Exploring the Micro, Meso and Macro
Proceedings of the European Distance and E-Learning Network 2018 Annual Conference
Genova, 17-20 June, 2018
ISBN 978-615-5511-23-3
ISSN: 2707-2819
doi: https://doi.org/10.38069/edenconf-2018-ac-0059

HIGHER CREDUATION – DEGREE OR EDUCATION? THE RISE OF MICROCREDENTIALS AND ITS CONSEQUENCES FOR THE UNIVERSITY OF THE FUTURE

Ulf-Daniel Ehlers, Baden-Wurttemberg Cooperative State University, Germany

Summary

The predictive power of academic certifications for job success is eroding. It has never been outstanding but for a long time it was felt to be an important – at least hygienic – factor for job applications to have an academic or a good academic certificate. This starts to erode recently. More and more alternative credentials start to come into focus and develop value. Different pathways from the traditional higher education system emerge and become increasingly relevant for employers. These different pathways are often credentials earned in post-secondary education or professional training after initial academic graduation. Microcredentials are a fairly recent development that has grown in popularity in multiple discipline areas. They represent mastery of a limited set of skills or competencies rather than broader and interrelated sets of skills – like full bachelor degrees or alike – represented in current credentialing systems. Unlike these current and traditional credentialing conventions, usually summarized by a certificate or transcript with no connection to explicit evidence of the earner's competencies, micro-credentials are directly linked to digital artefacts that explain the nature and criteria of the credential as well as evidence contributed by the earner.

Introduction

The title of this paper refers back to a question recently asked by Kevon Mc Guthrie in a Blog post from 2016. It relates to the current discussion about the decline of college and university degrees as a suitable factor for job success in recruiting processes, as a recent study by Earnest & Young reveals (Lam, 2015). For higher education institutions (HEI) this is a major earthquake in the configuration of their function in relation to the labour market. It has not only to do with a demand for new skills but with a demand for a new way of communication, shaping and communicating the evidence of skills and competencies. The demand for new skills is even better described by an OECD study released in 2016 in which 60 OECD countries are surveyed and their view on futures skills for graduates is analysed and reported (OECD, 2016). Across the board these are skills and competences which in traditional higher education curricula are hardly found on top of the agenda: creativity, decision making, perspective taking, responsibility taking are amongst the first five mentioned there.

At the same time, it more and more becomes clear that higher education is undergoing an enormous change due to two developments: The first has to do with the fact that, on the long

term, more than 50% of an age cohort will choose academic education (Teichler, 2014; Baethge et al., 2014; Alesi & Teichler, 2013; Dräger & Ziegele, 2014). These are not just the few talented young people who later on want to pursue an academic career higher education institutions are used to, but the majority demands for clear job preparation through higher education institutions (Schofer & Meyer, 2005). In addition, an academic turn is becoming visible: the greater part of academic education will be needed accompanying a professional life throughout the lifetime and not – as it is today - just occur at the beginning of a career as a first cycle education like it is today, due to many factors, amongst them increasingly rapid knowledge development cycles and faster changing production cycles in industry. The fast change of professions and rapid development of new job profiles is hindering to proceed developing curricula on basis of typical job activities and leads to the need of education for being able to successfully deal with situations of uncertainty in the future. The second major development is the digitalisation of education in teaching, learning and organisations of educational organisations. In short, education can today can be organised in a flexible, personalised and individualised setting between multiple educational organisations and carried out in patchwork study patterns to suit the personal preference and life situation of the learning individual. Digital technology allows for unbundling and flexibleizing the provision of educational experiences and certification services.

The main breaking point is currently that higher education institutions are still clinging to being the sole actors in the game who can certify the entire degree. The advent of alternative credentialing, like microcredentials, is therefore a major game changer for higher education institutions. It positions the rains of composing an educational experience back into the hands of the learners. Open badges, digital artefacts which are designed to certify a certain educational achievement are the new development on the block which currently is rapidly developing. Microcredentials, the form of alternative credential which refer to smaller learning units, are therefore emerging to become more and more important. This paper explores the extent, nature and shape of the introduction of microcredentials and will discuss its consequences for higher education.

Microcredentials are a fairly recent development that has grown in popularity in multiple discipline areas. They represent mastery of a limited set of skills or competencies rather than broader and interrelated sets of skills, like full bachelor degrees or alike represented in current credentialing systems. Unlike these current and traditional credentialing conventions, usually summarized by a certificate or transcript with no connection to explicit evidence of the earner's competencies, micro-credentials are directly linked to digital artefacts that explain the nature and criteria of the credential as well as evidence contributed by the earner. We would like to suggest the following definition of micro credentials: Microcredentials are a form of credentials which represent competencies, skills, and learning outcomes derived from assessment-based, non-degree activities and specify a location for evidence of the content of the earned achievement.

ISBN 978-615-5511-23-3

Central to the microcredentialing system is the display of a digital representation, often referred to as a badge, that allows the owner and those with whom the representation is shared (e.g., employers, other educators) to explore the badge requirements and evidence of learning. Because badges are digital images with embedded metadata, the exploration is usually initiated by clicking or touching the visual digital representation. The term badge comes from similar representations in gaming systems, and so the term has negative connotations for educators. The digital credential trend is rapidly being adopted in the labour marketplace, as leading global organizations like IBM, Microsoft, Oracle, AICPA, GED, AHIMA, and many others from various industry sectors have embraced open badges for their verified learning and professional credentials. Gamrat, Bixler, & Raish (2016) describe four kinds of badges:

1. Competency-based with simple binary outcome – either the learner did or did not demonstrate the competency.
2. Stratified badges are similar to traditional grading. Tiered credentials are awarded for attaining different levels of quality or performance (i.e., gold, silver, bronze, A, B, C or novice, proficient, expert).
3. Hierarchical badges, that reflect a progressive series of learning challenges or skills that build upon each other.
4. Meta-badges and pathways guide learners along a complex or comprehensive learning path.

State of Research on Microcredentialing

The latin root of the word *credential* is *credence* which relates *credential* to the concept of credibility. Credibility in terms of learning outcomes or achievements is usually associated with solid learning and assessment design, backed by trusted, experienced educational organizations. A literature review about implementing microcredentials identified the following issues: Microcredentialing can provide evidence of learning or competencies to individuals and organizations (Gibson et al., 2015; Priest, 2016). It provides greater transparency about specific accomplishments than more conventional credentialing options like e.g. a full bachelor certificate and can show the progress of learners on a learning pathway (Grant, 2016; Peer 2 Peer University, 2012). They can also motivate learners to continue through further learning – due to the fact that they validate and value each step of learning (Gibson et al., 2015). Microcredentialing can map out flexible learning pathways that "cut across traditional courses and educational settings" (Priest, 2016; p.6). Gibson et al. 2015 state that microcredentials can support the credibility of learners beyond a single learning community (e.g., a university or school district). Due to their transparent nature they can help learners engage in broader communities of professionals with similar competencies (Gibson et al., 2015; Grant, 2016; Peer 2 Peer University, 2012). Microcredentials can provide incentives or motivate learners, but not everyone is motivated by badges in the same way (Boticki, Seow, Looi, & Baksa, 2014; in Grant, 2016), and, naturally, different kinds of badges motivate people in different ways (O'Byrne,

ISBN 978-615-5511-23-3

Schenke, Willis, & Hickey, 2015; Priest, 2016). The broader discussion about Microcredentials emphasises furthermore the following issues:

There is a lack of research on effectiveness of microcredentials: Only very little research exists on the effectiveness of alternative credentialing, especially in the domain of professional learning. Because microcredentialing programs only develop recently, no formal research studies have explored microcredentialing programs deeply, or gathered the evidence to support their effectiveness or connections to student achievement (Grant, 2016; Priest, 2016). Proponents suggest that micro-credentials – if designed correctly – could provide more credible evidence of professional learning and individual competency (Gibson et al., 2015; Grant, 2016; Shields & Chugh, 2016).

Microcredentials represent a paradigm shift: Moving towards a microcredentialing system represents a paradigm shift in educational conventions of authority and credibility in terms of what people can do, how they developed those skills and knowledge, and what they have done concretely to demonstrate them. This can appear frightening to people who believe in current conventions of credibility in education (Buckingham, 2014; Grant, 2016; Peck, Bowen, Rimland, & Oberdick, 2016; Priest, 2016; West & Randall, 2016). It could be argued that the first step to take seems to be to recognize that many of the current conventions of authority in education are actually not credible, as there are e.g. courses, grades, credits, degrees, certifications, seat time, attendance, etc. West and Randall (2016) go so far as to call them "vague and meaningless" when compared to demonstration of a given competency. Microcredentials provide a solution for acknowledging or providing evidence of the non-curricular skills many employers recognize as valuable (e.g. creativity, critical thinking, communication, and collaboration, other 21st Century Skills, or Deeper Learning skills). Parker (2015) links them to skills associated with Bloom's affective domain (Parker, 2015). Although instruction sometimes addresses these desirable skills, current conventions do not show evidence of these skills but several microcredentialing programs have (Gibson et al., 2015; Shields & Chugh, 2016).

Design of microcredentials and assessment rigor: The design and assessment rigor of the microcredential is a concern to current practice. Providers of microcredentials need to define and describe the competencies well, and ensure that the credential matches the actual competencies it declares (Grant, 2016). Not only the earner of the credential, but anyone the earner might provide the credential to should be able to trust in its accuracy. For this reason, microcredentials may align with professional, industry or content standards and involve experts from stakeholder groups in their development. Buckingham (2014) suggests four ways to increase the credibility of microcredentials: (a) the design process is transparent. Criteria are clearly articulated, sometimes involving relevant stakeholders; (b) the criteria for earning the badge are easy to understand; (c) the candidate for the badge is required to produce a "tangible digital learning product" directly aligned to the criteria; (d) the competencies addressed by the badge are formulate precisely and understandable. Providers should consider whether microcredentials need an expiration date (Peer 2 Peer University, 2012) or carry a required renewal by a date certain. This is especially true when considering that industry and career sees

ISBN 978-615-5511-23-3

knowledge and skills shifting quickly. Reliability, when assessing evidence of learning, should be high. Not only must providers of microcredentials identify and clearly articulate desired competencies, they must also describe how to meet those competencies and what type of evidence to submit to demonstrate those competencies (Gamrat, Bixler, & Raish, 2016).

Credentialing needs to be part of a learning ecosystem: The credentialing ecosystem (technical infrastructure) must be designed to easily store, retrieve, organize, and share credentials. There are many considerations for the technical infrastructure that go beyond creating a platform that provides successful earners with a digital badge. Some of the technical considerations do relate to the design and usability of the digital badge or whatever digital format the credential takes, but the earning and sharing of credentials is couched in a broader technical infrastructure that allows earners to, among other things: (a) search and find potential credits; (b) determine what actions and evidence are required to earn the credential; (c) interact with providers, assessors, and others; (d) share their evidence of learning; and (e) manage and share credentials earned. In addition, assessors and program managers may review evidence submitted by earners and provide feedback, and, ultimately, award or decline the credential. IMS Global Learning Consortium has developed an ecosystem with the components and links among different technical platforms, found on their website and called Technology Interoperability Platform (TIP). Some Learning Management Systems (LMS), like Edmodo and Blackboard, already embed their own badging systems, but these systems may not be usable outside of the LMS. Systems that offer badging or credentialing only to those customers who are themselves part of the platform are referred to as closed systems (Grant, 2016).

Emerging Frameworks and Tools for Alternative Credentialing

The predictive power of academic certifications for job success is eroding. It has never been outstanding but for a long time it was felt to be an important – at least hygienic – factor for job applications to have an academic or a good academic certificate. This starts to erode recently. Following an internal Ernst & Young UK study demonstrating that degrees had no correlation to job performance, degrees will henceforth be disregarded in that firm's hiring process (Lam, 2015). Google is America's most outspoken company on this issue with its Senior Vice-President of People Operations stating that grades in degree programs are "worthless as a criterion for hiring". More and more alternative credentials start to come into focus and develop value. Different pathways from the traditional higher education system emerge and become increasingly relevant for employers. These different pathways are often credentials earned in post-secondary education or professional training after initial academic graduation. The Lumina Foundation has built a platform called the "Credential Engine" used to count all credentials of value in the labour market (not just degrees). The Foundation wants to ensure that by 2025 60% of adults have postsecondary credentials. Similar to that, the UK government has announced a $200M+ investment in new postsecondary institutions with the aim to offer 15 distinct pathways tailored to the needs of regional industries and employers, and develop credentials different from the traditional academic ones.

ISBN 978-615-5511-23-3

Although alternative forms of credentialing are only just emerging, the tools, platforms and concepts associated with it are already starting to develop fast. For the area of technology, for example, a platform called "GitHub" has become the standard platform for showcasing code to potential employers. In finance, students are using "EquitySim" to demonstrate trading and portfolio management skills to investment banks. Across a wide range of dynamic sectors of the economy, students are uploading papers, presentations and problem sets to "Portfolium" to demonstrate capabilities. And skill passports on "Viridis", or digital credentials from "Credly" are allowing employers to find exactly the competencies they're seeking.

In addition, "LinkedIn" is currently building a competency marketplace that has potential to influence higher education stronger than any prior digital technology: By assembling profiles of people and their learning experiences on the one hand side and of jobs on the other hand – and then matching one to the other on the basis of competencies, the "LinkedIn" competency marketplace has the potential to become a network of education and human capital development. On this note, it becomes important to thoroughly debate the question of ownership of competency metadata. "LinkedIn" is already providing tools like e.g. the "Field of Study Explorer" and the "University Finder" to recommend programs and universities to its audience. It also allows students to automatically add competencies to their profiles from select online training providers and universities. In 2014, "LinkedIn" spent $120M+ on "Bright.com, a company that focusses on developing algorithms for parsing competencies from job descriptions and resumes, and matching them. And finally, now "LinkedIn" has announced to spend $1.5B+ to acquire the online training company "Lynda.com" and to take this strategy further. In comparison: So far, "Uber" has not launched its own fleet of self-driving taxis. And "Airbnb" hasn't built its own hostels. But by acquiring "Lynda.com", "LinkedIn" has signalled ambitions beyond owning the marketplace.

Consequences for Higher Education

The system of higher education institutions is a system in which everything which is connected to higher education is currently from one source: Education, certification, counselling, information, archiving, issuing, re-issuing and validating certificates. Through digital technology, a distribution of these different functions across several organisations is starting to become possible. In addition, the concept of unbundling education into smaller units below entire bachelor degrees leads to the idea that higher education can consist of a menu of modules coming all from different educational organisations. While in reality, this approach is not yet entirely realised, it is clear that a part of the higher education system will follow this development with those, being in the field of expensive fee models moving first.

The unbundling process has consequences which we would like to map out in this chapter. Its total evaluation and a judgement on the consequences for higher education as a system of society needs to be researched and rigorously done.

Table 1:

Dimension	Modern HE model today	Postmodern, future HE model

ISBN 978-615-5511-23-3

Degree	Goal is to reach a clear defined comprehensive degree, degrees are awarded through the institution.	Study is a sequence of smaller units and modules that can also be from different higher education providers. There will be more short courses, certificate courses, contact study formats, patchwork study cycles, that can altogether be combined to greater units, like a full degree, or else which can be awarded through an HEI.
Recognition of prior learning	Recognition possible but in practices little in use.	Recognition as usual practice, professional processes for recognition will be developed.
Certification / assessment	Teaching, (Tutoring, Course delivery) and assessment and certification are bundled together in one institution.	Teaching, (tutoring, course delivery), assessment and certification are unbundled and can in principle come from different institutions.
Study pathway	The study pathway is determined through a study plan and defined by module and assessment structures. Programme is structured according to time-structures and learning outcomes (ECTS). Differentiation between full time and part-time programs.	Study pathway is flexible and has in large parts flexible electives. Programme is structured according to interest. Flexible and individual time-structure. More professional development and life-long learning models.
Curriculum	There is a clearly defined qualification structure that is binding for all students alike and from which content and methods of modules are derived. Defined job profiles are the normative paradigm for content of study.	Content is aligned to long-term employability and oriented towards individual education goals, interests and needs. Emphasis is on competences and acting successfully in unknown future contexts and more overarching abilities and skills.
	The canon of methods and contents is oriented at the foundations of the scientific discipline.	The curriculum is rather oriented at problems of a field of practice. The problem-orientation is leading to a strong interdisciplinary approach – the question is: what a discipline can contribute to solve a particular problem?
	Little digital import of content/ curriculum	Lots of digital cooperation and in- and export of curriculum between academic institutions
Organisation	Institutional Structure: A higher education institution is the provider of an academic program and the place of study.	Institutional diversity: Several academic institutions are involved Students organise their study/ course framework and a flexible and need oriented study process.

Some developments are more obvious than others, and more likely to happen, e.g. recognition of prior learning and connecting learning achievements from before into a next education episode is already reality in many institutions. Others are more challenging and question the

ISBN 978-615-5511-23-3

current status Quo of higher education strongly, e.g. the institutional diversity, academic education may face in the future. As it is with all future scenarios it remains to be evaluated if an evolved system which follows the cornerstone aspects presented here, serves peoples learning needs. In disaggregating the process and its parts into smaller units, the benefits of exploration of entire knowledge fields in a comprehensive academic programme might be reduced. the question how a professionalization process of a person which follows the idea of growing into a knowledge community from the periphery to the centre, as Wenger describes it, can be still experienced. And Vygotsky's "Zone of proximal development" needs attention if learning is broken down into small episodes. In order to build coherence into learning pathways, the role of counsellor, advisor and learning coach might be emerging stronger in favour of a flexibelised system of the future.

References

1. Acree, L. (2016). *Seven lessons learned from implementing micro-credentials.* Raleigh, NC: The William & Ida Friday Institute for Educational Innovation. Retrieved from https://www.fi.ncsu.edu/news/seven-lessons-learned-from-implementing-micro-credentials/
2. Alesi, B., & Teichler, U. (2013). Akademisierung von Bildung und Beruf – ein kontroverser Diskurs in Deutschland. In E. Severin & U. Teichler (Eds.), *Akademisierung der Berufswelt?* (pp. 13-39). Bielefeld: Bertelsmann.
3. ALESI, B.; SCHOMBURG, H.; TEICHLER, U.: Humankapitalpotenziale der gestuften Hochschulab- schlüsse: Weiteres Studium, Übergang in das Beschäftigungssystem und beruflicher Erfolg von Bachelor- und Master-Absolventen in Deutschland. In: ALESI, B.; MERKATOR, N. (Hrsg.): Aktuelle hochschulpolitische Trends im Spiegel von Expertisen: Interna- tionalisierung, Strukturwandel, Berufseinstieg für Absolventen. Werkstattberichte – Band 72. Kassel 2010, S. 129–196
4. Baethge, M., Solga, H., & Wieck, M. (Eds.): (2014). B*erufsbildung im Umbruch. Signale eines überfälligen Aufbruchs.* Berlin.
5. Buckingham, J. (2014). Open digital badges for the uninitiated. *TESL-EJ, 18*(1), 1-11.
6. Derryberry, A., Everhart, D., & Knight, E. (2016). Badges and competencies. In L. Y. Muilenburg & Z. L. Berge (Eds.), Digital badges in education: Trends, issues, and cases. (pp. 12-20). New York: Taylor and Francis.
7. Dräger, J., & Ziegele, F. (2014). *Hochschulbildung wird zum Normalfall.* 20 Jahre CHE. Retrieved from https://www.che.de/downloads/Hochschulbildung_wird_zum_Normalfall_2014.pdf
8. Gamrat, C., Bixler, B., & Raish, V. (2016). Instructional design considerations for digital badges. In L. Y. Muilenburg & Z. L. Berge (Eds.), *Digital badges in education: Trends, issues, and cases* (pp. 71-81). New York: Taylor and Francis.

ISBN 978-615-5511-23-3

9. Gibson, D., Ostashewski, N., Flintoff, K., Grant, S., & Knight, E. (2015). Digital badges in education. *Education and Information Technologies, 20*(2), 403-410.
10. Grant, S. L. (2016). History and context of open digital badges. In L. Y. Muilenburg & Z. L. Berge (Eds.), *Digital badges in education: Trends, issues, and cases* (pp. 3-11). New York: Taylor and Francis.
11. Guthrie, K. M. (2016, May 24). Higher Creducation – Do Students Go to College to Get Educated or to Get a Degree? ITHAKA SR [Blog post]. Retrieved from http://www.sr.ithaka.org/blog/higher-creducation/
12. Hickey, D. T., Otto, N., Itow, R., Schenke, K., Tran, C., & Chow, C. (2014). *Badges design principles documentation project.* Bloomington, IN: Center for Research on Learning & Technology.
13. Lam, B. (2015, September 24). The Best Job Candidates Don't Always Have College Degrees. The Atlantic [Blog post]. Earnest and Young. Retrieved from https://www.theatlantic.com/business/archive/2015/09/ernest-young-degree-recruitment-hiringcredentialism/406576/
14. O'Byrne, W. I., Schenke, K., Willis, J. E., & Hickey, D. T. (2015). Digital badges. Recognizing, assessing, and motivating learners in and out of school contexts. *Journal of Adolescent & Adult Literacy, 58*(6), 451-454.
15. OECD (2016). *Bildung auf einen Blick.* Paris: OECD.
16. Parker, H. E. (2015). Digital badges to assess Bloom's affective domain. *The National Teaching & Learning Forum, 24*(1), 9-11.
17. Peck, K., Bowen, K., Rimland, E., & Oberdick, J. (2016). Badging as micro- credentialing in formal education and informal education. In L. Y. Muilenburg & Z. L. Berge (Eds.), *Digital badges in education: Trends, issues, and cases* (pp. 72-92). New York: Taylor and Francis.
18. Peer 2 Peer University & The Mozilla Foundation (2011). An open badge system framework. Retrieved from http://dml2011.dmlhub.net/node/4440.html
19. Priest, N. (2016). *Digital badging and micro-credentialing.* Quincy, MA: Nellie Mae Education Foundation.
20. Schofer, E., & Meyer, J. (2005). *The World-Wide Expansion of Higher Education.* Center on Democracy, Development, and The Rule of Law Stanford Institute on International Studies, Stanford. Retrieved from https://cddrl.fsi.stanford.edu/sites/default/files/Schofer-Meyer_No32.pdf
21. Severing, E., & Teichler, U. (2013). Akademisierung der Berufswelt? Verberuflichung der Hochschulen? In E. Severing & U. Teichler (Eds.), *Akademisierung der Berufswelt*? Bielefeld : Bertelsmann.

ISBN 978-615-5511-23-3

22. Teichler, U. (2014). Higher Education and the World of Work: The Perennial Controversial Debate. In J. Cheol Shin, G. Postiglione, & F. Huang (Eds.), *Higher Education in East Asia.* Dordrecht: Springer (im Druck).

23. West, R. E., & Randall, D. L. (2016). The case for rigor in open badges. In L. Y. Muilenburg & Z. L. Berge (Eds.), *Digital badges in education: Trends, issues, and cases* (pp. 21-29). New York: Taylor and Francis.

ISBN 978-615-5511-23-3