

# MAKE MOOCs COUNT FOR HIGHER EDUCATION: APPROACHES TO AWARDING ECTS CREDITS FOR LEARNING IN OPEN ONLINE COURSES

Sebastian Knoth<sup>1</sup>, Anja Lorenz<sup>2</sup>, Florian Rampelt<sup>3</sup>

<sup>1</sup>*RWTH Aachen University (GERMANY)*

<sup>2</sup>*Lübeck University of Applied Sciences (GERMANY)*

<sup>3</sup>*Kiron Open Higher Education (GERMANY)*

## Abstract

MOOCs provided by Higher Education Institutions (HEIs) have the potential to open up education to a wider audience. By implementing appropriate quality assurance measures, they could also provide a first creditable step into the formal higher education system. Exploring the potential of credentialization and recognition of MOOCs was a major pillar of the INTEGRAL<sup>2</sup>-project (“Integration and Participation of Refugees in the Context of Digital Teaching and Learning Scenarios”) of Lübeck University of Applied Sciences, RWTH Aachen University and Kiron Open Higher Education. The partners explored possible combinations of the openness of MOOC-based learning with quality assurance and examination approaches that abide to standards of the European Higher Education Area. Regarding quality assurance measures, Kiron has repurposed and adapted tools developed through the Bologna Process in order to explore new pathways to the recognition of prior learning. A core element are MOOC booklets (MOOKlets) that connect and display all quality information needed for recognition in a comparable, standardized way. As the university partners identified the existing exams within MOOCs to be the most critical part in order to award legitimate credit points, the partners followed two different approaches: Module-based competence assessment (on- and offline) and MOOC-based examinations (offline). Lübeck University of Applied Sciences tested a procedure to verify learning outcomes by written and oral examinations whilst RWTH Aachen University targeted a more traditional examination approach with written and e-exams that can be taken simultaneously at different offline locations. In the follow-up project INTEGRAL+, the partners will focus on establishing a German examination network for e-assessment of MOOC-based learning. Both efforts in the field of a firm examinations and the endorsement of recognition processes of all existing and future university partners within the Kiron network can lead to simplified admission process and can be key enablers of a successful integration via education.

Keywords: MOOCs, ECTS, Higher Education, EHEA, Credentialization, Recognition of Prior Learning, Refugees, OER

## 1 INTRODUCTION

The project INTEGRAL<sup>2</sup> has been sponsored by the German Federal Ministry of Education and Research (BMBF, FKZ 16DHLQ001, 16DHLQ002 and 16DHLQ003) and served as a pilot project for research and development on Kiron’s approach of opening up higher education for refugees together with the Lübeck University of Applied Sciences and RWTH Aachen University between September 2015 and September 2016.

All three project partners provided substantial experience in innovative and scalable approaches to opening up higher education to the consortium:

1. RWTH Aachen University has been producing MOOCs on edX since 2015,
2. Lübeck University of Applied Sciences is a coordinator of the Virtual University of Applied Sciences consortium providing online content on their own learning platform, “mooi”, and
3. Kiron has developed innovative approaches to curating MOOCs in coherent curricula that lead to credit recognition for refugee learners.

The partners joined forces to enable refugees who were not yet admitted to university due to high entry requirements to gain access to higher education with the support of digital course offers. The MOOCs jointly developed and integrated into the Kiron curricula had the purpose to both prepare refugees for studies at a university upon successful application as well as provide a first creditable online study experience that can shorten the offline studies to follow.

## 2 QUALITY ASSURANCE OF MOOC-BASED CURRICULA

In order to enable the recognition of MOOC-based curricula, Kiron implemented four pillars of quality assurance that reflect on its role as intermediary between refugees and Higher Education Institutions (HEIs).

As the first pillar of quality assurance Kiron abides to international standards especially developed within the Bologna Process, e.g. through EHEA Tools [1, 2], national specifications [3, 4] as well as recommendations by the German board of accreditation [5]. Other global stakeholders include the UNESCO's approach to Open Educational Resources (OERs) as well as quality guidelines developed by the Commonwealth of Learning (COL) [6]. Kiron's core curricula are student-centred and based on learning outcomes, which are defined according to taxonomies [7]. The Kiron learning platform "Kiron Campus" recommends MOOCs to students based on an algorithm reflecting the level of the learning outcomes attributed to each course [8].

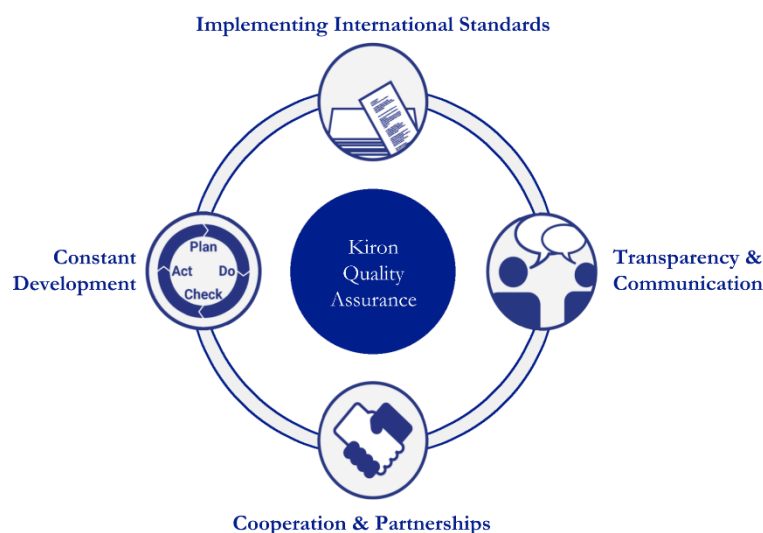


Figure 1: Kiron Pillars of Quality Assurance

The second pillar of quality assurance encompasses the collaboration and establishment of strong partnerships. Whilst a Memorandum of Understanding serves as the first framework for collaboration, Learning Agreements are the operational step forward agreeing upon recognition approaches between Kiron and its partners. During the process towards a Learning Agreement, Kiron modules are evaluated in an approach that includes all stakeholders at the partner institutions ensuring the approval of all relevant decision-making authorities. Through these Learning Agreements, Kiron is able to mitigate the personnel strains that are caused by high numbers of recognition processes [9]. Equivalence Analyses (EAs) are additional documents essential in the development of Learning Agreements. These EAs consist of a variety of information, gathered based on recommendations in the European Recognition Manual [10] and structured in module-based matching proposals, standardized feedback forms and Learning Outcome Comparison Matrices, providing detailed information how MOOCs contribute to module learning outcomes. Lastly, Kiron MOOKlets (MOOC

Booklets) connect and display all quality information needed for recognition in a comparable, standardized way and support HEIs to comprehend their pedagogical approach [11].

In addition to these processes and tools used to facilitate the transfer of students to universities with recognition of prior digital learning, Kiron closely collaborates with HEIs in order to critically evaluate its services thus researching and developing the best service possible to its students: In projects like INTEGRAL<sup>2</sup>, Kiron acts as a “real-world laboratory“, allowing for agile development and iterative adjustment based on continuous feedback and evaluation by students as well as partners like RWTH Aachen University and Lübeck University of Applied Science. Transparency and communication are key factors to enable partners to assess the quality of Kiron’s core curricula and form the third pillar of Kiron’s quality assurance establishing a trustful partnership environment. These processes as well as standardized ways of communication with students allow Kiron to incorporate feedback from several stakeholder groups and establishing a constant quality management cycle based on the plan-do-check-act principle as a fourth pillar of its quality assurance.

### **3 APPROACHES TO THE EXAMINATION OF MOOC-BASED LEARNING**

Whilst the above-mentioned principles allow for evaluating the general equivalence of Kiron modules to modules defined by HEIs, challenges in the credentialization and recognition of MOOCs are often based on their examination methods not fulfilling standards set by the recognizing HEI [12–14]. The implementation of mainly online-based solutions is often assessed with high scepticism by HEIs [14] and sometimes associated with legal restrictions. Thus, the INTEGRAL<sup>2</sup> project partners also tested ways to connect the openness of MOOC-based learning with examination models that incorporate higher quality standards defined by HEIs: On the one hand, Kiron students participated in course-based examinations connected to the appropriate MOOCs (RWTH Aachen University). On the other hand, Lübeck University of Applied Sciences organized module-based competency-assessments where achieved learning outcomes of suggested (but not mandatorily taken) third-party MOOCs were tested in a combination of written and oral exams that leads in successful cases to HEI certificates afterwards [15]. The HEIs made these different examinations available to Kiron students in Aachen and Berlin who had been actively engaged in the respective MOOCs (e.g. Introduction to Business Administration on RWTHx). Both approaches showed promising results as well as some obstacles to be further explored.

While some limitations are derived from the project’s specific target group (refugee students) they can partially also be generalized for a broader international target group, too:

1. Online learners lack mobility, especially when considering additional restrictions like the German residence restrictions.
2. Furthermore, introduction of on-site exams is connected to financial barriers, mitigations of this problem (e.g. organization of multiple tests in a condensed period) may limit the openness, MOOCs provide.
3. Examination models have to incorporate different types of assessment due to the combination of multiple scientific traditions leading to different faculty requirements, e.g. scientific papers in Social Sciences as well as offline examinations in Engineering or Business & Economics.

As part of the follow-up project, INTEGRAL+ (also sponsored by the BMBF, FKZ 16DHLQ008), Lübeck University of Applied Sciences, RWTH Aachen University and Kiron work on scalable solutions that tackle the above-mentioned obstacles and satisfy all stakeholders’ needs. The follow-up activities aim at the creation of solutions for a broader target group that manage the balance between scalable as well as personalized approaches

that do not only open-up education but also cater the individual's needs within diverse student populations. One approach is the development of national examination networks, allowing students to participate in electronic assessments that are centrally organized and locally proctored. This allows all partners to submit easily scalable exams that meet university standards of creditable examinations. Led by RWTH Aachen University, this approach will test the feasibility of such a model by collaborating with Lübeck University of Applied Sciences and its partners in the Network "Virtual University of Applied Sciences", thus enabling Kiron students to participate in these decentralized examinations. Parallel a nationally widespread network will be strived to meet the addressed challenge of mobility for a larger target group. Lübeck University of Applied Sciences will also further develop the digitalized components to its approach of module-based competence assessments connecting it with the above-mentioned network. Furthermore, Lübeck will be researching the feasibility of implementing digitalized certification possibilities based on the Blockchain Technology [16, 17].

The main goal of the above described approaches is to create and actively discuss best-practices for the credentialization and ultimately the recognition of MOOC-based learning, making the best use of online as well as blended approaches. This is intended to open up higher education not only to refugees but even larger audiences in the context of lifelong learning and to guarantee that the needs and quality requirements of learners, but especially the higher education institutions involved are met.

During the Action Lab at the Open Education Global Conference 2018, the partners will present and discuss first results of their implementation and research activities as well as concrete plans for INTEGRAL+ with the participants. We invite participants to also share their best practices and ideas in order to jointly explore common approaches and collaboration opportunities and make credentialization and recognition of prior learning in the context of MOOC-based learning reality.

## References

1. Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG). Brussels, Belgium; 2015.
2. European Commission. ECTS users' guide. 2015th ed. Luxembourg: Publ. Office of the Europ. Union; 2015.
3. Sekretariat der Ständigen Konferenz der Kultusminister der Länder in der Bundesrepublik Deutschland (KMK). Anrechnung von außerhalb des Hochschulwesens erworbenen Kenntnissen und Fähigkeiten auf ein Hochschulstudium (II): (Beschluss der Kultusministerkonferenz vom 18.09.2008). Bonn; 18.09.2008.
4. Sekretariat der Ständigen Konferenz der Kultusminister der Länder in der Bundesrepublik Deutschland (KMK). Anrechnung von außerhalb des Hochschulwesens erworbenen Kenntnissen und Fähigkeiten auf ein Hochschulstudium (I): (Beschluss der Kultusministerkonferenz vom 28.06.2002); 28.06.2002.
5. Akkreditierungsrat. Anrechnung außerhochschulischer Kenntnisse und Fähigkeiten. 2014. [http://www.akkreditierungsrat.de/fileadmin/Seiteninhalte/AR/Sonstige/AR\\_Rundschreiben\\_Anrechnung.pdf](http://www.akkreditierungsrat.de/fileadmin/Seiteninhalte/AR/Sonstige/AR_Rundschreiben_Anrechnung.pdf).
6. Latchem C. Open and Distance Learning Quality Assurance in Commonwealth Universities: A report and recommendations for QA and accreditation agencies and higher education institutions. Burnaby, British Columbia; 2016.
7. Anderson LW, Krathwohl DR, Airasian PW, editors. A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives. New York: Longman; 2001.
8. Renz J, Rampelt F, Roe A. MOOC trifft Hochschule: Herausforderungen eines Blended Learning-Konzeptes für Geflüchtete. In: Apostolopoulos N, Coy W, Köckritz Kv, Mußmann U, Schaumburg H, Schwill A, editors. Grundfragen Multimedialen Lehrens und Lernens: Die offene Hochschule: Vernetztes Lehren und Lernen. Tagungsband GML<sup>2</sup> 2016. 1st ed. Münster: Waxmann; 2016. p. 247–258.
9. Schubert B, Narbei E, Ruge R, Zimmermann M. Die Etablierung individueller Kompetenzen an der Mathias Hochschule Rheine unter dem Aspekt der nachhaltigen Qualitätsentwicklung. Prozesse - Ergebnisse - Herausforderungen. In: Freitag W, Buhr R, Danzeglocke E-M, Schröder S, editors. Übergänge gestalten. Durchlässigkeit zwischen beruflicher und hochschulischer Bildung erhöhen. Münster [u.a.]: Waxmann; 2015. p. 365–386.
10. EP-Nuffic. The European Recognition Manual for Higher Education Institutions. 2016. [http://www.enic-naric.net/fileusers/8220\\_European%20Recognition%20Manual%20Second%20Edition%20FIN.pdf](http://www.enic-naric.net/fileusers/8220_European%20Recognition%20Manual%20Second%20Edition%20FIN.pdf).
11. Hood N, Littlejohn A. Quality in MOOCs: Surveying the Terrain; 2016.
12. Arnold P, Kilian L. Handbuch E-Learning: Lehren und Lernen mit digitalen Medien. 4th ed. Bielefeld: wbv; 2015.
13. Colucci E, Smidt H, Devaux A, Vrasidas C, Safarjalani M, Castaño Muñoz J. Free Digital Learning Opportunities for Migrants and Refugees: An Analysis of Current Initiatives and Recommendations for their Further Use. Brussels; 2017.
14. Witthaus G, Inamorato dos Santos A, Childs M, Tannhäuser A-C, Conole G, Nkuyubwatsi B, Punie Y. Validation of non-formal MOOC-based learning: An analysis of assessment and recognition practices in Europe (OpenCred). Luxembourg: Publications Office; 2016.
15. Florian Rampelt, Marcus Gerards, Rolf Granow, Renata S. Suter, Ronny Röwert. Öffnung von Hochschulbildung durch digitale Lehr- und Lernszenarien – Ergebnisse des Verbundvorhabens INTEGRAL<sup>2</sup>. 2nd ed. Berlin: Unpublished; 2017. [https://kiron.ngo/wp-content/uploads/2017/09/2017-09-25\\_INTEGRAL%C2%B2\\_Broschu%CC%88re\\_Abschlussveranstaltung.pdf](https://kiron.ngo/wp-content/uploads/2017/09/2017-09-25_INTEGRAL%C2%B2_Broschu%CC%88re_Abschlussveranstaltung.pdf)
16. Tapscott D, Tapscott A. Realizing the Potential of Blockchain. 2017. [http://www3.weforum.org/docs/WEF\\_Realizing\\_Potential\\_Blockchain.pdf](http://www3.weforum.org/docs/WEF_Realizing_Potential_Blockchain.pdf).
17. Watters A. The Blockchain for Education: An Introduction. 2016. <http://hackeducation.com/2016/04/07/blockchain-education-guide>.