Chapter 19
Reimaging Academics' Participation in Quality Enhancement in the Era of Technological Change

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Abstract This paper evaluates experiences of quality enhancement as actualised by academic and teaching staff. Based on the experience of some major Vocational and Professional Education and Training (VPET) institutions in Hong Kong, the purpose of this article is to shed light on critical insight gained from the good practices and suggest areas for improvement for supporting quality enhancement (QE) in higher education sector with due consideration of the emerging technological environment. This article innovatively translates the key themes and elements with regards to QE into a theoretical framework to show the processes through which institutions can further develop its internal QE culture via the use of existing and emerging technologies. Through these technologies, learning and teaching will also be guided, thereby contributing to maximising students' benefits.

Keywords Vocational and professional education and training · Quality enhancement · Digitalisation · Collaboration · Best practices

19.1 From Quality Assurance to Quality Enhancement

In higher education, quality assurance (QA) has been adopted and promoted to ensure accountability for the use of funds, learning and teaching, and for students to make informed decision for admission. QA has also been used to represent external quality

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C. Hong and W. W. K. Ma (eds.), *Applied Degree Education and the Shape of Things to Come*, Lecture Notes in Educational Technology,
https://doi.org/10.1007/978-981-19-9315-2_19

monitoring and accreditation through fit-for-purpose QA systems and processes as a way to assure high quality and academic standards. QA ensures that quality learning experience and environment are always provided to students. Other scholars also defined QA in higher education as a process of fulfilling the expectations of stakeholders, ensuring accountability or using check list to measure fulfilment of external standards to threshold minimum requirements (Biggs, 2001; Cheng, 2003; Green, 1994; Harvey & Green, 1993). It is believed that a transparent QA system together with external assurance and accountability could ensure the effectiveness of teaching and learning and functional administrative structure (Gvaramadze, 2008).

While ensuring the foundational QA mechanisms continues, some higher education, including VPET institutions, has already advanced to the arena of quality enhancement (QE), as a result of organisational maturity and a continuum of QA (Elassy, 2015). QE, which embraces student interest as the core value, allows VPET institutions to systematically promote and continuously improve the quality of the institutions, in addition to programme provision and the ways in which students' learning is supported. A number of literatures is available to associate and differentiate QA and QE in the context of higher education. It is thought that unlike QA, which was deemed as a summative diagnostic process that focuses on the past actions taken, QE can be regarded as a formative treatment process that focuses on the present and future outcomes (Biggs, 2001; Brink, 2010; Fillippakou & Tapper, 2008; Lomas, 2004; Gibbs, 2011). QE tends to continue improve learning, teaching and enables a more complex discourse and interpretive space, thereby enhancing the overall learning experience of students in higher education.

19.2 Quality Enhancement in VPET of Hong Kong: An Overview

QA and school monitoring have long been a trend in the Asia Pacific Region (Mok et al. 2003). In fact, Hong Kong has not been aloof from placing emphasis on quality in education, including the VPET. With the development of Hong Kong Qualifications Framework (HKQF) and the establishment of the Hong Kong Council for Accreditation of Academic and Vocational Qualifications (HKCAAVQ), higher education institutions have given prominence to their accountability and transparency on QA process. Although each institution has its own framework for QA, approach and guiding principles, governance and administration, they all share a similar process of approval, monitoring, review and continuous enhancement. Furthermore, making reference to the Manual for the Four-stage Quality Assurance Process under the HKQF (HKCAAVQ, 2020), quality of a programme is characterised by meeting the competence requirements to demonstrate that its objectives and expected programme learning outcomes are achieved. The domains of competence for learning programme cover different aspects include programme structure and content, learning, teaching

and assessment, programme leadership and staffing, learning, teaching and enabling resources/services and QA (HKCAAVQ, 2020).

Nevertheless, institutions are not purely meeting the authoritative advice from statutory QA bodies but endeavour to develop more structured enhancement measures for the improvement of quality within the institutions. Taking one of the notable VPET institutions, the Vocational Training Council (VTC), as an example, it enhances connectivity among academics and QE by deriving a student-centred VTC Quality Enhancement Gold Standards Model (VTC, 2021). Developed based on over thirty years of experiences passing through innumerable external accreditations, the Model adopts an evidence-based systematic approach summarising best practice through continuously improving the development, offering and review of vocational and professional learning programmes. The Model emphasizes eight facets pertaining to (i) programme structure and content; (ii) recognition/accreditations; (iii) student admission; (iv) availability of information to students and the general public; (v) student support and enabling resources; (vi) engagement of teachers; (vii) qualifications and quality of teachers; and (viii) external views—industry and market needs (Cheuk, 2022). In spite of the Model now being mainstreamed and advocated as one of the best practices in QE, especially in the context of VPET provision, the success of QE still heavily relies on the implementation driven by academics and teaching staff.

19.3 The Use of Digital Tools to Facilitate Quality Enhancement

Along the rapid progress of emerging technological development, a wide range of information and data have been continuously and increasingly converted in a digital format which impact every facet of our lives. Entering an era of digitalisation, the education sector has been transformed in several aspects. VPET is no exception. Various tools are now being employed to facilitate learning and teaching. For example, in many VPET institutions, online learning management systems enable educators to create dynamic courses/modules with teaching and learning materials in additional to the assessment tasks due. These online learning management systems also allow students to have a real-time synchronous discussion and work collaboratively such as in forums and database. In the context of VTC, workplace learning and assessment (WLA) is conducted via a tailor-made electronic platform. Students' academic performance in various subjects are being recorded and tracked digitally using performance tracking tools available on the learning management platforms, such as Moodle. While a variety of technology has been extensively used in learning, teaching and assessment, attention on its application to facilitate QE is minimal.

19.4 Academic Ownership to Quality Enhancement

Participatory bottom-up approach has long been proven as the most effective way to QE (Becher, 1992; Gordon, 2002; Zaar & Andersson, 2020). For instance, evidence suggested that quality of students' learning experience can be effectively enhanced if students' suggestions are closely interrelated by educators with clear and tangible improvement actions (e.g. the actual teaching practices, updates in learning and teaching materials) (Williams & Kane, 2009). Other scholars also reviewed that with active engagement of academics, the orientation of quality could be deliberated and converged towards maximising students' benefits without focusing on the process of summative checking or evaluative audit (Gunn & Cheng, 2015). More recently, Elken and Stensaker (2018) emphasized that successful QE relies on practice-oriented approach in which academics shall take up one of the key responsibilities to continuously shape the daily practice to enhance quality in higher education. Other researchers also explicitly stressed that frontline academics' ownership is positively related to QE practices (Anderson, 2006; Bendermacher et al., 2019). Coupled with the application of emerging technologies, academics who consider QE to be their own responsibility and commitment are expected to demonstrate higher degree of participation in quality activities as being previously reported in another research conducted in the Netherlands (Bendermacher et al., 2019) and a systematic review covering 111 studies to improve teaching effectiveness (Steinert et al., 2016).

19.5 Objectives

Consolidating literatures and experience gained from enhancing the quality of vocationally oriented applied degree programmes, this article sheds light on the critical insight gained from the good practices and suggest practical tactics to cultivate academics' positive attitude towards QE and active participation. With the inspiration of a theoretical framework detailed in the following section, this research was the first of its kind to innovatively consider the complex interplay between individual, interpersonal, institutional, community and public policy and to examine how digitalisation may facilitate academic's participation in QE from all-rounded aspects and multiple perspectives. This research facilitates the understanding on the range of factors that affect academic's participation in QE and illustrates how factors at one level influence factors at another level.

19.6 Theoretical Framework to Support Academics Participation

As academics' participation is vital to the success of continuous QE, it is important to apply a theoretical framework to understand the complex challenges academics face and to guide supportive measures. The social-ecological approach is adopted as the theoretical framework to guide the current study. Introduced in the 1970s, the social-ecological model is a broad-based conceptual model depicting basic ecological principles of human behaviour (Brofenbreener, 1979).

Despite literatures suggest that this approach has never been adopted in the context QE, it has long been used as a theoretical framework to analyse and promote behavioural changes in a variety of subject matters (Veer et al., 2019). For example, some researchers adopted this model as a holistic approach to investigate how human mind and belief can be shaped (McNamara & Purzycki, 2020), to examine individual's belonging in an organisation (Allen et al., 2016), to analyse health behaviour and barriers to behavioural changes (Kwok et al., 2020), to derive code of ethics at workplace (Shapira-Lishchinsky & Ben-Amram, 2020), to develop effective empowerment programmes and change strategies (Berkes et al., 2008). Since the social-ecological approach has been widely used in many different contexts to shape the mindset and drive behaviour change, it is reasonable to adopt this approach to inculcate a greater sense of academic responsibility for QE.

According to the social-ecological model presented in Table 19.1, there are multiple influences on individual behaviours and these influences are categorised in different levels. These levels of influence include intrapersonal (i.e. individual), interpersonal, institutional and community factors, and public policies (Brofenbreener, 1979).

The social-ecological framework offers a boarder and more comprehensive perspective that impact individual behaviours. Based on this approach, a variety of multiple level focused strategies and activities that utilise digital tools can be derived to support academics' participation in QE (Table 19.1). Such theoretical framework also builds a mutual understanding of strategies and expectations, enhances collaboration and promotes clear communications among stakeholders. Although each level of influence could be unique, these influences also interact across levels to affect academics' behaviour in QE.

Table 19.1 The socio-ecological framework: levels of influence in the context of quality enhancement

Level of influence	Description	Key factors influencing academics' participation in QE	Examples of technologies/digital tools to facilitate academics' participation in QE
Intrapersonal	Individual characteristics that influence behaviour	Knowledge	Online capability building training; AI chatbots
		Motivation and engagement	Machine learning; online assessment; big data and predictive analytics
Interpersonal	Interpersonal processes and primary groups	Roles and responsibility	Monitoring management system/application
		Sharing of good practice	Digital communication technology; knowledge management system; content management systems
		Collegiality	Cloud storage; collaborative real-time editor; monitoring and management system
Institutional	Regulations, policies and structures which may constrain or prompt certain behaviours	Infrastructure support	Hybrid clouds; common management system; blockchain
		Bottom-up initiatives	Internal communication tools; online staff engagement platform
Community	Networks outside the institution, which exist as individuals, formal and informal groups and organisations	Stakeholder engagement	Cloud/In-house client database management system; integrated stakeholder engagement system
		External accreditation body	Blockchain
Public policy	Policies and climate that support QE actions	Dissemination of information and support scheme	Web2.0; digital video production

19.7 Technologies to Facilitate Academics Participation in QE

19.7.1 Intrapersonal Factors

19.7.1.1 Academic Ownership

Key factors affecting academic ownership include (i) academics' knowledge on QE; and (ii) individual perspective, interpretation, perceptions and engagement in QE, i.e. motivation and engagement.

(i) *Knowledge on QE*

All academics and front-line teaching staff need to first develop a clear understanding before they can fully engage in and devote time and effort to contribute to QE. Quality culture should be designed with multiple dimensions and contextualised in every institutional setting to become specific so that different understandings of quality can be embedded within a specific context (Gvaramadze, 2008). For instance, many higher education institutions worldwide have now regularly organised an induction programme for new academic staff so as to facilitate new academics' understanding on the respective graduate attributes, learning and teaching practices, funding and support for teaching, not least QA/QE. These induction programmes also serve as part of the capability building professional development for academics to expose and advice to advance knowledge and skills. Nowadays, many of these induction programmes are conducted face-to-face with a series of forums and workshops, supplemented with manuals and handbooks, though online real-time delivery had been increasingly adopted by some institutions.

Technology can offer academics the opportunity to benefit from bite-size online professional development, especially in the arena of QE, which consists of numerous facets involving a wide range of internal and external stakeholders, procedures and approval authorities. Compared with one-time workshops and face-to-face sessions, bite-size online programmes can be customised and tailored to meet varying needs of academics who have different academic expertise, roles and responsibilities in the QE process, prior knowledge and previous experiences, individual preferences, learning styles and paces. While online professional development programmes in QE have concomitant advantages of being convenient, flexible and versatile, academics may still have questions from time-to-time during day-to-day programme management and teaching.

There are several ways to help academics better navigate through QE. Traditional ways may include a dedicated enquiry hotline or mailbox, regular communication or meeting between the academics and the administrative staff responsible to facilitate institutional/programme specific QE. To facilitate academics' self-service, streamline interactions between staff and services, and facilitate the carrying out of designed QA procedures, chatbots can be used. Chatbots are programmes that mimic human conversation using Artificial Intelligence (AI). Chatbots offer instant responses, are

24/7 available and can manage multiple users at the same time. Because chatbots use a predetermined list of inputs while answering inquiries, they also provide consistency in answering questions of the same kind and avoid confusion amongst the academics. In addition to serving as an automated FAQ answering machine, chatbot can empower academics as a knowledgeable and personalised assistant that is always readily available. By having academics interact with chatbots periodically for an extended period for training, they can also improve the retention and application of knowledge and skills pertaining to QE.

(ii) *Motivation and Engagement*

To some academics, quality processes were still mistakenly perceived as burdensome, time-consuming and resource-intensive, mainly serving bureaucratic purposes with little relevance to learning and teaching (Seyfried & Reith, 2019). This belief was often expressed more prominently by staff with a strong academic background as opposed to administrative staff as they often place higher priority to daily teaching and research activities (Newton, 2002; Cardoso et al., 2018). Since QE is indeed embedded in routine learning and teaching activities, motivation and engagement of academics is key in nurturing and driving sustainable efforts.

Researchers previously suggested that academics were more likely to be intrinsically motivated to and engage in QE if they understood the proposes of doing so (Cheng, 2017). Such purposes include meeting the needs of students and employers, not least making the respective institutions more competitive. Most importantly, institutions shall not over-emphasis compliance, which forces academics to concentrate upon satisfying rules of quality evaluation, treating it as a box-ticking exercise at the expense of making real contribution and proactively striving to find new ways to constantly improve. It is therefore important to emphasize the role of QE in day-to-day learning and teaching activities while providing academics with appropriate technological tools and resources so that they are able to devote the time to critical QE activities.

For example, the VTC and some other higher education institutions had used machine learning to monitor students' progress and alert course leaders when an individual was likely to fail the semester so that they could timely intervene and support students (Xu et al., 2017). Online assessment could also free up time for academics to concentrate on student well-being, review and improve pedagogies and enhance students' academic performance with personalised feedbacks and support (Weleschuk et al., 2019). Some institutions are also beginning to use big data techniques to predict student dropout so that academics could help students who were at risk (Sorensen, 2019).

19.7.2 Intrapersonal Factors

19.7.2.1 Roles and Responsibility

The participation of different parties in the QE process is indispensable particularly when the roles of teaching staff and students keep evolving in the virtual domain where classes are conducted online. Accelerated by the COVID-19 pandemic, technology is advancing rapidly and increasingly adopted in the education sector which causes the change of the role of teaching staff from a more traditional face-to-face one to a more remote one in a virtual domain supported by technological tools. Students would also need to be technically and psychologically ready for the classes conducted with advancing technologies while collaborating actively with teaching staff. As the key stakeholders, it is preferable that both teaching staff and students could be prepared to reflect and give new ideas and feedback where appropriate to improve teaching and learning. In this regard, it is considered necessary to disseminate a quality culture in the institutions to ensure and enhance the standards in the changing education environment.

Instead of relying on discrete individual effort, each and every academics contribute to ensuring academic standards and QE within a programme team, and across department, faculty and institution. For instance, while some academics may be mainly responsible to ensure there is a regular cycle of feedbacks from student, staff and industry experts, others may engage in QA functions such as course approval, monitoring and review.

To give priority to continuous enhancement, higher education institutions shall therefore not only promote distributed empowerment but also share ownership among academics (Greere, 2022; Greere & Riley, 2014). Feasible ways include orchestration to avoid overlapping roles and responsibilities, and the establishment of a transparent electronic real-time monitoring management system for all academics, and other key stakeholders concerned, to visualise the quality process and respective degree of involvement coupled with an online forum to prompt constructive discussion and reflection. This allows institutions to build capability and exhibit autonomy through defining, designing, developing and monitoring the respective fit-for-purpose internal systems that are most beneficial to students.

19.7.2.2 Sharing of Good Practice Among Programme Teams

Sharing of good practices allows academics across the institution to learn from the successes of others. When regularised, a community of practice can be formed for academics to share experiences, challenges and innovative solutions that can enhance the efficiency and effectiveness of processes while offering mutual support. Sharing of good practices also helps institutions to recognise existing knowledge gaps and malpractice so that better strategies can be developed. Ultimately, it contributes to create and sustain the quality culture without the loss of know-how.

Other than meeting face-to-face, or communicating online on a regular basis, a variety of knowledge sharing platforms can be utilised for academics to share best practices and real cases on QE. Such knowledge sharing platforms allow academics to access the information needed anytime and anywhere, quickly search relevant information, chat with team members or other academics, build trust and teamwork, and create synergy. For example, an IT platform named as 'Knowledge Collaboration Space' has been established at the VTC to facilitate the sharing of best practices in various aspects including the VTC's initiatives and related QE issues which require staff's awareness, support and participation. Such best practices include planning, development and implementation of new initiatives concerned. With the relevant information uploaded to this 'Knowledge Collaboration Space' regularly, staff are kept abreast of its latest development and are more likely to excel at it. It is of paramount importance to keep the platform updated with topics and best practices that are of stakeholders' interest and needs so as to benefit the teaching and learning.

19.7.2.3 Collegiality Among Academic and Quality Administrative Teams

Effective QE requires a spirit of collegiality that fosters mutual respect and cross-functional collaboration among all staff with an institution. It is considered that collegiality is one of the most important factors in determining the quality of an institution (Shah, 2012). Collegiality consists of shared commitments, decision-making process and a set of attitudes that cause individuals to regard the members of the various academic and the quality administrative teams as responsible for the success of QE. It also allows all members of the institution to participate in QE appropriate to their knowledge and responsibility. Formal and regular communication channels shall therefore be established to bridge links between faculty and administration, facilitate members to work hands in gloves, contribute at their strengths, be sensitive to the concerns of others and avoid acting unilaterally.

In an era of continuous change and improvement, teacher collegiality is necessary to solve the complex education problems of modern times, enhance staff professional growth and organisational effectiveness (Shah, 2012). Ideally, each programme team, which consists of several teachers in an institution, is supported by a dedicated quality administrative team for continuous connectedness and professional collaboration. With digitalised communication, without the needs to travel across different geographic locations (e.g. between campuses), regular meeting among academic and the respective quality administrative team can be conducted easily via a variety of online tools (e.g. Zoom, MS Teams). File sharing applications and real-time co-editing, which can be easily done using cloud technology (e.g. Google Drive and OneDrive), further facilitate communication, streamline review, enhance team collaboration, productivity, knowledge sharing and professional development.

19.7.3 Institutional Factors

19.7.3.1 Infrastructure Support

Many education institutions, such as the VTC, have prioritised QE instead of checklist basis single event accreditation exercise that sometimes promotes tactical quick-fixes. This is often coupled with well-articulated long-term plans that align with and strategically support quality expectation of the institutes. For example, in the case of a Sino-Foreign higher education institution, online learning is supported by digital infrastructure including an university website which is regularly updated with the latest information for students and staff, a web conference system named as Big Blue Button for online learning and a software product named as Sonic Foundry's Mediasite for recording live lectures (Perrin & Wang, 2021). In addition to the above-mentioned technologies that can be used at different contexts, institutions can create conducive infrastructure to further shaping and anchoring QE.

With the adoption of more cloud applications, institutions may develop a flexible and secure hybrid cloud architecture with blockchain applications. Hybrid integration represents an array of a la carte services. It can blend in-house resources and a variety of cloud service providers to provide centralised management and make QE processes more integrated. Blockchain application, on the other hand, reduces overhead costs associate with storing academic records whilst streamlines the verification process on students' credentials within member institutions in the form of digital transcript. Another way to facilitate the various processes of QE is the establishment of a common management system, with role-based access, that serves as a one-stop operation hub for students (e.g. academic performance and feedback survey), academics (e.g. predictive analytics on student performance and programme management) and administrators (e.g. quality administration and dissemination of regulations and policies).

19.7.3.2 Bottom-Up Initiatives

QE requires higher education institutions to provide top-down prescriptive direction that defines goals and accountabilities, offers the required resources and drives timely continuous improvements. Though strong leadership is required for initiating a change process towards quality culture, the implementation of quality strategy can only be sustainable through the participation of all organisational members and the cultivation of a quality culture (Gvaramadze, 2008). As such, even when QE is initiated as top-down, successful implementation still relies on collaborative bottom-up engagement and initiatives where academics take ownership, help tackle root causes and provide practical insight into actions needed for improvement.

Engagement and sentiment of academics are the best ways to drive bottom-up quality initiatives. To achieve that, the need for internal bottom-up communication tools is apparent. For example, intranet is widely used by higher education institutions

to connect all staff. Leadership blog allows institutes to share top-down messages while stimulating bottom-up feedback directly from staff. Online staff engagement platform can also be used to solicit academics feedback (i.e. via regular survey), crowdsource quality initiatives from the ground up (e.g. in form of a staff suggestion scheme that has long been launched by the VTC), provide responses, recognise staff and track improvement over time. Most importantly, such platform can be integrated with other features mentioned above to create a synergy for successful QE, *inter alia*, defining and visualising individual roles and responsibilities, establishing spaces for collaborative and knowledge sharing, forming community of practices.

19.7.4 Community Factors

19.7.4.1 Stakeholders Engagement

Structured engagement of external stakeholders is required for effective QE. In the context of VPET, among other stakeholders, employers and industries, professional bodies and graduates are of paramount importance. These external stakeholders help continuously enhancing the quality of programmes provided so that work-ready graduates are always nurtured to meet the evolving needs of economies and labour markets (Kwok & Yuen, 2021). Particularly, these external stakeholders often take up formal roles in the QE process such as serving as external examiners and members of an advisory committee/board. In many higher education institutions, relationship with these external stakeholders is often established and maintained by academics as they have the most updated and direct knowledge of the programmes and the associated students. Because of the variety and number of stakeholders involved, and that their involvement in QE is indispensable, academics had expressed challenges in managing these relationships (Alves et al., 2010; Van Buren & Greenwood, 2009).

By importing data from different existing sources, a diversity of client database management systems is now available for institutions to centralise all contact information of external stakeholders and assign proper access rights for instant accessibility. Traditionally and widely used to maintaining customer relationships, the client database management system allows academics to record and track all engagement and commitments of a specific stakeholder, not least preventing the same stakeholders being contacted by different academics or administrative staff on the same QE matter. By including additional modules/features to the client database management system, the client database management system can be modified to an integrated stakeholder engagement system to reduce time required for academics to communicate with external stakeholders. This includes enabling automated interactions such as sending meeting invites and notifications. The integrated stakeholder engagement system can also be enhanced with a compliance module to capture all QE requirements and streamline workflows. For example, it can register all reports that must be submitted by an external examiner, along with the target time frames and specific criteria to minimise risks of non-compliance. Ultimately, this system

will help academics to easily collect evidence of QE and demonstrate to the various internal and external stakeholders (including accreditation bodies) that obligations are met within the target time frame.

19.7.4.2 Accreditation Bodies

Though QE emphasizes continuous improvement, accreditation by external authorities/bodies is still indispensable in higher education of many jurisdictions to achieve accountability and safeguard the credibility of qualifications. The accreditation can be a complex and time-consuming exercise involving a number of internal and external stakeholders, a variety of confidential data, records, documentations and evidence.

Recently, a number of scholars pointed out that blockchain can serve as a practical solution to facilitate the programme accreditation process conducted by external agencies (Fedorova & Skobleva, 2020; Sharma & Batth, 2020). Through blockchain, institutions can easily trace data, and share confidential records only with accreditation agencies that have been specifically granted access. Since consensus on data accuracy is required for all blockchain network members and that all information will be recorded permanently, no records can be deleted to safeguard security. In other words, the burden for institutions to prove the completion of certain QA procedures and the need for accreditation body to manually collect and verify evidence can be eliminated.

19.7.5 Public Policy Factor

19.7.5.1 Dissemination of Information and Support Schemes Conducive to QE

To promote QE, some jurisdictions have launched promotion and incentive schemes to support higher education institutions and academics to conduct initiatives, particularly those that enhance the quality of teaching and learning. For example in Hong Kong, the Quality Enhancement Support Scheme is established to support QE projects of self-financing post-secondary sector. The Enhancement and Set-up Grant Scheme is also available for eligible self-financing post-secondary education institutions to develop and enhance higher education programmes that meet market needs. Nevertheless, establishing effective communication links between policy makers and institutions/academics to make visibility of these information so that institutions/academics can increase the chance of getting funding can be complex.

Currently, dissemination of such information and promotion efforts relies on organisation of briefing sessions, publishing on official website and electronic direct mail marketing, which are mainly one-way communication. The use of Web 2.0 technologies, such as social media and academic social networking sites, shall

allow policy makers to enhance online dissemination, enable interdisciplinary and interinstitutional collaboration. Omnichannel marketing with the use of digital video production and social media stories shall also be considered to republish existing content and drive higher engagement in initiating new QE initiatives.

19.8 Conclusion

In spite of the paramount focuses on academics and teaching staff, it is much more likely for QE to be effective and sustainable when being prioritised at all levels of the higher education institutions involving both internal and external stakeholders. Guided by a theoretical framework, this article novelly suggests how the use of innovative technologies, in view of their increasing importance in the digitalisation era, can be expanded to facilitate academics' participation in QE given specific contexts and needs. To meet the needs of academics, decision-makers who are vital in the shaping of institutional quality culture should be sensitive to their characteristics, not least the needs of students, while systematically plan for and focus on holistic use of advanced technologies and their integration to continuously enhance the quality of teaching and learning. It is necessary to strategically act across multiple levels of the model at the same time for sustaining QE efforts over time and achieve institutional-level impact.

How technology has been used and its effectiveness will determine how effective academic performance is, and how it is perceived by academics, teaching staff, students and other stakeholders (Perrin & Wang, 2021). Therefore, for future research, the actual effectiveness of the digital tools mentioned in this article shall be empirically evaluated given they are comparatively new in the existing QA field. For instance, the collection of large-scale longitudinal data may be useful for a comprehensive evaluation on the use of new technologies to facilitate academics' participation. Nonetheless, academics and teaching staff shall as well exploit new technological tools to improve higher education and be reflective of their evolving roles in the enhancement of quality in the era of technological change.

Due to the highly transferable principles of driving QE, the strategies derived from this article can be equally valid in and scaled for other education settings. Nonetheless, both the guiding principles and the corresponding strategies promoting QE will need to be reviewed constantly to ensure that they are responsive to stakeholders' needs as well as changes that may arise under foreseeable or even unforeseeable circumstances. When institutions carefully, effectively and appropriately use technologies, the work of academics and teaching staff will be enhanced, thereby improving the quality of education and enabling learners to thrive.

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