to study at polytechnic)	62	49.2
<i>Allgemeine Hochschulreife</i> (entitlement to study at university)	25	19.8
<b>Total</b>	24	19.0
	162	100.0

Among the female students, the *Realschulabschluss* is the most frequently held school leaving qualification (49.95%), followed by the *Fachhochschulreife* (25.7%). Most of the male students also hold the *Realschulabschluss* qualification (57.1%). The second most frequently held school leaving qualification for males (16.1%) is the *Allgemeine Hochschulreife* (cf. Table 5).

Table 5: Overview of school leaving qualifications according to gender

School leaving qualification	Female		Male	
	Frequency	Percentage	Frequency	Percentage
<i>Hauptschulabschluss</i> (end of 9 <sup>th</sup> grade)	7	10.0	8	14.3
<i>Realschulabschluss</i> (end of 10 <sup>th</sup> grade)	30	42.9	32	57.1
<i>Fachhochschulreife</i> (entitlement to study at polytechnic)	18	25.7	7	12.5
<i>Allgemeine Hochschulreife</i> (entitlement to study at university)	15	21.4	9	16.1
<b>Total</b>	70	100.0	56	100.0

### Pre-testing:

In order to ascertain different influencing factors on self-assessment and in order to control them for the subsequent hypotheses testing, we tested with the help of a regression analysis whether the items five to 13 (e.g., question about feedback from the teacher, interest in subject) have an influence on how accurately students self-assess themselves. None of the seven questions correlated significantly with the self-assessment of the students. In addition, those students who claimed to receive regular feedback from their teacher did not self-assess themselves more accurately than those who received less feedback did. For this reason, these questions were not included in the further analyses. The same applies for the variables “Age” and “Current programme”, which were intended as a control but were not considered further as they were inconspicuous.

### 5.1 Hypothesis 1

The requirements for a multiple regression were fulfilled apart from the normal distribution of the residuals. However, the Kolmogorov-Smirnov test was significant ( $p < .001$ ), which is why the bootstrapping method was applied before the multiple regression was conducted (Field, 2013).

Results demonstrate that students who hold a *Hauptschulabschluss* school leaving qualification show the greatest difference with a mean value of 1.20 grade points between their self-forecasted examination grade and the grade that they actually achieved.

On average, for students with a *Realschulabschluss* school leaving qualification, the difference is 0.95 grade points between the self-assessed examination grade and the actually achieved one. This means that students with this qualification misjudge their grade by approx. one grade. We can see then, that both of these groups frequently misjudge their grade by one grade. The self-assessment of those students with the *Realschulabschluss* qualification does not differ significantly from that of those with the *Hauptschulabschluss* ( $p = 0.11$ ).

Those students who hold a *Fachabitur* and *Abitur* qualification, however, show on average a significantly lower difference than those with the *Hauptschulabschluss* ( $p = 0.005$ ,  $p = 0.015$ ). In the mean value, students with the *Abitur* qualification show a difference of 0.67 grade points and students with *Fachabitur* one of 0.56 grade points. Thus, a total of 7% ( $R^2 = 0.071$ ) of the variance of the difference can be traced back to the school leaving qualification (cf. Table 6).

**Table 6: Overview of the regression coefficients, confidence intervals and standardized regression coefficients as well as testing of multicollinearity under consideration of the variable “Difference between grade reality and expectation”**

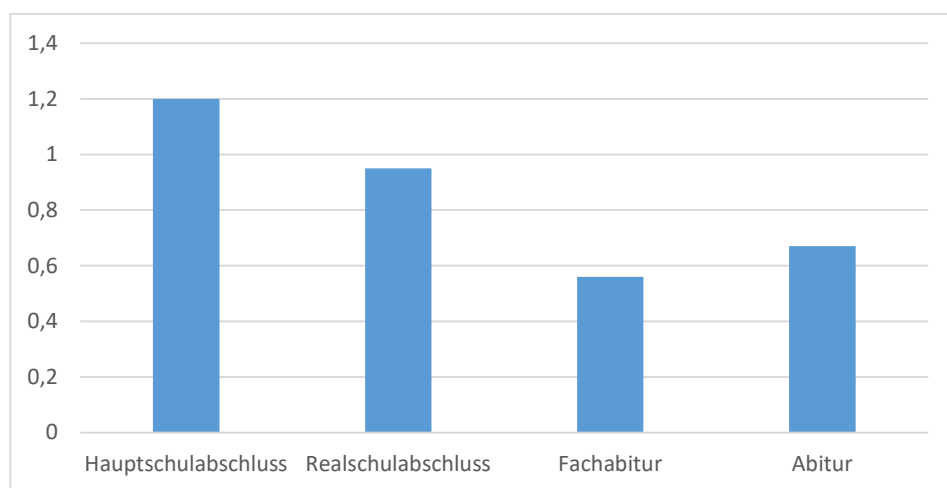
	<i>B</i>	$\beta$	KI. U.	KI. O.	TOL	VIF	sig.	Mean value t
Constant ( <i>Hauptschule</i> )		1.200	0.857	1.538				1.2
Dummy_1 ( <i>Realschule</i> )	-0.174	-0.265	-0.658	0.143	0.384	2.607	0.11	0.95
Dummy_2 ( <i>Fachabitur</i> )	-0.336	-0.640	-1.072	-0.201	0.468	2.138	0.005	0.56
Dummy_3 ( <i>Abitur</i> )	-0.275	-0.533	-0.943	-0.127	0.475	2.105	0.15	0.67

Note: *B* = regression weight.  $\beta$  = standardized regression weight. TOL = tolerance. VIF = variance inflation factor.  $R^2 = 0,071$ . based on 1000 bootstrap samples.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

In summary, our study shows that students with the *Hauptschulabschluss* (end of 9<sup>th</sup> grade) school leaving qualification self-assess their grades the least accurately and that students with the *Realschulabschluss* (end of 10<sup>th</sup> grade) do not significantly differ from them in their predictions. However, those students who hold a *Fachabitur* or *Abitur* (polytechnic/university entrance) school leaving qualification are able to predict significantly more accurately in the subject of economics than those with the *Hauptschulabschluss* (cf. Fig. 1).

These results are thus conform with hypothesis 1, which postulates that students with a lower level of education self-assess their abilities in the subject of economics significantly less accurately than students with a higher level of education do.



**Figure 1: Test of hypothesis 1 - Grade point difference between self-assessment and actual grade achieved for students with different levels of education.**

## 5.1 Hypothesis 2

The requirements for the t-test were all satisfied. The Kolmogorov-Smirnov test was significant ( $p < .001$ ), so that a violation of the normal distribution assumption must be assumed. However, in both groups there are more than 30 subjects, which is why the t-test is robust to this violation (Gollwitzer & Eid, 2017). Thus, the t-test could be implemented unrestrictedly.

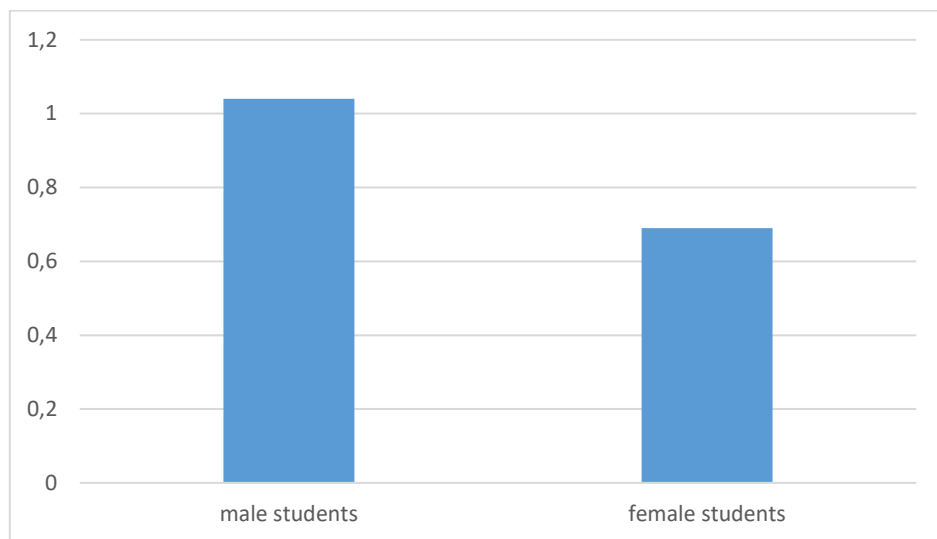
When we observe self-assessment in dependence on gender, we see that there is a significant difference between male and female students with regard to the difference between the predicted grade and the grade that is actually achieved ( $t(124) = -2.617$ ,  $p = 0.005$ ). The mean value for the female students is 0.69, whereas for the male students it was significantly higher at 1.04. With an effect size of Cohen's  $d = -0.47$  (which, according to Cohen's classification (1988), is a medium effect size), the difference between the self-assessments of female students and male students is significant (cf. Table 7).

**Table 7: Overview of t-test for mean equality. Test for normal distribution (Kolmogorov-Smirnov and Cohen's effect size).**

	<i>T</i>	<i>df</i>	Sig. (1-sided)	Mean difference	Standard error of difference	Kolmogorov-Smirnov significance Male students/ Female students	Cohen's effect size	Mean value Male students/ Female students
Difference	-2.617	124	0.005	-0.35	0.1338	0.0 / 0,0	-0.47	1.04 / 0.69

Female students self-assess themselves more accurately than male students do (cf. Fig. 2).

The results thus confirm the validity of the second hypothesis, according to which female students assess their own performance in the subject of economics more realistically than male students do.



**Figure 2: Test of hypothesis 2 - Difference between male and female students' predictions of their grades.**

### Additional analyses

When testing whether female students and male students differ in their grades achieved, we found no significant difference between the genders ( $t(124) = -0.632$ ,  $p = 0.264$ ). The average grade of the female students is 2.99, and that of the male students 3.13 (cf. Table 8).

**Table 8: Overview of t-test for mean value equality. Test for normal distribution (Kolmogorov-Smirnov).**

	<i>T</i>	<i>df</i>	Sig. (1-sided)	Mean difference	Standard error of difference	Kolmogorov-Smirnov significance Male students/Female students	Mean value Male students/ Female students
Difference	-0.632	124	0.264	-0.139	0.220	0.0 / 0.0	3.13 / 2.99



What is striking about the survey is that a total of 27.8% of the respondents stated that they would not choose their current programme in economics or their current traineeship/apprenticeship programme again. A substantial number of the dissatisfied respondents said that the consequence of this would be that they would do something different after completing the programme. However, here, too, there is a slight difference between female students and male students: only 20% of the female students said that they were dissatisfied with their current vocational programme or traineeship/apprenticeship programme, whereas for the male students it was 37.5% (cf. Table 9).

**Table 9: Overview: whether subjects would choose their vocational training programme again.**

Vocational Training Programme	Women		Men	
	Frequency	Percentage	Frequency	Percentage
Would not choose again	14	20.0	21	37.5
Would choose	55	78.6	35	62.5
No response	1	1.4		
Total	70	100	56	100

For the students in the training/apprenticeship programmes, the most frequently given reasons for their being dissatisfied with their choice of career are a lack of interest in the programme content and dissatisfaction with the company providing the workplace training.

## 6 Conclusion

The objective of the study at hand was to cast more light on the difference in self-assessment of male and female students and to compare their actual performance in the subject of economics. We implemented a study with the help of a quantitative procedure. Conducting the study in various programmes at vocational colleges, we were first able to establish that students with a higher school leaving qualification, i.e. *Fachabitur* and *Abitur*, (polytechnic entrance/university entrance) self-assessed themselves significantly more accurately than those with a lower qualification. The largest difference is observable between students who have the *Hauptschulabschluss* and those who have *Fachabitur/Abitur*. The acceptance of the first research

hypothesis begs the question as to why the self-assessments in the subject of economics of male and female students with a higher level of education are considerably more realistic than the self-assessments of those with a lower level. It seems a likely assumption that students with a lower level of education are simply not in a position to consider their own level of knowledge or that at schools which provide a higher level of education the topic of self-assessment of one's own strengths and weaknesses is addressed more intensely than at schools providing a lower level.

Moreover, the survey demonstrated that male students nowadays still self-assess themselves less accurately than their female counterparts self-assess themselves. The former's self-assessments deviate more strongly from their actual performance than those of the latter. This effect was already being demonstrated in the 1970s by Schleithoff or Rustemeyer and still holds validity in 2019, as the findings of our study show. Female students are more capable of observing and evaluating their own level of learning and learning progress. Male students, in contrast, frequently overestimate their own abilities.

Apart from confirming both hypotheses, our study delivers the finding that roughly one third of the surveyed students would not choose their chosen vocational programme or apprenticeship/traineeship programme again. The fact that every third respondent regrets their college/occupational choice signals that the young people often do not know what career they should aim for and sometimes experience several career detours through a change of career direction, through being dissatisfied and through breaking off traineeships or apprenticeships. It seems that it is often the discrepancy between the demands of a training occupation and the ability of students that is the reason for a wrong career choice. However, unfulfilled expectations or a lack of interest play their part, too. It is at this point that the significance of a stable and realistic self-assessment becomes obvious, since such an assessment could reduce the chance of choosing the wrong career or could remove any insecurities regarding a future career. A realistic assessment of their own strengths and weaknesses as well as their own abilities leads to students selecting traineeship/apprenticeship programmes or selecting vocational programmes that correspond to their interests and that do not overtax their competencies and abilities or under-challenge them. In reality, however, and as this study demonstrates, students in general and particularly those who are at schools with a lower educational

level, or male students, often lack the ability to realistically self-assess. Consequently, traineeship/apprenticeship programme choices or educational programme choices are made which do not fulfil the expectations of the young adult and which would not be chosen again at a later stage. It becomes apparent that the topic of self-assessing one's own abilities and weaknesses needs to be more strongly integrated into school life and that students should receive support in matching their abilities with a suitable career path and choosing the right occupation for themselves.

Self-assessment could be regularly trained by using, for instance, questionnaires before exams are taken or before school reports are due. In addition, detailed information about traineeship programmes and vocational programmes in the form of a collaboration between schools and workplaces, as well as internships, could help to reduce the large number of students (27.8%) who are dissatisfied with their training. The ensuing/increased transparency of potential occupations would mean that fewer students would have their expectations frustrated.

## **7 Limitations and need for further research**

A central aspect with regard to the limitations of this work is the composition of the present sample. It is a section of young people at vocational colleges in various traineeship/apprenticeship programmes, whereby we made sure that the sample contained a roughly equal amount of males and females. With regard to each separate programme, we were not, unfortunately, able to do the same. However, the measured values of the sample sufficed for us to obtain definitive results and to confirm the theses. Nevertheless, it should be noted that in the survey there was an imbalance between gender and school leaving qualification (47.1% of the females had a higher-level qualification, whereas only 28.6% of the males did). Therefore, in future studies, care should be taken to ensure a ratio between female students and male students of about 1:1 in the different school leaving qualification categories.

It would be interesting to find out what factors influenced their decisions and how their self-assessment has changed during the course of their time at vocational college. Has the, on average, less accurate self-assessment of the male students with a lower school leaving qualification improved over time or worsened? Why do male students frequently overestimate their self-assessments in contrast to female students? Answers to these questions would help, on the one hand, to develop

suitable support measures for weaker male and female students and, on the other hand, to evaluate whether, due to the increased support offered to female students, male students have been neglected on their school and career paths.

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