Stakeholder Input in Course Development

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There are many stakeholders in the course development process. Adult learners are engaged by content is thought provoking, engaging, practical and applicable to their contemporary work and life. Employers, many of whom support educational growth through tuition reimbursement and other rewards, i.e., promotional opportunities, seek learning opportunities that will provide skills for increased job performance and organizational effectiveness. Accrediting institutions are invested in ensuring that educational content meets standards that are based on credible research and vetted best practices. Educational institutions, curriculum development department and instructors who are responsible for course development are held accountable for producing a product that meets the many needs of these and other stakeholders, in a way that ensures learning is achieved. This paper will present a synopsis of stakeholder in online higher education course design and discuss data gathering and analysis processes that can be used to achieve the goals of stakeholders for increased success.

Keywords: Course Development, Data Analysis, Data Gathering, Quality Function Deployment, Stakeholder Input

Introduction

Growth of Online Learning

The rise in online and mixed delivery educational offering has been exponential over the past few decades. According to M2PressWIRE "The Global Digital Education Market size was estimated at USD 13.24 billion in 2021, USD 16.13 billion in 2022, and is projected to grow at a Compound Annual Growth Rate (CAGR) of 21.99% to reach USD 43.67 billion by 2027" (2022, para 1). There are many contributing factors to this growth, including the effects of COVID-19 pandemic and the rapid change to skill required for work roles. (Koksal, 2021, Wood, 2022). Koksal (2021) discusses the migration of traditional brick and mortar universities to online delivery venues as their popularity grows and states that, "At this moment, online learning is becoming a huge catalyzer for people and companies to help the adoption of this rapid change in the world" (para 4).

Avci, Ring and Mitchell (2015) cite the importance of higher educational institutions for the development of nations. It is incumbent on providers of higher educational content to create courses that meet the needs of the students who are completing these courses, but also will meet the needs of the other stakeholders in the educational process. These can include, but not be limited to, employers or potential employers, subject matter experts, instructional designers, and Technology Experts (Maxwell, et. al, 2010, Singh, 2021). Each stakeholder group has an impact on the development and delivery of content. The stakeholder groups, their roles and potential roles will be presented in following section. Additional research will be presented on possible methods and best practices for gaining stakeholder input. Given that the student stakeholder group has the largest stake in the final outcome of this process, this paper will focus on the role of the student stakeholder in the creation of content for online courses incorporating the Voice of the Customer and Quality Function Deployment methodology (Mulay & Tandon Khanna, 2017).

Literature Review

The results of a literature review show that there are many stakeholders in the development and delivery content for higher education courses. Marshall (2018) cites (Amaral & Magalhães, 2002; Jongbloed, Enders, & Salerno, 2008; Watty, 2002) in defining these groups as "students; alumni; donors; parents; other institutions or providers; accrediting agencies; vendors and suppliers; employers; taxpayers; non-government organisations; government; and academic faculty, both individually and collectively in disciplinary groups and as members of other organisations such as unions and advocacy bodies" (p. 77). Matkovic, et al, (2014) discuss the complexity and iterative nature of the curriculum development process at the university level and stress the the importance of gaining stakeholder input

throughout the process. (2014). Other researchers (Marshall 2018, Maxwell., et al, 2010, Scott, Porter et al., 2020, Singh, 2021) agree that collecting data from stakeholder groups can contribute to the effectiveness of course development. While researchers agree gaining stakeholder input is important, the research shows some concern over the definition of a stakeholder, which could impact the data gathering and analysis process. Avci, Ring and Mitchell (2015) cite Burrows (1999) on the inadequacy of the current research in providing a framework to identify who definition of a stakeholder is what how to recognize them. Additional commentary by Avci, Ring and Mitchell (2015) concludes that Freeman's 1984 definition "a stakeholder in an organization is (by definition) any group or individual who can affect or is affected by the achievement of the organization's objectives" (p. 46). The caveat to this conclusion is to note that at this time no single definition is universally accepted.

Stakeholder Identification by Group or Category

Researchers suggest that that stakeholders can be grouped into categories for data gathering and analysis purposes. Researchers present differing views and definitions of these categories. Matkovic, et. al, (2014) group stakeholders into curriculum stakeholders and professional stakeholders. In this model, the responsibilities of a curriculum stakeholder can include describe scope curriculum scope definition per the requirements for professional competence, content drivers, delivery methodology, determining delivery methods and evaluative methods. The authors further state that this stakeholder group working in collaboration with other stakeholder groups can result in content development and delivery that will meet the needs of a wider community. On the other hand, the authors state, "Professional stakeholders have a broader interest in specific professions, professional attributes of graduates, their work capabilities and conditions, specialty career development and knowledge and competencies" (p. 2271). Marshall (2018) categorizes stakeholders differently as either internal or external and cites (Amaral & Magalhães, 2002) on defining the roles of these stakeholders. The internal stakeholders are members of the academic community, with daily participation in the institutional activities. This can include faculty, students, managers, those performing non-academic roles and the institution itself. External stakeholders are defined as those who have interest in higher education but are not seen as internal stakeholders. The stakeholders in this group can include employers, society at large, parents, governmental agencies and groups who represent collections of stakeholders. Research from Porter et al. (2020a) supports Marshall stating that internal stakeholders can include faculty, students, instructors and administrators. External stakeholders can include anyone with a vested interest in curriculum revisions and can include alumni and employers. As there are many stakeholders in this process, following section will touch on three, Students, Employers and Faculty/SME, their impact and possible role in curriculum development.

Select Stakeholders by Individual Role

Current Students. The research shows that the student stakeholder demographic is the most obvious as students depend on the education system to deliver personal benefits and they make substantial investment to gain these benefits. This group can be composed of current students as well as alumni. Degtjarjova et al. (2018) support this hypothesis, "The results of most of the research show that the students are the most important stakeholders and failure in fulfilling the students' needs and expectations may dramatically affect the operation of HEIs (Geryk, 2018; Mainardes et al., 2010; Shah & Nair, 2010)" (p 391). Avci, Ring and Mitchell (2015) also agree that students are important their postacademic career reflects on the university that provided the educational experience. The authors cite Sears and Hall (2000) in adding parents as key stakeholders for this reason. Lu et al. (2015) address the importance of involving students early in the course development process, "We encourage schools to go a step further and have student involvement at the earliest phases of course development, such as constructing learning objectives and writing case studies for difficult topics" (para 4). Marshall (2018) cite researchers (Kay, Dunne & Hutchinson, 2010, Sharrock, 2000) who suggest that students have many participatory roles as stakeholders including evaluators, co-creators, and change agents.

Employers. The rapid change in work circumstances due to factors such as COVID and changing technology results in the need for workers to have access to training and educational opportunities that will result in gaining these new skills. Koksal (2020) cites Shimkas who asserts that the skills valued by employers in the past three or four years and not relevant any longer. In a report 2015 by CEW Georgetown, "American postsecondary institutions, government agencies, and employers spend $1.1 trillion annually on formal and informal higher education and training" (p. 3). Employers are supporting the attainment of new skills and employee retention through various tuition reimbursement or grant programs for employees and have a vested interest in ensuring the skills gained by employees result in increased employee and organizational effectiveness. Additionally, employers are seeking new ways to retain and engage staff. Employers have been seeing high levels of turnover, reducing competitiveness and increasing costs. This trend, according to Lang (2022) is expected to continue, citing the following research "According to the U.S. Bureau of Labor Statistics, 4.3 million workers left their jobs in December 2021, and 73% of currently employed workers say they are actively thinking about quitting their jobs, according to Joblist" (para 2). Peterson's (2019) research identifies the dissatisfaction that employers have with current graduate competency in

some needed skills that are required for success in the contemporary workplace, "Employers have stated that graduates are not prepared for the workforce and don't have the needed skills, including communication skills, customer service skills, and critical thinking skills" (para 5). For employers to realize the full Return on Investment for their tuition reimbursement dollars, and to ensure that the workforce is prepared, as stakeholders, it is important to include them in the development of curriculum. The alumni group, according to research from Saunders-Smits and de Graaff state that alumni have traditionally been overlooked but have an important role to play in curriculum development. The authors cite 4 areas where the alumni and university relationship is important, one of which is curriculum development, "They can indicate the shortcomings they experienced during their time at university and also indicate, from their day-to-day working experience as engineers, what current skills and knowledge new engineers will need to succeed in their professional careers" (2012, para 5). From a curriculum development perspective, input from the student/alumni stakeholder group is critical to creating content that will engage the learner and provide the needed skills that may be required in the changing work requirements

Faculty/Subject Matter Experts (SME). Faculty in all models seen in this research are critical stakeholders in the curriculum development process. Maxwell states, "The other traditional major stakeholder in higher education is the academic faculty. Academic work underpins much of what is perceived as the value and purpose of a university' (2018, p. 80). Singh (2021) talks about the importance of this role by asserting the SME sets the foundation for the learning experience. Given the changes seen in student and employer expectation in course quality and applicability to their goals, the role of faculty in course development will also be changing. McNaughton (2022) talks about how in traditional academia faculty have taken the lead in developing, teaching and revising coursework, with the caveat that now faculty must also be involved in activities that support academic rigor while incorporating learnings that are appropriate to professional expectations. In the course development process, faculty/SME are called on to create content with some significant roadblocks that can impact final product quality. One example of this is faculty development, both for faculty who are creating online content for the first time, and those who are transferring on ground content to the online delivery venue. McQuiggan states "There is a recognized need for professional development to prepare faculty to teach online, and there are many different faculty development models being implemented with differing foci on technology, pedagogy, and course content" (2012, p. 28.). The author further offers that much of the training concentrates on the technical conversion of traditional materials to the online environment, while not addressing the knowledge and skills needed to be successful in an online environment, i.e., developing an online teaching presence, creating relationships with students. These skills or the lack thereof will play an important role in how the faculty develops content. Another example is the lack of input or support from other stakeholders, which could result in content that will not meet the needs of these stakeholders, input seen by many researchers (Avci, Ring, & Mitchell., 2015, Maxwell, 2018, Porter et al., 2020, Singh, 2021) to be critical to successful course development. While faculty are usually at the core of the development process and assumed to be SME's from a content and development perspective, they are also important stakeholders to gather data from to determine their needs. Once identified, these needs can be addressed prior to course development, and ongoing

Course Development Using Quality Function Deployment (QFD) and Voice of the Customer (VOC)

Overview of Course Design Methods

The research revealed many academically vetted models that are used in course development. (Porter et al., 2020c) offer that there are many models for designing curricula and engaging stakeholders, the curriculum models can provide guidance on the design process. Models seen most often in the literature review include, ADDIE 5 step model (Analysis, Design, Development, Implementation and Evaluation) is seen prominently in the literature (Gutierrez, 2021, Instructional Designers of Penn State, n.d., Matkovic, et al, 2014, Training Industry, Inc, 2021), Bobbitt's model, which dates from the 1920's identifies a 2 phase approach, discovering the curriculum objects and then devising experiences for objective attainment (Liu, 2017,Porter et al., 2020c.). Bloom's Taxonomy (Armstrong, 2010), Gutierrez, 2021), created by Bloom in 1956, which used nouns to describe learning goals, and revised in 2001 using action verbs, Remember, Understand, Apply, Analyze, Evaluation, Create (Gutierrez, 2021, Ruhl, 2021). Regardless of model type or structure engaging stakeholders in a process-oriented fashion to gather data on their needs and expectations are core to design effectiveness.

QFD and VOC

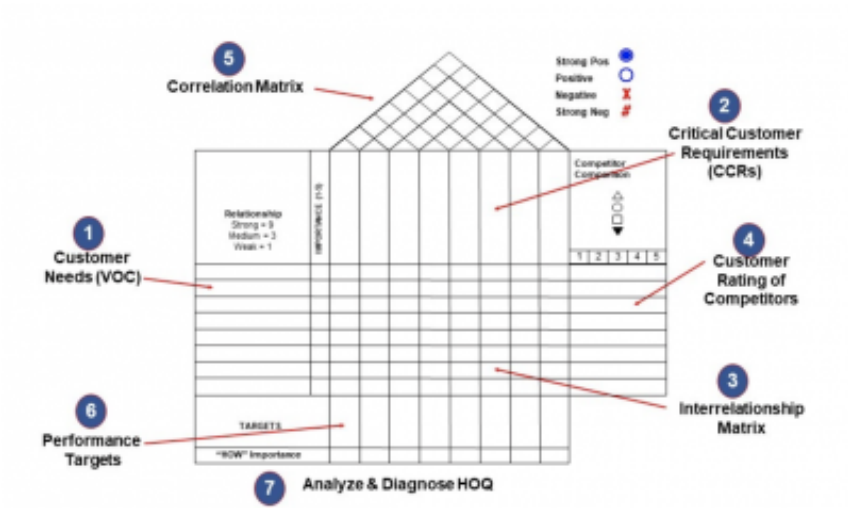
Mulay and Tandon Khanna (2017) assert that the quality of the business processes and deliverables are important in assessing the success of a business. According to the authors this applies to higher education from a growth and success perspective, "Quality in education services helps to build skills and thus aids in national development Hence quality of higher education is essential for the country's economic growth and technological innovation" (p. 56). Porter et al. (2020b) supports the continuous improvement methodology process "Course revisions should be

rooted in continuous quality improvement (CQI) processes" (p. 1057). In the continuous improvement process methodology, two commonly used tools are Quality Function Deployment (QFD) or House of Quality, and Voice of the Customer. Mulay and Tandon Khanna tell us that the QFD process is helpful in learning how to deliver products and services that meet customer needs, "The voice of customer is first converted into operational requirements, which are then the basis of solution. They emphasized that a clear action plan on the voice of customer is needed to achieve quality standards" (2017, p. 58). Researchers have identified many examples of the application of QFD in course design, and its positive effects on product quality (Denton et al, 2005, Degtjarjova et al., 2018, Mulay, & Tandon Khanna, 2017, Peters et al., 2005)

Denton et al., cite (Cohen, 1995; Day, 1993) in explaining that QFD is used in the design and manufacture of new products to consider customer needs and desires (2005). QFD was established in Japan in 1996 by Yoji Akao and contains four phases, Product Planning. Product Design, Process Planning, and Process control (production planning). It is in the Product Planning phase where the Voice of the Customer (VOC) data gathering process is conducted (Hessing, 2021). There are many types of templates that can be used to create a QFD, but most have the similar elements, customer requirements on the vertical axis, design requirements on the horizontal axis and a correlation matrix as the roof (Denton, et. al, 2005, Hessing, 2021). (Peters et al., (2005) cite (Kinni, 1993) and state the four elements are Whats, which comprise the product or service attributes, also know at the voice of the customer, Hows, a technical process to evaluate the whats, a correlation matrix which evaluates the positive and negative relationships among the hows and finally a relationship matrix, which evaluates the relationship between the whats and hows and then generates numerical rankings that can be used for product and services development.
Customer needs as seen in area one, are a result of the collecting customer requirements. iSixSigma.com defines VOC, "The voice of the customer, or VOC, is the structured process of directly soliciting and gathering the specifically stated needs, wants, expectations and performance experiences of the customer about the products and/or services you have provided to them" (2021a, para 4). There are many ways to collect this data which can include, market research, focus groups, interviews, benchmarking, and surveys (Denton et al, Mulay & Tandon Khanna 2017, iSixSigma.com, 2021a). Gathering VOC data from all stakeholders can be a complex and time-consuming task and is part of the first phase of the QFD process, Product Planning (Hessing, 2021). For the purposes of this work, suggested processes for the three key stakeholders identified in earlier sections are discussed here.

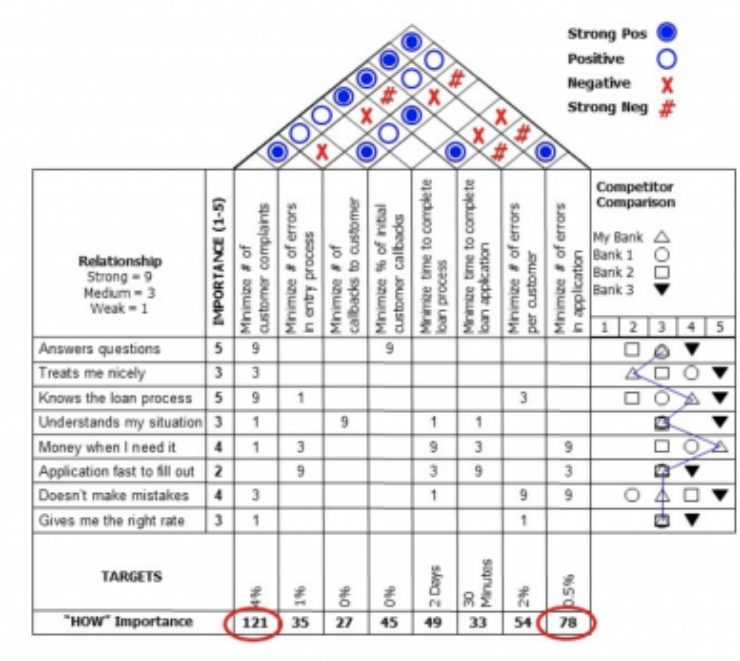
Detailed instructions on how to build a QFD and complete a VOC is beyond the confines of this paper. For demonstration purposes, Figure 1 shows an example of a blank QFD. Figure 2 is an example of a completed QFD to show how data relationships are displayed and analyzed.

Figure 1
QFD Template



Blank House of Quality Template iSixSigma.com, 2021

Figure 2
Completed QFD



Completed QFD iSixSigma.com, 2021

VOC Process by Stakeholder Group

Current Students. Researchers are in consensus that this stakeholder group are the most important in this process (Avci, Ring and Mitchell 2015, Degtjarjova et al., 2018, Marshall 2108). Marshall (cites Kay Dunne and Hutchinson in defining how students can participate. Kay, Dunne and Hutchinson "suggest that students participate as educational stakeholders in four different and complementary ways: as evaluators; as participants; as partners, co-creators and experts; and as change agents" (2015, p. 80). Collecting VOC data from current students can be accomplished through processes that already exist in most universities. End of term surveys are a standard part of course evaluations. These surveys measure student satisfaction with many elements of the course experience, and often solicit suggestions for improvement. This data, especially if there are open ended questions included in the surveys, can be compiled, analyzed for trends, and provided to the SME responsible for new course development, and/or continuous improvement revision activities. Peters, et. al, (2005) describe a study that gathered data using a methodology similar to the typical end of course survey for a potential course revision but questioned the efficacy of using a questionnaire and the primary instrument for this type of data gathering. Accessing student input during the course itself may provide real time data on current student satisfaction and need for improvement. One method are informal surveys, or requests for feedback, which can be made confidential, on relevance of assignments, and discussion questions, and other aspects of the course work. SME's can be collecting this data from other faculty who teach the class and building a QFD or adding to one that is already established. Student focus groups which use open ended questions can be conducted to determine current satisfaction with customer needs, areas for continuous improvement activities, or the identification of new areas of customer expectations (Western University Centre for Teaching and Learning et al., 2019).

Employers. Marshall (2018) states: "Employers as stakeholders in the university represent the powerful role that a highly educated population plays in the economic state of a country" (p. 88). According Saunders-Smits and de Graaff, Employers are generally represented in the different institutes of higher education by an 'Industrial Board' " (2012, p. 133). As stated earlier, employers provide resource support to students on many levels, i.e., tuition reimbursement dollars, grants, time off from work. They therefore have a large stake in the success of the educational curriculum outputs. One standard method to access input by employers are regularly scheduled meetings, focusing on those employers who may be the largest contributors to tuition support in students attending the university. Some suggestions from Lynn-Matern (2021) are to develop partnerships with industry leaders to co-create and deliver courses. This process would have multiple benefits as employers would see their requirements reflected in the design process, and employees would recognize that the employer is committed to continuous learning and development for their employees, which could lead to increased retention. Alumni play a unique and dual role from a stakeholder perspective. They were students, so therefore have an good understanding of the

courses and their level of satisfaction with them, and also they are potential employers. Saunders-Smits and de Graaff offer this perspective from work they completed on engineering school alumni, "They can indicate the shortcomings they experienced during their time at university and also indicate, from their day-to-day working experience as engineers, what current skills and knowledge new engineers will need to succeed in their professional careers" (2012, p. 134). Alumni oftentimes are employers of graduates from their alma mater and have a vested interest in seeing new graduates succeed. and are in a unique position to offer voice of the customer data. Smits and de Graaff cite Evans, et, al (1993) additionally offer this information on a role alumni can play in course development. "designers of the shape of future curricula, based on their current experience and their position of employment, what do they feel engineers of the future should know and be able to do (Evans et al., 1993)" (2012, p. 135).

Faculty. The research results cited earlier in this work support the importance of faculty as a stakeholder group in course development. VOC data gathering for this stakeholder group can be categorized in two ways. The faculty VOC data will focus on the needs for the course and are based on VOC data from other stakeholder groups, i.e., student data. Gathering VOC data from faculty who are the course developers as well as those faculty who teach these classes in an adjunct capacity can add valuable data from a quality control perspective. According to the American Association of University Professors "Non-tenure-track positions of all types now account for over 60 percent of all instructional staff appointments in American higher education" (2017, para 5). Depending on the business model of the university, adjunct faculty can comprise a large section of the teaching staff, and due to their adjunct status, can also assume teaching role in multiple universities. This adjunct status allows data gathering from multiple data sources, which will add to the depth and breadth of the QFD for course requirements. Full Time faculty in this data gathering effort should be reaching out regularly to adjunct staff and soliciting feedback. Changes to course content based on this type of feedback can be seen as a continuous improvement effort (Porter et al., 2020). For major course revisions or development of new courses, adjunct faculty can be survey or asked to participate in focus groups ((Western University Centre for Teaching & Learning et al., 2019). In additional, adjunct faculty can participate in the design process if the university budget can incorporate the cost into the design budget. A secondary VOC exercise from a faculty stakeholder perspective is addresses the need for faculty development as identified by (McQuiggan, 2012). In this instance university administration can be gathering data from a variety of aspects including satisfaction surveys and performance appraisal data. The results of this data gathering can produce development plans for faculty to gain additional competence in course development through targeted training and educational efforts.

Final Thoughts

According to Wood, there is support for the growth of online delivery and states "There has been a five-fold increase in employer provision of online learning opportunities for employees, a four-fold increase in individuals independently seeking online learning opportunities, and a nine-fold increase in online learning opportunities created through government programmes" (2022, para 19). To support this growth, higher education institutions will need to develop curriculum that meets the needs of key stakeholders. Gathering data from stakeholders and integrating this information into the academically vetted course design process will be instrumental in achieving the goal of producing high quality educational offerings. As shown in this work, the QFD and VOC processes will aid in the production of high-quality course development efforts.

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