# Evaluating the quality of on-line modules in higher education

**Sibongile Simelane-Mnisi**

Tshwane University of Technology
Pretoria, South Africa

ABSTRACT: In this article the author reports on the evaluation of the quality of on-line modules developed by subject matter experts - supported by the instructional designer - using the IMFUNDO learning management system. The participants consisted of 116 subject matter experts from the faculty of science at a university of technology in South Africa. The mixed-method approach with data triangulation was applied. Data were gathered using the IMFUNDO quality review instrument, interviews, and survey questions with open- and closed-ended questions. SPSS was used to analyse the quantitative data. The qualitative data was analysed using Atlas.ti. The results indicated that 166 IMFUNDO modules with year/semester templates were quality assured. Of these modules, 67 (90.5%) maintained the constructive alignment. It is advised that subject matter experts, curriculum practitioners, instructional designers and quality advisors collaborate to maintain and enhance the academic quality standards as set forth by the organisation or other awarding bodies.

## INTRODUCTION

One of the major lessons learnt from the Covid-19 pandemic in higher education was the importance of e-learning, which encouraged the development of distant learning, the use of digital platforms and learning management systems [1]. During the pandemic, a vast majority of higher education institutions worldwide shifted to on-line classes. This move to on-line learning was to ensure that in regard to quality education, the sustainable development goal number 4 (SDG4) of 2030 was realised even in global crises. The SDG4 aims to …*ensure inclusive and equitable quality education and promote lifelong learning opportunities for all* [2].

Nevertheless, the SDG4 Steering Committee regarded digital learning and transformation as one of the challenges observed during uncertain times, requiring urgent attention in education [3]. This statement is supported by Safri and Sheikh who indicated that transition to on-line affects the quality of teaching and learning [4]. Consequently, the study outlined in this article, examined the quality of on-line modules in higher education. It cannot be ignored that this rapid move to the on-line mode of delivery posed various challenges. Dhawan reported obstacles relating to inadequate quality control, the creation of e-resources and the delivery of e-content standards [5].

In the context of this study, the quality of on-line modules is defined as the procedure for establishing the quality assurance system of on-line learning based on the general standards of quality correlated to module information, learning material and student engagement tools. The module information comprised of the course home page, as well as welcome and introduction. The learning content included each learning unit's name and description, learning outcomes and assessment criteria, learning material, as well as learning activities. The student engagement tools involved tools such as grades, quizzes/tests, assignments, discussion forum and groups, accessibility and usability.

Various higher education institutions regarded the quality of on-line education to be a challenge [6]. It was, therefore, crucial in uncertain times to prepare on-line or remote teaching without sacrificing the quality of on-line learning materials [7]. The standard of on-line teaching and learning had to be raised, and academics had to continuously deliver their best work [5]. Accordingly, this study evaluated the quality review of on-line modules of the learning management system - pseudonym *IMFUNDO* - within the South African context.

To ensure high quality when creating on-line modules, it is essential to consider the eight general requirements of quality associated with the course overview and introduction [8][9]. These standards are learning objectives (competencies), assessment and measurement, teaching materials, learning activities and learner interaction, course technology, learner support, accessibility and usability. These standards favour constructive alignment, and hence were adapted in this study. It is essential to comprehend that the purpose of the module quality review process was to enhance the module quality and encourage student engagement [10]. In this case, the quality matters rubric was considered as the basis for the IMFUNDO quality review process. In this study, the approved Higher Education Qualifications Framework

(HEQSF) curriculum was developed with the principle of constructive alignment to assist subject matter experts in preparing for the process of creating on-line module content [7].

The module descriptor and study guide were the pertinent resources supporting both the instructional designer and the subject matter expert in the design stage of the storyboard. The module descriptor is the institutional document that describes the module plan for transferability, continuity, regulatory and review purposes. This document includes the programme and module information. Section A provides the organisational component that contains a welcome statement, staff information, prescribed and recommended material, as well as resources, code of conduct and general assessment rules and administration. Section B involves the learning component relating to an overview of the module, outline of the module content and the detail information of each module that covers the learning unit's name, learning outcomes, assessment criteria, teaching and learning strategies, methods and activities, as well as assessment methods.

Constructive alignment enabled subject matter experts to concentrate on the learning outcomes, assessment criteria, learning activities, interactions and collaborations, feedback and module technology. During the development stage of on-line material on IMFUNDO, it was relatively uncomplicated for the subject matter expert to create the relevant content. To guarantee students attain the intended learning outcomes, enhance their learning and retention rates, and boost their engagement in an on-line setting - constructive alignment, active learning and blended learning all work together [8][10]. In this study, to ensure that standards are met, the instructional designer provided the subject matter experts with the on-line module templates accommodating various module delivery to maintain the standards of on-line modules.

Furthermore, the subject matter experts attended a series of empowerment to prepare their on-line modules. This sentiment is supported by Sumer et al who reinforced formal training on the learning management system and on-line facilitation, as well as the provision of customisable module templates [11]. For the purpose of this article, the year/semester module will be deliberated on.

The aim of this study was to evaluate the quality of on-line modules developed by the subject matter experts, supported by the instructional designer, using IMFUNDO in higher education. Firstly, the IMFUNDO module quality review instrument (IMQRI) was used to establish standards of on-line modules created on the system in 2021 that guided the quality review process. Secondly, open-ended survey questions were utilised to determine the subject matter experts' perceptions of the learning activities and materials, as well as the quality of the IMFUNDO modules. Lastly, to confirm the data from other instruments, individual semi-structured interviews were administered.

The study intends to answer the following research questions:

1. How was the quality of the on-line module on IMFUNDO evaluated?
2. What were the subject matter experts' perceptions on the quality evaluation process of IMFUNDO modules?
3. What is the proposed model for quality evaluation of on-line modules on IMFUNDO?

## METHODS

The mixed-method approach with a triangulation design convergence model was applied. Combining quantitative and qualitative research into one study, is referred to as the mixed-method approach [12]. A triangulation research design seeks to collect various yet complimentary data on the same subject to better comprehend the research problem [13]. In the convergence model, the researcher gathers and analyses quantitative and qualitative data independently on the same phenomenon, where after the various findings are converged (by contrasting and comparing the various findings) during its interpretation [13]. To adhere to the study university ethics regulations, the study respected the confidentiality and anonymity of research participants, where their personal information was not disclosed. The names used in this study are pseudonyms.

## PARTICIPANTS

Table 1 relays the cross-tabulated biographical information of participants. The participants were acquired by means of stratified, convenient and purposeful sampling [12]. The participants consisted of 116 (77 females and 39 males) subject matter experts from the faculty of science at a university of technology in South Africa. Among the participants, there were 37 subject matter experts with an average age ranging between 46 and 55, of which 28 were females, and 9 males. The results revealed that 26 participants (17 females and nine males) had 6-10 years of teaching experience. Table 1 illustrates that 75 females and 2 males indicated their modules were active on IMFUNDO.

Table 1: Cross-tabulated biographical information of the study participants.

| Gender | | | | |
|---|---|---|---|---|
| | | Female | Male | Total |
| Age | 25 - 35 | 12 | 14 | 26 |
| | 36 - 45 | 17 | 8 | 25 |
| | 46 - 55 | 28 | 9 | 37 |
| | 56 - 65 | 16 | 7 | 23 |
| | 66 and above | 4 | 1 | 5 |
| Total | | 77 | 39 | 116 |

| | | | | |
|---|---|---|---|---|
| Teaching experience | Less than 1 year | 3 | 0 | 3 |
| | 1 - 5 | 12 | 11 | 23 |
| | 6 - 10 | 17 | 9 | 26 |
| | 11 - 15 | 8 | 7 | 15 |
| | 16 -20 | 14 | 3 | 17 |
| | 21 years and above | 23 | 9 | 23 |
| Total | | 77 | 39 | 116 |
| IMFUNDO module | Yes | 75 | 2 | 77 |
| | No | 39 | 0 | 39 |
| Total | | 114 | 2 | 116 |

INSTRUMENT AND PROCEDURE

Quantitative data were gathered using the IMQRI, with three constructs relating to module information, learning content and student engagement tools. The module information consisted of the course home page (CHP) (six items) and welcome and introduction (WI) (11 items). The learning content comprised of learning content (LC) (12 items); the student engagement tools (SET) involved grades book (four items), quizzes/tests (seven items), assignments (five items), discussion forums (three items) and groups (1 item). SPSS, frequency distribution and percentage were used to analyse quantitative data. The IMQRI was administered on-line using Google Forms.

The reliability of the IMQRI was computed using Cronbach's alpha. When looking at the scores for the entire scale with 49 items for internal consistency, the Cronbach's alpha values were 0.91. The alpha values of the subscale ranged between 0.75 and 0.97. This implies that this inventory's scores were internally consistent. Validity was assured through exploratory factor analysis to determine the factor structure of the IMQRI with the aid of data obtained from the participants. The Kaiser-Meyer-Olkin (KMO) and Bartlett's test of sphericity was found to be 0.905, and it was statistically significant ($p < 0.05$). In determining the factor structure from the data, the varimax rotation was specified, as well as the initial analysis default settings in SPSS of eigenvalue greater than one criterion. The rotated matrix produced an eight-factor solution that explained 70.4% of the total variance.

The semi-structured interviews and closed-ended questionnaire with two questions were collected. About 14 subject matter experts participated in the interview from each department at the faculty of science. A thematic approach was utilised to analyse the qualitative data with Atlas.ti and find significant patterns (themes) in the codes [14]. Thirty codes were generated from two primary documents. The system generated 76 quotations. The codes were grouped into two categories relating to quality evaluation and IMFUNDO. The categories were clustered into the IMFUNDO quality standards.

RESULTS AND DISCUSSION

IMFUNDO Module Quality Review Instrument

To respond to the question: *How was the quality of the on-line module on IMFUNDO evaluated?*, the adapted IMQRI was used. The responses present the most noteworthy results in each construct of the IQMI. The results revealed that 166 year/semester IMFUNDO modules were self-evaluated by the subject matter experts. This finding is supported by Zimmerman et al who posited that the on-line courses should be assessed for quality standards [6]. In terms of the module information and course home page, it was found that 70 (94.6%) of the participants created learning content widgets. The results showed that 67 (90.5%) of the participants updated their profile. Concerning the module information, welcome and introduction, the results revealed that 70 (94.6%) of the participants customised and updated the study guide and uploaded it on the system. It was also found that 68 participants (91.9%) customised/updated the welcome statement. Most of the participants succeeded in providing the module information in on-line modules for the students to know more about the relevant module.

Regarding the learning content, the results revealed that 69 (93.2%) participants added sub-folders: new units/chapters. In these units/chapters, it was also found that 67 (90.5%) participants included the topic, description, learning outcomes and assessment criteria. It was further established that 63 (85.1%) participants added a brief introduction and outline of the learning material, created HTML documents, and included learning material, such as notes in PDF, PPT, PPT with audio, etc. The participants provided instructions to guide the students in each unit/chapter. It may be argued that constructive alignment was adhered to in an on-line environment to maintain curriculum standards. It may be argued that the subject matter experts were able to state explicitly what it is that students are expected to learn and how they are to show that learning begins even before any teaching is undertaken. This was observed in the learning outcomes and assessment criteria in each learning unit in the on-line modules.

Concerning the student engagement tools, the results showed that 40 (54.1%) participants built a module gradebook, 61 (82.4%), created tests/quizzes, and provided clear instructions to the students. The results revealed that 44 (59.5%) participants used assignments with clear instructions to the students. It was found out that 41 (55.4%) participants did not use discussion forums and 44 (59.5%) did not use on-line groups. The results suggest that the subject matter experts

were not confident in developing learning activities to actively engage students on-line, whereas Salas-Pilco et al argued that academic achievement is thought to be more likely in students who are more engaged [15].

Subject Matter Experts' Quality Evaluation Perception

The participants had to respond to the question: *What were the subject matter experts' perceptions on the quality evaluation process of IMFUNDO modules*? The IMFUNDO quality standards theme emerged from the question, which is presented in two categories relating to quality evaluation and IMFUNDO.

Quality Evaluation

The findings showed that the quality evaluation of IMFUNDO was carried out by the head of department, as well as the lecturers. It was discovered that heads of departments (HoD) requested observer access to all the departmental IMFUNDO modules to undertake the quality evaluation. HoD1 indicated that he *…requested to be linked to all the department's IMFUNDO modules and was able go into every module and verify*. HoD2 said that she *…asked for observer permission to gain access to all IMFUNDO modules offered in her department to do quality checks and spot checks on some of the modules to see what was going on. What type of learning materials was uploaded on IMFUNDO?*. It was found that one of the HoDs nominated some lecturers to assist in the evaluation process. HoD3 mentioned that *…as an HoD and my team of two representatives, we were able to go into every module on IMFUNDO and verified that the learning materials were in line with the module descriptor and the study guide*.

It was further established that the documents approved within HEQSF (module descriptor and study guide) and the remote teaching and learning empowerment guide assisted in ensuring quality. In terms of HEQSF, Expert 1 emphasised that in his department *…the new approved HEQSF programmes be given a priority because learning material of the modules were updated*. Expert 2 said that he *…designed the IMFUNDO by following the subject curriculum, timeline and quality*. This sentiment is echoed by Chen et al who stated that in order to create the on-line interactive activities at a high standard, the curriculum design process was essential [16]. Expert 3 indicated that she *…followed remote T&L guidelines and best practices to ensure quality.*

It was discovered that some of the lecturers had to improve on the quality of the learning material. Expert 4 stated that she had to *…extend a little bit on the quality of the teaching and learning material* [she] *had in the past so that the students can then understands it better*. It was found that this participant wanted to ensure quality of assessments was not compromised when assessing on-line. Expert 5 said *…IMFUNDO allows us to assess but keep the quality in check.* Expert 6 indicated that *…when creating assessments on IMFUNDO, different options were available to minimise cheating and to prevent students from copying or accessing to other materials when taking on-line tests*. It was found that participants required moderators to be given access to IMFUNDO to further ensure quality evaluation of on-line assessments; however, this option was not available. Expert 7 revealed that *…external moderators were unable to moderate on-line*. Expert 8 said that *it would be good if the external moderator can access the IMFUNDO*. Figure 1 shows the network or conceptualisation of quality evaluation of on-line modules.

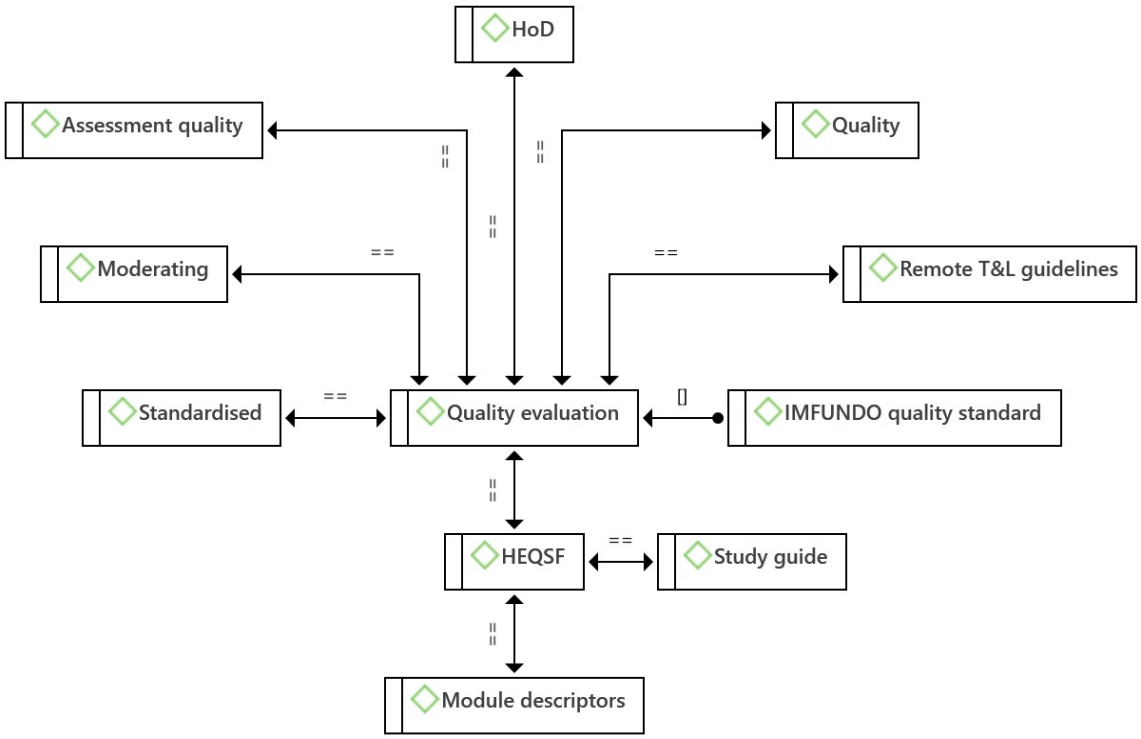


Figure 1: The network or conceptualisation of quality evaluation of on-line modules.

IMFUNDO

The network or conceptualisation of IMFUNDO on-line modules is depicted in Figure 2.

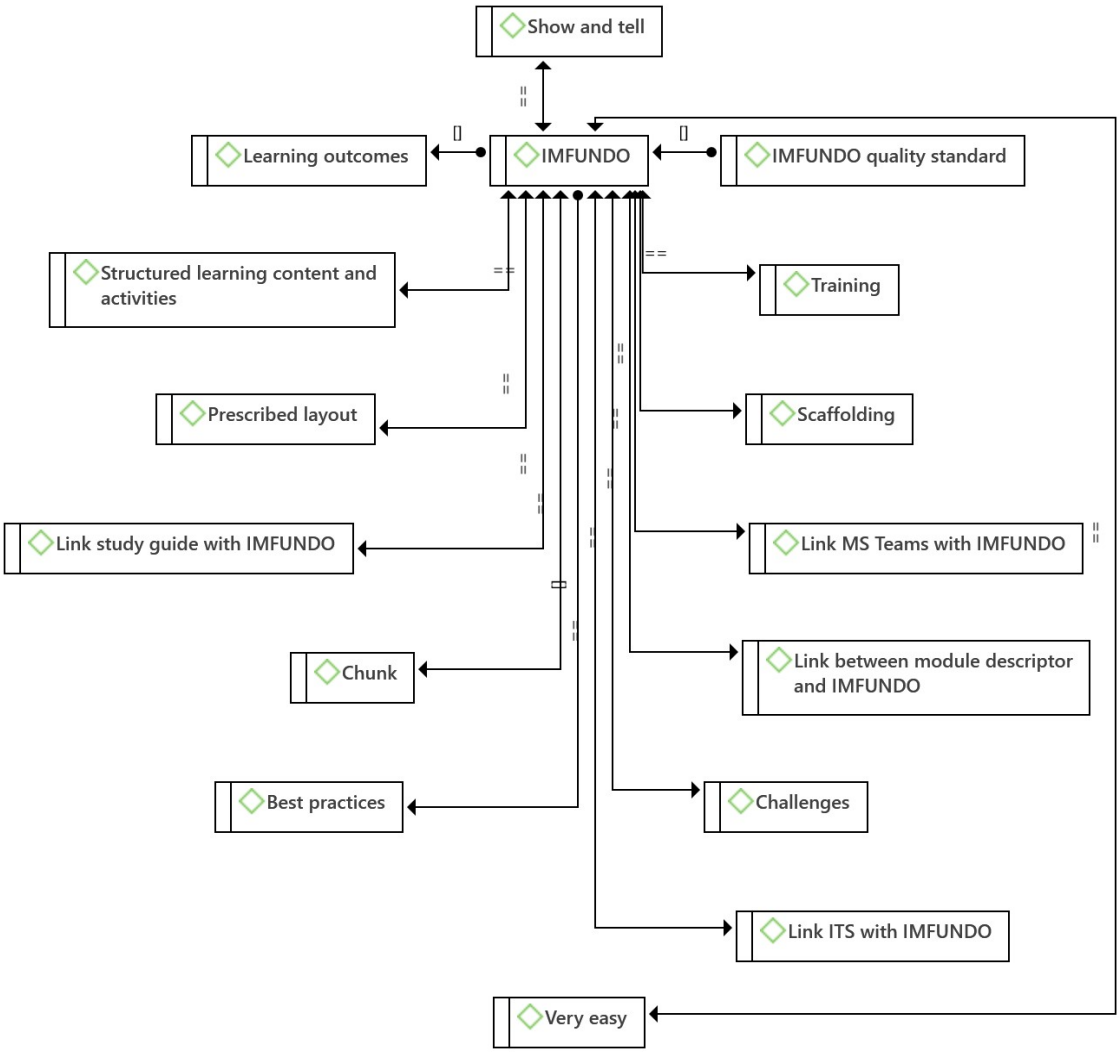


Figure 2: The network or conceptualisation of IMFUNDO on-line modules.

In this study, it was discovered that lecturers strive to maintain the quality of the on-line modules, but it was easy to develop them. Expert 9 said, he *…tried to maintain a higher quality of IMFUNDO module as* [he] *would normally maintain the manual module development*. Expert 10 mentioned that *…putting learning material on IMFUNDO was very easy*. It was found that lecturers appreciated the empowerment to utilise the IMFUNDO tool effectively. Expert 11 stated that *…training and support was provided to prepare them to deliver the lessons via IMFUNDO*. The findings revealed that the emphasis was on using the module template scaffolding and chunking the learning material for easy access to the students. Expert 12 indicated that he *…encouraged the staff to use the IMFUNDO template, and keep the content prescribed layout as in the module descriptor to maintain quality of on-line module*. Expert 13 said that *…it was quite easy to follow because the way the new module descriptors are aligned, it was very similar to what IMFUNDO template required*.

HoD4 *…encouraged the staff to use the scaffolding approach instead of uploading the study guide*. Expert 14 said that she *…needed to chunk the learning material and activities into relevant areas and into learning units, as directed by the IMFUNDO template*. It was discovered that curriculum documents supported the design and development phase of the IMFUNDO modules, as it maintained the constructive alignment and strengthened the quality standards. Expert 15 indicated that he *…kept the learning outcomes because* [he] *was able to measure if the students learned what was planned to teach*. Expert 16 revealed that he *…sticked to and used the same learning outcomes as in the module descriptor and study guide when creating IMFUNDO modules*.

It was found that IMFUNDO was not linked to other digital tools that added value to teaching, such as integrated tertiary software (ITS) and MS Teams. ITS is used at the university involved in this study to capture students' information and progress report. Subject matter experts used the system to capture students' results. Expert 17 indicated that *…it would have been great if ITS was connected to IMFUNDO so that* [he] *could automatically transfer the on-line test results*. Expert 18 mentioned that *…it would be good if* [she] *could create MS Teams sessions via the LMS and use the LMS collaborative tools during the webinars instead of having to use MS Teams as a standalone* [tool].

The findings revealed that best practices and *show and tell* were used to share, strengthen and maintain the quality standards of IMFUNDO modules. Expert 19 said that she …*was able to adjust and share best practices that enabled* [her] *to keep the standards high*. HoD1 …*requested lecturers who developed the IMFUNDO modules to share best practices to others, show what they developed, and how it was aligned to the curriculum*. HoD3 indicated that her …*department had an internal show and tell type of meeting where they discussed on-line practices done on IMFUNDO to help everybody*. In this session, the lecturers had to indicate at what levels the content was uploaded on IMFUNDO.

ON-LINE MODULE QUALITY REVIEW MODEL

Based on the findings in this study and to respond to the question: *What is the proposed model for quality evaluation of on-line modules on IMFUNDO*?, it was found that various stakeholders were involved in building a strong ecosystem on the quality evaluation process of the design on-line modules. Literature revealed that the higher education ecosystem is developing quickly to better serve current students and attract new students by using technology [17]. The researcher proposed a quality evaluation ecosystem model for on-line modules on the LMS, as illustrated in Figure 3. In this study, the ecosystem includes stakeholders, such as the instructional designer, curriculum practitioners, subject matter experts, students and the quality advisor.

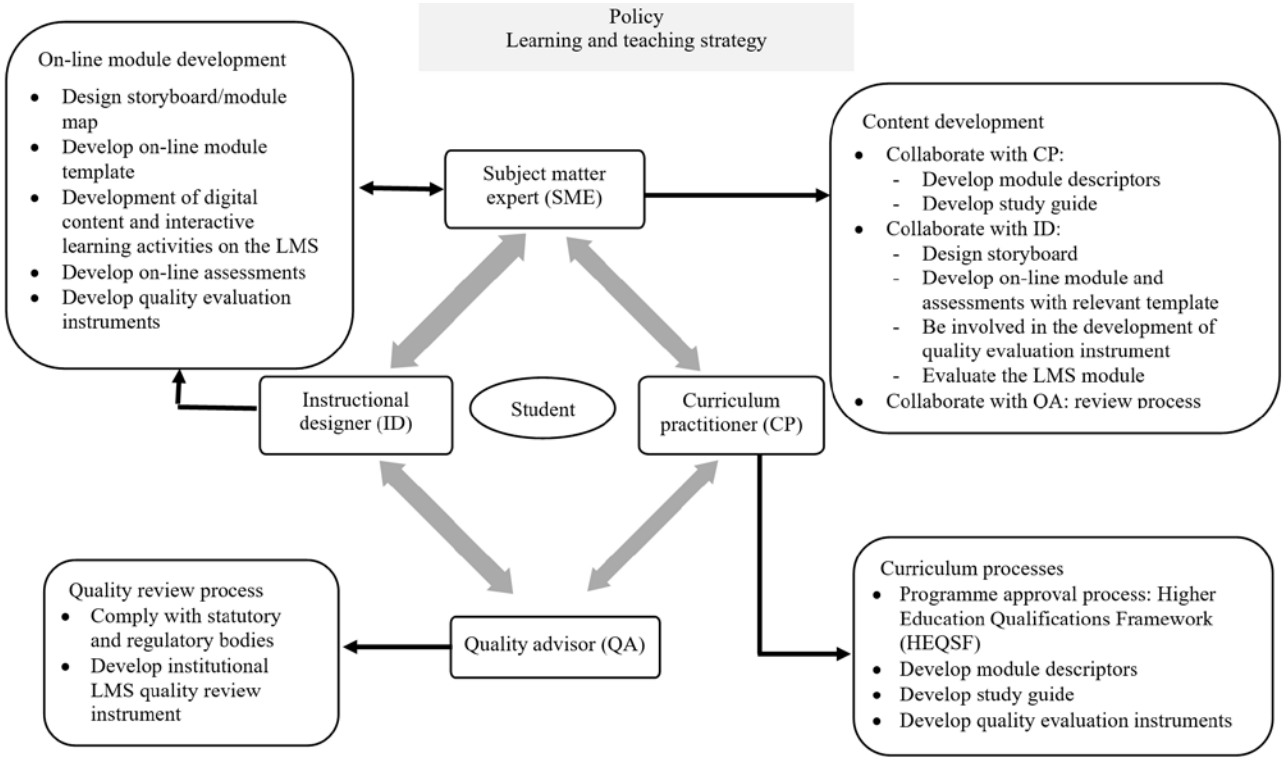


Figure 3: A model for the articulation of a quality evaluation ecosystem in the design and development of LMS (on-line) modules.

The subject matter expert, as the content specialist, should be supported by other stakeholders within the institution to ensure the quality of the design, and the development of on-line modules in the LMS. The major stakeholders in the quality process should be the curriculum practitioner, quality advisor and instructional designer. It is critical that when on-line modules are developed, the required quality standards are put in place.

The curriculum practitioner provides support during the curriculum activities relating to the HEQSF process, for the approval of the programmes. The curriculum practitioner and the instructional designer should assist the subject matter experts with the constructive alignment of the module descriptor to meet the quality standards of the module. The module quality standards relate to learning outcomes, assessment criteria, learning activities including assessments, interactions and collaborations, feedback and module technology. The subject matter expert will develop the study guide based on the module descriptor, which is provided to the students. Both the curriculum practitioner and the instructional designer should provide quality evaluation guidelines in support of the subject matter expert at this stage.

The quality advisors collaborate with both the statutory and regulatory bodies. It is important that quality advisors provide an institutional quality measure of the LMS. Quality advisors should support the subject matter expert, the curriculum practitioner and the instructional designer with the institutional quality review processes and procedure for the development of the on-line module quality evaluation.

When developing the on-line modules, the instructional designer had to collaborate with the subject matter expert. The instructional designer provided support and guided the subject matter expect in terms of designing the storyboard/course

map, based on the module descriptor and study guide. The curriculum module descriptor and study guide provided the basis for on-line module development and assisted the developer in keeping with the planned curriculum. The curriculum documents also assisted the instructional designer in designing the template for on-line modules. This made it easier for the subject matter expect to develop the material on-line and maintaining the constructive alignment.

The on-line module template supported the subject matter expect to design the interactive learning activities that encouraged student engagement in an on-line platform. It is imperative for the instructional designer to advise the subject matter expert in terms of the on-line assessment. Assessments, when moved to on-line, needed to be modified to suite the on-line delivery, as the instructions differ from the paper-based assessment. It is critical that the instructional designer collaborate with the curriculum practitioner, subject matter expert, students and the quality advisor in developing the quality evaluation instrument of the on-line module. The on-line module quality evaluation instrument should be used across the faculties. However, the quality evaluation should accommodate different module offerings.

To ensure the quality of on-line modules, policies relating to curriculum development, teaching and learning, assessment and quality assurance, as well as the learning and teaching strategy should be considered. These policies and strategy should provide guidance and quality standards for the design and the development of the modules in the LMS. It is critical that the evaluation process of the on-line module include all the stakeholders in support of the main stakeholder (student) for the better delivery and ease of use of the on-line module.

## CONCLUSIONS

From this study, it can be concluded that the key lesson from the Covid-19 epidemic was the recognition of the importance of digital learning. However, the pandemic revealed the issues that a vast majority of universities face, which include digital learning and transformation, as well as inadequate quality control of on-line modules. Despite the quality standards being in place for a long time, this study found that subject matter experts needed assistance to adhere to the guidelines. One could argue that this study brought to light the significance of the quality of LMS module design and development. This was crucial, since there is a chance for improvement, growth and on-line student engagement, as the on-line modules were designed in accordance with the appropriate standards and procedures.

Although many organisations have developed quality standards for developing LMS modules, it is critical that universities create and modify quality standards for developing on-line modules, as is the case in this study. In an attempt to instil on-line module quality standards, this study proposed a model for the articulation of a quality evaluation ecosystem in the design and development of (on-line) modules. The model emphasises collaborations between the instructional designer, curriculum practitioner, subject matter expert, students and the quality adviser - a few of the stakeholders in the ecosystem.

## RECOMMENDATIONS

The development and delivery of on-line modules should be included in higher education quality standards. It is advised that subject matter experts, curriculum practitioners, instructional designers and quality advisors collaborate to maintain and enhance the academic quality standards as set forth by the organisation or other awarding bodies. The ecosystem for evaluating the articulation of quality on-line module design and development should be put into practice and evaluated. A larger sample size could be used for a subsequent study within a parallel context.

## ACKNOWLEDGEMENTS

The author of this article would like to thank the National Research Foundation and University Capacity Development Grant and Study University Faculty of Humanities for financial support of the project.

## REFERENCES

1. Rakhmetov, M., Sadvakassova, A., Saltanova, G. and Yessekenova, A., Usage and effectiveness of educational platforms in Kazakhstan during the Covid-19 pandemic. *World Trans. on Engng. and Technol. Educ*., 20, **3**, 226-231 (2022).
2. UN, Sustainable Development Goal 4 (SDG4), 23 September 2009, https://www.sdg4education2030.org/the-goal
3. UN, SDG4 Education 2030 High-Level Steering Committee Contribution to the 2022 High-Level Political Forum on Sustainable Development: The State of Education-SDG4 Review (2022), 23 September 2009,www.sdg4 education2030.org
4. Safri, N.M. and Sheikh, U.U., Issues and challenges of technology-enhanced learning during the Covid-19 era: a case study. *World Trans. on Engng. and Technol. Educ*., 20, **2**, 89-94 (2022).
5. Dhawan, S., On-line learning: a panacea in the time of COVID-19 crisis. *J. of Educational Technol. Systems*, 49, **1**, 5-22 (2020).
6. Zimmerman, W., Altman, B., Simunich, B., Shattuck, K. and Burch, B., Evaluating on-line course quality: a study on implementation of course quality standards. *On-line Learning*, 24, **4**, 147-163 (2020).

7. Simelane-Mnisi S. and Mji, A., Preparing lecturers for remote teaching and flexible learning during COVID-19 pandemic. *Proc. 13th Annual Inter. Conf. of Educ., Research and Innov. Virtual Conf.* Spain, Savilla, 9111-9120 (2020).
8. Quality Matters. Helping You Deliver on Your On-line Promise (2022), 15 June 2022, https://www.qualitymatters.org/
9. Ryan, T., Quality assurance in higher education: a review of literature. *Higher Learning Research Communities*, 5, **4** (2015).
10. Al-Amrani, S.N., Developing a framework for reviewing and designing courses in higher education: a case study of a post-graduate course at Sohar University, 15 June 2022, SSRN 3811202 (2021).
11. Sumer, M., Douglas, T. and Sim, K.N., Academic development through a pandemic crisis: lessons learnt from three cases incorporating technical, pedagogical and social support. *J. of University Teaching and Learning Practice*, 18, **5**, 1-14 (2021).
12. Cohen, L., Manion, L. and Morrison, K., *Research Methods in Education.* (8th Ed), London: Routledge (2018).
13. Creswell, J.W. and Plano-Clark, V.L., *Designing and Conducting Mixed Methods Research*. (3rd Ed), Thousand Oaks, CA: Sage (2017).
14. Saldaña, J., Coding techniques for quantitative and mixed data. *The Routledge Reviewer's Guide to Mixed Methods Analysis*, 151-160 (2021).
15. Salas-Pilco, S.Z., Yang, Y. and Zhang, Z., Student engagement in on-line learning in Latin American higher education during the COVID-19 pandemic: a systematic review. *British J. of Educational Technol.*, 53, **3**, 593-619 (2022).
16. Chen, L., Manwaring, P., Zakaria, G., Wilkie, S. and Loton, D., Implementing H5P on-line interactive activities at scale. *Proc. ASCILITE 2021,* Australia, Armidale, 81-92 (2021).
17. Orr, D., Weller, M. and Farrow, R., Models for On-line, Open, Flexible and Technology Enhanced Higher Education across the Globe - a Comparative Analysis. International Council for Open and Distance Education, Oslo (2018).