



**DHBW**  
Duale Hochschule  
Baden-Württemberg

**DIRK**  
Dual

# CHANGING FUTURES IN HIGHER EDUCATION: ASSESSMENT OF FUTURE SKILLS LEARNING

Report 2 for the project „DIRK Dual – Digitales  
Reflexionstool zur Kompetenzentwicklung im  
dualen Studium“

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# LIST OF ABBREVIATIONS

AaL – Assessment as learning

AfL – Assessment for learning

AoL – Assessment of learning

CAS – Center for Advanced Studies der Dualen Hochschule Baden-Württemberg

DHBW – Duale Hochschule Baden-Württemberg (Cooperative State University Baden Wuerttemberg)

FS – Future Skills

HEIs – Higher Education Institutions

LMS – Learning Management System

OSA – Online self-assessment

SSA – Student self-assessment

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# Management Summary

*"Assessment can contribute to learning, or it can hinder it depending on how the assessment is designed and implemented in a particular learning environment. [...] Making assessment act as leverage to facilitate student learning is not only a desirable practice in classrooms but also an important goal of global assessment reforms"*

Yan & Yang, 2022, S. 1

## Future Skills Turn

Future Skills (FS) are essential dispositions to act, we need to master unpredictable and complex future challenges in our personal environment as well as in work-related and societal contexts, such as digitalisation, globalisation, and climate change. Higher educational institutions (HEIs) take the responsibility to **empower students** to learn how to develop these FS independently (Ehlers, 2020). The question is how to include them genuinely into the curricula and learning and teaching practices?

## Student self-assessment and portfolios as drivers of student empowerment

Student self-assessments and portfolio work, as a means of operationalising self-assessment, bear a great potential to realise this challenge by supporting **learner agency** (Schoon, 2018), **self-directed development** of FS (Ehlers, 2020), and the shift from **assessments of learning towards assessments as learning** (Yan & Boud, 2022). This transformation of assessment practices at Higher Education Institutions (HEIs) is an essential step to empowering students for lifelong learning.

## The DIRK Dual project at the Baden-Württemberg Cooperative State University

Due to their duality and the interlinking of theoretical and practical learning spaces, work-integrated study programmes offer a great variety of learning and reflection opportunities for experience-based learning (Geier et al., 2022). The main goal of the project *DIRK Dual - Digital Reflection Tool for Competence Development in Dual Studies* is to draw on these opportunities to develop competences and make them visible and creditable. The means of choice is an e-portfolio for collecting learning artefacts and accompanying students' individual learning journeys. Self-assessments will play a central role in monitoring the students' long-term development processes rather than snapshots of their knowledge-based performances.

## Self-assessments and portfolios in German Higher Education Institutions

Between October 2021 and February 2022, a research project mapped out different self-assessment approaches at German HEIs, focusing on portfolio work. Various types of instruments and concepts identified can be

integrated differently into curricula and HEIs' strategies. Those can be categorized into **four integration types**: (1) individual/stand-alone, (2) course-integrated, (3) programme-integrated, and (4) institution-integrated and beyond. They differ in scope, the role of students and teachers, form and depth of integration into curricula (referring to the number of modules, voluntary or mandatory participation), and their usability beyond university purposes. Common to all four types is the **transfer of the responsibility** to reflect and deal with assessments of specific subject matters **to learners** themselves.

Currently, there are 30 instruments/concepts actively used at German HEIs. The research does not claim completeness as it is dependent on publicly available information on university websites. For each type, this report will present two good practices. Especially for **type one, a vast variety** of instruments are in place, which were not mapped completely. The **more strategic and curricular integration** the types require, the **fewer concepts** can be found in the German HEI landscape. Most of the concepts are used

in teacher education and, more generally speaking, in study programmes with compulsory integrated practical phases. Primarily, HEIs use reflection portfolios (typology according to Baumgartner, 2012) and also grade them. Six of the 30 approaches also offer students to use the portfolios and self-assessments after graduation. Eight were accompanied by empirical research, usually at the beginning of the implementation phase. This lack of broad empirical research makes it challenging to pinpoint success factors.

Still, several good practices support the call for designing assessments as learning opportunities rather than just assessing snapshots of students' performances. Combined with formative feedback processes (e.g. by peers and educators), several studies indicate that student self-assessments support the development of FS (Andrade & Valtcheva, 2009; Boud, 1994; Nielsen, 2014; Panadero et al., 2016) and are necessary to empower students as their own learning agents.



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# 1 INTRODUCTION

In the project *DIRK Dual*, employees of the Baden-Wuerttemberg Cooperative State University (DHBW) Heilbronn and Karlsruhe are working with seven project partners from industry, business, and higher education to develop the first digital portfolio-based tool for self-directed competence development. It is based on the interlinking of theory and practice phases in the dual study programmes. The project is funded by the state research funding line for the Baden-Wuerttemberg Cooperative State University 2020 and will run for three years. This second of four reports focuses on the potential of student self-assessments and portfolio work within higher education to support learner agency (Schoon, 2018), the self-directed development of FS (Ehlers, 2020) and the shift from assessments of learning toward assessments as learning (Yan & Boud, 2022).

FS initiatives are currently being developed all over the world: Sectoral, for schools or universities, national (e.g. FS Canada; Government of Canada, Employment and Social Development, 2021) and international, e.g. from the OECD (OECD, 2018, 2021), the EU or the World Economic Forum (CEDEFOP, 2022; World Economic Forum, 2020). These approaches deal with reflecting on the changed social conditions for work, education, and life and analysing essential FS. Many of these concepts focus on which skills employees need in a digitalised world. They focus on digital, data-related skills that originated in the 1990s and 2000s, known as digital literacy, and are now often enriched with necessary intercultural communication and cooperation skills. In other approaches to the subject of FS, the topic appears as a consistent continuation of the concept of lifelong learning to ensure a fit between constantly changing requirements and the capabilities of the individual; often focusing on the economic impetus of individual participation in the labour market, sometimes with the project *Skills for Life*. Only a few approaches attempt to establish a more holistic educational reference within an even wider radius.

Suppose FS development becomes a reality in higher education teaching and learning approaches. In that case, higher education institutions will have to fully adopt it into practised assessment schemes. From a conceptual point of view, it revitalises the old demand to shift from teaching to learning (Wildt, 2005) and of the autonomous, self-reflected learner and critical thinker. This poses a fundamental challenge to current practises in higher education, as most institutions and study regulations do not allow for the necessary flexibility, nor are they equipped with suitable tools, concepts or necessary staff resources.

Nevertheless, this so-called FS turn is voiced with such a veracious force and accompanied by a new view on higher education, paving the way for individualised academic learning pathways using alternative credentials. Therefore, we believe it is time to fundamentally re-discuss FS learning and its appreciation, assessment and recognition.

In this report, we want to put forward a new vision of assessment based on the need to make learners' learning of the so-called vertical transformation literacy (Scharmer, 2018) and FS visible (Ehlers, 2013, 2020). Since student self-assessment (SSA) has proven its potential in higher education, we present a selection of formative and self-reflective assessment concepts at German HEIs. Those recent concepts highlight the existing attempts to shift assessment culture in higher education from *assessment of learning* towards a new vision of *assessment as learning*. It represents a paradigm shift away from *what can be measured* to *what can we learn during and from the assessment* to create value for students' personal growth and professional development.

In particular, we will discuss SSA concepts, as we believe that they will form the main body of solutions for the future of higher education in the context of a transformation of assessment habits in HEIs. In order to do so, after the introduction, we outline in brief the FS turn in higher education and describe our concept of FS (chapter two). Following this, we discuss the different assessment modes (assessment of, for, and as learning), the currently predominant practices at HEIs and the relevance of shifting towards assessment as learning (chapter three). After these theoretical excursions, we present a four-type model on how to integrate SSA into teaching and assessment practices at HEIs (chapter four). Subsequently, we introduce good practices for each of the four types (chapter five). We close with a conclusion on the current SSA-landscape in German HEIs and an outlook on how the project DIRK Dual can contribute to shaping the shift towards assessment as learning (chapter six).



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## **2 FUTURE SKILLS AND THE FUTURE SKILLS TURN IN HIGHER EDUCATION**

FS are essential dispositions to act which we need to master unpredictable, complex future challenges in our personal environment and in work-related and societal contexts. HEIs bear the responsibility of empowering students to learn how to develop these FS independently. Hence, there is a call for action to include FS in curricula – the FS turn.

Flexibilisation, individualisation, and structural change characterise people's everyday lives making it almost impossible to trust in a stable and secure future, as the upcoming changes are irreversible and hardly predictable. Complex global challenges such as climate change, social injustice, and economic problems cannot be solved with the help of expertise alone but require individuals to develop more comprehensive, empowering competences, so-called FS. Ehlers (2020, p. 53) defines FS as "[...] competences that allow individuals to solve complex problems in highly emergent contexts of action in a self-organised way and enable them to act (successfully). They are based on cognitive, motivational, volitional and social resources, are value-based and can be acquired in a learning process". Also, HEIs must prepare students to pursue their development far beyond graduation in terms of life-long learning.

The rise of concepts which spell out these new FS demands is unbroken. More than 14 different concepts and studies have been developed in Germany in the last five years to detail specific FS for future graduates. Internationally, our research currently counts 34 further FS approaches within the last five years<sup>1</sup>. HEIs are expected to support students in developing the capability to shape their personal and work-related future and contribute actively to societal development. FS respond to a new need for capabilities within three broad areas:

- 1) **Learning:** Development of agency and individual self-organisation capabilities, critical reflection, and lifelong learning skills
- 2) **Development:** Skills to create solutions for unknown problems
- 3) **Co-creation:** Competences to develop society and organisations in social co-creation.

In addition, a decreasing standardisation of employment biographies creates the need for HEIs to respond to a growing diversity among students and a shift from homogeneous education schemes to offering educational scenarios that foster students' capacity to act competently within their specific professional and private environment (Boud & Falchikov, 2007; Ehlers, 2020).

The ability to take agency for one's own development goes along with the drift to self-organisation on different levels in societal, work, and private contexts (Ehlers, 2020). For managing this drift and the aspiration of lifelong learning, Ehlers (2020) identified 17 FS profiles, whereby curiosity, imagination, vision, resilience, self-confidence and the ability to self-organise constitute some of the essential competences. Each of the FS profiles belongs to one of three clusters: *individual-development-related* (e.g., reflection competence, learning competence), *individual-object-related* (e.g., digital competence), and *individual-organization-related* (e.g., future and design competence), (Ehlers, 2020, p. 60), Figure 1).

Universities need to develop micro-, meso- and macro-level strategies that help students learn and improve these FS. Knowledge will not become redundant in this shift of priorities, as it is a prerequisite for effectively promoting the capacity to act. However, it will play a significantly more minor role. Knowledge can only contribute to enabling individuals to (re)shape their environment, society and individual future, if it is combined with the willingness and disposition to act, nurtured by values, motivational and habitual factors representing personality traits (Ehlers, 2020). Therefore, individuals need to learn how to independently formulate long-term goals and evaluate and plan suitable actions to achieve them. The ability to self-reflect, self-evaluate, and self-assess

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<sup>1</sup> In report four of this series, we will discuss a detailed overview of the different FS approaches.

is closely linked to the development of FS (Ehlers, 2020; Yan & Yang, 2022). Consequently, it is not sufficient to incorporate FS into study programmes through detached workshops and extracurricular training; instead, it is necessary to integrate them genuinely into the curricula and make them an essential part of it.

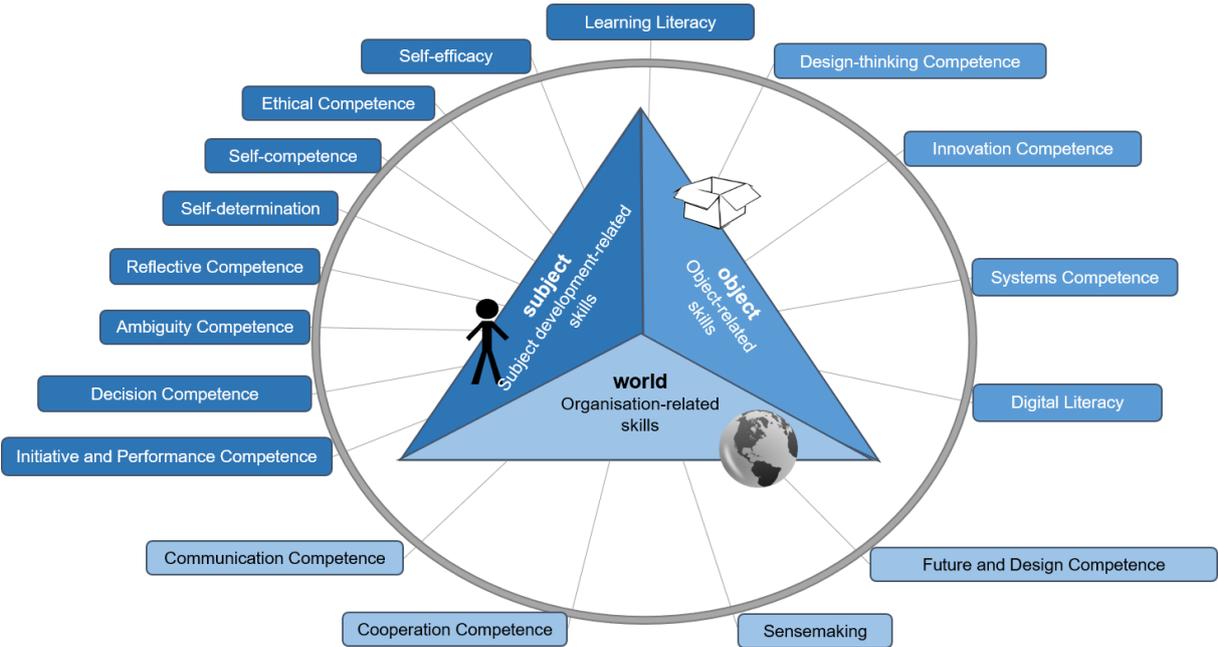


Figure 1: Future Skills overview – allocation to three dimensions (Ehlers, 2020a, p. 42)



(Wanner & Palmer, 2018, p. 1033). Examinations must be more formative instead of summative. They must be understood and designed as a learning format per se (assessments as learning) instead of solely testing what has been learned (assessments of learning) (Yan & Yang, 2022). This claim aligns with the constructive alignment approach, stating that competence-oriented teaching and learning are only effective across the board when the corresponding assessment methods are also competence-oriented (Biggs & Tang, 2011).

### **3.1 The Shift from Assessment of Learning over Assessment for Learning towards Assessment as Learning**

In assessment, one can distinguish three forms referring to the role of learning: assessment of learning (AoL), assessment for learning (AfL), and assessment as learning (AaL), Figure 2. The current call for a shift from AoL towards AaL goes along with the demand of promoting learner agency and empowering students to lead their individual lifelong learning strategies. However, it requires fundamental changes in the assessment practices of (German) HEIs toward centring students' long-term development processes rather than snapshots of their knowledge-based performances.

The currently most popular form in higher education examination practice is AoL (Schindler et al., 2015). Here, students' knowledge is tested after the learning process, i.e. at the end of a course or module, using a summative instead of formative feedback after tests. It usually refers to knowledge instead of competences and is therefore knowledge-related. Hence, it only has a minimal influence on students' motivation and possibilities to improve their performance, qualifying as unsuitable for equipping students with the future-relevant skill of life-long learning (Boud & Falchikov, 2007; Ehlers, 2013).

The AfL-approach goes beyond this view, using assessments as an integral part of the learning journey itself (Ehlers, 2013), aiming to increase the students' motivation to learn and their overall performance and competence development rather than just monitoring it (Stiggins, 2008). However, following the current shift to self-organisation (Ehlers, 2020), there is also a need to move beyond AfL as a standard in higher education examination practice towards increasing the use of AaL. Primarily, and in contrast to AaL, AoL delivers a judgement showing students their learning outcome achievements and how much more is needed to meet their goals. This usually refers to learning outcomes set by teachers or study programmes (learning what will be asked for in the test) rather than personal development goals (Yan & Boud, 2022, p. 11).

In contrast, AaL requires students to learn new knowledge or develop their competences further while working on the assessment task (Yan & Boud, 2022, p. 16). Yan and Yang (2022) define AaL

as a strategy rather than a pure assessment method. It *“requires students to learn from engagement with the assessment task itself as well as activities associated with it. An assessment-as-learning task has to generate learning opportunities for students beyond recalling and using their prior knowledge and foster the development of metacognition and self-regulation for students to monitor their performance and cater for their ongoing learning needs”* (Yan & Yang, 2022, pp. 1–2). Assessment as learning requires students to take active agency for their learning and supports them in developing self-regulatory abilities to facilitate their lifelong learning (Lee et al., 2019; Yan & Yang, 2022). Therefore, it can be seen as the basis for AoL and AfL, as it inspires students to learn and supports the learning process (Yan & Boud, 2022).

Feedback is one of the success factors which helps students to process the results of the AaL task (Yan & Boud, 2022) by helping students to answer the three questions: *„Where am I going? (What are the goals?), How am I going? (What progress is being made toward the goal?), and Where to next? (What activities need to be undertaken to make better progress?)”* (Hattie & Timperley, 2007, p. 86). Despite all the studies indicating the benefits of feedback, some argue that it can only be called feedback if the students are willing to receive and process it instead of solely restoring it (Yang, 2022). The process/criteria of giving and receiving feedback effectually (feedback literacy) should be designed carefully. There should be enough time for students and teachers to carry out and reflect on the feedback. For more details on feedback utilization and accountability, see Yang (2022).

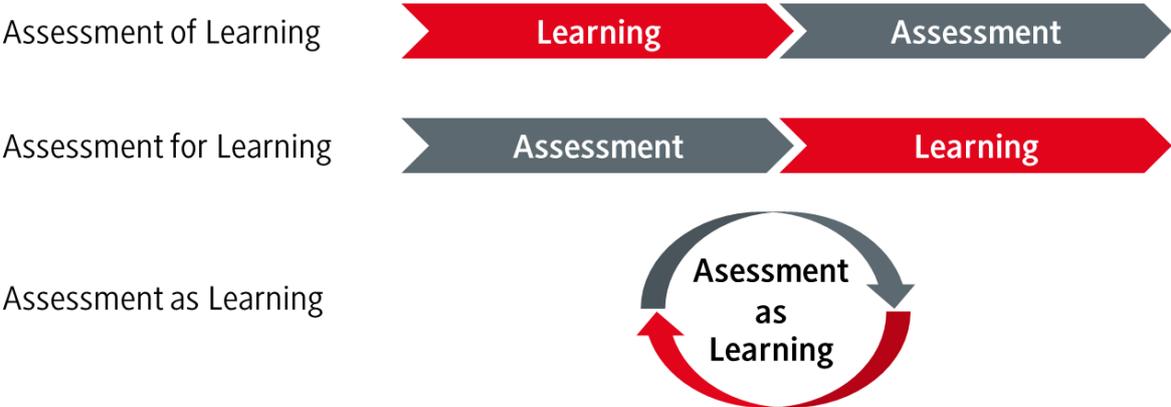


Figure 2: Relationship of assessment and learning in the concepts assessment of learning, assessment for learning, and assessment as learning (Yan & Boud, 2022, p. 15)

### 3.2 Assessment as Learning: Focussing on Student Self-Assessment

SSA is one of the keys to operationalising effective AaL practices. They serve to transform more responsibility from teachers to students and allow them to reflect and learn during the actual assessment. They integrate well into portfolio-based learning concepts when they are carried out repeatedly because they can show progress and setbacks in the learner's development process.

Before defining SSA in particular, we take a brief look at the distinction between self-reflection, self-evaluation, and self-assessment. So far, there is no consensus among researchers on how far the three concepts can be differentiated from one another. The three have in common that they refer to the individual's feedback on their performance and learning progress and the fact that self-regulation and self-regulated learning serve as a frame for all three concepts. This is because monitoring one's own achievements and learning journey as well as giving oneself feedback leads to better development of self-regulation skills (Andrade, 2019).

Van Loon distinguishes self-reflection as monitoring learning attitudes and competence development qualitatively to identify learning opportunities from self-assessment, which is, in her opinion, a quantitative judgement of one's own performance (van Loon, 2018). Szűcs, with reference to Athanasaou, on the other hand, uses self-reflection and self-assessment interchangeably, both characterised by a cognitive and an affective domain, taking place during the learning process. Self-evaluation, in contrast, follows those two as the judgement of the achievements that have been made during the process (Szűcs, 2018). Boud (1994, 1995) and Ehlers (2013) reckon self-reflection as a broader, informal, and rather explorative concept, whereas self-evaluation and self-assessment follow a clear process and criteria. According to Boud (1991) self-assessment is characterised by the involvement of students in the process of defining standards and criteria against which they can later judge their achievements.

Following this idea that the ability to reflect is a prerequisite for learning (Ehlers, 2013) and that self-assessment and self-evaluation are at least similar concepts, we will use the term self-assessment for the following elaborations according to Andrade and Du's definition:

*"[SSA is] is a process of formative assessment during which students reflect on and evaluate the quality of their work and their learning, judge the degree to which they reflect explicitly stated goals or criteria, identify strengths and weaknesses in their work, and revise accordingly. [...] Put simply, we see self-assessment as feedback for oneself from oneself"* (Andrade & Du, 2007, p. 160).

Boud (1999) argued that SSA is not an isolated or individualistic activity. On the contrary, students need to actively seek the feedback of peers, teachers, or other sources of information, and they should make SSA a habit rather than a one-time activity. SSAs omit self-grading, as self-grading focuses on collecting information about one's performance and how this matches a specific goal at the end of a learning process. Without having the opportunity for adjustment and improvement, as is the case with self-grading, SSA is ineffective (Andrade, 2019). Also, self-grading distorts the genuine self-reflection, as students tend to award themselves higher grades when they know their academic grade is influenced by their self-assessment (Andrade, 2019; Yan & Boud, 2022).

According to this definition, SSA qualifies as a form of AaL. Several studies line out beneficial effects of SSA on students' learning, including:

- enhancing academic achievement (Guo et al., 2022; Ross, 2006; Yan, 2020)
- independent and self-regulated learning (Bakula, 2010; Panadero et al., 2017; Yan, 2020)
- critical and reflective thinking, and lifelong learning (Guo et al., 2022).

The focus of SSAs is not on gaining better grades but on learning about necessary skills to build the ability to actively participate in and design society FS, 21st-century skills) (Wanner & Palmer, 2018). These aspects do not only correlate with the definition of AaL but also indicate that SSAs are suitable instruments to reflect on and develop FS, as long as they fulfil three conditions. (1) The steps of the process should be clearly defined, (2) students must be well versed in self-assessment literacy, and (3) they must receive feedback from peers or teachers, respectively, have the opportunity to discuss the results with others. Ehlers (2013) and (Yan & Brown, 2017) defined similar processes, including four or three steps. First, students and teachers need to define the assessment criteria. Second, students carry out the assessment; this step is not explicitly mentioned in Yan and Brown's process but is logically necessary. Third, students seek feedback and process it. Fourth, students develop objectives, plans, and strategies for further learning. Yan and Brown call this step *self-reflection*. Various studies have adapted similar process steps (Guo et al., 2022; Nicol, 2020). Self-assessment literacy includes (1) comprehension: knowing what SSA is and why one uses it, (2) application: knowing how to self-assess and being capable of setting criteria, seeking feedback, and reflecting on the outcomes, (3) interpretation: being able to process the results and derive a plan for improvement, and (4) critical engagement: being aware of the limitations of SSA and possible errors during the process (Guo et al., 2022, p. 146). Feedback from others (e.g. peers and educators) increases the effectiveness of SSA and the consistency and honesty of self-assessments (Andrade & Du, 2007, p. 161). However, the exact mechanisms and relations between formative feedback and learning effects are working (Andrade, 2019). Boud (1994) refers to feedback as a liberating factor in SSA if carried out correctly.

As for the different types of SSA, various attempts of typologies and taxonomies exist using different classification criteria. For instance, Panadero et al. (2016) summarise five different typologies. They demand a comprehensive typology including knowledge interest/purpose, involvement of teacher vs student on a continuum, power and transparency, presence and form of the assessment criteria, and student response format (Panadero et al., 2016). In contrast, Andrade focuses on the what (competence, process, or product), the why (formative or summative), and the how (methods, criteria, etc.) (Andrade, 2019). While a common taxonomy of SSA types or formats would certainly help structure the variety and contribute to a commonly agreed definition, this paper aims not to find a generally applicable typology for all SSA. Instead, the focus is on presenting examples/good practices that show how HEIs can operationalise FS learning through SSA in learning and teaching structures. This is why we present a classification model, which allocates different concepts of SSA regarding its integration grade into the curricula of study programmes and/or strategies of HEI. When developing the model and selecting good practice examples, we focused on the fact that SSAs, as a form of AaL, help students reflect on their future skill development, as elaborated earlier, and therefore support the shift to self-organisation.



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## **4 THE INTEGRATION OF STUDENT SELF-ASSESSMENTS INTO LEARNING AND TEACHING STRATEGIES AT HIGHER EDUCATION INSTITUTIONS – A MODEL**

There are various types, instruments, and concepts of SSA, which can be integrated differently into curricula and HEIs' strategies. Our research revealed four integration types: individual/stand-alone, course-integrated, programme-integrated, and institution-integrated and beyond. They all have in common that the responsibility for reflecting and how to deal with the assessment of the subject matter is transferred to the learners themselves.

The four different types of integration (Figure 3) vary in scope, the role of students and teachers, the form of integration into curricula (referring to the number of modules, voluntary or mandatory participation), and their usability beyond university purposes. For categorising the examples and developing the four types, we used the following guiding questions:

- Is it a single instrument or rather a concept with various aspects?
- If it is a concept: Of what scope is it, i.e. how many different instruments/processes does it include? How many different (future) skills does it address?
- Is it voluntary or mandatory to participate for students?
- Is it anchored in the curriculum? If so, does it refer to one or more modules and do students receive credit points for it?
- Can the tool be used beyond the study, i.e. for lifelong learning processes?

The model is depicted as a house with type one (individual) being the fundament of reflection and self-assessment. Type two concepts (course-integrated) work as pillars, and the more of them exist, the more stable the building is. Type three (programme-integrated) can be seen as the ceiling that connects the various pillars. Whereas type four (institution-integrated and beyond) serves as the roof of the building, making it waterproof and holding everything together.

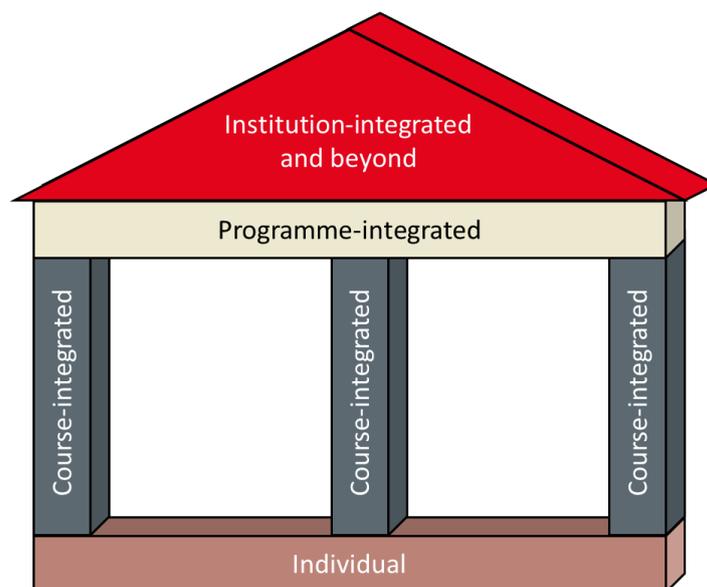


Figure 3: Types of integration of portfolio and student self-assessment concepts in degree programmes

**Type one** represents **stand-alone instruments** like (online) questionnaires and personality tests. These are usually open access solutions developed by professionals, e.g. psychologists, universities or other institutions, and do in most cases not refer to higher education contexts but are helpful for all individuals. These instruments can be integrated into study programmes in several ways. Usually, teachers recommend or use them in single modules, which refer to key competence development or similar, but they are neither anchored in the curriculum nor credited. Often, extra-curricular offers work with these type one instruments via recommending them in learning

management systems or on websites of competence centres of the university, without any offer to discuss the outcomes with students. Accordingly, these instruments do not affect HEIs' learning and teaching strategies. Concerning the success factors of SSAs, these kind of examples will most likely not have a sustainable impact on the students' skill development because feedback is missing, and teachers or institutions do not check whether students are assessment literates or not.

**Type two** describes SSA options which educators guide as learning facilitators. The process follows specific criteria, which are set individually by educators and/or students or abide by commonly known reflection models, such as Kolb's reflection cycle (Kolb, 2015; Kolb & Fry, 1977) and the four steps of self-evaluation (Ehlers, 2013, p. 189). Stage two includes concepts of a greater scope with several building blocks rather than isolated instruments. This can be, for instance, competence certificates, portfolios, and module-encompassing tasks. Characteristic is that the reflection happens not only once but is repeatedly applied and linked to at least one course/module, i.e. initiated by teachers. In between, the students should independently plan and implement development steps. The long-term impact of this type of SSA is supposed to be more sustainable, as it includes cyclical repetition and guidance by teachers and feedback through various sources, e.g. peers. Depending on the organisation of the concepts, the strategic impact might also be given. This is, for instance, the case when interdisciplinary courses are offered or compulsory for students of all degree programmes and the university management is involved in the conception, e.g. via the deans.

**Type three** includes reflection and SSA concepts which are mandatory during the period of an entire study programme, or at least a larger part of it, and hold credentials (ECTS-points). A successful implementation requires that the SSA is not simply added to the usual curricula but is genuinely integrated into it. This means that students use the experiences from their studies to reflect on and develop their FS. This reflection, in turn, is used to enhance their personal and professional skills. For the mandatory integration into whole curricula, the support of university management level and study programme directors is essential. Otherwise, students and teachers might not credit the use of such concepts. Type three concepts offer a high degree of strategic impact and sustainable growth in learning and teaching but also require a high amount of coordination, communication between different stakeholders, and a consequent evaluation of the concept/process itself.

**Type four** goes even a step further. It describes concepts which are not only integrated into the curricula and accompany the whole student life cycle but can also be used further after graduation. Considering lifelong learning, both, constant self-reflection and self-assessment are necessary for the continuous development of FS (Ehlers, 2013; European Commission - Education and Training, 2019; OECD, 2021). These are development portfolios in terms of Baumgartner's typology (Baumgartner, 2012). Type four concepts stimulate lifelong self-assessment, support the process with guidelines and criteria, and provide a platform for collecting artefacts and feedback among peers and/or coaches. On top of the strategic relevance for the quality enhancement of learning and teaching, these concepts can affect the development of FS for a lifetime and therefore have societal effects. It goes beyond HE and can be extended to professional and societal contexts.



Photo by Cristian Escobar on Unsplash

## **5 GOOD PRACTICES FROM GERMAN HIGHER EDUCATION INSTITUTIONS**

Online research regarding good SSA practices with a focus on portfolios in German HEIs was conducted between October 2021 and February 2022. Especially for type one (individual/stand-alone), many instruments are in place. The more strategic and curricular integration the types require, the fewer concepts can be found in the German HEI landscape. This report aims not to discuss possible reasons for this phenomenon but rather to present “lighthouse” projects for each type.

For the research, specific keywords of three categories were combined in all possible combinations and entered into search engines (Table 1). This search returned more than 50 entries. The database of examples was successively refined employing the following criteria: (1) examples need to be currently applied at HEIs, (2) the instruments and/or concepts need to address a skills/competence concept and specifically address the development of reflection competence and FS as defined by Ehlers (2020), (3) examples of pure self-grading were excluded. This resulted in 30 concepts which are good practices and suitable for our model. For the complete list, please see appendix A I. Following, we present “prototype examples” for each type of our model. We want readers to keep two important notes in mind when reading them.

Firstly, we waive to list all possible instruments for type one in the addendum. There are far too many to display all in the scope of this report, but we might update the list step by step with more good practices of this type. Second, the assignment of the examples to our model is based on internet research. We are fully aware of the possibility that we might not have all information on every concept. Consequently, the initiators of the concepts might allocate theirs to a different type. If readers recognise any discrepancies, they should not hesitate to contact us. We see this report and especially the addendum as constant work in progress and are happy to update the list. This also applies, if readers cannot find their university’s concept in the list.

Table 1: German key words for research via search engines and their translation.

<b>Category 1</b>	<b>Category 2</b>	<b>Category 43</b>
Self-Assessment	Portfolio	Studium (study, degree, programme)
Selbstreflexion (self-reflection)	e-portfolio	Hochschule (university (of applied sciences))
Reflexion (reflection)	Reflexionsportfolio (reflection portfolio)	Universität (university)
Selbstevaluation (self-evaluation)	Tool	Studierende (students)
Future Skills	Konzept (concept)	
Schlüsselkompetenzen (key competencies)	Modul (module)	
21st Century Skills	Kurs (course, lecture)	
	Curriculum	

## 5.1 Type One – Individual Instruments

### 5.1.1 VIA Inventory of Strengths Test, Universität Zürich

With the help of 264 questions, the VIA Inventory of Strengths (VIA-IS) records the 24 psychological character strengths of the VIA classification, classified into six virtues (Values in Action Institute [VIA], 2021). Participants receive a differentiated picture of their character strengths as feedback based on psychologically sound methods. It goes along with a comprehensive explanation document, elucidating the strengths and virtues (Universität Zürich, 2015). American psychologists Christopher Peterson and Martin Seligman developed the original questionnaire in cooperation with the American Values-In-Action (VIA) Institute in 2004. Willibald Ruch, a professor at the University of Zurich, adapted it to the German language and is constantly developing it further (Ruch et al., 2010). The VIA-IS is located in positive psychology, a field that aims to understand and promote factors and processes that allow individuals and communities to lead a “good life”. One of the key research areas positive individual personality traits (Ruch et al., 2010).

Although personality traits are relatively fixed, they can be influenced and developed through learning experiences (Ruch et al., 2010 according to Peterson & Seligman, 2004), so we included the VIA-IS in our set of good practices. Furthermore, there are intersections between the virtues/character strengths and FS. These intersections and additional contents of the questionnaire are depicted in Table 2.

Table 2: Mapping of VIA virtues & strengths and Future Skills approach according to Ehlers (2020)

Virtue	VIA Character Strengths	Corresponding FS Profiles
Wisdom	Creativity	Innovation competence, future and design competence
	Curiosity	Innovation competence, future and design competence
	Judgement	Sense making, decision competence
	Love of Learning	Learning literacy
	Perspective	Systems competence
Courage	Bravery	Self-efficacy, self-competence
	Honesty	Self-efficacy, self-competence
	Perseverance	Self-efficacy, self-competence
	Zest	Initiative and performance competence
Humanity	Kindness	Cooperation competence
	Love	
	Social Intelligence	Ethical competence, cooperation competence
Justice	Fairness	Cooperation competence
	Leadership	Cooperation competence
	Teamwork	Cooperation competence, communication competence
Temperance	Forgiveness	Cooperation competence
	Humility	Self-competence
	Prudence	Self-competence, cooperation competence
	Self-Regulation	Self-competence

Transcendence	Appreciation of Beauty and Excellence	-
	Gratitude	-
	Hope	-
	Humour	-
	Spirituality	-

### 5.1.2 KompetenzNavigator, Universität Passau

The University of Passau developed its own SSA test for their students, called KompetenzNavigator (Eng. Competence navigator), which can be accessed via the university's learning management system ILIAS. With the help of 120 items, students assess eleven competences in personal competence, social-communicative competence, and methodological competence, which overlap with the FS identified at the beginning of this report (Table 3). The test results are generated automatically, and students are provided with a three-page instruction on how to understand them. Furthermore, they recommend on which courses and offers of the "Centre for Career and Competences" the students should take to improve their weaker areas. The test can be retaken as often as students want to throughout their whole study, and the progress between the retakes is visualised in their individual accounts. The KompetenzNavigator is not public, but the University of Passau kindly granted us guest access and some background information on the scientific design of the test. It serves as a type one example with slight strategic integration and role model for institutions that would like to integrate scientifically sound instruments of SSA in their learning and teaching.

Table 3: Mapping of the KompetenzNavigator of the University of Passau and Future Skills approach according to Ehlers (2020)

Area of the KompetenzNavigator	Competence of the KompetenzNavigator	Corresponding FS Profiles
Personal Competence	Personality development	Self-competence, reflective competence, self-efficacy
	Self-management	Self-competence
	Self-presentation	Self-competence
Social-communicative competence	Conversation and rhetoric	Communication competence
	Negotiation and conflict management	Cooperation competence, communication competence, ethical competence
	Team, leadership, and organisational management	Cooperation competence, systems competence, future and design competence
	Intercultural competence	Cooperation competence
Methodological competence	Presentation and visualisation	Communication competence
	Project management	-
	Problem solving and analytical thinking	Decision competence, sense making
	Scientific writing	-

## 5.2 Type Two – Course-integrated

### 5.2.1 DigKom – Certificate of Digital Competences, TH Nürnberg

The Technische Hochschule Nürnberg (TH Nürnberg) launched a networked and structured qualification programme for students from all degree programmes in which they can strengthen their self-learning and digital competences. Students learn about current digitalisation topics during the programme, work on their methodological skills for a digitalised world and are asked to process several self-reflection and self-assessment tasks (Le Thi & Zinger, 2021). The contents, success factors, and strategic integration of the programme into the university's strategy are published in the book "Kompetenzen für die digitale Transformation 2020" (Lehmann et al., 2021).

DigKom is one of 28 strategic projects at the TH Nürnberg with the overall goals to "(1) Communicate current topics and trends in the field of digital competences, (2) Promote self-learning competences in the digital age, (3) Promote self-reflection and assessment of competence levels"<sup>2</sup> (Le Thi & Zinger, 2021, p. 235). The university's management values digital competences as essential interdisciplinary key competences and therefore supports that many modules of the DigKom certificate can be credited in all degree programmes. There are, for instance, workshops and courses lasting several days in the sense of a *Studium Generale*, and students receive two ECTS-points for each of them. The certificate is built as a construction kit with four modules (Figure 4). Students can participate in all modules or only in specific workshops and courses. The course offer is updated every semester in accordance with the feedback of students and teachers/mentors. According to the TH Nürnberg, the bi-directional feedback of students and educators is a crucial success factor among the strategic integration of the programme. Moreover, the infrastructure of the university supports creative and new learning techniques via a learning lab, writing centre, and a media workshop (Le Thi & Zinger, 2021).

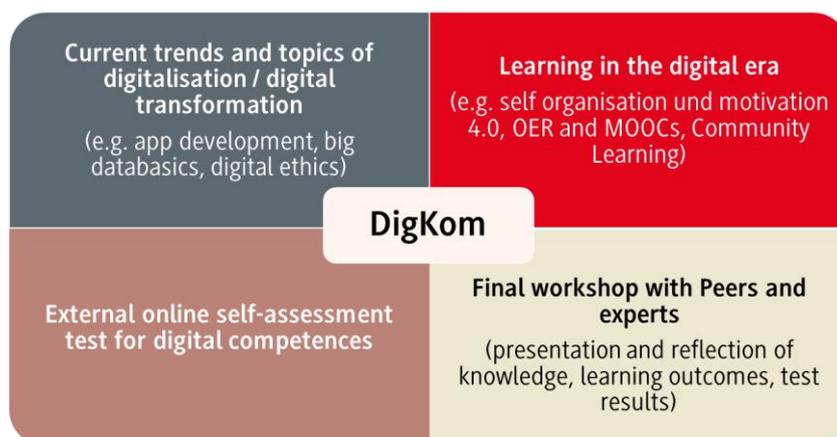


Figure 4: Content of the DigKom University Certificate at TH Nürnberg (Le Thi und Zinger 2021)

<sup>2</sup> Translated by the authors.

## 5.2.2 Course module “Technikfolgenabschätzung”, DHBW Karlsruhe

The NextEducation research group at the DHBW Karlsruhe is currently piloting tools and methods of FS reflection in course modules such as “Technikfolgenabschätzung von Digitalisierung” (translation: impact assessment of technologies and digitalisation) with business informatics students, aiming at a high level of reflection of learning and group working processes as well as emphasising the importance of ethical reasoning and competence. For this, the course sessions are designed to always include a “FS micro module”, more precisely time and tools for individual reflection of one’s own learning process and a group-directed reflection of the learning and working process. These micro modules are based on Ehlers’ 17 FS profiles (Ehlers, 2020) and constantly further developed in co-creation with students.

These tools have been developed and are currently piloted in the course:

- Before the first session: FS concept video and survey: Which FS matter to you and how competent do you feel with them?
- During the first session: discussion of and reflection on survey results; self-reflection tool template is being introduced; expectations and hopes as well as personally significant FS are filled in
- Each session: FS micro module consisting of reflection of one’s learning process and comparison via Mentimeter<sup>3</sup> as well as a group assessment with time for discussing the results within the group afterwards
- Last session: self-reflection tool template: looking back, comparing and reflecting

## 5.3 Type three: Programme-integrated Concepts

### 5.3.1 p:ier ePortfolio, Universität Bremen

The Universität Bremen proposes the *p:ier electronic portfolio tool* for integrating theory and practice within teacher training. The goal is to support students in developing a professional and reflective capacity to act and become *Reflective Practitioners* (Wulf, 2022).

Different practical phases characterise the teacher training in this university – so far, each one has been accompanied by an individual portfolio. Thus, reflective processes and feedback were linked to this portfolio but neither linked to nor built upon each other, staying apart from the study programme itself. Moreover, heterogeneity is named as a unique challenge for all practical teaching experiences and is addressed in theoretical study phases. The p:ier tool is designed to closely link theory and practice, focusing on heterogeneity as a shared challenge. It also links the singular portfolios to one integrated portfolio accompanying the whole student life cycle. Peer feedback from students, peers, mentors and university teachers is incited and facilitated. The tool also allows being used during the Master study phase and the final traineeship (*Referendariat*) in teacher

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<sup>3</sup> As an example (in German) see: <https://www.menti.com/rxitvveuh3>

training. The portfolio tool comprises different tasks related to personal development and reflection both disciplinary and interdisciplinary. The goal is to become *reflective practitioners*, constantly reflecting and systematically designing learning processes.

### 5.3.2 Study Journal Cologne International School of Design (KISD)

At the Cologne International School of Design (KISD), students mainly work on projects they can choose from a broad catalogue and organise themselves with the support of teachers. With this high degree of freedom, also challenges occur regarding the documentation, reflection and dissemination of the results, respectively learning outcomes. The university values this freedom and autonomy for students but at the same time wants to support them specifically in their learning processes. This is why the Study Journal was introduced. The e-portfolio is compulsory for all students throughout the whole study programme and was designed to help students plan their studies, identify and enhance individual ways of thinking and working, and develop individual competence profiles. The artefacts of the portfolio are not only intended to foster individual reflection and self-assessment processes. However, they are also prerequisites for receiving credits in every course, the basis for the professional feedback of teachers, and discussions with personal mentors, who accompany the whole student life cycle. Furthermore, students are encouraged to seek and give peer feedback (Großhans et al., 2019).

Core elements are:

- Course reports: compulsory reports (written, visual, or audio-visual) reflecting on content, (learning) process, and (learning) outcomes of every project completed and lecture attended. The comparison to reports of fellow students is possible. In contrast to traditional project reports, the course reports do not focus on the project result itself but on individual thinking, working and learning processes. Course reports are partial assessments and are paired with other elements such as presentations (Großhans et al., 2019).
- Semester reports: compulsory reports at the end of each semester reviewing and assessing the results of the semester. Students are asked to set goals for the upcoming semester and reflect on the ones of the last semester. The aim is to enhance the students' assessment literacy and foster their ability to reflect their performance and competences genuinely instead of giving themselves a good mark. This is why semester reports are not graded as course reports but only awarded passed or failed (Großhans et al., 2019).
- KISDspace: social learning environment hosting the Study Journal. Every student has her/his own member space for uploading the artefacts of the portfolio. Because most of the artefacts are visible to other KISD members (peers, teachers, mentors), comparison and exchange between members are easily possible (Köln International School of Design [KISD], 2022).
- Mentoring concept: All students are paired with a personal mentor at the beginning of their studies. Mentors can view the course and study reports at any time, which enables a "forward looking feedback" (Großhans et al., 2019).
- Guidelines support students in creating their reports and using their Study Journals optimally. Guidelines differ for bachelor, master and international guest students (Großhans et al., 2019).

## 5.4 Type four: Institution-integrated Concepts and Beyond

### 5.4.1 Module „Fachübergreifende Kompetenzen“ (Interdisciplinary Competences), Center for Advanced Studies DHBW

All master's degrees at the DHBW are organised via the Center for Advanced Studies (CAS), which introduced the module "Fachübergreifende Kompetenzen" (interdisciplinary competences) some years ago. The module is integrated into all economic and technical master's degrees curricula and credited with five ECTS-points. It consists of five components (Figure 5)<sup>4</sup>: a kick-off workshop at the beginning of the study, a resonance workshop in the middle, and a reflection workshop towards the end of the study. Additionally, students choose two seminars on specific key competences they want to improve (Duale Hochschule Baden-Württemberg - Center for Advances Studies [CAS], 2021a). The catalogue offers over 40 seminars referring to personal FS such as personal leadership development, conflict management, and decision-making competence, as well as to valuable competences for professional development, e.g. negotiation competence, principles of New Work, and business relations in Arabic countries (CAS, 2021b). The concept is rounded off by an e-portfolio in which students collect impressions, work results and reflections on their studies throughout the entire student life cycle via the open-source platform MAHARA. They receive feedback on their artefacts from the programme's educators (CAS, 2021b). Teachers act as navigators and peers as companions on the learning journey. Students can attend regular *online cafés* to ask questions, exchange experiences and build a community (Ott & Weber, 2021). Currently, the plan is to allow students to take the portfolio with them after graduation, which would qualify this example as type four.

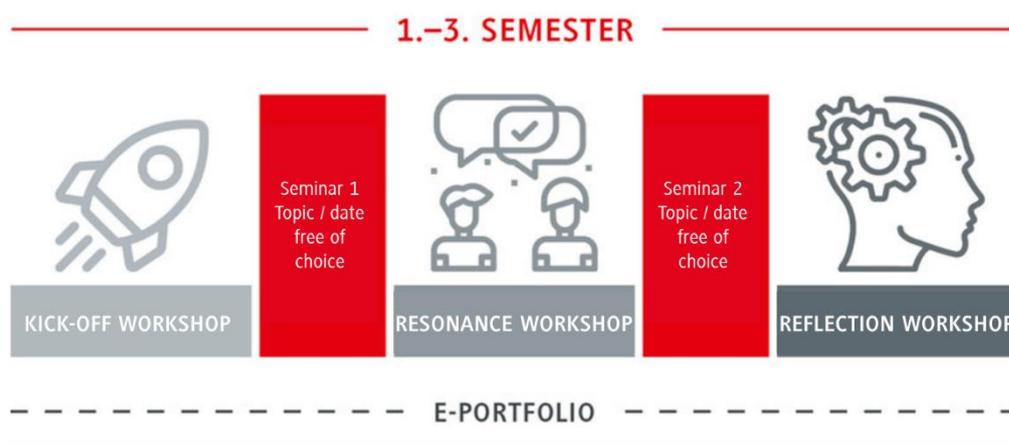


Figure 5: Composition of the module "Fächerübergreifende Kompetenzen" at the DHBW CAS (CAS, 2021a)

<sup>4</sup> Model translated by the authors.

## 5.4.2 DIRK Dual, DHBW Karlsruhe and Heilbronn

As explained in the introduction, DIRK Dual aims to develop an e-portfolio tool and a mentoring/coaching concept that supports students in developing FS through reflection, SSA, and a stronger interlocking of theory-practice learning experiences in the dual study programme. Currently, students have to write reports on practical experiences, which are rather activity-oriented and focused on professional experiences at three points during their studies. In contrast to them, DIRK Dual wants to inspire students to constant self-reflection and self-assessment during the whole student life cycle and beyond.

The model for reflection and the use of e-portfolios in dual study programmes at DHBW is explained in detail in project report one (Geier et al., 2022). Figure 6 shows the section explaining the interdependencies between instruments. The vision is to create an e-portfolio and framework, which will be genuinely integrated into all curricula throughout the DHBW as a mandatory, creditable module, similar to the CAS and KISD examples. The difference is the intense focus on SSA, FS, and the question of how experiences from theoretical and practical phases do not only influence one another but also the development of FS. In order to reach this rather ambitious goal step by step, we are proposing a modular system with various implementation scenarios for lecturers and programme directors.

Students should be involved in the conception so that they do not see the reflection later as an annoying add-on to the already packed curriculum but pursue their FS development on their own initiative and dedication. The joint development of SSA processes and criteria is a crucial success factor for the usability of SSA themselves and for the motivation and thoroughness with which students carry out the tasks (Andrade, 2019; Boud, 1994). Educators support this process as facilitators or learning coaches with regular feedback. Through the reflection reports, they get the chance to adjust their lectures according to the students' practical experiences. Another critical factor is the opportunity to learn about assessment literacy and feedback literacy due to the idea that students form feedback tandems.

For that purpose, we are currently developing several instruments Table 4. DHBW-students and representatives of some dual partner organisations test and evaluate these instruments and are involved in design-thinking workshops to develop them further. One of the key elements is the process and tool design of FS self-assessment opportunities, such as matrices and guiding questions. However, the goal is not to develop a "psychologically valid test" since this conflicts our understanding of competence, FS, and SSA, but rather a series of instruments that help students understand the relevance of FS development and set and pursue their individual development goals. As an additional motivation for students to participate in the activities, especially as long as they are not yet integrated into curricula, students should be awarded badges as proof of their learning activities and outcomes. These badges can be integrated into their e-portfolios and make their engagement visible to third parties such as prospective employers.

Table 4: Planned instruments for the DIRK Dual e-portfolio concept

Instrument planned	Intended learning outcome (short form)
Workshop “My Future Skills Universe”	Learn about competence concepts, FS and their relevance
Future Skills card game	Get to know FS in detail and where they are useful
Future Skills self-assessment matrix	Explore one’s own FS development status
Instruction and template: “My Future Skills Development Plan”	Set goals for one’s own FS development and define measures to reach them
Training module “How to ... Reflection Expert”	Learn about reflection methods, their relevance and actively practice reflection and peer feedback
Instruction and template: “My Learning Journey Plan”	Identify potentially meaningful experiences and points of reflection in one’s own study
Instruction and template: “My Gallery of Mastery”	Guidance for structuring the artefacts of the e-portfolio and transferring them from a reflection to a presentation portfolio
E-portfolio platform	Collecting, structuring, and presenting artefacts

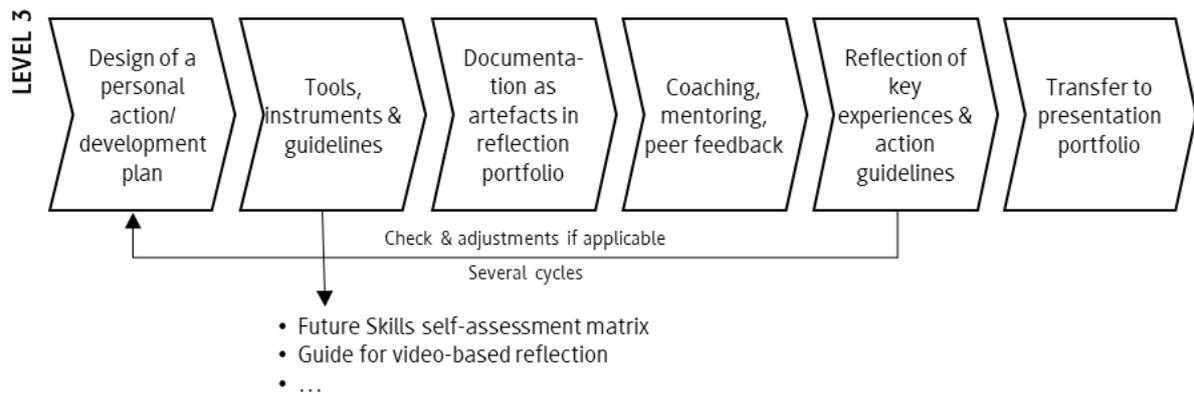


Figure 6: Interdependencies between DIRK Dual instruments (Geier et al., 2022, p. 19)



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## 6 CONCLUSION AND OUTLOOK

Student self-assessment as a form of assessment as learning is a formative process in which students monitor themselves regarding their work, learning, and skill development, while the assessment task itself is a learning opportunity. Here, student self-assessment includes the capacity to self-reflect and self-evaluate as a prerequisite of assessment literacy. Combined with formative feedback processes (e.g. by peers and educators), several studies indicate that student self-assessments support future skills development (Andrade & Valtcheva, 2009; Boud, 1994; Nielsen, 2014; Panadero et al., 2016).

Several good practices of student self-assessments in German HEIs have been identified and clustered according to their comprehensiveness, involvement of students and educators, integration into curricula, and usability beyond study programmes. Some of these examples are described in this report and assorted to the first attempt of a model showing the levels of strategic and organisational integration into study programmes. Our research revealed that most of them are not genuinely integrated into the curricula. Therefore, they only have a limited comprehensive and strategic influence on (1) the shift from Assessment of Learning to Assessment as Learning, (2) the shift to self-organisation, (3) the integration of future skills development strategies into curricula.

In order to foster uptake, acceptance and a more systematic integration, we conclude that the concept of SSA needs more attention in pilot and practice projects in higher education. In particular, research should focus on:

- development of better definitions and more operational concepts for self-reflection, self-evaluation, and self-assessment, as the blurry lines between the definitions of those concepts, complicate the differentiation of practice examples,
- a broader systematic benchmarking analysis of good practice examples in which criteria for selection and integration of good practices into higher education would be specified to give orientation to educators and leaders in higher education and provide a more transparent view on SSA for learners,
- creation of an observatory to map the current situation at (German-speaking) Higher Education Institutions and therefore foster peer exchange among the institutions leading to an accelerated progress.

What remains open is to gain a deeper understanding of the motivational, cognitive and attitudinal aspects which are addressed in and supported through SSA. Andrade refers to it as *"the next black box: the cognitive and affective mechanisms of students who are engaged in assessment processes"* (Andrade, 2019, p. 10).

In conclusion, the report presents clear evidence that SSA practices in higher education have evolved into a standard procedure, that good practice can be observed and that SSA concepts are valid and complementary concepts for higher education assessment which help to realise embark into a next future higher education learning.

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# APPENDIX

## A I Selection of German Higher Education Institutions using E-Portfolios and Student Self-Assessments

Nr	Name, Institution	Description	Portfolio Type, Grading	Target Group	Supported by research	Platform	Link
1	Bielefelder Lehramtsportfolio, Universität Bielefeld	Portfolio is compulsory in teacher training programmes. Students use it in the orienting practical study with aptitude reflection, the professional field-related practical study, and the practical semester to document and reflect on their individual development process. Portfolio is introduced in the introductory model and used throughout the whole study.	development, not graded	student teachers	none	free of choice	<a href="https://www.uni-bielefeld.de/einrichtungen/bised/forschung-entwicklung/praxisreflexion/portfolio/">https://www.uni-bielefeld.de/einrichtungen/bised/forschung-entwicklung/praxisreflexion/portfolio/</a>
2	elektronisches Kompetenzentwicklungsportfolio, Universität Vechta	Anchored in modules in the Bachelor's and Master's degree programmes and can be used for all other modules. Anchored as an adequate examination form in the regulations.	reflection, graded	student teachers	yes, formative and summative	Stud.IP	<a href="https://www.uni-vechta.de/bridges/baustein-3-ekompetenz-entwicklungsportfolio">https://www.uni-vechta.de/bridges/baustein-3-ekompetenz-entwicklungsportfolio</a>
3	ePort Dual	Project for the development, testing, implementation and evaluation of e-portfolios as reflection portfolios and, subsequently, competence assessment in research-based learning using e-portfolios.	reflection, graded	dual Master social services students	at introduction phase	n.a.	<a href="https://www.uni-hildesheim.de/mahara/view/view.php?id=1121">https://www.uni-hildesheim.de/mahara/view/view.php?id=1121</a>
4	E-Portfolio – Schwerpunkt Assessment, Universität Leipzig & Westsächsische Hochschule Zwickau	Study of the Saxon State Ministry for Science, Culture and Tourism (2015/16): Development of own learning environment, weekly assignments and learning diary, regular reflections and self-assessment and presentation of competences achieved.	reflection, graded	students of foreign languages	at introduction phase	Mahara and more learning management systems (LMS) (e.g. OPAL)	<a href="https://dbs.uni-leipzig.de/file/Wel16_Paper_Tagungsband_4.pdf">https://dbs.uni-leipzig.de/file/Wel16_Paper_Tagungsband_4.pdf</a> (chapter 5)

Nr	Name, Institution	Description	Portfolio Type, Grading	Target Group	Supported by research	Platform	Link
5	Self-directed performance documentation professional development, Heinrich-Heine-Universität Düsseldorf	Project of the Dean of Studies to promote and develop clinical expertise as well as reflection and work facilitation. Media/artefacts: reflection reports, change reports, video feedback. Student share it with peers and teachers according to their own wishes. Teachers who supervise the e-portfolio are given training on communication and portfolio use.	reflection, not graded	medicine students	n.a.	n.a.	<a href="https://www.medizinstudium.hhu.de/duesseldorfer-curriculum-medizin/kompetenzorientierung/eportfolio">https://www.medizinstudium.hhu.de/duesseldorfer-curriculum-medizin/kompetenzorientierung/eportfolio</a>
6	E-Portfolio für die LehrerInnenbildung Universität Passau	E-portfolio supported courses, empirical study 2018 on the design/content of an e-portfolio in primary school teaching.	reflection, graded	student teachers	at introduction phase	ILIAS	<a href="https://www.e-teaching.org/etresources/pdf/erfahrungsbericht_2018_hansen_rachbauer_arbeiten_mit_dem_e_portfolio_reflexionsinstrument_fuer_die_lehrerbildung.pdf">https://www.e-teaching.org/etresources/pdf/erfahrungsbericht_2018_hansen_rachbauer_arbeiten_mit_dem_e_portfolio_reflexionsinstrument_fuer_die_lehrerbildung.pdf</a>
7	Module Fachübergreifende Kompetenzen, Duale Hochschule Baden-Württemberg Center for Advances Studies	For Master's students in the field of business and technology; duration: 1st to 3rd Master's semester, includes three workshops (incl. peer counselling), two individually selectable seminars on key competences and a constantly accompanying e-portfolio.	reflection, graded	dual Master's students	n.a.	Mahara	<a href="https://www.cas.dhbw.de/fachuebergreifende-kompetenzen/">https://www.cas.dhbw.de/fachuebergreifende-kompetenzen/</a>
8	ePortfolio im Studiengang Strategisches Management, Hochschule Bremen	Portfolio to document the learning progress regarding a case study. Focus on professional competences but also self-organisation, learning competence and reflection of work and team processes. Evaluation of interlinking between theory and practice phases. Reflection on challenges and difficult situations. Reflection on three levels: individual learning process, competence development, teamwork.	reflection, credited but not graded	Master Business Management	n.a.	ILIAS	<a href="https://www.pedocs.de/volltexte/2017/14892/pdf/Moerth_et_al_2017_Portfolios_in_der_wissenschaftlichen&gt;Weiterbildung.pdf">https://www.pedocs.de/volltexte/2017/14892/pdf/Moerth_et_al_2017_Portfolios_in_der_wissenschaftlichen&gt;Weiterbildung.pdf</a> (page 51)

Nr	Name, Institution	Description	Portfolio Type, Grading	Target Group	Supported by research	Platform	Link
9	ePortfolio zur Anrechnung außerhochschulisch erworbener Kompetenzen, Offene Hochschule Oberbayern	Creditation of non-university qualifications/skills (formal, non-formal, informal) via reflection tasks to enable shorter study cycles or workload reduction for students. Media/artefacts: 2-day-workshop, reflection of individual work situations, self-assessment of skills against a detailed description of skills-sets provided by the study programme	reflection, graded	extra-occupational students with previous academic education	n.a.	Mahara	<a href="https://www.pedocs.de/volltexte/2017/14892/pdf/Moerth_et_al_2017_Portfolios_in_der_wissenschaftlichen_Weiterbildung.pdf">https://www.pedocs.de/volltexte/2017/14892/pdf/Moerth_et_al_2017_Portfolios_in_der_wissenschaftlichen_Weiterbildung.pdf</a> (page 26)
10	Europäisches Portfolio für Sprachlehrende in Ausbildung (EPOSA), Europäisches Fremdsprachenzentrum des Europarats	Document to support reflection of didactic knowledge and skills for teaching languages. Enables the collection of teaching experiences and learning success. 193 "I-can-descriptions" are provided to guide students in their skill development.	reflection, not graded	students teachers for languages	n.a.	PDF document	<a href="https://www.ecml.at/Portals/1/documents/ECML-resources/EPOSTL-GE.pdf?ver=2018-03-22-164313-560">https://www.ecml.at/Portals/1/documents/ECML-resources/EPOSTL-GE.pdf?ver=2018-03-22-164313-560</a>
11	DigKom Zertifikat für digitale Kompetenzen, Technische Hochschule Nürnberg	Certificied qualification programme to foster students' self-organisation, learning and digital competences. Some workshops award credits. Programme integrated in university strategy, open for alle students. Accompanied by coaches.	OSA, Coaching, Workshops partly credited but not graded	open for all students	Evaluation of participant and teacher feedback	n.a.	<a href="https://link.springer.com/content/pdf/10.1007%2F978-3-662-62866-9.pdf">https://link.springer.com/content/pdf/10.1007%2F978-3-662-62866-9.pdf</a> (chapter 16)
12	KAiAC-T (Karlsruhe individual Aptitude Check for Teachers), Karlsruhe Institute of Technology (KIT) and Pädagogische Hochschule Karlsruhe	OSA to evaluate aptitude for teaching profession, exchanges with peers and educators to reflect on learning and teaching experiences. Phase 1: OSA and evaluation in semesters 1 and 2. Phase 2: Two competence workshops in semesters 3 and 4 (e.g. leadership, setting an example, perfectionism). Phase 3: reflection and final evaluation in semesters 5 and 6 Successful completion of all stages is necessary to receive admission to Master's programme.	OSA and reflection, credited but not graded	student teachers	n.a.	n.a.	<a href="https://www.ph-karlsruhe.de/projekte/kaiac-t">https://www.ph-karlsruhe.de/projekte/kaiac-t</a>

Nr	Name, Institution	Description	Portfolio Type, Grading	Target Group	Supported by research	Platform	Link
13	KISD Study Journal, Köln International School of Design	E-portfolio accompanying the whole student life cycle. Reflections in the portfolio are pre-requisites for the recognition of course credits. Guided by mentors and at least two feedback talks per semester.	reflection and development, graded	design students	n.a.	KISDspaces (university specific platform)	<a href="https://www.hrk-nexus.de/material/tagungsdokumentation/zur-praktischen-umsetzung-der-kompetenzorientierung-koeln/poster/poster-5/">https://www.hrk-nexus.de/material/tagungsdokumentation/zur-praktischen-umsetzung-der-kompetenzorientierung-koeln/poster/poster-5/</a>
14	Kompra, Pädagogische Hochschule St. Gallen	Combination of external and self-assessment of goals, visions, competences and a criterion-based coaching. Commercial tool.	OSA and development, not credited	open for all students	n.a.	Web-Tool	<a href="https://kompra.swiss">https://kompra.swiss</a> <a href="http://doi.org/10.18747/P-HSG-coll3/id/214">http://doi.org/10.18747/P-HSG-coll3/id/214</a>
15	Online-Self-Assessment für Lehramtsstudien, Universität Wien	To reflect on whether one is suitable for the teaching profession. Three times: pre-OSA before the start of studies (compulsory), post-OSA I after the first year of study (voluntary), post-OSA II after the second year of study and school practice (voluntary)	OSA, aptitude tests, questionnaire	student teachers	questionnaire at introduction phase	n.a.	<a href="https://docplayer.org/37120318-Das-mehrstufige-online-self-assessment-fuer-lehramtsstudien-ander-universitaet-wien.html">https://docplayer.org/37120318-Das-mehrstufige-online-self-assessment-fuer-lehramtsstudien-ander-universitaet-wien.html</a>
16	Portfolio-STORIES	E-portfolio for reflecting on and documenting learning process and teaching experiences. Based on the theory of reflective practitioners (Schön, 1983).	reflection, partly graded	student teachers	quantitative and qualitative research	e-Portfolio Plattform	<a href="https://www.uni-bremen.de/zflb/projekt-forschung/schnittstellen-gestalten-qualitaetsoffensive-lehrerbildung/teilprojekte/e-portfolio-pier">https://www.uni-bremen.de/zflb/projekt-forschung/schnittstellen-gestalten-qualitaetsoffensive-lehrerbildung/teilprojekte/e-portfolio-pier</a>
17	Phokus, Pädagogische Hochschule Weingarten	Compulsory OSA at three points of time: (1) beginning of first semester, (2) after the orientation work placement, (3) in the last semester. Contents are motivation, self-efficacy, time management, resilience and coping with distress. Employees of the university and master student work as coaches in the programme.	OSA, coaching, not credited	student teachers	n.a.	Moodle	<a href="https://semestereinstiegswoche.ph-weingarten.de/fileadmin/uedakteure/Homepage/Studium/Allgemeine_Studienberatung/Plaene_SEW_20_21/PHokus_Info_SEW_Zweitsemester.pdf.pdf">https://semestereinstiegswoche.ph-weingarten.de/fileadmin/uedakteure/Homepage/Studium/Allgemeine_Studienberatung/Plaene_SEW_20_21/PHokus_Info_SEW_Zweitsemester.pdf.pdf</a>

Nr	Name, Institution	Description	Portfolio Type, Grading	Target Group	Supported by research	Platform	Link
18	Portfolio als Studienleistung im Certificate of Advanced Studies Palliative Care Basics, Universität Freiburg	Used in a continuing education programme. Documentation of competence development, study accomplishments, and transfer of theory into practice. Content: Two modules à 6 credit points, e-portfolio compulsory, peer-tandems for reflection process Compulsory reflection on professional development, voluntary reflection on personal development. Formative assessment by educators.	reflection and development, credited but not graded	continuing education programm for palliative care studies	n.a.	n.a.	<a href="https://www.pedocs.de/volltexte/2017/14892/pdf/Moerth_et_al_2017_Portfolios_in_der_wissenschaftlichen_Weiterbildung.pdf">Ab S. 66https://www.pedocs.de/volltexte/2017/14892/pdf/Moerth_et_al_2017_Portfolios_in_der_wissenschaftlichen_Weiterbildung.pdf</a>
19	Portfolio im Lehramt, Universität Heidelberg	Reflection on teaching experiences. Artefacts are developed within courses so that students do not have extra workload.	reflection, graded	student teachers	n.a.	free of choice	<a href="https://www.uni-heidelberg.de/de/studium/studienangebot/lehrerinnenwerden/reflexionsportfolio">https://www.uni-heidelberg.de/de/studium/studienangebot/lehrerinnenwerden/reflexionsportfolio</a>
20	Portfolio im Studiengang soziale Gerontologie, Katholische Hochschule Berlin	So called "theory-practice-learning challenges" alongside the student life cycle. Their documentation and reflection is visible for all students in a Moodle space.	reflection, not credited	extra-occupational students Bachelor Social Gerontology	n.a.	Moodle	<a href="https://www.pedocs.de/volltexte/2017/14892/pdf/Moerth_et_al_2017_Portfolios_in_der_wissenschaftlichen_Weiterbildung.pdf">https://www.pedocs.de/volltexte/2017/14892/pdf/Moerth_et_al_2017_Portfolios_in_der_wissenschaftlichen_Weiterbildung.pdf</a> (page 43)
21	Portfolio in Language Learning, Universität Frankfurt	Part 1: Language portfolio (focus on language skills, intercultural experiences and general learning goals with regard to the English language). Part 2: Teacher portfolio (focus on English teaching profession in the context of university studies). Content: essay questions and table for self-assessment.	reflection, graded	student teachers	n.a.	PDF document, paper based	<a href="https://www.uni-frankfurt.de/61236004/Guidelines_Portfolio_New_SoSe16.pdf">https://www.uni-frankfurt.de/61236004/Guidelines_Portfolio_New_SoSe16.pdf</a>
22	Portfolio Teaching English as a Foreign Language (TEFL), Universität Potsdam	The portfolio tasks are supposed to (1) help examine growth and development over time, (2) initiate a process of self-evaluation including a plan for personal development goals as a future teacher, (3) connect theory and practice, (4) engage critical reflection.	reflection, graded	student teachers for languages	n.a.	n.a.	<a href="https://www.uni-potsdam.de/de/tefl/informationstudents/modulpruefungen/portfolio">https://www.uni-potsdam.de/de/tefl/informationstudents/modulpruefungen/portfolio</a>

Nr	Name, Institution	Description	Portfolio Type, Grading	Target Group	Supported by research	Platform	Link
23	Portfolios zur Anrechnung informell erworbener Kompetenzen, Hochschule Niederrhein	Project for recognition of formally, non-formally and informally acquired skills via portfolios. Students create portfolios on voluntary basis referring to single modules. Focus on reflection of learning and work experience from different contexts and how they link to the content of the modules. Students reflect on learning progress and needs. Note: It could not be checked whether the project is continued or currently established in the curricula.	reflection, graded	dual students or student with work experience	n.a.	university specific LMS	<a href="https://www.pedocs.de/volltexte/2017/14892/pdf/Moerth_et_al_2017_Portfolios_in_der_wissenschaftlichen&gt;Weiterbildung.pdf">Ab S. 11 https://www.pedocs.de/volltexte/2017/14892/pdf/Moerth_et_al_2017_Portfolios_in_der_wissenschaftlichen&gt;Weiterbildung.pdf</a>
24	Praxisportfolio im Heilbronner Modell, HS Heilbronn	Portfolio including (1) learning diary entries, (2) external coachings, (3) reflection referring to a module. Entries are commented by two peers and graded by an educator.	reflection, graded	Dual study mechanical engineering	n.a.	ILIAS	<a href="https://www.hs-heilbronn.de/bmb">https://www.hs-heilbronn.de/bmb</a>
25	Reflection on aptitude in the practical phases of teacher training, Universität Köln	Electronic portfolio accompanies practical phases helping students to reflect on the practical experiences they have acquired and to engage in professional biographical reflections. Texts, videos, audio-visuals possible. At three points in time - before, during and after the internship.	reflection with option to development, graded	student teachers	n.a.	ILIAS	<a href="https://zfl.uni-koeln.de/sites/zfl/Publikationen/pp-innovativ/Zfl-PP-Innovativ09.pdf">https://zfl.uni-koeln.de/sites/zfl/Publikationen/pp-innovativ/Zfl-PP-Innovativ09.pdf</a>
26	Reflektiert ins Lehramt, Pädagogische Hochschule Heidelberg	E-portfolio to collect artefacts from modules and reflection reports regarding the personal development of students and their view on teaching. OSA regarding personality characteristics. Moodle course on mindfulness, biography work, and career orientation.	OSA and reflection, not credited	student teachers	n.a.	Moodle	<a href="https://www.hse-heidelberg.de/studium/reflektiert-ins-lehramt">https://www.hse-heidelberg.de/studium/reflektiert-ins-lehramt</a>
27	Study portfolio for international students, Universität Kassel	Portfolio to support the onboarding of international students. Content: (1) Get started!, (2) my study programme, (3) self-directed learning, (4) developing competences, (5) additional qualifications, (6) mentoring and guidance.	reflection and development, not credited	all international students	n.a.	PDF document	<a href="https://www.uni-kassel.de/uni/en/international-service/coming-to-kassel/studying-in-kassel/during-studies/study-portfolio-for-international-students">https://www.uni-kassel.de/uni/en/international-service/coming-to-kassel/studying-in-kassel/during-studies/study-portfolio-for-international-students</a>

Nr	Name, Institution	Description	Portfolio Type, Grading	Target Group	Supported by research	Platform	Link
28	Teach VET, Universität Bremen	EU project developing an OSA for vocational education training (VET) teachers. Focus on teaching competence and suggesting teaching materials and qualification opportunities according to their results in the OSA. E-portfolio to document the development process.	OSA and reflection, not credited	VET teachers	during the initial project phase	Mahara, Moodle, LEVEL5	<a href="https://www.itb.uni-bremen.de/ccm/projects/projekte/teach-vet.de?selectedTab=desc">https://www.itb.uni-bremen.de/ccm/projects/projekte/teach-vet.de?selectedTab=desc</a>
29	Tübinger Portfolio Lehrerbildung, Universität Tübingen	E-portfolio focussing on fostering reflexivity of students and their view on theory-practice-interlinks during their training. Compulsory for all student teachers	reflection, credited but not graded	student teachers	potentials and boundaries of portfolio-use in teacher education	n.a.	<a href="https://uni-tuebingen.de/einrichtungen/zentrale-einrichtungen/tuebingen-school-of-education-tuese/arbeitsbereiche/professionsbezug/projekt-portfolio/">https://uni-tuebingen.de/einrichtungen/zentrale-einrichtungen/tuebingen-school-of-education-tuese/arbeitsbereiche/professionsbezug/projekt-portfolio/</a>
30	Verbundprojekt Open IT; Portfolio im L3 Anrechnungssystem, Hochschule Weserbergland and Technische Universität Darmstadt	Used in credit courses for professionally experienced graduates with VET in the IT sector to recognise individually acquired competences. E-portfolio to document and reflect on previous learning experiences and resulting skills that should be recognised. OSA for study and work orientation.	reflection, graded	IT professionals with work experience in credit courses	n.a.	L3AMS (university specific LMS, example: <a href="https://www.l3-ams.tu-darmstadt.de/">https://www.l3-ams.tu-darmstadt.de/</a> )	<a href="https://www.pedocs.de/volltexte/2017/14892/pdf/Moerth_et_al_2017_Portfolios_in_der_wissenschaftlichen&gt;Weiterbildung.pdf">Ab S. 26https://www.pedocs.de/volltexte/2017/14892/pdf/Moerth_et_al_2017_Portfolios_in_der_wissenschaftlichen&gt;Weiterbildung.pdf</a>

## About DIRK Dual

Cooperative (work-integrated) higher education offers students a high potential for sustainably developing (future) skills/competences through its different learning spaces in theoretical and practical phases, which can be further exploited by reflecting on and documenting the transfer of knowledge and experiences between the phases in a sustainable way. The portfolio-based tool DIRK Dual expands the currently strongly activity-oriented practical reports by not only documenting experiences, but also reflecting on them in relation to one's own professional competences as well as individual personality development. Throughout the cooperative study program, students develop certain competences or future skills through this systematic reflection and self-assessment. Furthermore, theoretical and practical phases are systematically interlinked throughout the entire student lifecycle, which also benefits teachers and dual partners



**Baden-Württemberg**

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