

PrevDrop

*Detecting and Preventing Drop out
from Higher Education or Supporting
Students to Switch Successfully to
Vocational Education and Training
(VET)*

**The Student Self-Reflection Tool
*Handbook***

**Philipp Nolden, Marold Wosnitza,
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Version for the United Kingdom



PrevDrop - The Student Self-Reflection Tool (SRT) *Handbook*

Version for Great Britain

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Detecting and Preventing Drop out from Higher Education
or Supporting Students to Switch Successfully to VET



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1 Objectives

Self-reflection tools and online self-assessments are internet-based advisory and information instruments which are conducive to self-examination (Hornke, Wosnitza & Bürger, 2013). The 'Student Self-Reflection Tool' (SRT) of the PrevDrop Project aims at identifying the risks of students dropping out of their studies by using self-reflection and feedback and providing suitable information. The PrevDrop-SRT should basically help students to reflect anonymously on their study situation without time restrictions and in a structured manner. If various issues are identified, the objective is to facilitate low-threshold access to the guidance process by establishing early contact to university and non-university student advisory services.

For student and career advisory services, the PrevDrop-SRT provides the possibility for those seeking advice to allow counsellors to view their results in order to support the case history.

2 Development Process

The PrevDrop-SRT was developed in a multi-stage process in which all project partners participated, contributing their international expertise as student or careers advisers, researchers in the field of study dropout/academic success or members of an institution of higher education with intensive student contact. Furthermore, in the different phases of development, feedback from possible users was included, for example feedback obtained in discussions with academic advisers and counsellors at various information and training events. This development process will be briefly outlined in the following.

2.1 Requirements analysis

In an initial phase, a three-step requirements analysis was conducted to identify the relevant content of the SRT. The questions at issue were a) which factors jeopardize the continuation of studies and b) which factors encourage the continuation of studies.

2.1.1 Literature review

To approach these questions, at the beginning of the project, an extensive literature review was conducted in all partner countries to establish the research status. A number of risk or prevention factors were identified.

2.1.2 Needs questionnaire

In addition, a pilot study was conducted with students and student counsellors in all partner countries. The standardized questionnaire served to identify the needs, requirements and desires of both target groups. During this process further influencing factors were identified.

2.1.3 Theoretical background

In order to structure the large number of potential factors that can influence the study situation, a theoretical model was developed in the next step. Based on systems theory concepts (Parsons & Platt, 1973), the interaction of students with the higher education institution is divided into different components. According to Parsons & Platt (1973), systems need to fulfil four functions (see figure 1):

- Each system requires **resources** in order to interact with the environment.
- Systems adjust their **aims** and needs to their environment.
- Systems must coordinate internal differentiation via **standards and rules** (here in roles and expectations).
- Systems define their limitations via **value systems**.

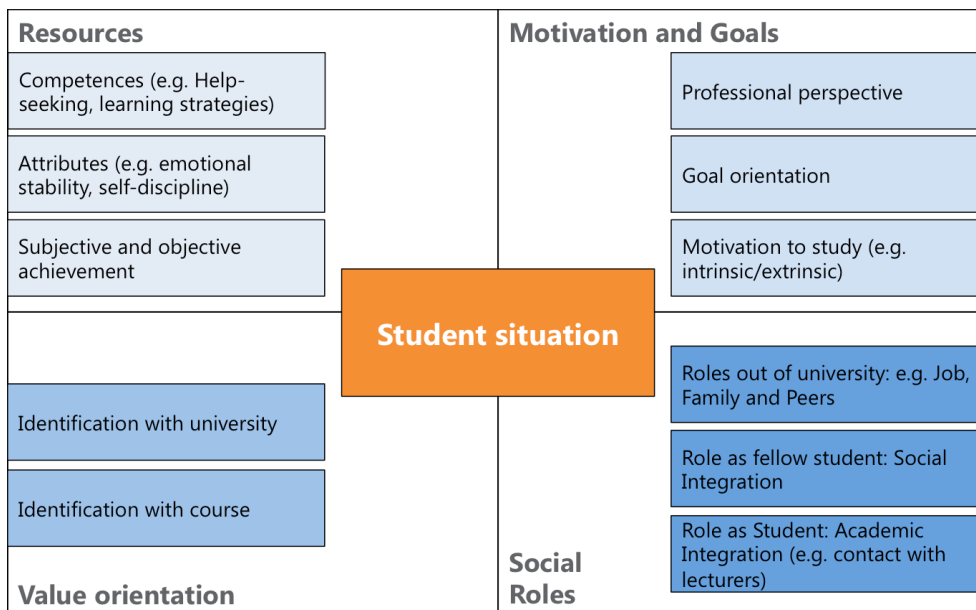


Figure 1 System theory model of the study situation

It is vital that, within such a concept, students and the institution of higher education do not oppose each other, but are interrelated. The way students perceive and evaluate the situation provides the guiding basis of their actions. Using this approach, further potential factors were derived, and the factors identified in the literature review and the needs questionnaire were classified and systematized.

A total of more than 50 potential factors were identified in the requirements analysis, making a selection process necessary.

2.2 Scale selection

On the basis of the requirements analysis, the selection process of the scales was also effected in several steps:

1. *Expert ratings*

The project partners who participated in the requirements analysis performed expert ratings, which required them to rate all factors according to their importance for the study situation. In this stage of the process, the number of factors was reduced to 35 plus demography.

2. *Validation based on counsellor study*

The selection from the expert ratings was compared with an online study carried out in 2014 with $N=72$ study counsellors from German schools, higher education institutes and

job agencies. In this study, study counsellors evaluated selected constructs with regard to their influence on the study situation. By implementing the critical incident technique (Flanagan, 1954), further key factors could be determined.

The comparison of both selection processes showed noticeable overlap and confirmed the selection made. A further important result of the counsellor study is that academic counsellors often cited a lack of self-reflection and failure to use assistance at the right time as significant factors when describing critical study situations. This result confirms the overall significance and usefulness of the PrevDrop-SRT.

3. Empirical testing: pre-test

The selected factors were transferred into scales (operationalized). In part, existing scales were used for this and in part new scales were developed.

These scales were implemented in a pre-test in all partner countries. For the English Version $N=160$ students participated in the study in 2016.

On the basis of this sample, the scales which were implemented were analysed using the following methods and criteria:

1. Descriptive item analysis

Thresholds: skewness +/-2, kurtosis +/- 7 (Curran, West, & Finch, 1996)

2. Dimensionality of the scale: factor analysis

Criteria:

- Determinants of the correlation matrix $>.00001$
- KMO test $>.5$, item anti-image correlation $>.5$
- Bartlett test significant (Field, 2013)
- Factor loadings $>.4$
- Cross-loadings $<.3$ (according to Comrey & Lee, 1992)
- Communalities $>.3$ (MacCallum, Widaman, Zhang & Hong, 1999)
- Content-related plausibility

3. Reliability: reliability analysis

Criteria: Cronbach's Alpha $>.7$, selectivity $>.3$ (Field, 2013)

4. Validity

- Significant correlation with criteria scales 'Study dropout tendency' (Nagy, 2005) or 'Study satisfaction' (Westermann et al., 1996)
- Regression analyses: significant importance in dependence of the other scales (criteria scales as dependent variables).

With these analyses, the scales were partially reduced and their relevance for the SRT was verified. Some scales are implemented in the tool despite not fulfilling all criteria due to content and consistency considerations. The scales implemented in the SRT and the construction principles are described in Chapter 4.

3 Structure of the SRT

The SRT comprises four modules:

1. My studies and I
2. My university and I
3. Don't worry...
4. My feedback

The modules reflect the fundamental understanding of the interaction between individual characteristics of the students and the perception of the higher education environment.

Following a short introduction on the homepage and the data privacy statement, students are asked to provide basic information regarding themselves and their studies. The responses to these questions are optional; they are used for standardization purposes and as basic information for student advisory services, and are later issued as part of the feedback form.

After this page is closed, the users reach the menu, from which the other modules can be opened and completed in any order.

Module 1 "My study and I" contains scales for self-evaluation of several individual study-related attributes.

Module 2 "My university and I" contains scales regarding the academic framework for studying at the higher education institution from the viewpoint of the student.

Module 3 "Don't worry" contains 14 items on possible study-related worries of the student and serves to provide an overview of potential problem areas.

In Module 4 "My feedback...", the students can view their feedback for each module.

A break can be taken between the modules; however, there should be no interruption within each individual module.

The scales of the respective modules are described in detail in the following chapter.

4 Scale Development

The constructs identified in the requirements analysis were operationalized in part with existing instruments and in part with newly developed instruments. The existing scales were selected based on the criteria: reliability (of measurement), validity (of measurement) and empirical relevance with regard to study dropout and study satisfaction as well as availability. The newly developed scales were constructed based on theory, tested in a pilot study ($N=126$) and, if necessary, revised.

In the following, the scales and their construction principles are described.

The scales described in 4.1 to 4.19 are rated by the participants with the answer format '0 – strongly disagree' to '5 – strongly agree'. The reason for using this format is that respondents have the option of rating items with a zero. The use of a zero also avoids an association with school grades. For the analysis and feedback, the values are recoded to a scale from 1 to 6. All specified values refer to the recoded scales. Responses to the study-related worries module (4.20) are provided on the answer scale: 1 'strongly disagree', 2 'slightly disagree', 3 'slightly agree', 4 'strongly agree'.

4.1 Study organisation and teaching quality

4.1.1 Construct and relevance for the studies

Study conditions and instruction quality constitute an important component of a university's 'supply'. A large proportion of quality control measures in institutions of higher education therefore involves evaluating this supply. Many studies have confirmed the necessity of creating high-quality study and learning conditions, showing that study conditions and, above all, the quality of instruction influence the (tendency) to drop out of studies and study satisfaction (Blüthmann, Lepa & Thiel, 2008; Blüthmann, Thiel & Wolfgramm, 2011; Georg, 2008; Herfter, Grüneberg & Knopf, 2015; Heublein et al., 2015; Larsen et al, 2013; Schiefele, Streblov & Brinkmann, 2007).

4.1.2 Operationalization: construction principles / criteria

- The implemented scale is based on the scale of the German Centre for Higher Education Research and Scientific Research (DZHW; Heublein & Sommer, 2011).
- The items reflect an evaluation of the study conditions from the point of view of students and include evaluative adjectives.

- To select the items, we focused on identifying those that are relevant for the study conditions of all disciplines and for all students. For example, the evaluation of tutorials was deleted from the original scale because not all programmes offer tutorials.
- Feedback criterion: study satisfaction

Total number of items: 5

4.2 Relevance to practical application

4.2.1 Construct and relevance for the studies

In the context of universities' brief to prepare students for (working) life, the practical application of subject-related contents has become a quality hallmark for study programmes and courses. This refers either to application in subsequent professional activities or to general application to 'real-life' questions. According to various studies, the way in which students perceive this transfer of (theoretical) content can affect their studies (Bargel, 2015; Blüthmann, Lepa & Thiel, 2008; Heublein & Sommer, 2011; Georg, 2008).

4.2.2 Operationalization: construction principles / criteria

- The implemented scale was newly developed by zab Consult.
- The items were developed with a view to capturing the link between theory and practice from a student viewpoint. Here, practice is understood as working life, on the one hand, and general practical applications, on the other.
- Of the five items included in the pre-test, two items were selected which capture the construct effectively and economically.
- Feedback criterion: study satisfaction

Total number of items: 2

4.3 Infrastructure

4.3.1 Construct and relevance for the studies

The material and physical learning environment of an institution of higher education can influence learning –e.g. the buildings, campus, library facilities, technical equipment and the way seminar rooms are arranged (Wosnitza, 2007; Hovdhaugen & Aamodt, 2009; Larsen et al., 2013). The pre-test showed that a positive perception of the learning environment is significantly associated with study satisfaction.

4.3.2 Operationalization: construction principles / criteria

- The implemented item was newly developed by zab Consult
- It would be virtually impossible to draw up a complete list of all components of infrastructure and keep it up-to-date. We therefore avoided using a list and investigated the construct with a generally formulated item. This decision was made in order to avoid the test becoming too long and because the individual aspects of the infrastructure construct play a secondary role.
- Feedback criterion: Study satisfaction

4.4 Independent organisation of studies

4.4.1 Construct and relevance for the studies

Following the Bologna reform and the introduction of more structured study programmes, aspects related to students' independence in organizing and shaping their studies have repeatedly been a subject of discussion (for information on the perception of students, see Bargel, Heine, Multrus & Willige, 2014). On the one hand, for students, the freedom to shape their own learning reflects the freedom of research and instruction. To this effect, the goal of the education system and of institutions of higher education is also to develop the personality of young adults and their independence (e.g. Parsons & Platt, 1973; Grundmann, 2012). On the other hand, particularly at the beginning of their studies, students should not be left alone without any orientation.

Educational research has shown that experiencing autonomy boosts motivation in different learning environments (Straka & Lenz, 2003; Ryan & Deci, 2000; Wosnitza, 2000, 2007; Deutscher, 2012; Otto, Perels & Schmitz, 2015).

4.4.2 Operationalization: Construction principles / criteria

- The implemented scale was newly developed by zab Consult based on Wosnitza (2000).
- The items were developed with a view to covering aspects related to self-responsibility and interest in organizing one's own studies. In addition, one general item was implemented.
- One scale related to the experience of autonomy in courses (Wosnitza, 2000) was tested in the pre-test and excluded based on the above-mentioned criteria.
- Feedback criterion: study satisfaction

Total number of items: 3

4.5 Contact to lecturers

4.5.1 Construct and relevance for the studies

The possibility of contacting instructors both during and outside of office hours plays an important role for students. Moreover, the type of contact and a student's perception of the behaviour of lecturers are important and can affect study satisfaction (Wosnitza, 2007; Georg, 2008; Blüthmann, Thiel & Wolfgramm, 2011; Bargel, 2015; Blüthmann, Lepa & Thiel, 2008; Larsen et al., 2013). According to the findings of the pre-test, if contact with lecturers is negligible, it can result in a tendency to drop out of studies.

4.5.2 Operationalization: construction principles / criteria

- The implemented scale was developed by Wosnitza (2000).
- The scale is split into the facets 'support' and 'neglect/limited contact'; each of these facets is captured with three items.
- Feedback criterion 'supportive contact': study satisfaction
- Feedback criterion 'unsupportive contact': tendency to drop out

Total number of items: 6

4.6 Relationships and cooperation among students

4.6.1 Construct and relevance for the studies

During his or her studies, a student's contact with fellow students is crucial for several reasons. For example, students provide each other with emotional support, informally exchange information or learn together –all factors that are conducive to studying. The construct of social integration has been intensively explored in study dropout research since Spady (1970) and Tinto (1975). Due to different operationalizations, its influence on various criteria of study dropout is not entirely clear; however, many studies have revealed an association (Gold, 1988; Beil, 1999; Schiefele, Streblov & Brinkmann, 2007; Bargel, 2003; Halpin, 1990; Pascarella & Terrenzini, 1980; Heublein et al., 2010; Larsen et al., 2013; Müller & Schneider, 2012). The understanding of the construct of social integration implemented here is exclusively related to the integration of students in their network of fellow students. The pre-test revealed an association between the criterium tendency to drop out of studies.

4.6.2 Operationalization: construction principles / criteria

- The implemented scale combines the scale of the German Centre for University Research and Scientific Research (DZHW; Heublein & Sommer, 2011) with two items by Wosnitza (2000).
- The scale links aspects of individual integration with an evaluation of the atmosphere among peer students.
- Feedback criterion: tendency to drop out of studies

Total number of items: 5

4.7 Identification with university and course

4.7.1 Construct and relevance for the studies

Various theoretical and empirical conceptions of study dropout encompass identification with the subject and the department as influencing factors (e.g. Heublein et al., 2010, 2014). Identification with the university itself seems to be of less importance. Both of these system levels and their identity-building perception correlated strongly with study satisfaction in the pre-test.

4.7.2 Operationalization: construction principles / criteria

- The implemented scale was newly developed by zab Consult.
- The scale is based on the theoretical conception of Parsons & Platt (1973); it integrates the aspects "affect", "value system" and "cognitive orientation" at the university level and course level.
- Feedback criterion: study satisfaction

Total number of items: 6

4.8 Knowledge and self-evaluation with regard to my studies

4.8.1 Construct and relevance for the studies

Several research studies have proven that a high degree of self-efficacy –i.e. conviction that one is competent at one's studies –predicts various academic success criteria such as academic performance, study satisfaction and study dropout (Perez, Cromley & Kaplan 2013; Heublein et al. 2010; Schiefele, Streblow & Brinkmann, 2007; Lent, Brown & Larkin, 1986). This conviction is even more significant if students are also well informed about their studies and the demands placed upon them. In summary, the construct is represented by the sentence "I know what is required of me and I know what I am capable of". In the pre-test, the factor correlated positively with study satisfaction.

4.8.2 Operationalization: construction principles / criteria

- The implemented scale was taken from the item pool of the online self-assessment of RWTH Aachen University.
- The scale incorporates aspects related to being informed and to assessing one's own competences.
- Feedback criterion: study satisfaction

Total number of items: 5

4.9 Perceived stress

4.9.1 Construct and relevance for the studies

This factor is related to the social costs arising from excessive efforts and stress during an individual's studies. A study situation that is perceived as being stressful and a workload requiring extensive effort lower the criteria related to academic success (Perez, Cromley & Kaplan, 2013; Ströhlein 1983; Bargel, 2003; Georg, 2008).

4.9.2 Operationalization: construction principles / criteria

- The implemented scale was taken from the item pool of the online self-assessment of RWTH Aachen University.
- The scale includes two items that capture aspects related to social costs. A third item aims at assessing the perceived overall efforts during studies.
- Feedback criterion: tendency to drop out of studies
- The scale is recoded for the feedback (i.e. so that the positive area is represented by high values and vice versa).

Total number of items: 3

4.10 University studies as intellectual challenge

4.10.1 Construct and relevance for the studies

As already described in 4.4, one goal of studying can be personality development. Insights gained from the contents of a study programme can foster students' intellectual development (Pascarella & Terenzini, 1980). However, if students do not perceive their studies as intellectually demanding, this might indicate that they are under-challenged, thus increasing their tendency to drop out (for more information on excessive demands, see Herfter, Grüneberg & Knopf, 2015). This finding was confirmed in the pre-test.

4.10.2 Operationalization: construction principles / criteria

- To avoid the test becoming too long, this factor was captured by only one item addressing the students' overall satisfaction with their intellectual development during their studies.
- The implemented item was taken from a scale by Pascarella & Terenzini (1980).
- Feedback criterion: tendency to drop out of studies

4.11 Emotional support from family and friends

4.11.1 Construct and relevance for the studies

Several research studies have shown that family circumstances and friends outside of university are factors that can impact an individual's studies (Heublein et al., 2010; Gold, 1988; Lessard, 2014). Besides personal tragedies or commitments –e.g. the obligation to take care of relatives (see worries module) –the private sphere can also provide emotional support, which is particularly helpful in periods of stress during studies.

4.11.2 Operationalization: construction principles / criteria

- The implemented scale is a translated, substantially shortened scale adapted from the scale of Zimet et al. (1988).
- The items cover friends and family as a source of support very generally. For simplification purposes, they do not differentiate between reference groups.
- The scale consists of two items; each describes a situation related to support from the private sphere: one with positive connotations and the other with negative connotations.
- Feedback criterion: study satisfaction

Total number of items: 2

4.12 Intrinsic and extrinsic motivation

4.12.1 Construct and relevance for the studies

Educational choices are increasingly explained with expectancy-x-value theories (e.g. Watt et al., 2012; Breen, Van de Werfhorst & Meier, 2014). This involves weighing up convictions about one's capabilities (see 4.8), the subjective probability of success and the subjective value of a task (in this case the studies) in an opportunity-cost analysis. The value of a task can be divided into intrinsic value components, based on the concept of intrinsic motivation of Deci and Ryan (1985), and extrinsic benefits. Intrinsic motivation means that studying, including the content of the study programme, is an end in itself and that the incentive to take on the task (e.g. to learn) comes from within the student. Central elements of intrinsic motivation are interest in the subject, joy of learning and determination to overcome content-related challenges. Extrinsic motivation reflects the

utility of the studies; the incentive to take on the task is the expected study outcome. Students are motivated to conduct study-related activities, e.g. to learn, by the grades they achieve, social comparisons, the graduation certificate they obtain and, in particular, the economic benefits and benefits for their careers. These two types of motivation are not necessarily mutually exclusive; they can exist simultaneously.

Research has sufficiently proved the positive impact of intrinsic motivation on studying (Heublein et al., 2010, Perez, Cromley & Kaplan 2013; Larsen et al. 2013; Blüthmann 2012; Georg, 2008; Blüthmann, Lepa & Thiel, 2008). Although extrinsic motivation has a weaker influence on the success of learning, there is no consensus in the literature on the exact direction and its interaction with intrinsic motivation. Based on the pre-test, for the PrevDrop-SRT, we assumed that moderate extrinsic motivation is conducive to studying, but that when motivation to study is mainly driven by external stimuli, it is detrimental to study satisfaction.

4.12.2 Operationalization: construction principles / criteria

- The implemented scale was developed by Nolden, Bürger & Wosnitza (2015).
- Additional aspects of motivation, e.g. altruism or work avoidance, were not included as they partly relate to a specific discipline.
- The theoretical conception of the scale linked the achievement goal approach (e.g. Harackiewicz et al., 2000) with expectancy-X-value theory (e.g. B. Eccles & Wigfield, 2002). The intrinsic motivation scale comprises facets of the mastery goal approach. The understanding of extrinsic motivation is limited to labour market prospects here.
- After recoding for feedback purposes, the values of this scale behave differently to the others. In the other scales, the highest values represent the 'green' area. However, based on our above-mentioned insights on moderate extrinsic motivation, the middle values represent the 'green' area for these scales, and 'excessive' extrinsic motivation is defined as the 'yellow' area.#
- Feedback criterion: study satisfaction

Total number of items: 7

4.13 Certainty about chosen studies

4.13.1 Construct and relevance for the studies

The decision to study a specific study programme at a specific institution of higher education is the starting point in the temporal structure of the phenomenon of study dropout. All of the subsequent study-related actions and, in turn, subjective perceptions are based on this decision and dependent on the chosen path (Georg, 2008). For this reason, a high degree of certainty about the choice of a course of studies is an important indicator for the subjectively perceived 'right' path. A low degree of certainty regarding the choice of a course of studies, on the other hand, increases the risk of dropping out (Heublein et al., 2010). In the pre-test the construct was positively correlated to study satisfaction.

4.13.2 Operationalization: construction principles / criteria

- The implemented scale was taken from the item pool of the online self-assessment of RWTH Aachen University.
- The items are related to the choice and decision in favour of both the study programme and the institution of higher education.
- Feedback criterion: study satisfaction

Total number of items: 5

4.14 Knowledge about career prospects

4.14.1 Construct and relevance for the studies

Having a clear idea of the potential career prospects after studying can provide students with valuable orientation (Georg, 2008; Heublein, 2010; Herfter, Grüneberg & Knopf, 2015). In addition to identifying with the subject they study, if students identify "[...] with the job profile and the career prospects [...], it will considerably help them to complete the respective course of studies successfully "(Heublein et al., 2010, p. 28, translation PrevDrop). A clear vision of the career prospects can also positively affect the criterion study satisfaction.

4.14.2 Operationalization: construction principles / criteria

- The implemented scale was developed by Heublein & Sommer (2011).
- The items refer to the content and conditions of the later occupation.
- Feedback criterion: study satisfaction

Total number of items: 4

4.15 Learning strategies: reflection and adjustment

4.15.1 Construct and relevance for the studies

Reflecting on one's learning process and regulating it have a positive effect on the learning outcome. Regulating the learning process has the aim of being able to flexibly adapt to the requirements of a task. Reflection involves assessing the methods that accompany the learning process (Wosnitza, 2000).

4.15.2 Operationalization: construction principles / criteria

- The implemented scale was developed by Wosnitza (2000).
- The scale covers both facets: reflection and regulation.
- Feedback criterion: study satisfaction

Total number of items: 5

4.16 Concentration abilities

4.16.1 Construct and relevance for the studies

The ability to concentrate is of crucial importance, in particular for the type of self-organized learning processes that largely characterize learning in institutions of higher education (Nenniger, 1999). It enables students to smoothly process information in a focused manner.

4.16.2 Operationalization: construction principles / criteria

- The implemented scale was developed by Wosnitza (2000).
- The items partly specifically address the learning situation and are partly formulated in a general way. They include aspects related to the tendency to be distracted.

- Feedback criterion: tendency to drop out of studies
- As the scale is negatively poled, it is recoded for the feedback (i.e. so that the positive area is represented by high values and vice versa).

Total number of items: 4

4.17 Emotional stability / worries and doubt

4.17.1 Construct and relevance for the studies

Overall emotional stability can influence an individual's studies, as proven in the longitudinal study by Gold (1988) in particular. Emotional stability was also identified as a study-relevant factor in the counsellor study (see 2.2.2). The construct is divided into a positive facet (emotional stability) and a negative facet (worries and doubt).

4.17.2 Operationalization: construction principles / criteria

- The implemented scale was taken from the International Personality Item Pool (IPIP; Goldberg, 1999) and translated into German and tested by Treiber, Thunsdorff, Weis and Schmitt (2013).
- The negatively poled scale 'worries and doubt' is recoded for the feedback (i.e. so that the positive area is represented by high values and vice versa).
- Feedback criterion: study satisfaction
- Total number of items: 8

4.18 (Lack of) self-discipline

4.18.1 Construct and relevance for the studies

Overall self-discipline as a facet of the personality dimension 'conscientiousness' can affect both the academic performance of students and their tendency to drop out of their studies (Deutscher, 2012). This characteristic was also mentioned repeatedly in the counsellor study (see 2.2.2). The construct is divided into a positive facet 'self-organization' and a negative facet 'lack of self-discipline'.

4.18.2 Operationalization: construction principles / criteria

- The implemented scale was taken from the International Personality Item Pool (IPIP; Goldberg, 1999) and translated into German and tested by Treiber, Thunsdorff, Weis and Schmitt (2013).
- The negatively poled scale 'lack of self-discipline' is recoded for the feedback (i.e. so that the positive area is represented by high values and vice versa).
- Feedback criterion self-organization: study satisfaction

Total number of items: 8

4.19 Willingness to work hard and determination

4.19.1 Construct and relevance for the studies

General pursuit of performance as a facet of the personality dimension 'conscientiousness' can affect both the academic performance of students and their tendency to drop out of their studies (Deutscher, 2012). This characteristic was also mentioned repeatedly in the counsellor study (see 2.2.2). The construct is divided into a positive facet 'determination' and a negative facet 'lack of willingness to work hard'.

4.19.2 Operationalization: construction principles / criteria

- The implemented scale was taken from the International Personality Item Pool (IPIP; Goldberg, 1999) and translated into German and tested by Treiber, Thunsdorff, Weis and Schmitt (2013).
- The negatively poled scale 'lack of willingness to work hard' is recoded for the feedback (i.e. so that the positive area is represented by high values and vice versa).
- Feedback criterion determination: study satisfaction
- Feedback criterion lack of willingness to work hard: tendency to drop out of studies

Total number of items: 7

4.20 Study-related worries

4.20.1 Construct and relevance for the studies

In a special module, the participants are presented with a list of the most frequent problem areas. They specify the extent to which each area is an issue of concern for them. The list has been compiled as thoroughly as possible in order to provide an overview of the potential areas in which counselling is required. In this module, there is a deliberate focus on the potentially negative perception of 'worries' rather than using formulations that focus on the desire for change. When respondents are asked to express their desires, they do so on the basis of varying initial states – all specific situations can be improved. For example: "I would like more money to finance my living costs." Asking about worries results in deeper reflection and a more intensive analysis of one's own situation: "I'm worried about how to finance my living costs."

4.20.2 Operationalization: construction principles / criteria

- The list was developed by Nolden, Karabenick & Wosnitza (2016) as an extension of Heublein & Sommer (2011).
- The participants can add worries that are not included in the list under an open-ended 'other worries' item. These can be discussed with counsellors.
- Scale: 1 'strongly disagree', 2 'slightly disagree', 3 'slightly agree', 4 'strongly agree'.
- For this module, the feedback is not provided with comparative data. The participants are shown the areas in which they expressed worries (items ranked as 3 or 4) in the "My feedback" module in order to give them a personal overview and to support counselling.

Total number of items: 15

5 Standardization

Standardization of the module occurs in three sections on the basis of the pre-test. After a period of six months, the standardization is empirically verified based on the accumulated participations. The updated standardized values are then made available on the project website.

The scales are standardized either according to the criterion study satisfaction or according to the tendency to drop out of studies. The assignment of the scales to each criterion is based on correlation and regression analyses. The three sections of standardization are calculated as follows: scales with a positive correlation with study satisfaction (1=satisfied student, 0=dissatisfied):

Threshold upper section= $\bar{X}_0 + 1SD_0$

Threshold lower section= $\bar{X}_1 - 1SD_1$

Middle section= $\bar{X}_0 + 1SD_0 \cap \bar{X}_1 - 1SD_1$

Scales with the criterion tendency to drop out of studies and negative effective direction are recoded so that the scale points in the same direction, making it possible to apply this formula also here.

The scales 'study organization and teaching quality', 'Relevance to practical application', 'perceived stress', 'concentration abilities' and 'lack of self-discipline' available in the German and Italian version are not included in the feedback of the English version. They will be included as of the evaluation results allow in the future.

Table 1 Scale parameters and threshold values

| Scale | α | Threshold | | |
|---|----------|-----------|-----------|-----------|
| | | low | medium | high |
| Study organisation and teaching quality | .976 | | | |
| Relevance to practical application | .887 | | | |
| Infrastructure | / | 1.0-3.00 | 4.00 | 5.00-6.0 |
| Independent organisation of studies | .680 | 1.0-1.89 | 1.90-3.78 | 3.79-6.0 |
| Supportive contact with lecturers | .726 | 1.0-2.48 | 2.49-4.05 | 4.06-6.0 |
| Unsupportive contact with lecturers (recoded) | .733 | 1.0-4.07 | 4.08-5.09 | 5.10-6.0 |
| Relationships and cooperation among students | .892 | 1.0-3.31 | 3.32-4.22 | 4.23-6.0 |
| Identification with university and course | .950 | 1.0-3.35 | 3.36-3.67 | 3.68-6.0 |
| Knowledge and self-evaluation with regard to my studies | .971 | 1.0-2.56 | 2.57-3.18 | 3.19-6.0 |
| Perceived stress (recoded) | .698 | | | |
| University studies as intellectual challenge | / | 1.0-3.00 | 4.00 | 5.00-6.0 |
| Emotional support from family and friends | .899 | 1.0-4.45 | 4.46-5.89 | 5.90-6.0 |
| Intrinsic motivation | .888 | 1.0-4.46 | 4.47-5.04 | 5.05-6.0 |
| Extrinsic motivation | .890 | 1.0-3.98 | 5.99-6.0 | 3.99-5.98 |
| Certainty about chosen studies | .833 | 1.0-3.66 | / | 3.67-6.0 |
| Knowledge about career prospects | .952 | 1.0-3.61 | 3.62-5.26 | 5.27-6.0 |

| | | | | |
|--|------|----------|-----------|----------|
| Learning strategies: reflection and adjustment | .965 | 1.0-2.81 | 2.82-3.22 | 3.23-6.0 |
| Concentration abilities | .931 | | | |
| General doubts and concerns (recoded) | .891 | 1.0-1.84 | 1.85-4.22 | 4.23-6.0 |
| Emotional stability | .680 | 1.0-2.64 | 2.65-3.99 | 4.00-6.0 |
| Lack of self-discipline (recoded) | .959 | | | |
| Self-organisation | .919 | 1.0-2.25 | 2.26-3.18 | 3.19-6.0 |
| Lack of willingness to work hard (recoded) | .641 | 1.0-1.92 | 1.93-3.86 | 3.87-6.0 |
| Determination | .860 | 1.0-3.69 | 3.70-4.65 | 4.66-6.0 |

6 Feedback

The SRT participants can view the feedback to each module they have completed in the section “My feedback”. A description regarding the relevance of the construct for the study situation is provided for each scale (see Figure 2 for an example taken from the organization of studies and instruction quality scale).

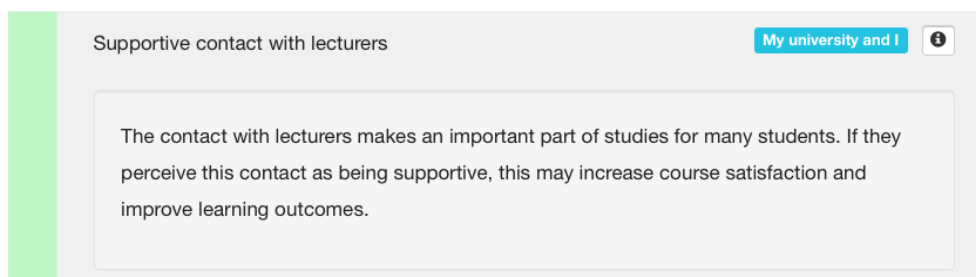


Figure 2 Example of scale feedback

Based on the standardization, the user data is also represented alongside in a diagram and assigned to the lower, middle or upper area (see Figure 3).



Figure 3 Feedback bar

The mark on each bar depicts the value determined from the information given by the students. The value is not represented numerically in order to avoid confusion. The areas are explained for the students as follows:

Green area: You have assessed yourself somewhat higher in comparison to other students. We are glad that you are satisfied with this area.

Yellow area: Your information has placed you in the average range in comparison to other students. If your responses have placed you in this area for several categories and you feel the need to talk about these issues, then do not hesitate to contact the student and careers advisory services of your higher education institution.

Red area: We recommend that you make an appointment to talk to your student or career advisor, as your results are in the lower range of this area in comparison to other students; this indicates a need for counselling.

All factor descriptions of the feedback are shown in the table.

The scales 'study organization and teaching quality', 'Relevance to practical application', 'perceived stress', 'concentration abilities' and 'lack of self-discipline' available in the German and Italian version are not included in the feedback of the English version. They will be included as of the evaluation results allow in the future.

| Scale | Feedbacktext – factor description |
|---|---|
| "My university and I" | |
| Independent organisation of studies | University studies should encourage students to work and act independently, and organising the course independently is an important part of studying. If students feel they are free and flexible to organise their studies, they may be more satisfied with their course. The freedom and flexibility may, however, also hinder them in finding their way. |
| Supportive contact with lecturers | Contact with lecturers is an important part of studying for many students. If they perceive this contact as supportive, this may increase course satisfaction and improve learning outcomes. |
| Unsupportive contact with lecturers (recoded) | Lecturers supervise a large number of students. Students who feel neglected compared to their fellow students may have difficulties with their studies. |
| Relationships and cooperation among students | "Studying is much harder when you are alone". A good student network facilitates course organisation, learning, and dealing with difficulties during studies in general. It doesn't necessarily have to be friendships; good cooperation among students is often important for their studies and decreases drop-out risk. |
| Identification with university and course | During their studies, students spend most of the time at the campus, and the course is their point of reference in terms of their social and intellectual environment. The identification of a student with his or her university and course may also increase his or her study satisfaction. |
| Emotional support from family and friends | Emotional support from the social environment outside university may be a relevant factor for study satisfaction. |

| "My studies and I" | |
|---|---|
| Knowledge and self-evaluation with regard to my studies | If students feel well informed about and prepared for study requirements and at the same time are good at evaluating their personal strengths, this forms an important part of study satisfaction. |
| Intrinsic motivation | <p>If students deal with course topics on their own initiative, this is called intrinsic motivation or learning-goal orientation. In this case, studying is an end in itself and doesn't need further external incentives.</p> <p>Many studies prove that a strong intrinsic motivation helps students to succeed and is a reason for long-term motivation.</p> |
| Extrinsic motivation | Extrinsic motivation means that a course is chosen because of external (in this case material) incentives. Students may in fact be more motivated if they take into account the job market and their personal career goal when choosing their course. However, if the course is only a means to an end, and the student is not very interested in the field of study, his or her motivation is likely to be insufficient when difficulties arise. |
| Certainty about chosen studies | "This is exactly what I want to do!" Feeling confident about the chosen course of study is important for personal perseverance to complete studies. |
| Knowledge about career prospects | What can I do with my degree? Having a clear vision about their future career can make a positive contribution to the determination and course satisfaction of students. |
| University studies as intellectual challenge | University studies should be intellectually stimulating and promote intellectual growth. Studies show that students are less likely to think about abandoning their studies, if they feel their course is stimulating and challenging. |
| Relevance to practical application | Recognising the reasons for studying the sometimes abstract course topics and understanding how they can be put into practice, forms an important part of study satisfaction. |
| Learning strategies: reflection and adjustment | Depending on the course and learning environment, there are different learning strategies which are proven to have a positive impact on learning. The ability to revise and, if necessary, adjust one's individual learning process may result in a better performance and a higher satisfaction with the course. |

| | |
|--|---|
| General doubts and concerns (recoded) | General concerns and self-doubt also affect studies and sometimes result in questioning the continuation of studies. |
| Emotional stability | Calm and emotional stability, in general, empower students in their studies and have a positive impact on their study satisfaction. |
| Self-organisation | The general ability to organise and prepare oneself makes a positive contribution to study satisfaction. |
| Lack of willingness to work hard (recoded) | Following the premise of "maximum output with minimum input", some students try to avoid making an effort. Students with this attitude, however, are rarely motivated enough to complete their studies and are more likely to abandon them. |
| Determination | Striving for performance and having clear objectives, in general, may increase satisfaction with the course. |

Following the graphic representation of the results of the module 'My studies and I' and 'My university and I', feedback on the 'Don't worry' module and the demographic details are represented more descriptively, particularly for study and career advisers.

In order to assist students requiring counseling to find the right contact partner, advisory services for or at each higher education institution site nation-wide are listed at the end of the feedback. Information and offers that apply specifically to only one institution cannot be given for organizational and technical reasons.

The feedback can be printed and stored.

7 The PrevDrop-SRT in Counselling

On the one hand, it is the aim of the PrevDrop-SRT to make students who are having difficulties in certain study-related areas aware of these problem areas and the advisory possibilities. On the other, the results of the SRT should provide information to support the advisory process. However, SRT is not a psychological diagnostic technique and should not stand alone if possible, but rather be used as part of a more holistic counseling approach.

Precisely because the advisory and support provisions of each higher education institution differ, scale-based recommendations and possible referrals to an advisory service should be made individually.

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