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**Micro-degrees
and badges as
formats of
supplementary
digital credentials**

HRK German Rectors' Conference

The Voice of the Universities

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A. Introduction

Following the introduction of MOOCs (Massive Open Online Courses), new formats and verifications of digital teaching have emerged in the form of micro-degrees and badges, which are now regularly incorporated into certified educational processes at the international level. Micro-degrees are also referred to as the “new currency of lifelong learning”¹. Similarly, badges are regarded as a potential standard for digital proof of competence.² In view of the described potential and intensified digitalisation brought about by the coronavirus pandemic, this paper aims to examine the extent to which micro-degrees and badges could be utilised in digital teaching in the German higher education system.

The first part of the paper consists of classification recommendations. Both formats are outlined in detail in the second part. We attempt to define and delineate terms and describe potential added value and challenges. The paper concludes with a series of balanced assessments.

B. Recommendations

I. Active role of universities

It is recommended that universities be proactive in addressing the development of micro-degrees and badges.

The unique selling point of academic teaching is not the only reason why universities consider their role to be the development and practice of innovative teaching. Universities also have to compete with non-university providers. As this competition has become both increasingly commercialised and non-transparent, the structuring of this scenario must not be left to other stakeholders. In fact, the universities must play a leading role in defining these rules. Contrary to what some might expect, there has not yet been any substantial pressure from students for

¹ Thrun, Sebastian, cited in Schenkel, Ronald: “Häppchenlernen mit Nano-Degrees” (Learning by doing with nano-degrees), Handelszeitung, 24/1/19 (<https://alice.ch/de/informiert-bleiben/newsroom/detail/haeppchenlernen-mit-nano-degrees> (available only in German)). 2018 is referred to as the “second wave of MOOC hype” or “the year of MOOC-based degrees”. Shah, Dhawal: “By The Numbers: MOOCs in 2019”, 2/12/19 (<https://www.classcentral.com/report/mooc-stats-2019>). With regard to micro-degrees, the EFI Commission has expressed its regret at the reluctance of German universities to systematically develop and provide innovative digital education and continuing education options, EFI – Commission of Experts for Research and Innovation (2019): “Gutachten zu Forschung, Innovation und technologischer Leistungsfähigkeit Deutschlands 2019” (Report on Germany’s research, innovation and technological performance 2019), Berlin: EFI, p. 98f. (https://www.e-fi.de/fileadmin/Gutachten_2019/EFI_Gutachten_2019.pdf (available only in German)). The EU Commission currently considers micro-credentials to be a potentially important component of the European Universities Initiative (<http://sgroup.be/news/eu-universities-stakeholders-meeting>).

² See Buchem, I., Orr, D., Brunn, C. (2019): “Kompetenzen sichtbar machen mit Open Badges – Abschlussbericht der HFD Community Working Group Kompetenzbadges” (Making competences visible with Open Badges – Final report of the HFD Community Working Group for Competence Badges). Working paper no. 48. Berlin: Higher Education Forum on Digitalisation, p. 11f, version: 2.0. DOI: <https://doi.org/10.5281/zenodo.3478510> (available only in German).

this format to be adopted on a large scale, but there is interest in appropriate innovative learning and teaching formats. For this reason, each university must independently determine the extent to which micro-degrees and badges can add value to its teaching profile.

The HRK emphasises that this can only be a secondary option besides full study programmes and continuing education courses. However, it must not become a legal requirement incumbent upon universities.

II. Potential analysis

It is recommended that universities examine the potential of micro-degrees and badges for their university teaching.

Although titles vary greatly, the fundamental idea underlying micro-degrees is that topics covered by study programmes can be broken down into micro-components and reassembled in order to achieve maximum modularisation and to group content as best possible. Micro-degrees are distinct in that they aspire to formalised degrees. By contrast, badges are designed to highlight competences that are acquired during the course of or outside the curriculum.

Micro-degrees and badges have varied potential. This can be seen in the organisation of learning, the stimulation of motivation, the support of modularisation, the increase in transparency, the promotion of accessibility, the advancement of marketing and new starting points for communication between students and teaching staff.

III. Problem analysis

It is recommended that universities broach the inherent problems associated with micro-degrees and badges.

There are various challenges pertaining to the practical implementation of micro-degrees and badges, and these are related to the standardisation and/or development of crediting regulations, the anchoring in quality assurance systems and, not least, the mobilisation of significant resources.

Besides the practical challenges, there is the danger of micro-degrees and badges fragmenting the canon of knowledge. The fragmentation of conventional study programmes is often geared to the commercial exploitation of the micro-components. However, university study programmes comprise carefully coordinated academic questions and content to be taught, corresponding methods and formats, and valid examinations and qualifications. Hence, responsibility for recognition and crediting must remain with the universities. Furthermore, academic personal development can only be achieved by means of examining complex subject-related content over a prolonged period of time and interacting with teaching staff and fellow students in person on a regular basis.

IV. Identification of application areas and success factors

It is recommended that universities identify potential application areas for micro-degrees and badges and assess them using given success factors.

Possible application areas might include orientation phases preceding study programmes and academic continuing education. Micro-degrees and badges are also ideal for attracting students and talented individuals. They can only be integrated into regular teaching and/or curricula in specific cases. Another application area is the onboarding and (internal) further training of university staff.

The versatility of micro-degrees and badges to be conceptualised is a key success factor. Micro-degrees are considered versatile if they are directly derived from existing curricula in the form of elective or specialisation subjects or can be readily integrated into the curricula. The same applies to badges. Further use of the competences highlighted by badges is supported by the fact that they are closely aligned with the competences already documented in the module descriptions and, if necessary, can be identified in a standardised way in the transcript or the Diploma Supplement. Additional success factors are the selection of language (German or English) and the specific configuration of strategic university profiles, such as digitalisation, internationalisation, migration, inclusion and accessibility. Cooperation with university and non-university partners is key to success considering the resource-intensive nature of digital formats and verifications.

V. Consideration of ambivalence

It is recommended that universities consider the ambivalent nature of micro-degrees and badges.

On the one hand, micro-degrees and badges are an opportunity to make universities more accessible by means of accumulation. On the other hand, higher education can only be broken down into micro-components to a limited extent as the overall qualification is more than just the sum of individual verifications. Universities are also encouraged to guarantee the continuity of academic material, methods and qualifications. This is in line with the broad educational mandate of universities, which also comprises the teaching of academic disciplines, personal development and preparation for the labour market. A coherent curriculum can therefore only be supported or complemented by micro-degrees or badges in specific cases.

Micro-degrees and badges could be offered as part of normal study programmes. If they are offered by universities as new programmes, it must be ensured that this does not result in a loss of credits in normal study programmes and that they are provided on a cost-neutral basis (e.g. in the form of study and administrative fees).

C. Description of formats

I. Micro-degrees

1. Definition and delineation

While the first micro-degrees acted as the final qualifications of MOOCs, these formats have become increasingly independent. The understanding and terminology³ of micro-degrees is as diverse as the multitude of providers⁴. The fundamental idea underlying micro-degrees is that topics covered by study programmes can be broken down into micro-components and reassembled in order to achieve maximum modularisation and to group content as best possible.⁵ Most micro-degrees claim to at least be a precursor to a formalised final qualification.

Almost all academic micro-degrees can be accessed without prerequisites and are provided online by commercial and non-commercial institutions without a certification agency or an examination office. As a result, the focus so far has been on content with learning outcomes that can be directly applied to meet demand as far as possible, such as academic work, key qualifications, academic practical relevance and additional professional training.

2. Potential added value and areas of use

As is generally the case in digital teaching, added value can primarily be seen in the *organisation* of learning. Micro-degrees are permanently available and can be completed regardless of time and location. This is a key advantage for learners who find it difficult to take up learning opportunities at fixed times due to family, occupational and health reasons.

Micro-degrees have the potential to increase *accessibility* in a unique way. This applies with regard to attracting non-traditional students to universities, the recruitment of qualified professionals or international students and those interested in continuing education. As distinctions for programmes that can be accessed without prerequisites, micro-degrees make it easier to enter a study programme, introduce people in

³ Titles vary from provider to provider: Nanodegrees from Udacity (<https://www.udacity.com/nanodegree>), micro-credentials from Certif-ID (<https://certif-id.com>), specialisations from Coursera (<https://learner.coursera.help/hc/en-us/articles/208280296-Specializations>) and XSeries from edX (<https://www.edx.org/xseries>).

⁴ Active providers are Coursera (<https://coursera.org>), edX (<https://www.edx.org>), FutureLearn (<https://www.futurelearn.com>), iversity (<https://iversity.org>), Lecturio (<https://www.lecturio.com>), oncampus (<https://www.oncampus.de/?lang=en>), openHPI (<https://open.hpi.de/?locale=en>), Udacity (<https://www.udacity.com>), Udemy (<https://www.udemy.com>).

⁵ See Shah, Dhawal: "MOOCWatch #18: Making Sense of Microcredentials", 27/8/2018 (<https://www.classcentral.com/report/making-sense-of-microcredentials>).

employment to academic content and methods or international students to the German higher education system, and offer supplementary credentials for people interested in continuing education.⁶

The added value for *marketing* is closely linked to the criterion of accessibility. Micro-degrees are well suited as a marketing tool for recruiting new students, international students, qualified professionals and those interested in continuing education. The mechanism used to recruit these target groups normally consists of presenting a low-threshold entry-level course and then pointing out the opportunity to continue or credit this content in degree programmes or continuing education courses. Beyond this personnel recruitment strategy, a micro-degree alone can also offer added value for the public image of a university if it appears within the framework of a joint label or platform together with other renowned universities, for example.

3. Challenges

In keeping with the fundamental idea of the grouping capacity of micro-degrees, it is worth pursuing *standardisation and crediting regulations* in order to make it possible to integrate degrees from different providers and, ideally, to aggregate them into an academic degree. The Common Microcredential Framework of the European MOOC Consortium can be regarded as such an attempt.⁷ However, standardisation or credit transfer across providers is often not desired at all, since, from a commercial or institutional perspective, it is crucial to bind participants to a provider, a university or a group of universities.

In current practice, examination offices at individual universities tend to communicate with providers in cases of doubt and micro-degrees tend not to be readily recognised outside of a university or a defined group of universities. The special role of universities is clear in this context; they embed these certificates in the *quality assurance system* of study programmes by crediting micro-degrees acquired from non-university institutions. Therefore, not only do universities have the role of potential active providers, they also provide quality assurance as gatekeepers for external micro-degrees.⁸ Quality-assurance requirements must also be

⁶ In the area of academic continuing education, some state higher education acts already make provisions for the awarding of certificates with a thematic focus. Such certificate courses are provided with a variety of time frames and constitute the most frequently offered form of continuing education at universities. They do not culminate in a university degree but can involve the acquisition of ECTS credits, which can essentially be credited to a study programme at a later date within a cumulative study model. (German Council of Science and Humanities 2019, Drs. 7515-19, Recommendations on continuing university education as part of lifelong learning, p. 47) University certificate courses therefore share similarities with micro-degrees. In the field of continuing education, the extent to which the legal basis for certificates can also be applied to micro-degrees should therefore be examined.

⁷ <https://about.futurelearn.com/press-releases/the-european-mooc-consortium-emc-launches-a-common-microcredential-framework-cmf-to-create-portable-credentials-for-lifelong-learners>.

⁸ In this context, reference is made to the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG), which have a wide

placed on academic micro-degrees, as they are formats of teaching in general and digital teaching in particular. In the same way, quality management in teaching requires communication, transparency and trust, as well as the participation of all stakeholder groups.

Mandatory standardisation and/or crediting regulations could support universities in their integration efforts. However, such process considerations appear rather hasty at the present time, as there is a need to first facilitate an initial development phase for micro-degrees at universities. It currently appears that subject- and university-specific micro-degrees are more likely to be creatively and innovatively developed with a bottom-up process.

In particular, the borderline cases between the recognition of competences obtained at universities and the crediting of competences acquired through non-university institutions must be examined in greater detail and clearly assigned to recognition or crediting⁹, as the relevant legal bases and examination criteria vary.

Providers of micro-degrees are also required to guarantee the quality and comparability of performance and ensure transparency. This includes content and technical examination requirements as well as certification and verification of performance. An instrument similar to the Diploma Supplement could be of use. Micro-degrees in continuing education could also be awarded quality seals. This would greatly facilitate recognition or crediting at universities.

Furthermore, universities must develop criteria for the crediting and recognition of competences acquired online, which in particular allow for the verification of providers and their quality, as well as the assessment of the programmes on offer. Minimum standards and quality criteria should be developed for this purpose as a recommendation for all universities.

Admittedly, in the first decade of the 21st century, there was a heavily project-related phase in e-learning during which some projects developed quality-assurance concepts (e.g. ISO standards or quality labels). However, these have not been established across the board. Given that quality assurance requires communication in addition to resources, quality management has not yet become an integral part of the development phase of micro-degrees.

scope of application: "The ESG apply to all higher education offered in the EHEA regardless of the mode of study or place of delivery. (...) In this document the term "programme" refers to higher education in its broadest sense, including that which is not part of a programme leading to a formal degree" Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG), 2015, p. 7 (https://enqa.eu/wp-content/uploads/2015/11/ESG_2015.pdf).

⁹ See <https://www.hrk-nexus.de/glossar-der-studienreform> (available only in German) for definition.

Nevertheless, in the field of MOOCs there is a European initiative to establish the term “MOOQ for the Quality of MOOCs”. At the national level, it is less about generally applicable quality assurance, e.g. in accordance with ISO, and more about community-centred standards, such as in the case of e-teaching.org and the Higher Education Forum on Digitalisation (HFD)¹⁰. The inclusion of learners is also important in this regard. All in all, the focus should be on promoting dynamic design processes in micro-degrees, which should not be undermined by rigid quality assurance at the outset. Furthermore, the mistake of applying higher quality standards to digital formats than to conventional face-to-face teaching needs to be avoided. In many cases, no serious quality-assurance issues arise where micro-degrees are taken directly from face-to-face teaching and offered by university teaching staff.

Infrastructure and financial costs must be taken into account with regard to the *resources* required for micro-degrees. Online platforms are usually required for embedding, marketing and distributing micro-degrees. These platforms can be integrated into existing university platforms where required or they are outsourced to external service providers or commercial providers.

In spite of their limited scope, micro-degrees are particularly expensive to create, as is the case for other digital formats. Generally speaking, they cannot be designed, produced and operated by individual teachers, rather this must be performed within the framework of interdisciplinary teamwork with the input of specialist, teaching and technical expertise. In the ideal case, an internal or external media service would be provided for this purpose. In any case, the infrastructure and, in particular, personnel costs are so high that specific academic micro-degrees usually cannot be financed by the budgets of the participating departments. Models in which pilot projects are financed¹¹ by project funding or, for strategic reasons, centralised funds are used, are prevalent – at least in Germany.

4. Assessments

Micro-degrees reflect strong developments in digital teaching and the international digital education market. It is impossible to predict the structures and offers that will prevail on this market in the long term. For this reason, emphasis should be placed on a culture of empowerment during the pioneer phase. Regulations relating to standardisation, crediting and quality assurance should not overshadow experimental development.

These structural challenges are naturally made more difficult by the fact that certain globally operating providers are on course to gain a monopoly. This poses the strategic question of the extent to which German

¹⁰ <https://hochschulforumdigitalisierung.de/en/hfdcert>.

¹¹ For example, the Virtual Academy of Sustainability at the University of Bremen is financed by the BMBF (<https://www.uni-bremen.de/nm/forschung/forschungsprojekte/virtuelle-akademie-nachhaltigkeit> (available only in German)).

universities wish to position themselves in a competitive market increasingly dominated by U.S. providers, with a view to ensuring that these formats remain open and accessible. In a national context, it is possible that the speed of development will vary between universities. There are universities that can afford micro-degrees and others who lack the necessary resources. Cross-university cooperation could be a solution to the issue of resources. In view of these perspectives, universities should address the potential of micro-degrees and examine whether they can be integrated into their respective higher education strategies.

II. Badges

Badges have a very broad definition. One way in which micro-degrees and badges overlap is that badges can serve as proof of competences acquired from micro-degrees in addition to being used independently. Other typical applications of badges are related to MOOCs, previously acquired competences and application procedures.¹²

1. Definition and delineation

In principle, the demand for badges as digital proof of competence is a result of the increased individualisation of (academic) educational pathways. In addition to the traditional transfer of competence in study programmes, academic continuing education courses and doctoral training, non-formal and informal competences are becoming increasingly important. This applies in particular to the transition between education systems.

Information on acquired learning outcomes can be recorded and coded using badges at these points of transition. This information includes examination results, assignments, excerpts from an e-portfolio and, in particular, key competences (handling digital data, social engagement, project experience, language skills and intercultural experience). Consideration should also be given to commitment to research. Besides information on students, badges can also record data on teaching staff and trainers as well as on the issuing institution.¹³

The idea of badges was endorsed by the Mozilla Foundation back in 2011 within the context of intensified digitalisation in teaching, with the aim of an Open Badge standard. This common standard facilitates the interoperability, validation and verification of stored records. This Open Badge standard has been further developed by IMS Global since 2017.¹⁴

¹² Hoyer, Helmut et al. (2018). "Anrechnung digitaler Lehrformate – Entwicklungen und Empfehlungen" (Crediting digital teaching formats – Developments and recommendations). Working paper no. 35. Berlin: Higher Education Forum on Digitalisation at the Stifterverband für die Deutsche Wissenschaft e.V., DOI: <https://zenodo.org/record/2602545#.XihOkCMxIPY> (available only in German), p. 12.

¹³ See Buchem/Orr/Brunn, Kompetenzen (Competences), p. 10ff. and 39ff.

¹⁴ Hoyer et al., Anrechnung (Crediting), p. 11.

While the boundaries between micro-degrees and badges are not clearly defined in practice (particularly in the case of badges as completion certificates of MOOCs), there are indeed features that set them apart. Firstly, micro-degrees generally aspire to the attainment of formalised degrees, whereas badges have an emphasis on non-formally acquired competences. Secondly, as programmes provided by educational institutions, micro-degrees have a more institutional focus. By contrast, badges are generally awarded in the context of voluntary expansion of a personal portfolio and therefore have an individual focus.

2. Potential added value

An obvious way in which badges offer added value is that they increase the *transparency* of acquired competences. Badges make it possible for achievements to be specifically documented and, mostly intuitively, visualised. In addition to the data on teaching staff and universities, information can also be stored on (awarding) criteria, time frame and type of achievements.¹⁵

As a result, badges also support *modularisation* by breaking down learning formats into learning packages. Complex competences can be divided into levels and presented in a precise manner.¹⁶ It is also possible to merge different badges from the same university or from external providers. The concept of an e-portfolio or (virtual) backpack supports this.¹⁷ Badges therefore help to scale teaching and learning formats online.

The function of badges as an extrinsic *motivating factor* provides significant added value. Instead of creating pressure, people are encouraged to acquire the badge and to master the associated requirements.¹⁸ Studies show that badges both increase and maintain learning motivation.¹⁹ They also act as inspiration for new goals, e.g. in academic continuing education.²⁰ Badges are thus an instrument for encouraging self-directed learning.

Badges can foster *accessibility* between academia and the professional world in particular. Proof of low-threshold academic abilities and skills can be a first step towards an academic continuing education format or

¹⁵ e-teaching.org on badges (https://www.e-teaching.org/lehrszenarien/pruefung/pruefungsform/badges_pattern (available only in German)).

¹⁶ Lorenz, Anja/Meier, Stefan: "Digital Badges zur Dokumentation von Kompetenzen: Klassifikation und Umsetzung am Beispiel des Saxon Open Online Courses (SOOC)" (Digital badges to document competences: Classification and implementation using the example of Saxon Open Online Courses (SOOC)) (<http://ceur-ws.org/Vol-1227/paper52.pdf> (available only in German)), p. 259.

¹⁷ <https://backpack.openbadges.org/>

¹⁸ Ibid., p. 255.

¹⁹ Roy Sherre/Clark, Damien: "Digital badges, do they live up to the hype?", British Journal of Educational Technology, Vol. 00, No 0, 2018, (<https://doi.org/10.1111/bjet.12709>), p. 15.

²⁰ Schettler, Juliane: Student statement on digital competence badges (<https://prof.beuth-hochschule.de/buchem/abschlussarbeiten/digitale-auszeichnungen-fuer-bestleistungen> (available only in German)).

a study programme for people in employment. Conversely, university graduates can use badges to highlight career-related achievements and experience, e.g. handling digital data and project experience, in an application process.

Badges could be particularly useful for *students with a migration background*. These students often have numerous competences that can be recognised at a low threshold. Acquisition of the German language can also be supported in this way. There is a high level of demand from students for such badges.

Badges can also be used for *marketing* purposes. As described in the above, this includes marketing oneself, i.e. students representing themselves. Furthermore, badges can be used for the marketing of teaching staff, study programmes and universities if this is carried out on the basis of a coordinated marketing concept.

Academic badges can also help to make study pathways more flexible and to reduce drop-out scenarios among part-time students if individual and practice-related competences are evidenced during studies and used for higher-quality employment conditions.

Badges provide starting points for *communication*, in addition to being strategic marketing tools. The main aim is to establish contact with people who have similar interests and skills with the aim of exchange.²¹

3. Challenges

Standardisation is one challenge faced in the establishment of badges. Initial basic standards, e.g. for Open Badges, have already been developed. Tools for creating badges already exist and initial design guidelines have been established. Some learning management systems allow for the awarding of badges that are compatible with other standards, and can be displayed in the user profile and published on relevant platforms. Having said that, there are only a handful of non-commercial platforms for badges.²²

However, the need for standardisation extends far beyond the available software standards. The specification of workflows for awarding badges is particularly important. The question of who determines the learning outcomes and requirements of a badge is a key regulatory issue. As is the case with other innovative learning concepts, the understanding of the roles of learners and providers must be clarified for badges. Peer-to-peer evaluation processes represent a synthesis between the definition by individual interested parties and a provider. In any event, the coordination of awarding criteria will remain essential and time-intensive.

²¹ See Schettler, Statement.

²² <https://www.openbadges.me>; <http://www.onlinebadgemaker.com>; <https://www.digitalme.co.uk>; <https://www.has-tac.org/blogs/dthickey/2012/10/08/introducing-dml-design-principles-documentation-project>.

The key question of *crediting* is closely related to the challenge of standardisation. It should be considered that the range of the achievements made to attain the badges is very broad. Some badges are issued on the basis of recapitulative examination performance, for example for dissertations or language tests, whereas other badges only relate to the reading of texts and the watching of learning videos. The latter is difficult to verify.²³ A system of quality criteria and quality controls must be consolidated for the nationwide establishment of badges, which are also credited for necessary academic achievements.²⁴

In view of this challenge, the question of the extent to which badges will be recognised as an achievement by third parties still remains.²⁵ There is considerable uncertainty as to how the labour market will respond. HR departments in the professional world point to major issues related to the handling of certificates awarded by non-university institutions.²⁶ Universities are in a position to address this deficit in standardisation and certification because they have experience with such processes and a public reputation.

The development of a digital system to prove competences has been named as a solution.²⁷ However, given their focus on individual collection, the purpose of badges is usually not to integrate a completed (small) certificate into a larger one, but rather to establish the equivalence of the acquired competence to that of a certificate. For this reason, the content of each badge must be reviewed for compatibility on an individual basis. This review must be carried out by a third person and, if the result is positive, would have to be made both transparent and comprehensible.

Establishing trust, appropriate documentation of competences and achieving a minimum scope could be preparatory steps for such a process. It is advisable not to ignore established competence models or qualification frameworks²⁸, but rather to keep them in reasonable balance with new digital systems. Here, too, it is not a top-down system that is recommended but rather the development of a bottom-up system specific to the subject or sector.²⁹

In view of the required minimum scope, different scenarios have been discussed. In a minimal scenario, a recognition system is established

²³ e-teaching.org on badges.

²⁴ See ESG, footnote 7 and e-teaching.org on badges.

²⁵ See e-teaching.org on badges.

²⁶ See Buchem/Orr/Brunn, *Kompetenzen (Competences)*, p. 16.

²⁷ See Buchem/Orr/Brunn, *Kompetenzen (Competences)*, p. 18.

²⁸ Reference is made to the "Qualifications Framework for Higher Education Qualifications" (HQR) as a reference model for universities. (https://www.hrk.de/fileadmin/redaktion/hrk/02-Dokumente/02-03-Studium/02-03-02-Qualifikationsrahmen/2017_Qualifikationsrahmen_HQR.pdf (available only in German).

²⁹ See Buchem/Orr/Brunn, *Kompetenzen (Competences)*, p. 18, p. 35.

within the higher education sector, whereby badges acquired in universities are also recognised by other universities. This system will presumably comprise individual and broad crediting procedures. The establishment of a crediting register could also be of use.³⁰ A medium scenario describes a recognition standard that facilitates the use of badges in both higher education and the professional world.³¹ In a maximum scenario, the recognition framework is comprehensive and extends to school and higher education, the professional world, continuing education and vocational education. Badges that open up access to a job will ideally be displayed should such a scenario be realised.³²

Badges and micro-degrees require technical standards and corresponding digital certificates to provide digital proof of achievements; these can be used to digitally and legally verify the acquisition of competences. The resulting automation has the potential to bring about significant changes in personnel and project procedures. Digital certificates open up new possibilities to automatically align profiles of tasks or jobs and/or applicants in a highly targeted manner.

In addition to standardisation and crediting, it is also important to develop a quality assurance system to ensure that the level of knowledge attained is reviewed appropriately. Minimum accessibility standards must also be examined.

The EU intends to use the Microcredential Framework³³ to support and develop the awarding of digital certificates at universities. Within the framework of the Open Badges standard³⁴, a large number of companies are emerging that offer assistance with the issuance and quality assurance of badges³⁵. Besides established signature procedures for documents or centralised verification databases, block chains are a technology providing locally managed, transparent and counterfeit-proof digital certificates. The issuance of certificates remains decentralised but is publicly displayed and unalterably documented. The German consortium DigiCerts is dedicated to the question of how protection against counterfeiting as well as secure access and administration of digital certificates and proof of education can be guaranteed over the long term in accordance with requirements.³⁶

³⁰ Hoyer et al., Anrechnung (Crediting), p. 17, p. 21.

³¹ In the context of this scenario, reference is made to the classification of European Skills, Competences, Qualifications and Occupations (ESCO), (<https://ec.europa.eu/social/main.jsp?catId=1326&langId=en>). A uniform documentation structure based on the concept of EUROPASS (<https://europa.eu/europass/en>), which previously focussed on vocational education, would be preferable.

³² Buchem/Orr/Brunn, Kompetenzen (Competences), p. 28ff.

³³ <https://microcredentials.eu/>.

³⁴ <https://openbadges.org/>

³⁵ https://badge.wiki/wiki/Badge_platforms.

³⁶ www.digicerts.de.

On the basis of these varied challenges, *communication* about badges is also important. As the concept of badges requires considerable explanation, public communication is necessary for potentially extensive introductory processes. Above all, the added value must be communicated very well within a communication strategy for badges. Public communication can be handled by an association or individual institutions.³⁷

4. Assessments

Badges have a high level of potential for open education as well as lifelong and self-directed learning. The added value with regard to stimulating motivation to learn also appears to have been established.³⁸ Initial strategies to standardise badges by means of software or platform operators enable selective measures to increase transparency, promote modularisation and accessibility. With particular regard to students with a migration background, badges can act as a low-threshold instrument to encourage and document language acquisition, and to attract people to academic education. Further added value is achieved in the areas of marketing and communication. It should be noted, however, that the accumulation of badges amounts to more than just playful collection.

The main issue associated with badges is the question of crediting. Although crediting issues are already a major challenge for non-digital formats, they are particularly problematic in the context of badges. This is because badges are usually associated with individual and small-scale learning and it is very difficult to link acquired competences to overarching competence or recognition frameworks that are to be developed. This assessment also holds true for the distribution scenarios described above. Even the minimal recognition scenario appears very ambitious in the higher education sector.

It therefore seems appropriate to use badges initially to exploit gaps or additions to the formal higher education system. For example, they could be used to support the admission of people who do not have a formal higher education entrance qualification, in professional groups that are dependent on career changers, to develop competences in continuing education and to recognise learning in the workplace. In this respect, badges could be used as agile solutions for recognising competences and as a complement to the formal system.³⁹

D. Summary

Micro-degrees and badges reflect the division of education into the smallest possible learning units. As a result, they both offer a great deal of potential with regard to the paradigms of individualisation, modularisation and accessibility. However, (higher) education can only be broken

³⁷ Buchem/Orr/Brunn, *Kompetenzen (Competences)*, p. 24.

³⁸ Roy/Clark, *Digital badges*, p. 15; Buchem/Orr/Brunn, *Kompetenzen (Competences)*, p. 17, 20.

³⁹ Buchem/Orr/Brunn, *Kompetenzen (Competences)*, p. 14f.

down into micro-components to a limited extent as the overall qualification is more than just the sum of individual verifications. In particular, academic personal development can only be achieved by means of examining complex subject-related content over a prolonged period of time and interacting with teaching staff and fellow students in person on a regular basis. The scenario in which micro-degrees and badges are referred to as the “new currency of lifelong learning” is inadequate in this respect. Micro-degrees and badges can only be a useful complement to other curricular programmes.

The HRK therefore recommends that universities address the issue of micro-degrees and badges and examine the extent to which they can be utilised within the framework of a strategy aligned with the respective university profile. Particular attention should be given to the areas of marketing, the initial phase of a study programme, academic continuing education and staff training. Given the resource intensity, it is advisable to seek cooperation with other universities or external partners. This approach could also be the first step towards establishing common standards. Comprehensive standardisation of micro-degrees and badges can certainly only be achieved following development at the national and international level.

Appendix: About the creation of the recommendation

This recommendation was prepared by the HRK Standing Committee on Digitalisation. The Committee is headed by the HRK Vice-President for Digitalisation and Academic Continuing Education, Professor Dr Monika Gross. The standing members of the Committee are Ms Leonie Ackermann, Mr Malte Dreyer, Professor Dr Hannes Hartenstein, Professor Dr Wolfram Horstmann, Professor Dr Michael Jäckel, Dr Antje Kellersohn, Professor Dr Evelyn Korn, Professor Dr Norbert Lossau, Mr Jens Andreas Meinen, Dr Hans Pongratz, Professor Dr Joachim Schachtner, Professor André Stärk and Dr Beate Tröger. The Committee is supported by Dr Elmar Schultz at the HRK Head Office.

Hearings on 17 May 2019 and 10 October 2019 laid the foundations for the paper. The following persons were consulted at the hearing: Professor Dr Ilona Buchem, Professor Dr-Ing. Heribert Nacken, Dr Jochen Robes, Ms Lisa Schleker and Dr Julia Sonnberger.

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