

Quality Approaches in Education

Working together to create life-long learning
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The Journal That Connects Quality and Education

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Note From the Editor

Elizabeth A. Cudney

The emphasis on quality improvement in education continues to grow. Education does not just occur in the classroom; it reaches much farther to the various stakeholders including families. Education is also not solely focused on learning. The student experience is also critical. This issue highlights the various aspects of improving the quality of education including student experiences, partnerships with families, and stakeholder expectations.

The issue is comprised of three articles that illustrate the breadth of quality initiatives in education from assessment data to collaborative partnerships and meeting stakeholder expectations. The first article, by Kylie Goodell King, explores the use of assessment data for continuous improvement in learning assessment initiatives. In particular, this data can be employed to drive improvements in student learning and student experience. The next article by Emily Shamash and Alyson Martin addresses an approach to developing collaborative partnerships between families of students with disabilities and educators. The study focuses on training and educating pre-service teachers to engage in effective communication and collaboration with families to achieve successful partnerships. The third article, by Godson Tetteh, assesses the extent to which stakeholders' expectations are met in higher education. Quality function deployment is utilized to prioritize stakeholder expectations to improve quality.

These articles demonstrate the need to improve student experiences and create relationships to exceed expectations and drive continuous improvement in education.



Elizabeth A. Cudney

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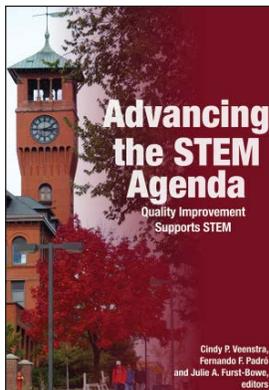
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A collection of conference papers from the
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This publication is full of collaborative models, best practices, and advice for teachers, higher education faculty, and human resources personnel on improving the student retention (and thereby increasing the supply of STEM workers). Ideas that will work for both STEM and non-STEM fields are presented. The introduction maps out the current landscape of STEM education and compares the United States to other countries. The last chapter is the conference chairs' summary of what was

learned from the conference and working with 36 authors to develop this book. This effort is part of a grassroots effort among educators to help more students be successful in STEM majors and careers.

"Veenstra, Padró, and Furst-Bowe provide a huge contribution to the field of STEM education. We all know the statistics and of the huge need in the area of STEM students and education, but what has been missing are application and success stories backed by research and modeling. The editors have successfully contributed to our need by focusing on collaborative models, building the K-12 pipeline, showing what works at the collegiate level, connecting across gender issues, and illustrating workforce and innovative ideas."

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"*Advancing the STEM Agenda* provides a broad set of current perspectives that will contribute in many ways to advancing the understanding and enhancement of education in science, education, and engineering. This work is packed with insights from experienced educators from K-12, regional, and research university perspectives and bridges the transition from education to workplace."

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Using assessment
data for
continuous
improvement,
rather than
just reporting
requirements

Making the Most of What You've Got: Using Required Assessment Reporting to Benefit Students and Schools

Kylie Goodell King

Abstract

In addition to providing high-quality educational experiences, institutions of higher education face mounting demands for accountability through state and federal mandates and accrediting organizations. Evidence of student learning is becoming an increasingly important metric by which programs are evaluated and funding decisions are made. Learning assessment initiatives are, therefore, becoming more and more important to maintain evidence of excellent performance. This article presents information about the various stakeholders of higher education and their reporting requirements. It argues that data about student learning should be used for institutional improvement and to enhance the student experience in addition to satisfying external mandates.

Keywords

Assessment, Student Learning Outcomes, Continuous Improvement

Introduction

Requirements of institutions of higher learning are becoming increasingly complex as schools and programs face mounting demands for accountability through both state and federal mandates as well as accrediting organizations. Although providing high-quality educational experiences remains of paramount importance, evidence of student learning is becoming an increasingly important metric by which programs are evaluated and funding decisions are made. This article provides an overview of assessment in higher education. It then describes how assessment may benefit a number of stakeholders, including universities, students, and the public. Next, suggestions for implementing robust assessment programs are described and recommendations for future research are discussed.

Assessment, at its best, is a collaborative process that involves stakeholders at all levels, from senior administrators to faculty to students (McClendon & Ho, 2016). Robust assessment efforts involve collecting and reporting on input variables, or attributes, of incoming students (e.g. prior academic performance); environmental variables, or aspects of students' experiences within an institution (e.g. course-taking patterns); and outcome variables or aspects of students' performance after departure from a university (e.g. salary) (Peterson, Einarson, Trice, Nichols, Perorazio, & Hendricks, 1997).

During the rise in popularity of assessment efforts, several changes in the purpose of assessment have been observed. These changes include the goals of assessment shifting from institutional improvement to external accountability, linking assessment between other policy initiatives and regulation systems, increasing the centralization and standardization of assessment efforts (often to the state level), and increasing funding tied to results (Peterson et al., 1997). Inherent in these changes is a conflict in the role and purpose of assessment and how the results are used.

The results of assessment efforts may benefit a number of stakeholders. Programs vary in the extent to which results are used to satisfy external accountability requirements versus to respond to internal needs (Peterson et al., 1997). The purpose behind the assessment

efforts of an institution, school, department, or program may impact the design of the assessment approach, commitment to assessment, and potential for using results to change institutional practices (Peterson et al., 1997). The conflict between using assessment for both internal improvement and external accountability may be one reason why assessment efforts often fail to produce meaningful results for student or institutional performance (Peterson et al., 1997; Volkwein, 2008).

External influences on assessment efforts are considered to be national- and state-level initiatives, accreditation, employers, and professional associations. Internal influencers include administrators, students, faculty, and the institutional environment (e.g. history, culture) (Peterson et al., 1997). Considering these influencers and stakeholders, two paradigms of assessment have emerged that promote both external accountability and internal quality improvement (Schoepp and Benson, 2015).

Accountability entails demonstrating to policymakers, funders, and the public that a particular institution is effective and worthy of continued support. This typically involves quantitative data. Improvement involves using assessment to enhance teaching and learning and may involve both quantitative and qualitative data (Ewell, 2007). According to Ewell, there is a “fundamental tension” in these two approaches to assessment.

That is not to say that it is impossible for assessment for external accountability and internal improvement to coexist. In fact, most institutions conduct assessment efforts in order to both prepare for external requirements and improve student learning (Schoepp & Benson, 2015). According to these institutions, one of the greatest challenges of implementing a successful assessment program with dual purposes is closing the loop, which is using the information obtained from assessment efforts to enact positive changes (Schoepp & Benson, 2015).

Accountability

External requirements, including those mandated by federal and state agencies and accreditation bodies, are a major reason behind the rise of assessment initiatives (Peterson et al., 1997). These requirements are often based on institutional evaluations through benchmarking, which involve comparing one institution to its peers or to a set of fixed standards (Ewell, 2007). It is, therefore, unfortunate that studies on effective assessment programs have found that evaluating institutions against their own objectives or performance rather than other institutions, enhances institutional support for assessment and the likelihood of success for assessment initiatives (Peterson et al., 1997).

Furthermore, despite the increasing quantities and complexities of these external requirements, most institutions indicate that internal characteristics, including leadership, the

internal purpose behind assessment, and faculty support, were more helpful in implementing successful assessment initiatives than regulation or accreditation requirements (Kezar, 2013). Additionally, initiatives that emphasize institutional improvement as a primary purpose garner more support than those that focus on external accountability (Peterson et al., 1997). Therefore, while external mandates are certainly increasing, these will not be met with successful results without proper institutional structures and processes.

A positive trend in external accountability in recent years has centered on the requirements of accreditation processes. There has been a shift away from using standardized quantitative input metrics (e.g. GPA of incoming students, endowments) in granting accreditation and a move toward judging educational effectiveness from measurable outcomes (e.g. evidence of student learning) (Volkwein, 2009). While measurable outcomes of higher education are still hard to come by, this is a positive trend that encourages more well-defined assessment processes that have the potential to benefit students and institutions.

Stakeholder Analysis

As illustrated in Figure 1, there are a number of stakeholders that stand to benefit from improvements in higher education assessment. Students, universities, and the public at large could reap benefits from a more purposeful approach to collecting and using assessment data. The responsibility for this rests at the hands of universities, as described next.

Students	Universities	Public
<ul style="list-style-type: none"> ■ Ability to make informed choices ■ Improved academic programs 	<ul style="list-style-type: none"> ■ Informed personnel (faculty and staff) ■ Appropriate allocation of resources ■ Avoidance of duplicative efforts 	<ul style="list-style-type: none"> ■ Understanding of how public resources are allocated ■ Opportunities for partnership with universities

Figure 1: Potential Benefits to Stakeholders

Students and Universities

Today, more and more institutions value the use of student assessment data to drive institutional improvement, above and beyond using this information for external accountability (Schoepp & Benson, 2015). While this is certainly positive, it is troublesome that most of these forward-thinking institutions do not use the results of assessment efforts to their full capabilities.

For example, a recent study found that only 60% of institutions that utilize student assessment data communicate the results to their academic communities and only 25% have used student assessment data to drive meaningful changes (Schoepp & Benson, 2015). If more institutions are using external mandates to drive internal improvement efforts, where is the disconnect?

One problem lies in the fact that few institutions conduct longitudinal assessment analyses. That is to say, they do not measure changes in student performance over time (Peterson et al., 1997). This is problematic for several reasons. First, in order to evaluate whether interventions are needed in the first place, it is important to understand where programs or courses are falling short. This is nearly impossible to do without a longitudinal assessment of students. Next, even if potentially beneficial interventions were appropriately identified, it would not be reasonable to gauge the effectiveness of these programs without measuring student performance over time.

This is quite worrisome as one of the most important outcomes of assessment efforts provides the ability to positively impact students' educational experiences. According to Ewell (2007), gathering evidence of what and how much students learn is an essential prerequisite for systematically improving undergraduate curricula and pedagogy. Before institutions can identify opportunities for enhancing student learning, they must collect data (Kezar, 2013). Unfortunately, the results of assessment data collection rarely lead to improved student outcomes (Schoepp & Benson, 2015). Why is this the case?

Although program effectiveness may be demonstrated in many ways, student assessment data provides some of the most meaningful information for institutions that aim to improve educational outcomes (Volkwein, 2008). On a broader level, there are several reasons to undertake assessment efforts, including the ability to align learning outcomes with an institution's mission, effectively allocate resources, reduce the duplication of efforts, and promote sound decision making (Aloi, 2015). According to Astin (1993), assessment is most likely to lead to improvement when it is tied to other campus initiatives or when it is part of a larger set of conditions that promote change. This means that stakeholders should be involved in the planning of assessment efforts and collecting data whenever possible.

Furthermore, once data have been collected, institutions should frequently and broadly share assessment results and provide opportunities for institutional stakeholders to discuss the meanings and implications of the results (Peterson et al., 1997). If possible, on-campus constituents should have access to assessment data to enable them to understand the state of the institution, create reports, and use this information to facilitate continuous improvement within their schools, departments, and

teams (Kezar, 2011). By sharing this information, the "black box" of assessment would be removed and, perhaps rather than viewing assessment as an added responsibility, faculty and academic leaders may understand that assessment simply encourages an institution to be accountable to itself (Ewell, 2007).

This process is by no means easy. In order to sustain continuous improvement, institutions must expose their weaknesses and identify what needs to be changed. This is in direct opposition to many of the current reward systems that value historical success and impressive current performance in allocating funding and encouraging applications. According to Volkwein (2008), the spirit of assessment requires a diligent search for bad news, but accountability encourages the opposite (Volkwein, 2008). How can institutions use assessment efforts to find this bad news without losing funding and applicants? A somewhat far-fetched but compelling option would be to broadly promote the acceptance of deficiencies in order to encourage greater student learning. After all, higher education is at its best when it undertakes assessment not to please external stakeholders but to satisfy itself (Volkwein, 2008).

Public at Large and General Citizenry

While institutions and students are regularly considered as stakeholders in the assessment of learning, there are other important groups that are often ignored: legislators, trustees, taxpayers, and parents or non-student tuition payers (Volkwein, 2008). According to Terenzini (2009), "important people" (e.g. legislators, parents) are increasingly demanding information about the return on their investment. This is especially relevant in programs where a significant portion of funding comes from individual donors. What benefit does one get out of supporting higher education? Unfortunately, this question has yet to undergo a thorough evaluation.

Measures of educational quality are needed not only for external accountability and internal improvement, but also to enlighten the public about what is really important to or indicative of quality higher education (Kuh, 2001). This third use of assessment has been largely ignored. Attributes of effective higher education need to resonate with faculty and university administrators; however, these attributes must also be understandable to those outside the academy (Kuh, 2001). Again, business leaders and donors must be able to relate to the outcomes emphasized by today's academic programs.

It is important that schools and institutions provide information about the ways in which their students achieve or fail to achieve learning goals or expectations. Information about assessment plans and results should be shared with other local institutions and employers as well as the general public (Peterson

et al., 1997). This goes beyond reporting requirements and extends to understanding how institutions and programs contribute to the goals of the local communities or states in which they are located.

What current events or historical features have inspired certain learning outcomes or initiatives? How have these initiatives contributed to the public good? According to Astin (1993), the responsibility of institutions to the public that support them goes beyond reporting this information. There is a deeper obligation to continuously improve, for the sake of students and for society at large. This is particularly true of management education where ties to businesses are often more pronounced than elsewhere in the university.

Implementation

Despite decades of research that highlight the importance of robust assessment efforts, few institutions adequately gather and report information about student learning. Why is this the case? As with many problems that are not easily solved, it is difficult to quantify the attributes that lead to successful assessment initiatives. For example, “culture” is typically cited as the most important driver of successful assessment programs (Kezar, 2013). But what is culture and what types of culture best foster assessment?

One attribute of successful assessment efforts has been the ability to remain flexible and aware of current on- and off-campus climates (Schoepp & Benson, 2015). Additionally, structures and policies that facilitate the involvement of a variety of stakeholders help drive successful assessment programs (Kezar, 2013). To that end, school-wide planning committees have been noted as a successful strategy for assessment implementation (Kezar, 2013).

Fortunately, some of the details of assessment implementation are more easily defined and compared than culture or climate. One choice an institution must make is whether it should adopt externally developed or institutionally developed assessment instruments. Guidelines from the literature suggest using the purpose of assessment to drive that decision. If the primary goal is for external accountability, standardized or commercially available instruments are likely to be effective, whereas if assessment is intended to guide internal improvements, institutionally developed approaches are likely to be more useful (Peterson et al., 1997).

Again, with this recommendation it should be noted that assessment programs driven by external mandates alone are rarely effective. While accountability requirements may provide an initial motivation for an assessment program, these should always be accompanied by a comprehensive plan detailing how

these efforts are in line with other institutional priorities or how they will benefit the institution, college, department, or students.

Other relatively concrete guidelines recommended by Kezar (2013) include conducting ongoing rather than episodic assessment; examining the practices of peer institutions, beginning with a pilot assessment project; and encouraging broad participation in planning. It should also be noted that data collection can be extremely costly in terms of dollars, time, and other institutional resources. All new data collected should be thoroughly evaluated through a cost-benefit analysis; there could be more efficient approaches to educational improvement than collecting new data (Kezar, 2013).

Beginning a new assessment initiative or beginning to use mandated reporting for other purposes including institutional, student, or public benefit, is rarely a cut-and-dry process. However, the fact that perfect assessment instruments are not available should not prevent faculty or administrators from beginning to reflect on the efficacy of their programs and methods of instruction (Banta & Pike, 1989). When it comes to assessment, taking one step in the right direction is nearly always better than maintaining the status quo. The most important recommendation for implementation is to start somewhere and then evaluate and improve the assessment approach. This task rests at the hands of universities. Although there are many stakeholders in the assessment process, institutions of higher education have the responsibility to generate, share, and analyze data in order to continuously improve.

Potential for Impact

It is likely that interest in the assessment of student learning will only increase in the years to come. Due to a more consumer-driven approach to higher education as well as more and more questions regarding the benefits of college, it is now more important than ever for institutions to gather and share evidence of student learning (Banta & Pike, 1989). These robust assessment efforts may not only provide information about student learning, but can help students make learning gains. Enhanced learning, in turn, influences the overall quality of degree programs and institutions (McClendon & Ho, 2016).

According to Peterson et al. (1997), the effectiveness of an assessment program is evidenced by its ability to inform change or improve institutional performance. Therefore, claims of quality must be based on outcomes rather than inputs or processes (Terenzini, 2009). This poses somewhat of a dilemma, as many outcomes of higher education are not observable until several years after a student has left an institution. For example, an attitude of lifelong learning is unlikely to be accurately measured using a Likert-scale item on a self-assessment taken at the time

of graduation. While this may seem obvious, it is surprising how frequently poor outcome measures are utilized in practice. This is due, in part, to the general manner in which assessment is viewed or approached.

Future researchers should consider this point. There is ample opportunity to improve upon how learning outcomes are identified and measured. Longitudinal studies should attempt to identify criteria to measure over time and then evaluate how students grow in various areas throughout the course of their higher education experiences and beyond.

Conclusions

According to Flaherty (2016), most institutions treat assessment like a fad diet rather than a lifestyle change. This analogy may seem trite at first blush; however, it is surprisingly accurate upon further exploration. Fad diets, like assessment, are often viewed as temporary changes in behaviors designed to satisfy external demands. This viewpoint results in processes that are difficult to sustain and that may actually damage the ability to create meaningful changes in the future. Robust assessment programs, or lifestyle changes, are typically highly individualized, promote the creation of meaningful processes, and are measured by continued engagement and development (Flaherty, 2016).

Lifestyle changes are by no means easy to implement. They require hard work, diligence, agility, and perseverance in the face of setbacks. However, the positive results that may be achieved through such changes can be worthy of this effort. Nearly all programs are required to perform assessment activities by funding or accrediting bodies. If this action is mandatory, why not use this process to make improvements to benefit students, schools, and the public at large? We must not be constrained by a fear of what such efforts might reveal or by an unwillingness to adapt to changes. Higher education exists in order to create and share knowledge and engage citizenry. Assessment processes should follow in that vein and be used to support those same goals.

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Engaging
students through
a practicum
to develop
collaborative
partnerships
between families
of students with
disabilities and
educators

Working With Families of Students With Disabilities: A Practicum for Pre-Service Special Educators

Emily R. Shamash and Alyson M. Martin

Abstract

Collaborative partnerships between professionals and families of students with disabilities is required by law. In order to achieve successful partnerships, it is essential for teachers to engage in effective communication and collaboration with families in pre-service teacher training programs. This article analyzes one approach to training and educating pre-service teachers to work with families of students with disabilities by pairing a course called Working With Families of Students With Disabilities with a 16-hour practicum. This practicum requires pre-service educators to work directly with families of students with disabilities. The course and practicum experiences are described and research on graduate student experiences is explored. Future implications and continued research plans are discussed.

Keywords:

Special Education, Family Partnerships, Teacher Training, Disabilities

Introduction

Family involvement is an integral part of education for students of all ages with and without disabilities. Historically, families have been involved in the education of their children for decades. Beginning with legislation such as No Child Left Behind (NCLB, 2001) and the reauthorization of Individuals With Disabilities Education Act (IDEA, 2004), it was no longer an assumption that families have a voice in the education of their child; it was an expectation implemented by law (Rock, 2000; Turnbull, Turnbull, Erwin, Soodak, & Shogren, 2011). While it is too early to tell what effects the Every Student Succeeds Act (ESSA), signed into law by President Obama in December 2015, will have on family partnerships, the law did have wide bipartisan support and the National Center for Families Learning immediately applauded the bill for recognizing the importance of family engagement and family literacy (PR Newswire, 2015). A few specific programs established by the bill are statewide family engagement centers and a minimum set-aside for family engagement in federal Title 1 funding. Yet, many programs will be left to individual districts and states to establish and account for (Ujifusa & Tully, 2016).

The 1997 Amendments to the Individuals with Disabilities Education Act (IDEA 1997) were put into place to increase family involvement and decision making, requiring professionals to partner with families in planning and implementing the education of their child with a disability. However, it has been noted that teachers, service providers, and administrators often take the role of decision makers, while parents take the role of consent givers (Rock, 2000). Some of the many barriers to family-professional partnerships include education professionals being insensitive to cultural differences, familial mistrust of the school team, teachers having an “I-know-best” attitude, as well as work and time conflicts (Rock, 2000; Spann, Kohler, & Soenksen, 2003; Trussell, Hammond, & Ingalls, 2008; Allred, 2015). Researchers have shown that positive professional and family partnerships lead to parent/primary caregiver empowerment and competence. By creating trust, open communication, and positive working relationships, these partnerships can positively impact families of children with disabilities and lead to optimal educational outcomes (Dunst &

Dempsey, 2007). These working relationships are complex yet must be established throughout the various life stages of children with disabilities and their families (Minnes, Nachshen, & Woodford, 2003). In order to achieve desirable outcomes for children and families, these partnerships are crucial for students of all ages throughout the many stages of their development and educational transitions (Grove & Fisher, 1999; North & Carruthers, 2005; Shannon & Stuart, 2005; Devlieger & Trach, 1999).

While undergraduate and graduate-level special education teacher preparation programs are primarily focused on the fundamentals of teacher training—teaching methods, strategies, curriculum, and practicum experiences—there is little time to prepare them to work with families in the context of copious state certification and program course requirements. Many entry-level special educators enter the field with minimal direct experience in communicating and problem solving with families. Some student teachers may have initial contact and experience with families of their students by attending Individual Education Plan (IEP) meetings or participating in meet-the-teacher night, but they often do not have training in how to effectively communicate with families of children with disabilities (Allred, 2015). Pre-service teachers often have limited opportunities to build and maintain positive, trusting partnerships with parents and families by taking a lead teacher role (Korthagen, Loughran, & Russell, 2006; Hedges & Lee, 2010).

Purpose

This article aims to address the need for pre-service educators to work toward the family's goal(s) in home and community settings by describing a specific program focused on preparing pre-service teachers to gain experience working collaboratively with families of children with disabilities. Preliminary research on the experiences of pre-service teachers will be described and discussed next.

Graduate students enrolled in pre-service teacher education programs focused on Intellectual Disability and Autism Spectrum Disorder (ID/ASD) at Teachers College, Columbia University are required to enroll in a course called Working With Families of Children With Disabilities. While the majority of the students in this course are pre-service teachers, there were five students enrolled in a graduate program focusing on advocacy and agency work for children and adults with disabilities with a focus on ID/ASD. The course is centered on exposing pre-service teachers to the challenges families of children with disabilities experience day to day. Each student is paired with a family of a child with a documented disability including Attention Deficit Hyperactivity Disorder (ADHD), Down Syndrome, ID, ASD, Cerebral Palsy, and Emotional/Behavioral

Disorders. Students are required to spend 16 hours with the family in the home or community (natural environment). They work collaboratively with the family to decide how the 16 hours are best spent and are required to create a support product in order to address the child's and/or family's needs. As a final project, the students must prepare a written reflection of their overall experiences. The students are also asked to present their experiences and reflections as well as discuss and demonstrate their tangible support products with the class.

The class itself meets once a week for the duration of the semester and covers topics on families of children with disabilities throughout the lifespan, including infancy, early intervention, preschool, school-age adolescents, and adulthood. Furthermore, family and professional communication, collaboration, and partnerships are all emphasized in class activities and instructions. All topics are implemented using a variety of co-teaching models; these models are explained to students as they are implemented.

Throughout the semester, the instructors worked together in planning, teaching, and grading assignments to ensure collaboration and consistency in these areas. Planning included a brief lecture on the class session agenda, background or theory, a class activity, and student reflections based on their practicum experiences. Choosing the appropriate co-teaching model for each portion of the class session was carefully planned and orchestrated. Rubrics and guidelines for course assignments were co-created at the start of the semester. Each instructor assessed course assignments, papers, and projects for 50% of the students enrolled in the course. Prior to finalizing assignment grades and returning them to students, the professors reviewed scores and feedback for all students collaboratively. Table 1 provides examples of how class-session topics were linked to class activities.

Matching Students and Families

In order to engage students in fieldwork associated with the course objectives, each student enrolled in the course was paired with a family of a child with a disability. For students in initial teaching certification track programs, the age of the child with whom they were matched was within the age/grade range of their future teaching certification. Students engaged in traditional student teaching placements were guided by a mentor teacher to instruct students with disabilities in school settings. This practicum provided an opportunity to work with students in home and community settings.

One instructor served as the practicum placement coordinator in order to assign one consistent contact for families. At the start of the semester, students were asked to complete a survey to indicate their grade-level interest, past experience with families, and preferred location. Families who participated in

the practicum had one or two children with a documented disability and lived in or around Manhattan. Families varied from low to middle socioeconomic backgrounds. Most families lived near the college and within 10 minutes by way of public transportation, allowing students to easily travel to the homes. Families were recruited by the instructors through outreach to local agencies and school districts. In rare cases, students asked to be paired with a family who was not recruited by the instructors. These cases required approval by the instructors and were not permitted to be family members of the students. Practicum students were matched with a family based on age/grade range of their New York state teaching certification track, location, and disability-interest focus. In some cases, families had more than one child with a diagnosed disability. Once paired with a family, each student was required to spend 16 hours with the family throughout the course of the semester. Parents or guardians were required to be present at all times and sign a legal waiver at their initial visit.

Both instructors served as mentors to students throughout their practicum completion, and they consulted with each other when needed during the guidance process. Mentorship was provided during in-class sessions and office hours.

Instructors

The two instructors are state-certified special education teachers (one in New York and one in Connecticut) and have extensive background teaching students with various disabilities in general and special education settings. These instructors earned doctoral degrees in special education with a focus on ID/ASD. Collectively, they have more than 25 years of experience as special education teachers in school and community-based programs for students and families of children with a wide variety of high and low incidence disabilities, ages birth through adulthood.

Participants

There were 35 graduate students enrolled in the course. Thirty-one students were female and four students were male. Twenty of the graduate students were seeking certification in New York State in grades one through six, in both general and special education. Six of the graduate students held initial certification in special education and were in the process of completing

Table 1: Class Topics and Activities

Class topic/activity	Practicum activity
Interview process and interacting with families	<ul style="list-style-type: none"> The interview process is discussed and modeled in class. A Skype session with a family of a child with ASD and a family of a child with intellectual disability is the focus of the class session. Graduate students are able to practice asking appropriate questions to learn about family culture and dynamics. Students then prepare initial questions and discussion points for their family match.
Family-professional collaboration	<ul style="list-style-type: none"> Graduate students access the individualized family service plan (IFSP) or individual education plan (IEP) of the child they are matched with after being given parent/primary caregiver permission. Discussion centered on the IEP and the potential for carryover at home occurs between the graduate student and the parent/primary caregiver.
Collaborating with professionals to support families	<ul style="list-style-type: none"> Professional collaboration is discussed in class and students then discuss family desire for teacher and/or related service provider communication for carryover to home by graduate student.
How do we develop partnerships? Challenges, barriers, and positive support for families	<ul style="list-style-type: none"> Graduate students have classroom and school-based Positive Behavior Support (PBS) background both in theory and in practice. The family course focuses on PBS use in home by parents and teachers. The PBS challenges that students face in their practicums are discussed and explored in the class sessions throughout the semester.
Family training: best practices	<ul style="list-style-type: none"> Graduate students are exposed to various methods of parent training and coaching for use with families in home-based and community settings.

their graduate degrees, as well as an annotation on their certification in teaching students with severe and multiple disabilities. Four of the graduate students were seeking certification in special education grades seven through 12. Five students were enrolled in a graduate program, which focused on supporting students with disabilities without seeking state teaching certification. All students had a specific interest in teaching students with ID/ASD. The ages of the graduate students ranged from 21-40 (see Table 2). Furthermore, 66% of students reported having minimal experience working with families of students with disabilities. Minimal experience was defined as one year or less. Twenty-six percent reported having some experience, which was defined as one to two years working with families of students with disabilities. Only 8% reported no experience working with families of children with disabilities.

Method

Working With Families of Students With Disabilities is a course designed to blend theory and practice for pre-service teachers. Thirty-five graduate students enrolled in the practicum-based course and completed 16 hours of fieldwork. During the final class session, an online survey was administered to each enrolled student. All 35 students voluntarily participated in the online survey, which asked both open-ended and Likert-scale questions about their class and practicum experiences. Informed consent and a rationale for the questionnaire was included at the start of the survey. The instructors were interested in gaining student feedback on the course and practicum experience and how students thought each of these components helped to prepare them to work effectively as special educators with families of students with disabilities. The authors obtained approval by the Institutional Review Board for all participating graduate students. Upon completion of the surveys, the researchers reviewed the responses and created a summary of the results.

Results

Table 3 synthesizes the responses to the open-ended questions, including the following:

- In your opinion, what is the most effective aspect of this course?
- In your opinion, are there any areas of this course that could be improved? Please explain.
- Is the practicum broadening your experience and skills for working with families of children with disabilities? Please explain.

Table 4 provides data for the Likert-scale questions, which asked:

- I feel that I gained valuable knowledge regarding working with families of students with disabilities in school and home settings as a direct result of the co-teaching model used by Dr. Shamash and Dr. Martin.

Table 2: Participant Demographic Information

Demographic	Number (N)/percentage			
Age	21-25	26-30	31-35	36-40
	N = 30 85.71%	N = 3 8.57%	N = 1 2.86%	N = 1 2.86%
Gender	Female	Male		
	N = 31 88.5%	N = 4 11.4%		
Program enrolled	Elementary grades 1-6	Adolescent grades 7-12	Multiple/severe	Guidance and rehabilitation
	N = 20 57.14%	N = 4 11.4%	N = 6 17.14%	N = 5 14.29%
Experience working in special education (includes teaching assistant, camp counselor)	None	< 1 year	1-2 years	2-3 years
	N = 0	N = 5 14.29%	N = 16 45.71%	N = 14 40%
Current work setting	Student teacher	Public school lead teacher	Public school teaching assistant	
	N = 30 85.71%	N = 3 8.57%	N = 2 5.71%	
Level of experience working directly with families	None	< 1 year	1-2 years	2-3 years
	N = 3 8.57%	N = 23 65.71%	N = 9 25.71%	N = 0

- I feel more prepared to work with families of students with disabilities in the school and home setting than I did before the start of this course.
- I gained useful knowledge related to teaching strategies, communication, and working directly with families as a result of this class.

Discussion

Research has shown that family involvement leads to positive outcomes for both students with disabilities and their families; therefore, it is imperative that teachers are both educated and trained in how to build partnerships with families and effectively involve parents in the education process (Baum & McMurray-Schwarz, 2004). It has been found that positive parental and teacher relationships can lead to positive outcomes for students, including, but not limited to, increased levels of self-esteem, motivation for learning, and academic progress. Furthermore, teachers have also reported benefits of positive working relationships with families such as higher self-efficacy and job satisfaction (Hampshire, Havercroft, Luy, & Call, 2015).

Table 3: Instructor Feedback: Open-Ended Questions

Open-ended question:	Responses
<p>In your opinion, what is the most effective aspect of this course?</p>	<ul style="list-style-type: none"> • That we are able to apply theory with practice when working with families. I also enjoyed the personal experiences shared by guest speakers. • Definitely the practicum component—the experience is very valuable. • Some of the speakers. • The practicum aspect, which gives us real-life experience working directly with a family who has a child with a special need. • I have really valued having professionals and parents come into our lecture to speak to us about their perspectives and viewpoints. I appreciate the practical and real-life opportunities though. • Actually having the opportunity to work with a family with a child with a disability. I also like when we have visitors. • I like that we discuss real situations that we are facing with our family practicum as well as articles and lecture-based notes. • Working with a family. • Class discussion. • The guest speakers!!
<p>In your opinion, are there any areas of this course that could be improved? Please explain:</p>	<ul style="list-style-type: none"> • It is difficult sometimes to meet with the family because of both of our busy schedules. I also think that everyone is at different points and may have worked with their family for a longer/shorter amount of time, depending on their schedule. • I think the class time could be improved by becoming less general. Maybe we could look at specific family interventions, programs, or parent training opportunities in the city and learn how they work—that way we would also have resources to give to our families. • I am unsure of the depth I am receiving from the textbook—although important information, some of it is information I am already aware of/common sense. • It should be taken in the summer (or not when most everyone is student teaching)! • Perhaps my opinion is skewed slightly because I have experience working with families, but I feel like I am not as engaged as I would like to be with some of the lectures. I appreciate learning new jargon and new professional systems, but the majority of the lecture material is review and common sense to me. • I would like to focus a bit more on ways that as professionals we can be more sensitive to families’ needs in the classroom and working in the homes. Basically, I want to learn practical ways to provide support for families. I feel like our last class was exactly what I wanted. I also really like when we brainstorm ideas as a class to solve an issue (whether real or made up). It is really helpful to learn others’ ideas because I honestly will remember them for a long time. • I think that we can improve the course by having more interactive videos or some sort of outlet to make the lecture notes more entertaining. • I would have liked the hours component of working with the families to have been over the summer. I feel parents need more support systems in the summer rather than during the school year. • Sometimes the book is dry. The chapters are also long so it is difficult to read two chapters. • More applicable strategies. Even a list of strategies in being effective partners with parents would be super helpful!
<p>Is the practicum broadening your experience and skills for working with families of children with disabilities? Please explain:</p>	<ul style="list-style-type: none"> • This practicum is providing me with the opportunity to put myself in a situation that would have otherwise felt uncomfortable to me. I am pleased to be able to broaden my skills by working with a family that appreciates all of the help they can get. • Definitely! It’s really interesting to see things from the other perspective rather than from the classroom only. • Yes—providing in-depth insight into the life of a family with a child with a disability. • It is in terms of learning to be flexible, understanding, and open to new experiences. However, every family is different, and one experience certainly cannot prepare you for every other experience working with a family. • Yes. I have worked in the home before; however, every family and child is different and there are always new experiences, cultural perspectives, and ideas to take into consideration. • Yes, but I would like more discussion based about solving issues. Kind of like a case-study format. • Yes. I have had so much experience in the school and was always so curious what life was like for these kids when they went home, and this experience is really allowing me to see this exact interaction. • Yes! I am able to see the challenges parents face in raising a child with a disability. All of the little things are big things for them. • Yes. I do not think teachers always see how families interact outside of school. And all families are so different. I think working with a family has given me a small picture of just how many variables families deal with. • To be honest, I have already worked with families of children with disabilities in great depth. But any additional time is good. I wish we had an option to explore a topic and do a really long research review, because at this point I need strategies that I can apply in the future rather than experience from home visits, which does not generalize quite as well to what I will be doing in the future.

Table 4: Instructor Feedback: Likert-Scale Questions

Working With Families of Students With Disabilities: Experiences of a Co-Taught Teaching Model				
Question → Rating	Strongly agree	Agree	Disagree	Strongly disagree
I feel that I gained valuable knowledge regarding working with families of students with disabilities in school and home settings as a direct result of the co-teaching model used by Dr. Shamash and Dr. Martin.	57.14% (20)	34.28% (12)	8.57% (3)	0% (0)
I feel more prepared to work with families of students with disabilities in the school and home setting than I did before the start of this course.	62.86% (22)	34.28% (12)	2.86% (1)	0% (0)
I gained useful knowledge related to teaching strategies, communication, and working directly with families as a result of this class.	57.14% (20)	42.86% (15)	2.86% (1)	0% (0)

Therefore, the need to provide pre-service education courses and field experiences that involve working with families of students with disabilities is of utmost importance (Sauer & Kasa, 2012). One way we suggest this can be accomplished is by requiring at least one course that focuses on working with families of students with disabilities, including providing fieldwork experiences in the home and/or school settings for special education teacher training programs.

We have found preliminary supporting evidence that points to the importance of focusing on family-professional partnerships in pre-service teacher programs. The participants in this study have reported finding value in the opportunity to engage in “real-life experiences” with families of students with disabilities. Furthermore, they also reported gaining knowledge by linking theory to practice in the practicum component of the course as well as having the opportunity to work with a family directly in preparation for their careers as educators. They reported feeling more comfortable partnering (including communicating and collaborating) with families as a result of engaging in the practicum requirement of the course.

While the participants of this study were in agreement that the course and practicum were active agents in preparing them to collaborate with families, there were also suggestions from participants for improving the course and practicum. Some students reported difficulty in scheduling time with the family whom they were assigned, posing a challenge in completing the course requirement. Other students felt they desired even more practical experience rather than theoretical basis in class sessions. Overall, students reported wanting an increase in the number of practical strategies taught and experienced throughout this practicum course.

Limitations of the Study

This study includes both strengths and limitations. The strengths include the promising reports from pre-service teachers who found value in the course and fieldwork component that focused on family-professional collaboration. The results point to a need to further investigate the relationship between a practicum-based course for pre-service teachers on family-professional collaboration and special educators’ preparedness to work collaboratively with families. However, several limitations should be mentioned. One limitation includes the small sample size of this study, making it difficult to generalize to other groups of pre-service teachers. Another limitation is that the participants were enrolled in pre-service teacher programs at one institution. It would be advantageous to include samples from various institutions where pre-service teachers are prepared to work with families of students with disabilities across different geographical locations. This would diversify the sample and strengthen this study. Additionally, this study looked at student perceptions post-practicum. In order to investigate measured outcomes, a pre- and post-test would be ideal. Other limitations include the lack of specific parental demographic information as well as parental perceptions and sharing of experiences. In order to include a robust overview of the strengths and weaknesses of the practicum, parents should share their experiences as well and offer suggestions for improvements to the practicum.

Future Directions

The majority of research on the benefits of family engagement is based on general education research and, therefore, a broader span and scope of similar research is needed in the field of special education.

We plan to focus our future research on the key components of the course Working With Families of Children With Disabilities in order to build on the training of pre-service special educators in the area of family education, communication, and collaboration. The next steps in our research include investigating the preparedness of students who complete courses focused on family involvement, including fieldwork components. We seek to investigate the follow-up questions: Do pre-service teachers feel more prepared to collaborate with families on IEP goals and school-to-home carryover after completing the Working With Families of Children With Disabilities and practicum component? After completing such a course, do pre-service teachers improve their ability to teach children with disabilities and their families in home and community settings? In other words, how do courses that focus on family partnerships prepare pre-service teachers for their careers? While it is imperative for teachers to gain confidence in the area of professional-family collaboration, teachers also are required to gain practicum experience as well as the skills to work effectively and how these lead to effective family involvement and partnerships with teachers.

In order to widen the scope of our research, family perspectives will also be investigated. Family insight post-practicum is a component that can provide great feedback on how to improve the practicum components of such courses. Post-graduation outcomes are also of interest. How do teachers who have participated in a course and practicum that focuses on family collaboration view their roles as family partners in the first years of teaching compared to teachers who have not enrolled and participated in similar experiences?

Working in partnership with families for the benefit of their child is not only good practice, it is also required by law. Academic programs are faced with the challenge of adequately preparing teachers to work with families beyond the walls of the higher-education classroom. It is our mission to improve upon this much-needed area of teacher preparation and investigate the various ways institutions prepare teachers to serve as effective partners with families.

Preliminary research is underway to look at both graduate-student experiences, and preparation for working with families of children with disabilities as well as potential family benefits. Quantitative and qualitative data is currently being examined in order to gain a greater understanding of the components of the course and practicum, which are most useful to students in gaining understanding, perspective, and teaching skills with families of students with disabilities.

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Prioritizing
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Quality in the Higher Education System: Use of the Quality Function Deployment Tool

Godson A. Tetteh

Abstract

The purpose of this study was to focus on the extent to which administrators meet the major stakeholders' (academic leaders, administrators, teachers, and students) expectations in higher education to achieve quality. A secondary data analysis was conducted using data with a convenience sample of 200 participants from the major stakeholders in higher education. Quality function deployment was used to prioritize the expectations of these stakeholders. The results indicate that top management attitude, commitment, and involvement toward quality strategies to minimize student absenteeism should be considered as the top priority to achieve quality higher education. The outcome of this study could aid higher education administrators in improving existing planning processes and identifying critical-to-quality needs of other major stakeholders with some social benefits. The contributions of this study include a review of literature and the use of the quality function deployment tool to assess the extent to which stakeholders' expectations are met.

Keywords:

Quality Function Deployment, Higher Education Administrators, Higher Education Teachers and Students, Stakeholder Expectations

Introduction

Higher Education Administrators (HEAs) face a daunting task with persistent demands for rigorous academic quality standards and the call to meet all the needs and expectations of the major stakeholders, which include regional agencies and policymakers, HEAs, teachers, and students. From the conceptual framework in quality management, stakeholder (or customer) satisfaction is the leading criterion for determining the quality of the product/service offered (Ganguli & Roy, 2011; Gil, Berenguer, & Cervera, 2008; Pizam, Shapoval, & Ellis, 2016; Vavra, 1997, 2002).

Quality science, just like marketing science, establishes the need to clearly define and understand the needs of the customer or stakeholder as a prerequisite for any management philosophy (Kotler, 2012). Conversely, Sunder (2016) posits that there is no research-based concrete definition for a customer in higher education institutions (HEIs). Ironically, the different customer groups or major stakeholders in HEIs have different needs, goals, and expectations. Quality higher education is a broad concept, and it is not surprising that most studies have not attempted to measure it directly and have instead taken educational attainment as an acceptable proxy measure. Defining quality in terms of the HEIs evokes much debate as quality is affected by various factors, such as the students, global economy, teaching and learning processes, learning outcomes, and benefits of education (Harvey & Green, 1993; UNESCO, 2014).

It has been argued that perceptions of quality have an effect on the approach applied to assure quality, and stakeholders think about quality in different ways (Elassy, 2015; Udam & Heidmets, 2013). The purpose of this study was to assess the extent to which stakeholders' expectations are met in HEIs using the quality function deployment (QFD) (Akao, 1997) model. This article builds on stakeholder-focused approaches to provide a method to assess the extent to which stakeholders' expectations are met and build consensus in

HEIs by extending QFD. While customers or stakeholders are at the heart of the QFD model, more diverse stakeholder expectations have recently been considered in the QFD literature (Dey, Bhattacharya & Ho, 2015; Yu, Chen, Chen, & Chang, 2012). However, Driessen and Hillebrand (2013) lament the paucity of empirical research regarding the integration of stakeholders' expectations in the quality of higher education. In order to better understand the major stakeholder expectations about quality in higher education, a highly reliable, minimally burdensome psychometric tool measuring the factors that contribute to the quality and barriers is necessary (Lambert, Azuero, Enah, & McMillan, 2017). The contributions of this article include a review of literature and the use of the QFD tool to assess the extent to which stakeholders' expectations are met. The remainder of the article is organized as follows. First, the recent literature on major stakeholder expectations in HEIs is discussed. Then, the role of QFD in prioritizing major HEI stakeholder expectations is presented.

Literature Review

The review considered all published and grey literature from recent and relevant writings to ensure that all goals, expectations, and focus of the major stakeholders in HEIs are included. It is well-established that the quality of higher education evolves through the influence of the major stakeholders. These stakeholders have a key role in determining higher education policy, its implementation, and the efficacy of its outcomes. This study was influenced by both stakeholder theory and participatory theory; therefore, the literature review is categorized based on theory.

Stakeholder Theory

Stakeholder theory suggests that a higher education entity comprises a complex network of stakeholders, all of which the institution must manage (Freeman, 1984; Freidman & Miles, 2002). To this extent, Freeman (1984, p. 46) classically defined a stakeholder as "any group or individual who can affect or is affected by the achievement of the institute's objectives."

Razavi, Safari, and Shafie (2012) posit that stakeholder satisfaction is the ultimate goal to achieve quality higher education. Consequently, the goals, objectives, and focus of some of the major stakeholders in HEIs at times could be conflicting (Pham & Starkey, 2016). Notwithstanding, the links between stakeholder satisfaction and expectations are particularly complex to analyze since each stakeholder is likely to be affected by many different and sometimes conflicting interrelated expectations (Verbong & Geels, 2007). The method to resolve these stakeholder conflicts is referred to as policy mix or stakeholder conflict resolution (Flanagan, Uyerra, & Laranja, 2011). The importance of policy mixes has been highlighted in many different contexts,

including innovation expectations (Borrás & Edquist, 2013) and evaluation of innovation policy mixes (Magro and Wilson, 2013). However, most of the research has been conceptual and focuses largely on innovation-related expectations (Kivimaa & Kern, 2016) rather than the transformation of existing policy regimes or stakeholder expectations (Turnheim & Geels, 2013).

Against this background, HEI stakeholder expectations or policy mixes must be developed for analysis from the perspective of the major stakeholders (Huttunen, Kivimaa & Virkamäki, 2014). However, tools that base the analysis of policy coherence on stakeholder expectations are lacking in the literature (Schillo, Isabelle, & Shakiba, 2017).

Participatory Theory

Participatory theory stresses the need for sustained stakeholder involvement to help HEAs make effective decisions (Pateman, 2012). Theoretically, greater participation by the major stakeholders in the HEA's decision making builds consensus for education reform, policy making, and quality of higher education (Wickremasinghe, Hashmi, Schellenberg, & Avan, 2016). Although participatory decision making promotes greater sharing of goals, improved motivation, efficient communication, and better-developed skills, it may become problematic among stakeholders (Owens & Valesky, 2006; Quantz, Cambron-McCabe, Dantley, & Hachem, 2016).

As the number of stakeholders increases, there is likelihood of disagreement on the definition of quality of education and miscommunication of expectations and priorities (Kreps, 1990; Finch, 1994; Hatami, Rangraz, & Jahromi, 2016). The quality of higher education may be defined differently from the perspective of the major stakeholders. For example, Hohner and Tsigaris (2012) postulate that Canadian higher education and Chinese partner students perceive high-quality reputation and professional accreditation as equally important in terms of signaling quality. However, Smith (2010) and other studies found that higher transnational education systems have particular challenges in maintaining quality (Altbach & Knight, 2007). The goals or expectations of the major stakeholders clearly create a conflict. Some of the expectations of the major stakeholders in the higher education system will be discussed later.

Regional Agencies and Policymakers

The United Nations Educational, Scientific, and Cultural Organization's (UNESCO) mission for the 21st century is an education that transforms lives, builds peace, eradicates poverty, and drives sustainable development (UNESCO Education for the 21st Century, 2016). UNESCO believes that education is a human right for all throughout life and that access must be

matched by quality. UNESCO's vision of quality higher education is that the major stakeholders (e.g., states, regional agencies, HEAs, and teachers) must focus on empowering students to achieve their goals of a right to a decent job. The challenges of the right for decent work are particularly daunting for youth entering the labor force. According to the International Labor Organization (ILO, 2014), if current trends continue, global unemployment is set to worsen, further reaching more than 215 million job seekers this year.

The fundamental purpose of HEIs from a policymaker's perspective is to develop the knowledge and skills that students need for professional, technical, and managerial positions. Brint and Clofter (2016) posit that higher education has expanded from an elite to a mass system, and policymakers have taken an interest in whether higher education opportunities are fairly distributed and accessible to all. Goldin and Katz (2008) also argued that higher education accessibility is an important measure of social mobility to bring greater equality to society. Policymakers have focused on the volume and quality of higher education's production of basic and applied researchers, who will become the next generation of scholars and scientists (Cole, 2009).

Finally, policymakers would want to expand higher education to ensure that human capital development meets the changing occupational needs of an increasingly knowledge-based society. Thus, Brint and Clofter (2016, p. 2) suggest the following questions for quality higher education to meet stakeholders' expectations:

- *“Are students being prepared adequately for the labor market?”*
- *“Is the system accessible to students from all backgrounds?”*
- *“How large are the gaps in success between students from different backgrounds?”*
- *“Is research productivity high and is it contributing to human well-being?”*
- *“Are HEIs producing well-prepared graduate students?”*
- *“Are the new business methods contributing to greater quality and effectiveness in the allocation of resources?”*
- *“Has the emphasis on interdisciplinary collaboration led to a greater capacity to tackle key national problems?”*
- *“How much are students learning?”*
- *“To what extent are the new instructional practices and technologies contributing to student learning?”*

There is a need for HEAs to meet these expectations of the regional agencies and policymakers.

Higher Education Administrators

HEAs are confronting an ever-declining student population and an oversupply of capable higher education service providers, including the growth of the distance-education market via the Internet (Emiliani, Kensington, and Most, 2005a). Most degree programs are quickly imitated by competitors, leaving administrators to compete on the basis of price. HEAs, however, focus on the increase in enrollment and higher education ranking among others for success (Sunder, 2016). Notwithstanding, increasing enrollment could translate into less prepared students who cannot cope with their studies. A National Governors Association (1986) study suggests that international competition and the increasing number of students entering higher education with low levels of academic preparation heightens worries about the quality of higher education. HEIs, by increasing enrollment, may translate into larger class sizes, which may conflict with teachers' or students' definition of quality. Teachers may prefer a smaller ratio of students per teacher in terms of quality.

Shabani, Okebukola, and Oyewole (2014) discuss three key factors that led to the decline in quality of higher education, which include a reduction in per-unit costs; a rapid increase in student enrollment, which contributed to the deterioration of the student-to-teacher ratio (the ratio in 2013 was one teacher per 47 students compared to the ratio of one teacher per 16 students in the Organization for Economic Co-operation and Development member countries); and the poor quality of students admitted to HEIs. HEAs may be forced to increase school fees due to constraints they encounter with teachers and the infrastructure, which may lead to protests and violence (Karodia, Soni, & Soni, 2016). There is an ongoing debate at the South African Fees Commission whether the state or the students should be responsible for the rising cost of higher education (Allison, 2015).

Most HEAs rely on global ranking and accreditation institutions to determine quality higher education. Marginson and Van der Wende (2007) argued that research rankings by Shanghai Jiao Tong University and the composite rankings by the Times Higher Education Supplement have been widely publicized and accepted globally. However, neither the Shanghai nor the Times rankings provide guidance on the quality of teaching. The Marginson and Van der Wende (2007) study suggested a “clean” ranking, transparent, free of self-interest, and methodologically coherent, which creates incentives to broad-based higher education quality improvement. On the part of HEIs, one way to measure the growth in knowledge production is to examine how many research papers are published in journals. HEIs with higher publications normally attain higher global rankings (Times Higher Education, 2015). However, Van Dyke (2005)

argued that the various rankings systems are driven by different purposes and are associated with diverse notions of what constitutes higher education quality.

Nevertheless, student-learning outcomes are assessed by accreditation bodies to achieve quality higher education. However, a report on accountability in higher education released in 2009 (Kuh & Ikenberry, 2009) revealed that assessment of student-learning outcomes for accreditation often remained surface-level, and were often treated as a matter of compliance rather than as a deeper commitment. This study suggested that many departments went through the motions of assessing student-learning outcomes, without using the results to improve the program performance (Kuh & Ikenberry, 2009). A recurring difficulty is that no ranking or quality-assessment system has been able to generate data based on measures of “value added” during the educational process (Dill & Soo, 2005). HEAs must find a tool to resolve these conflicts in order to satisfy and meet stakeholder expectations for achieving quality higher education.

Higher Education Teachers

Higher education teachers are promoted based on their research, teaching, and service to the community. However, a New York University professor described how crusading against cheating in the classroom poisoned the environment and, therefore, dragged his teaching evaluations below average to a 5.3 out of a maximum of 7.0 (Parry, 2011; Lipson & Karthikeyan, 2016).

Nonetheless, Perry (1994) points out that poor teaching by academics, who were distinguished in research, failed when it came to communicating their knowledge to students (Tubosun, 2016). Tubosun (2016) further argued that this form of laxity could be tolerated if the students were part of a gifted elite who compensate for this mediocre teaching by their own efforts. Higher education teaching will then have to be highly skilled and appropriate to the diverse needs of the student population. The conflicts between the goals and expectations of the teacher and the HEAs need some type of resolution in order to achieve quality higher education.

Students and the Employers

HEIs’ vision and mission statements focus on the students in order to provide quality education and create an enabling environment. However, several studies have defined students as the primary customers in the HEIs (Wallace, 1999; Mergen, Grant & Widrick, 2000; Gruber, Reppel, & Voss, 2010) and teachers, administrative staff, and other employees as a category of customers (Kanjji, Malek, & Tambi, 1999). In one study, Sharabi (2013) categorizes the major stakeholders of HEIs into three

tiers—students (customer tier), other employees (boundary tier), and HEAs (coordination tier).

Gruber et al. (2010) treated students as customers in the service industry and stated that HEIs must focus more on meeting or exceeding students’ expectations to be successful in this fierce competition. Nevertheless, Goh (2014) posits that the concept of “customer satisfaction” must be viewed in a different context through the new realities of the globalization of services.

The expectation of every student in an HEI is to graduate and obtain a decent job to improve his or her earnings according to the UNESCO’s Global Education 2030 Agenda through Sustainable Development Goal 4 (UN Sustainable Development Goals, 2016). Thus, the teaching and learning processes as well as the outcomes must promote problem solving and creative thinking, understanding and respect for human rights, inclusion, and equity, all of which are essential to realizing peace, responsible citizenship, and sustainable development.

Notwithstanding, Tetteh (2015) postulates that some students have been noted as only interested in earning a degree and not necessarily acquiring the knowledge, thus making them unprepared for the job market. Although HEIs are good at developing specialist professionals, they are criticized for their inability to produce well-rounded graduates and, in particular, those who understand business-process orientation and cross-functional integration (Kavanagh & Drennan, 2008). Employers will not tolerate graduates who are not well-rounded and trained and whose knowledge and skills are unrelated to the company’s needs. Such employers need to retrain these graduates to suit their needs at a higher cost. In one study, Green (1994) conjectures that retraining generalist graduates absorbs large quantities of time and resources within the company. Many employers are beginning to ask why the higher education system has not used its own resources more effectively to develop appropriate knowledge and skills in their graduates (Green, 1994). The nature of higher education teaching will need to become not only more varied and versatile but will also have to be high quality to exceed stakeholder expectations.

From this perspective, major stakeholders’ needs and expectations should create the desired environment for institutional change and improvement (Hess & Benjamin, 2015). Atugade, Awate, Shinde, and Harugade (2016) posit that QFD can be used to resolve some of these stakeholder conflicts in the higher education system.

Quality Function Deployment

QFD (Akao, 1997) is a tool used to focus on the important stakeholder expectations, also known as critical-to-quality (CTQ) measures, to define such things as product or service

requirements, design features, or processes to meet or exceed those expectations (Franceschini, 2016). QFD uses affinity diagrams for gathering unstructured ideas, systematically organizing the ideas to identify conceptual patterns, and negotiating key priorities for decision making. An additional benefit is that QFD is able to document key decisions in a form that could be used for future improvement efforts.

QFD works by first identifying and prioritizing stakeholder requirements and expectations. The meaning of quality higher education depends on what the major stakeholders expect to achieve through higher education. However, Hwarng and Teo (2001) write that a critical step in implementing QFD is to identify current and potential stakeholders. Stakeholder focus must provide direction for higher education quality improvement initiatives. Challenges in implementing the QFD (Akao, 1997) model to resolve some of these conflicts in HEIs include resistance to change by administrators, teachers, and staff members; lack of time; short-term thinking; stuck on tradition; “what-is-in-it-for-me?” mentality; and lack of support from team members (Akao, 1990). Studies have found that higher education stakeholders held diverse perspectives on quality and were reluctant to use the results of accreditation evaluation reports because of conflicts of interest among stakeholders (Fenwick, 2016; Pham & Starkey, 2016; Miller, 2016). Notwithstanding, a long-term Harvard study found that institutions which explicitly put their stakeholders first did less well than institutions that balanced the interests (e.g., CTQ characteristics) of all their stakeholders (Caulkin & Black, 1994; Kotter & Heskett, 1992). Previous research acknowledges the risk of the HEA solely relying on his/her expectations to achieve quality higher education (Keller, Bergman, Heinzmann, Todorov, Weber, & Heberer, 2014).

Other studies that measure the quality of higher education used Higher Education Service Quality (SERVQUAL) (Parasuraman, Zeithaml, & Berry, 1985; Tuan, 2012), Higher Education Performance Only (HEdPERF) (Abdullah, 2006), and Higher Education Service Quality (HiEdQual) (Annamdevula & Bellamkonda, 2012) instruments. Table 1 provides an overview of tools used in measuring quality in higher education. Nonetheless, Abidin (2015) argued that the differences in SERVQUAL, HEdPERF, and HiEdQual models show that service quality varies, depending on the research objective and the stakeholder group and, therefore, are unsuitable for the purpose of this study. Even though literature demonstrates the use of other quality constructs for higher education processes (Burtner, 2004; Emiliani, 2005b), there is a clear gap of using QFD (Akao, 1997) deployment in higher education systems in particular (Sunder, 2016). Recent studies related to the public sector applied QFD with a multi-stakeholder perspective;

Table 1: Tools for Measuring Quality in Higher Education

Quality tool	Research objectives	Sample empirical studies
SERVQUAL	Tangibles, reliability, responsiveness, assurance, and empathy	Parasuraman et al., 1985; Tuan, 2012
HEdPERF	Non-academic aspects, academic aspects, reputation, access	Abdullah, 2006
HiEdQual	Teaching and course content, administrative services	Annamdevula and Bellamkonda, 2012
QFD	Integrating customer requirements into product design	Akao, 1990; Kano et al., 1984

however, the studies did not address the concerns of policy development, but rather focused on specific organizations, projects, or at the broadest to well-defined industries (Shin, Shin, & Lee, 2013; Yu et al., 2012). Hence, such QFD applications in the higher education system can consider the importance of major stakeholders’ perspectives. The tool must help the HEA improve the existing processes by focusing on efforts or rank the CTQs to ensure the maximum results in quality higher education. QFD (Akao, 1997) and the Kano, Seraku, Takahashi, and Tsuji (1984) model are tools that have been used extensively to identify and translate the voice of customer to improve quality (Al-Bashir, 2016; Tetteh, 2015).

This article attempts to fill a part of this lacuna by using QFD to identify the CTQ characteristics of the major stakeholders and the extent to which their expectations are met. The outcome could aid HEAs in improving the existing planning processes and help identify the needs of other major stakeholders with some social benefits.

Research Method

In the context of higher education, researchers have acknowledged the importance of different stakeholders but have not yet integrated the systematic link with a broad range of expectations (Schillo et al., 2017). In general, QFD frameworks might be considered an obvious solution to establishing such systematic links. Energy expectation researchers have successfully applied it to energy contexts (Scott, Ho, Dey, & Talluri, 2015). However, it appears that no application of QFD to the quality of higher education with multiple stakeholders has been documented yet.

The proposed QFD methodology is made up of four steps. Step one involves stakeholder identification and expectations. Step two serves to assess the relative importance of each stakeholder interest. In step three, the QFD matrix is created for each

stakeholder group, including the calculation of scores indicating the contribution of each expectation. The final step comprises prioritization of the stakeholder expectations.

The study aimed at gaining an understanding of quality higher education from the perspectives of the major stakeholders (academic leaders, administrators, teachers, and students) leading to the formation of the four groups of stakeholders. To that end, Sunder (2016) proposed the major stakeholder expectations (CTQ or Y - 22 items). Stakeholder requirements as noted by Albliwi et al. (2014) (X's - 35 items) are used in this study in the questionnaire as depicted in Table 2 on pp. 23-24. Although each stakeholder expectation is important, it is necessary to prioritize them to help resolve any conflicts over what to do first.

To ensure consensus is built among the stakeholders, a good performance standard must be established (Breyfogle, 2003). Such a standard includes the operational definition of the higher education process, target performance, specification limits, and a defect definition from the stakeholder's perspective (CTQ or Y). The purpose of an operational definition of the higher education process is to remove ambiguity among the stakeholders. To build the house of quality using QFD, a list of stakeholder requirements ("whats") is made in primary, secondary, and tertiary sequence. The importance of each "what" item is determined from a survey using a Likert rating scale (e.g., 1-5, where 5 is the most important) in order to prioritize each characteristic to help resolve any conflicts regarding what to do first. In building the house of quality, 22 major stakeholder expectations (CTQ or Y) using 22 items defined by Sunder (2016) were employed, as shown in Table 3.

A list of design requirements ("hows" or Xs) that are necessary to achieve the "whats or Ys" was then compiled. The design requirements ("hows") that affect one or more of the stakeholder attributes are listed across the top of the matrix. Each design requirement described the higher education process in measurable terms and had a direct effect on stakeholder perceptions. For the quality process requirements ("hows" or Xs) adopted from Albliwi et al. (2014), five of the 35 items were selected after screening to build the interrelationship matrix for the data analysis (Karsak, Sozer, & Alptekin, 2003; Tetteh, 2015) including:

- Top management attitude, commitment, and involvement toward quality assurance (QA)
- Resources (financial, technical, human, etc.)
- Resistance of culture change
- Communication among staff
- Leadership skills as well as visionary and supportive leadership

Table 3: Major Stakeholder Expectations

1. Pass percentage of students in a class
2. Turnaround time for issuing books in college library
3. Turnaround time for admission process
4. Overall student satisfaction score
5. Laboratory equipment availability
6. Computer systems downtime at the university
7. Number of students placed at corporate jobs
8. Salary range of passed students from the university
9. Residential facilities at hostel rooms
10. Facilities at college gymnasium and sports center
11. Increase in student enrollment
12. University ranking
13. Number of research papers published per department
14. Quality of research
15. College maintenance and infrastructure
16. Food wastage in university cafeteria
17. Standard of teaching
18. Student absenteeism
19. Accuracy of medical prescriptions at university's clinic
20. Paper consumption in the university
21. Accreditation process
22. Accreditation would ensure quality

To develop the relational matrix, each stakeholder expectation ("what") was compared against the list of identified product or service requirements ("hows") and were assessed for specific measurement requirements as shown in Table 4 (page 25).

Cell strengths within the matrix were determined to quantify the importance of each "how" item relative to each "what" item. Symbols describing these relationships include high (h), which indicates strong importance or a strong relationship, medium (m), which shows some importance or relationship, low (l), which points to a small importance or relationship, and no mark, which indicates no relationship or importance. The symbols are later replaced by weights (9, 3, 1, and 0, respectively) to give the relationship values needed to make the technical importance calculations. Vague and trivial characteristics were avoided for the sake of clarity.

In developing the relationship matrix, the participant decides if the relationship between meeting the expectation and improving stakeholder satisfaction is strong, moderate, or weak. When the matrix is complete, the requirements were prioritized by

Table 2 Stakeholder Expectations and Requirements (continued on next page)

Stakeholder expectation (“What”)	Importance 9-point Likert scale 1 = Never important 2 = Not very important 3 = Occasionally important 4 = Sometimes important 5 = Fairly important 6 = Quite often important 7 = Very often important 8 = Continually important 9 = Always important	Stakeholder requirements X’s (“How”) (Albliwi et al., 2014)																	
		Relationship matrix between “What” and “How” (Low=1; Medium=3; High=9)																	
		1. Top management attitude, commitment, and involvement toward quality assurance (QA)	2. Training and education on QA	3. Project selection and prioritization for QA	4. Resources (financial, technical, human, etc.)	5. Link between the QA projects and the strategic objectives of the organization	6. Resistance to culture change	7. Communication among staff	8. Leadership skills and visionary and supportive leadership	9. Consideration of the human factors	10. Awareness of the benefits of Lean/Six Sigma	11. Selection of Lean/Six Sigma tools	12. View of Lean/Six Sigma as a set of tools, techniques, and practices	13. Understanding of the different types of stakeholders/VOC	14. Employee engagement and participation/lack of team autonomy	15. Process thinking and process ownership	16. Organization capabilities of QA initiatives	17. Implementation cost of QA initiatives	18. Experience in Lean/Six Sigma project implementation for QA
Students and parents (Sunder, 2016)																			
1. Pass percentage of students in a class																			
2. Turnaround time for issuing books in college library																			
3. Turnaround time for admission process																			
4. Overall student satisfaction score																			
5. Laboratory equipment availability																			
6. Computer systems downtime at the university																			
7. Number of students placed at corporate jobs																			
8. Salary range of passed students from the university																			
9. Residential facilities at hostel rooms																			
10. Facilities at college gymnasium and sports center																			
11. Increase in student enrollment																			
12. University ranking																			
13. Number of research papers published per department																			
14. Quality of research																			
15. College maintenance and infrastructure																			
16. Food wastage in university cafeteria																			
17. Standard of teaching																			
18. Student absenteeism																			
19. Accuracy of medical prescriptions at university clinics																			
20. Paper consumption in the university																			
21. Accreditation process																			

Table 2 Stakeholder Expectations and Requirements (continued from previous page)

Stakeholder expectation (“What”)	Importance 9-point Likert scale 1 = Never important 2 = Not very important 3 = Occasionally important 4 = Sometimes important 5 = Fairly important 6 = Quite often important 7 = Very often important 8 = Continually important 9 = Always important	Stakeholder requirements X’s (“How”) (Albliwi et al., 2014)																
		Relationship matrix between “What” and “How” (Low=1; Medium=3; High=9)																
		19. Awareness of the need for Lean/Six Sigma for QA initiatives	20. Project management for QA initiatives	21. Selection of candidates for QA training	22. Clear vision and a future plan for QA initiatives	23. Effective model or roadmap to guide the QA implementation	24. Execution of QA initiative	25. Threat of QA redundancy	26. QA initiative is time consuming	27. Estimation of QA implementation cost	28. Infrastructure support for QA initiative	29. Replicating another institution’s QA strategy	30. Performance measurement system for QA initiatives	31. Understanding of how to get QA started	32. Application of statistical theory	33. Linking suppliers to QA initiatives	34. Alignment between the QA project aim, the main goals of the institution, and the stakeholder demand	35. Effective involvement and utilization of the entire work force for QA initiatives
Students and parents (Sunder, 2016)																		
1. Pass percentage of students in a class																		
2. Turnaround time for issuing books in college library																		
3. Turnaround time for admission process																		
4. Overall student satisfaction score																		
5. Laboratory equipment availability																		
6. Computer systems downtime at the university																		
7. Number of students placed at corporate jobs																		
8. Salary range of passed students from the university																		
9. Residential facilities at hostel rooms																		
10. Facilities at college gymnasium and sports center																		
11. Increase in student enrollment																		
12. University ranking																		
13. Number of research papers published per department																		
14. Quality of research																		
15. College maintenance and infrastructure																		
16. Food wastage in university cafeteria																		
17. Faculty members’ standard of teaching																		
18. Student absenteeism																		
19. Accuracy of medical prescriptions at university clinics																		
20. Paper consumption in the university																		
21. Accreditation process																		

Table 4: House of Higher Education Quality

Quality in HE System – 1													
Stakeholder expectation (CTQ = Ys)	HE quality process requirements – Xs											Total	
	Importance	Top management attitude, commitment, and involvement toward QA	Training and education on QA	Project selection and prioritization for QA	Resources (financial, technical, human, etc.)	Link between the QA projects and the strategic objectives of the organization	Resistance to culture change	Communication among staff	Leadership skills and visionary and supportive leadership	Consideration of the human factors	Awareness of the benefits of Lean/Six Sigma		
1. Pass percentage of students in a class	4	h	l	l	m		m	m	l	m	l		100
2. Turnaround time for issuing books in college library	4	h	l		m		m	m	l				80
3. Turnaround time for admission process	4	h			m		m	m					72
4. Overall student satisfaction score	5	h	m	m	h	m	m	m	m	m	m		210
5. Laboratory equipment availability	4	h			m		m	m	l				76
6. Computer systems downtime at the university	4	h			m		m	m	l				76
7. Number of students placed at corporate jobs	4	h			m		m	m	l				76
8. Salary range of passed students from the university	4	h			m		m	m	l				76
9. Residential facilities at hostel rooms	4	h			m		m	m	l				76
10. Facilities at college gymnasium and sports center	4	h			m		m	m	l				76
11. Increase in student enrollment	4	h			m		m	m	l				76
12. University ranking	3	h			m		m	m	l				57
13. Number of research papers published per department	3	h			m		l	m	l				51
14. Quality of research	3	h			m		l	m	l				51
15. College maintenance and infrastructure	3	h			m		l	m	l				51
16. Food wastage in university cafeteria	3	h			m		m	m	l				57
17. Standard of teaching	3	h	m	m	m	l	m	m	l	l	l		84
18. Student absenteeism	3	h	m	m	m	l	m	m	l	l	l		84
19. Accuracy of medical prescriptions at university clinic	3	h			m		m	m	l				57
20. Paper consumption in the university	3	h			m		m	m	l				57
21. Accreditation process	3	h			m		m	m	l				57
22. Accreditation would ensure quality	3	h			m		m	m	l				57
Total		702	41	37	264	21	216	234	84	33	25		

multiplying the strength of each relationship (9 for high, 3 for medium, and 1 for low) by the importance number (1 to 5) for each corresponding stakeholder expectation. The results for each requirement are then summed and shown at the bottom of the matrix (Breyfogle, 2003) as depicted in Table 4.

Although the consideration of multiple stakeholders is a classic issue in QFD (Sun & Liu, 2010), there is no generally accepted method applicable to all circumstances. A simple solution, to weight all stakeholders equally, seems to have been applied successfully at SAP (Sun & Liu, 2010), although this is deemed a limitation in recent literature. Researchers typically pursue one of two methods to consider stakeholders. They are assigned weights based on their importance to the organization (see, Scott, Ho, & Dey, 2013; Ho, Dey, & Lockström, 2011), or the assignment of weights occurs at the level of requirements, where, for example, every requirement for each stakeholder is compared to each requirement for other stakeholders (Liu, Sun, Veera, Kyoya, & Noguchi, 2006).

Data Collection

The number of major stakeholders invited to join the research relied on the availability of these participants from the five higher education institutions in Accra, Ghana. This aimed at ensuring “the maximum variation sampling” (Patton, 2002; Pham & Starkey, 2016). The selection of student participants also varied across the five higher education institutions (public and private). Purposive sampling was applied to ensure maximum variation sampling.

This action research approach is used to study how an account of multiple stakeholder expectations when using the QFD (Akao, 1997) model can support the identification of a wide range of needs to improve quality higher education. The author acted as an action researcher, conducting research within the Ghanaian higher education institutions (Coghlan & Brannick, 2008).

The data for this research were collected through participative observations and interviews with major stakeholders. An overlap between data collection and data analysis allowed the researchers to iteratively collect and analyze data (Coghlan & Brannick, 2008; Meredith, 1998). Emails and face-to face interviews were used to obtain data for stakeholder expectations in

Table 5: Number of Participants Based on Status

Major stakeholder	Frequency	Percent
Academic leaders	20	10.0%
Administrators	38	19.0%
Teachers	37	18.5%
Students	105	52.5%
Total	200	100%

Table 6: Number of Participants Based on Gender

Gender	Frequency	Percent
Male	106	53%
Female	94	47%
Total	200	100%

this study. Direct methods such as interviews can aid in identifying spoken expectations, whereas indirect methods such as observations are necessary to identify unspoken expectations. A qualitative-content analysis (Flick, 2009) was carried out focusing on practical implications of the QFD (Akao, 1997) model and the relationships to different stakeholder expectations to improve higher education quality. Thus, the data were related to the theoretical framework through a second-order analysis of the empirical material (Gustavsson, Gremyr, & Sarenmalm, 2016; Reason & Bradbury, 2009; Tetteh, 2015).

Participants

Two sources were used. First, an email was sent to the 250 stakeholders, and 113 responses were used. Second, face-to-face interviews of 87 stakeholders, which lasted about 45 minutes each, were recorded and transcribed. The use of multiple data sources could be considered triangulation, which serves to strengthen the findings (Bryman & Bell, 2007). A reflective dialogue between the researcher and the stakeholders was used to sort out the needs, which increased the understanding, credibility, and internal validity of stakeholder expectations (Eisenhardt, 1989).

A total of 200 participants from three public and two private HEIs responded to this survey. Tables 5 and 6 illustrate the details.

Data Analysis

This article presents the results of a psychometric evaluation of the 91 items as depicted in Table 7. A general rule in determining the reliability of an instrument is that the indicator should have a Cronbach’s alpha of 0.60 or more (Nunnally, 1978). The Cronbach’s alpha for the 91 items in the study was 0.732, indicating that the instrument was reliable and suitable for analysis. The 91 item scales demonstrated good to very good internal consistency with Cronbach’s alphas ranging from 0.67 to 0.82 (Lambert et al., 2015). The analyses were conducted using SPSS for statistical computing (version 23).

Table 4 depicts the completed QFD matrix. The numeric quantities (sum of each requirement at the bottom of the matrix) have no real meaning, but they do help to prioritize the relative

importance that meeting each of the identified requirements would have in satisfying the package of identified stakeholder expectations (CTQ = Y).

Results

The focus of this article was to use QFD (Aka, 1997) to build consensus among the major stakeholders to assess the extent to which expectations are met in the higher education

Table 7: Reliability Statistics

Reliability Statistics			
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items	
.732	.165	91	

Summary Item Statistics			
	Maximum/Minimum	Variance	N of Items
Inter-Item Correlations	-1.022	.293	91

Scale Statistics			
Mean	Variance	Std. Deviation	N of Items
427.97	622.346	24.947	91

Hotelling's T-Squared Test				
Hotelling's T-Squared	F	df1	df2	Sig
128007.065	786.196	90	110	.000

system. The QFD model used a robust method of evaluation to obtain the priority levels of the process requirements (Xs) for achieving quality in the higher education system as depicted in Figure 1. The results indicate that top management attitude, commitment, and involvement toward quality assurance, with a rating of 702, has the greatest impact on stakeholder satisfaction; followed by resources—financial, technical, human, etc. (rating 264); communication among staff (rating 234); resistance to culture change (rating 216); leadership skills and visionary and supportive leadership (rating 84); training and education on quality assurance (rating 41); project selection and prioritization for quality assurance (rating 37); consideration of the human factors (rating 33); awareness of the benefits of Lean/Six Sigma (rating 25); and link between quality assurance projects and the strategic objectives of the organization (rating 21). For the higher education stakeholder expectations or CTQs, overall student satisfaction scores had the greatest impact on stakeholder satisfaction (210 points) followed by pass percentage of students in a class (100 points); standard of teaching (84 points); student absenteeism (84 points), and turnaround time for issuing books in the library (80 points).

The Means procedure was employed to compare public and private; male and female; and the major stakeholders (academic leaders, administrators, teachers, and students) with results shown in Table 8. The one-way ANOVA and test of linearity results in Table 9 contain tests for the linear, nonlinear, and combined relationship among the major stakeholders. The test for linearity for male and female was insignificant in Table 9. The tests for the linear relationship among the major stakeholders,

shown in Table 9, have a significant value smaller than 0.05, indicating that there is a linear relationship. However, the test for deviation from linearity also has a small significance value, which means that there is a nonlinear relationship in addition to the linear component. The squared association measures for the major stakeholders were found to be near zero; meaning the amount of variation between the major stakeholders, even though statistically significant, is relatively small.

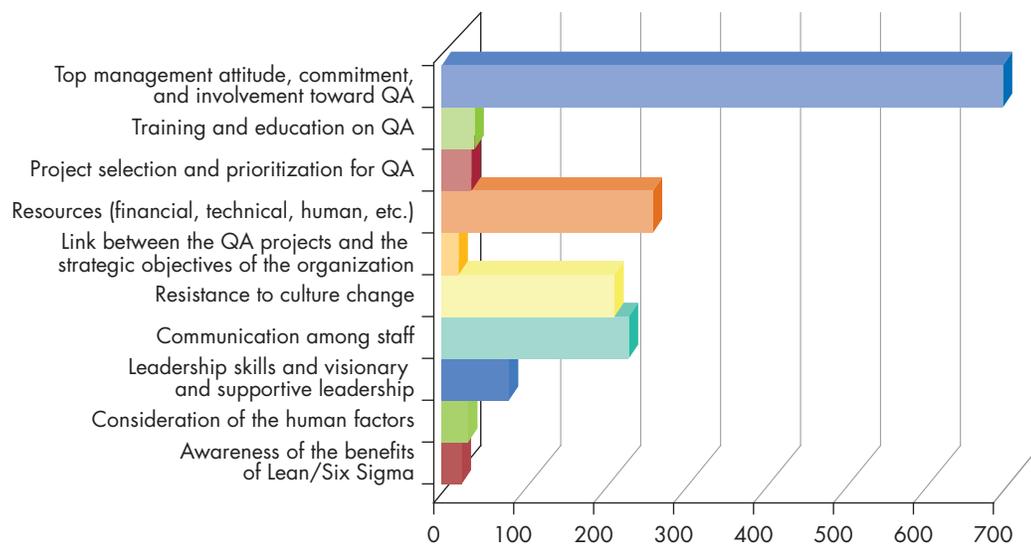


Figure 1: Building Stakeholder Consensus with QFD

Table 8: Descriptive Statistics

Descriptive Statistics for Private vs. Public; Male vs. Female; Stakeholders

Private Public		a imp 1	a imp 2	a imp 3	a imp 4	a imp 5	a imp 6	a imp 7	a imp 8	a imp 9	a imp 10	a imp 11	a imp 12	a imp 13	a imp 14	a imp 15	a imp 16	a imp 17	a imp 18	a imp 19	a imp 20	a imp 21	a imp 22
Private	Mean	7.31	7.25	7.34	7.44	7.35	7.46	7.15	7.19	7.39	7.24	7.33	6.36	6.44	6.33	6.49	6.49	6.48	6.31	6.47	6.39	6.36	6.37
	N	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110
	SD	1.269	1.267	1.244	1.208	1.282	1.186	1.294	1.324	1.300	1.157	1.110	1.985	1.993	2.046	1.990	1.910	1.924	2.110	2.008	2.112	1.910	1.901
Public	Mean	7.60	7.62	7.51	7.64	7.57	7.43	7.52	7.58	7.48	7.59	7.42	5.71	5.80	5.68	5.70	5.38	5.64	5.76	5.83	5.83	5.86	5.79
	N	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
	SD	1.159	1.286	1.124	1.327	1.181	1.281	1.201	1.208	1.274	1.121	1.263	2.068	2.029	1.798	2.185	2.031	1.996	1.973	2.024	1.886	1.882	2.014
Total	Mean	7.44	7.42	7.42	7.53	7.45	7.45	7.32	7.37	7.43	7.40	7.37	6.07	6.15	6.04	6.14	5.99	6.11	6.06	6.19	6.14	6.14	6.11
	N	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
	SD	1.226	1.285	1.192	1.264	1.239	1.227	1.263	1.285	1.286	1.151	1.179	2.044	2.029	1.960	2.112	2.037	1.996	2.063	2.035	2.028	1.909	1.969
Gender: Male Female		a imp 1	a imp 2	a imp 3	a imp 4	a imp 5	a imp 6	a imp 7	a imp 8	a imp 9	a imp 10	a imp 11	a imp 12	a imp 13	a imp 14	a imp 15	a imp 16	a imp 17	a imp 18	a imp 19	a imp 20	a imp 21	a imp 22
Male	Mean	7.50	7.57	7.45	7.50	7.46	7.55	7.47	7.44	7.54	7.48	7.51	6.19	6.07	6.05	6.24	6.12	6.18	6.03	6.30	6.13	6.13	6.13
	N	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
	SD	1.119	1.231	1.152	1.178	1.225	1.225	1.279	1.285	1.394	1.153	1.153	1.981	2.132	1.943	2.041	2.022	2.074	2.068	2.057	2.038	1.835	2.067
Female	Mean	7.37	7.25	7.38	7.56	7.44	7.34	7.16	7.28	7.31	7.31	7.21	5.94	6.24	6.02	6.02	5.84	6.02	6.09	6.06	6.15	6.14	6.08
	N	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95
	SD	1.337	1.329	1.239	1.358	1.261	1.226	1.232	1.285	1.149	1.149	1.193	2.113	1.917	1.989	2.193	2.054	1.913	2.068	2.015	2.026	1.998	1.866
Total	Mean	7.44	7.42	7.42	7.53	7.45	7.45	7.32	7.37	7.43	7.40	7.37	6.07	6.15	6.04	6.14	5.99	6.11	6.06	6.19	6.14	6.14	6.11
	N	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
	SD	1.226	1.285	1.192	1.264	1.239	1.227	1.263	1.285	1.286	1.151	1.179	2.044	2.029	1.960	2.112	2.037	1.996	2.063	2.035	2.028	1.909	1.969
Stakeholder		a imp 1	a imp 2	a imp 3	a imp 4	a imp 5	a imp 6	a imp 7	a imp 8	a imp 9	a imp 10	a imp 11	a imp 12	a imp 13	a imp 14	a imp 15	a imp 16	a imp 17	a imp 18	a imp 19	a imp 20	a imp 21	a imp 22
Students	Mean	8.09	7.97	7.93	8.13	8.06	8.04	7.93	8.05	8.04	7.91	7.90	4.41	4.57	4.45	4.41	4.31	4.50	4.40	4.50	4.49	4.62	4.53
	N	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
	SD	.798	.814	.800	.797	.818	.808	.824	.801	.820	.856	.831	1.149	1.208	1.065	1.158	1.086	1.093	1.182	1.048	1.119	1.078	1.075
Academic leaders	Mean	5.75	5.90	6.05	5.75	5.85	6.15	5.75	5.85	5.90	6.25	5.90	8.50	8.65	8.55	8.55	8.65	8.50	8.55	8.50	8.45	8.40	8.65
	N	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
	SD	.716	.912	.826	.716	.671	.813	.851	.671	.912	.851	.788	.513	.489	.510	.510	.489	.513	.510	.513	.510	.503	.489
Administrators	Mean	6.13	5.89	6.08	6.11	6.03	5.89	5.87	5.71	5.89	6.08	6.13	8.13	8.21	7.74	8.24	7.71	8.18	7.97	8.03	8.16	7.92	7.92
	N	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
	SD	.875	.831	.882	.764	.854	.798	.777	.694	.798	.712	.844	.665	.811	.860	.751	.802	.766	.788	.822	.855	.882	.818
Teachers	Mean	7.86	8.24	8.05	8.24	8.05	8.08	7.92	7.95	8.11	7.89	7.95	7.35	7.16	7.43	7.57	7.54	7.24	7.46	7.81	7.51	7.38	7.35
	N	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
	SD	.787	.863	.848	.796	.743	.722	.894	.815	.875	.843	.815	1.086	1.214	1.068	1.168	1.016	1.090	1.169	1.175	1.017	1.163	1.184
Total	Mean	7.44	7.42	7.42	7.53	7.45	7.45	7.32	7.37	7.43	7.40	7.37	6.07	6.15	6.04	6.14	5.99	6.11	6.06	6.19	6.14	6.14	6.11
	N	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
	SD	1.226	1.285	1.192	1.264	1.239	1.227	1.263	1.285	1.286	1.151	1.179	2.044	2.029	1.960	2.112	2.037	1.996	2.063	2.035	2.028	1.909	1.969

SD = standard deviation

Table 9: ANOVA – Major Stakeholders

ANOVA Table ^a						
		Sum of Squares	df	Mean Square	F	Sig.
a1 * Gender: Male Female	Between Groups (Combined)	1.113	1	1.113	1.484	.225
	Within Groups	148.467	198	.750		
	Total	149.580	199			
a imp 1 * Gender: Male Female	Between Groups (Combined)	.927	1	.927	.615	.434
	Within Groups	298.353	198	1.507		
	Total	299.280	199			
a2 * Gender: Male Female	Between Groups (Combined)	.808	1	.808	.989	.321
	Within Groups	161.812	198	.817		
	Total	162.620	199			
a imp 2 * Gender: Male Female	Between Groups (Combined)	5.069	1	5.069	3.101	.080
	Within Groups	323.651	198	1.635		
	Total	328.720	199			
a3 * Gender: Male Female	Between Groups (Combined)	.187	1	.187	.218	.641
	Within Groups	169.793	198	.858		
	Total	169.980	199			
a imp 3 * Gender: Male Female	Between Groups (Combined)	.235	1	.235	.165	.685
	Within Groups	282.320	198	1.426		
	Total	282.555	199			
a4 * Gender: Male Female	Between Groups (Combined)	1.466	1	1.466	1.698	.194
	Within Groups	170.914	198	.863		
	Total	172.380	199			
a imp 4 * Gender: Male Female	Between Groups (Combined)	.141	1	.141	.088	.767
	Within Groups	317.679	198	1.604		
	Total	317.820	199			
a5 * Gender: Male Female	Between Groups (Combined)	.099	1	.099	.123	.727
	Within Groups	160.296	198	.810		
	Total	160.395	199			
a imp 5 * Gender: Male Female	Between Groups (Combined)	.011	1	.011	.007	.932
	Within Groups	305.489	198	1.543		
	Total	305.500	199			
a6 * Gender: Male Female	Between Groups (Combined)	.982	1	.982	1.223	.270
	Within Groups	159.018	198	.803		
	Total	160.000	199			
a imp 6 * Gender: Male Female	Between Groups (Combined)	2.317	1	2.317	1.544	.216
	Within Groups	297.183	198	1.501		
	Total	299.500	199			
a7 * Gender: Male Female	Between Groups (Combined)	.180	1	.180	.218	.641
	Within Groups	163.820	198	.827		
	Total	164.000	199			
a imp 7 * Gender: Male Female	Between Groups (Combined)	4.755	1	4.755	3.010	.084
	Within Groups	312.765	198	1.580		
	Total	317.520	199			
a8 * Gender: Male Female	Between Groups (Combined)	.067	1	.067	.089	.765
	Within Groups	148.088	198	.748		
	Total	148.155	199			

Table 9: ANOVA – Major Stakeholders (continued)

ANOVA Table ^a						
		Sum of Squares	df	Mean Square	F	Sig.
a imp 8 * Gender: Male Female	Between Groups (Combined)	1.181	1	1.181	.715	.399
	Within Groups	327.174	198	1.652		
	Total	328.355	199			
a9 * Gender: Male Female	Between Groups (Combined)	.579	1	.579	.590	.443
	Within Groups	194.296	198	.981		
	Total	194.875	199			
a imp 9 * Gender: Male Female	Between Groups (Combined)	2.815	1	2.815	1.709	.193
	Within Groups	326.205	198	1.647		
	Total	329.020	199			
a10 * Gender: Male Female	Between Groups (Combined)	.309	1	.309	.392	.532
	Within Groups	156.046	198	.788		
	Total	156.355	199			
a imp 10 * Gender: Male Female	Between Groups (Combined)	1.457	1	1.457	1.100	.296
	Within Groups	262.338	198	1.325		
	Total	263.795	199			
a11 * Gender: Male Female	Between Groups (Combined)	4.333	1	4.333	5.466	.020
	Within Groups	156.947	198	.793		
	Total	161.280	199			
a imp 11 * Gender: Male Female	Between Groups (Combined)	4.602	1	4.602	3.350	.069
	Within Groups	272.018	198	1.374		
	Total	276.620	199			
a12 * Gender: Male Female	Between Groups (Combined)	.371	1	.371	.298	.586
	Within Groups	246.509	198	1.245		
	Total	246.880	199			
a imp 12 * Gender: Male Female	Between Groups (Combined)	3.208	1	3.208	.767	.382
	Within Groups	827.812	198	4.181		
	Total	831.020	199			
a13 * Gender: Male Female	Between Groups (Combined)	1.356	1	1.356	1.125	.290
	Within Groups	238.639	198	1.205		
	Total	239.995	199			
a imp 13 * Gender: Male Female	Between Groups (Combined)	1.535	1	1.535	.372	.543
	Within Groups	817.965	198	4.131		
	Total	819.500	199			
a14 * Gender: Male Female	Between Groups (Combined)	1.365	1	1.365	1.262	.263
	Within Groups	214.135	198	1.081		
	Total	215.500	199			
a imp 14 * Gender: Male Female	Between Groups (Combined)	.035	1	.035	.009	.924
	Within Groups	764.720	198	3.862		
	Total	764.755	199			
a15 * Gender: Male Female	Between Groups (Combined)	3.627	1	3.627	3.028	.083
	Within Groups	237.153	198	1.198		
	Total	240.780	199			
a imp 15 * Gender: Male Female	Between Groups (Combined)	2.349	1	2.349	.526	.469
	Within Groups	885.006	198	4.470		
	Total	887.355	199			

Table 9: ANOVA – Major Stakeholders (continued)

ANOVA Table ^a						
		Sum of Squares	df	Mean Square	F	Sig.
a16 * Gender: Male Female	Between Groups (Combined)	4.014	1	4.014	3.447	.065
	Within Groups	230.606	198	1.165		
	Total	234.620	199			
a imp 16 * Gender: Male Female	Between Groups (Combined)	3.958	1	3.958	.953	.330
	Within Groups	822.022	198	4.152		
	Total	825.980	199			
a17 * Gender: Male Female	Between Groups (Combined)	1.083	1	1.083	.868	.353
	Within Groups	247.137	198	1.248		
	Total	248.220	199			
a imp 17 * Gender: Male Female	Between Groups (Combined)	1.275	1	1.275	.319	.573
	Within Groups	791.520	198	3.998		
	Total	792.795	199			
a18 * Gender: Male Female	Between Groups (Combined)	1.857	1	1.857	1.727	.190
	Within Groups	213.018	198	1.076		
	Total	214.875	199			
a imp 18 * Gender: Male Female	Between Groups (Combined)	.218	1	.218	.051	.821
	Within Groups	847.062	198	4.278		
	Total	847.280	199			
a19 * Gender: Male Female	Between Groups (Combined)	1.955	1	1.955	1.587	.209
	Within Groups	243.920	198	1.232		
	Total	245.875	199			
a imp 19 * Gender: Male Female	Between Groups (Combined)	2.686	1	2.686	.647	.422
	Within Groups	821.469	198	4.149		
	Total	824.155	199			
a20 * Gender: Male Female	Between Groups (Combined)	1.579	1	1.579	1.358	.245
	Within Groups	230.296	198	1.163		
	Total	231.875	199			
a imp 20 * Gender: Male Female	Between Groups (Combined)	.010	1	.010	.002	.961
	Within Groups	818.070	198	4.132		
	Total	818.080	199			
a21 * Gender: Male Female	Between Groups (Combined)	2.263	1	2.263	1.960	.163
	Within Groups	228.612	198	1.155		
	Total	230.875	199			
a imp 21 * Gender: Male Female	Between Groups (Combined)	.001	1	.001	.000	.990
	Within Groups	725.354	198	3.663		
	Total	725.355	199			
a22 * Gender: Male Female	Between Groups (Combined)	2.675	1	2.675	2.402	.123
	Within Groups	220.505	198	1.114		
	Total	223.180	199			
a imp 22 * Gender: Male Female	Between Groups (Combined)	.120	1	.120	.031	.861
	Within Groups	771.460	198	3.896		
	Total	771.580	199			

^a With fewer than three groups, linearity measures cannot be computed.

Conclusion and Discussion

The results indicate that top management attitude, commitment, and involvement toward quality strategies to minimize student absenteeism should be considered as the top priority to achieve quality higher education. Out of 15 different reasons for student absenteeism that were studied, factors relating to courses and teachers were found to be the least significant (Longhurst, 1999). Consequently, students fail to realize that their behavior in not attending classes could affect their success at the workplace in securing attractive jobs (UN Sustainable Development Goals, 2016).

However, it is worth noting that higher education stakeholders preferred top management attitude, commitment, and involvement toward quality assurance over leadership skills and visionary and supportive leadership. Surprisingly, awareness of the benefits of QA; selection of QA tools; understanding of the different types of stakeholders; employee engagement and participation/lack of team autonomy; organization capabilities of QA initiatives; and implementation cost of QA initiatives were not significant to the higher education stakeholders.

This study supports what Valavi and Pramod (2017) argue in that the QFD (Akao, 1997) model is a practical tool for prioritizing stakeholder expectations (CTQ = Ys) and process requirements (Xs) to build consensus. An earlier study (Keller et al., 2014) indicated a challenge in using only stakeholder input from surveys or interviews when collecting expectations, as the unspoken expectations will be missing.

Looking at the various roles is a way to realize the necessity of capturing input from stakeholders, such as academic leaders, administrators, teachers, and students. Further, it is important to apply different methods when assessing stakeholder expectations, as some of the expectations are explicit (expressed or spoken) and some are implicit (implied or unspoken).

Theoretical and Practical Implications

This study suggests that HEAs must show commitment and involvement toward achieving quality in higher education systems and must concentrate on strategies that reduce or minimize student absenteeism, rather than focusing on global ranking (Balfanz & Byrnes, 2013). Indeed, top management has a major role for any institutional effort to succeed in terms of quality, including a change in culture and organizational structure (Orsingher, 2006).

Using the Means procedure, a statistically significant association was found among the major stakeholders. However, the association is not very strong; therefore, one must carefully consider whether this result is of practical significance. Although the

Means procedure is a powerful tool for description and analysis, which enables one to classify observations into broadly or narrowly defined groups due to the weak association, it was not possible to model the analysis of variance into a linear or nonlinear regression (Hays, 1981).

Limitations and directions for further research

There are a number of limitations to this study. It has drawn conclusions based on responses from stakeholders in private and public higher institutions in Accra, Ghana; hence, the outcome cannot be generalized. Notwithstanding, the findings could provide valuable insights to HEAs in HEIs.

Further studies could address how to initially capture stakeholder expectations as a supplier before becoming a stakeholder. In order to gather these types of expectations, data collection from other respondent groups, such as external stakeholders including the national university commission (NUC), non-governmental organizations, community-based organizations, parents, employers of labor, trade unions, alumni association, and industries/firms, might be a way forward for future research.

One drawback in this study is the use of weights for the relative importance of the stakeholder expectations that are pre-defined by the analyst and may lead to the improper analysis of stakeholders' expectations. This issue can be overcome by using approximate sets in which the rough boundary intervals are determined from the collected data without predefining any parameters (Valavi & Pramod, 2017).

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Godson A. Tetteh, Ph.D., is an executive management consultant, distinguished faculty, and a Lean Six Sigma expert. He has proven success in planning and implementing improvement processes to increase productivity using Lean manufacturing, product design and development, as well as Six Sigma principles for innovative business strategy execution. He is currently a lecturer at the Ghana Institute of Management and Public Administration. Tetteh earned the enviable 2016 Distinguished New Faculty Award at the 27th Annual International Conference on College Teaching and Learning. His research interests are in the areas of optimizing business models and production planning, supply chain management systems, and total quality management systems. He has authored more than 15 journal and conference papers. Tetteh is an ASQ-certified Six Sigma Black Belt and can be contacted at tettehgo@yahoo.com.



Best Paper Award

Beginning in 2013, the *Quality Approaches in Education* editors will announce an annual best paper award to the author(s) of a paper published in *Quality Approaches in Education*. The award will be announced in January of each year for the best paper from the issues of the previous year and will be based on the largest single contribution made to the development or application of quality approaches in education. There is no nomination form for this award.

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Quality Approaches in Education



Call For Papers

The American Society for Quality's Education Division publishes the online, double-blind, peer-reviewed journal *Quality Approaches in Education*. The editorial team actively encourages authors to submit papers for upcoming issues.

The purpose of this journal is to engage the education community in a discussion of significant topics related to improving quality and identifying best practices in education and workforce development; and expanding the literature specific to quality in education topics. With the increased emphasis on quality improvement in education, *Quality Approaches in Education* engenders a conversation focusing on this topic, supported by manuscripts from the international education community of faculty, researchers, and administrators from different disciplines and professions. *Quality Approaches in Education* welcomes submissions of manuscripts from higher education, K-12, and workforce development. The journal also welcomes manuscripts from the student services arena, institutional research, professional development, continuing education, business affairs, and other aspects of education related to quality improvement. We encourage evidence-based analysis using quality approach-driven improvement of education.

The following types of articles fit the purview of *Quality Approaches in Education*:

- Case studies on how to improve quality in a college, school system, or workforce development program using evidence-based analysis, continuous improvement approaches, especially related to improving student retention and degree completion.
- Research articles reporting on survey findings such as a national survey on students' attitudes toward confidence, success, social networking, student engagement, access and affordability, etc.
- Case studies or research articles addressing issues such as the role of faculty, administrators, and trainers in quality systems.
- Case studies or research studies focusing on the role of quality in accreditation.
- Case studies demonstrating best practices and systems thinking in education using the *Baldrige Education Criteria for Performance Excellence*, Lean Six Sigma or other national quality models, standards from the Council for the Advancement of Standards in Higher Education (CAS), or national frameworks and protocols, including preparing K-16 teachers for teaching in the 21st century learning environment.
- Case studies or research studies on scholarship of teaching and approaches to improve teaching, enhancing and supporting student learning, learning outcomes assessment best practices, and best practices for using technology in the classroom.
- Case studies or research studies on how student service units and intervention programs impact the quality of student experience and student learning.
- Case studies or research studies specific to collaboration with industry on STEM education through internships, co-ops, and capstone experiences for providing experiential and deep learning experiences and preparing students for STEM careers.
- Research studies on how education practices impact the quality of student life and student success for different student populations, including underrepresented groups, first generation in college students, and students from low-income families.
- Case studies that highlight the emerging improvement science for education and the continuous improvement cycle.
- Significant conceptual articles discussing theories, models, and/or best practices related to quality in higher education, K-12, and workforce development.

NOTE: We may dedicate an issue to a special topic to highlight areas of high interest in the field of education.

Articles generally should contain between 3,500 and 5,000 words and can include up to six charts, tables, diagrams, illustrations, or photos of high resolution. For details, please check the "Author Guidelines" at:

<http://asq.org/edu/quality-information/journals/>

Please send your submissions to:

Dr. Elizabeth Cudney at QAEJournal@gmail.com



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Author Guidelines

Quality Approaches in Education is a double-blind, peer-reviewed journal that is published online by the Education Division of the American Society for Quality (ASQ). The purpose of this journal is to engage the education community in a discussion of significant topics related to improving quality and identifying best practices in education as well as expanding the literature specific to quality in education topics. We will only consider articles that have not been published previously and currently are not under consideration for publication elsewhere.

General Information

Articles in *Quality Approaches in Education* generally should contain between 3,500 and 5,000 words and can include up to six charts, tables, diagrams, photos, or other illustrations. See the “Submission Format” section for more detail.

The following types of articles fit the purview of *Quality Approaches in Education*:

- Case studies on how to improve quality in a college, school system, or workforce development program using evidence-based analysis and continuous improvement approaches, especially related to improving student retention and degree completion.
- Research articles reporting on survey findings such as a national survey on students’ attitudes toward confidence, success, social networking, student engagement, access and affordability, etc.
- Case studies or research articles addressing issues such as the role of faculty, administrators, and trainers in quality systems.
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- Case studies that highlight the emerging improvement science for education and the continuous improvement cycle.
- Significant conceptual articles discussing theories, models, and/or best practices related to quality in higher education, K-12, and workforce development.

Quality Approaches in Education



Author Guidelines

Manuscript Review Process

We log all article submissions into a database and delete all references to you. These “blinded” versions then go to the editorial review team for comments and recommendations. Both author(s) and reviewers remain anonymous in this process. The review process takes approximately three months during which time the reviewers advise the editor regarding the manuscript’s suitability for the audience and/or make suggestions for improving the manuscript. Reviewers consider the following attributes:

1. Contribution to knowledge: Does the article present innovative or original ideas, concepts, or results that make a significant contribution to knowledge in the field of quality in education?
2. Significance to practitioners: Do the reported results have practical significance? Are they presented clearly in a fashion that will be understood and meaningful to the readers?
3. Conceptual rigor: Is the conceptual basis of the article (literature review, logical reasoning, hypothesis development, etc.) adequate?
4. Methodological rigor: Is the research methodology (research design, qualitative or quantitative, methods, survey methodology, limitations, etc.) appropriate and applied correctly? For a conceptual paper, is the framework appropriate and applied correctly?
5. Conclusions and recommendations: When appropriate, are the conclusions and recommendations for further research insightful, logical, and consistent with the research results?
6. Readability and clarity: Is the article well organized and presented in a clear and readable fashion? Is the article written in English and in a grammatically acceptable manner?
7. Figures and tables: When submitted, are the figures and/or tables used appropriately to enhance the ability of the article to summarize information and to communicate methods, results, and conclusions?
8. Organization and style: Is the content of the article logically organized? Are technical materials (survey scales, extensive calculations, etc.) placed appropriately? Is the title representative of the article’s content?
9. Attributions: Are the sources cited properly using APA style? Are attributions indicated properly in the reference list?

You should use these attributes as a checklist when reviewing your manuscript prior to submission; this will improve its likelihood of acceptance.

Review Process Outcomes

There are three possible outcomes of the review process:

- Accept with standard editorial revisions. In this case, the content of the article is accepted without requiring any changes by you. As always, however, we reserve the right to edit the article for style.
- Accept with author revisions. An article in this category is suitable for publication, but first requires changes by you, such as editing it to fit our length requirements or providing more detail for a section. We provide specific feedback from our reviewers to guide the revision process.
- Decline to publish. Occasionally articles are submitted that do not fit our editorial scope. We may provide you with suggestions for modifying the article to make it more appropriate to our publication.

Please note that after articles are edited for publication, we return them to you to approve the technical content. A response may be required within 48 hours or the article may be held over for a subsequent issue.

Articles that appear to be advertising or do not fit the general topics addressed by *Quality Approaches in Education* will be rejected without receiving peer reviews.

Quality Approaches in Education



Author Guidelines

1. Articles should emphasize application and implications of what is being presented, whether conceptual or research-based.
 - Use the early paragraphs to summarize the significance of the research.
 - Make the opening interesting; use the opening and/or background to answer the “so what?” question.
 - Spell out the practical implications for those involved in education.
2. Detailed technical description of the research methods or conceptual/theoretical framework is important, but not necessarily of interest to everyone. The description should enhance the narrative or be critical to the understanding of the article’s material.
3. Throughout the article, keep sentence structure and word choice clear and direct.
4. Avoid acronyms and jargon that are industry- or organization-specific. Try not to use variable names and other abbreviations that are specific to the research. Restrict the use of acronyms to those that most readers recognize. When acronyms are used, spell them out the first time they are used and indicate the acronym in parentheses.
5. Occasionally, our reviewers and readers view articles that include reference to the author(s) proprietary products or methods as a form of advertising. Although we encourage you to share personally developed theories and application approaches, we ask that you refrain from using our publication as a marketing tool. Please take great care when including information of this nature in your article.
6. If the article cites cost savings, cost avoidance, or cost-benefit ratios, or provides the results of statistical evaluations, include an explanation of the method of calculation, along with any underlying assumptions and/or analysis considerations.
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8. When submitting an article that is based on qualitative methodology, please be sure to describe the research questions, the information that is the basis of the data analysis, and report the developing themes. Also remember to include text analysis as part of data analysis. Please include the protocols in a separate Word document; review of the protocols will be important in our technical review. Consider including the protocols in the methodology section of the manuscript, if they can be presented concisely.
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Author Guidelines

Submission Format

1. We accept only electronic submissions in Microsoft Word format. The first page should be a title page with the title, names of the authors, and their affiliations. The second page should be the start of the proposed article with the title and abstract (150 words maximum) at the top of the page. There should be no reference to the author(s) or affiliation in the text that follows. Instead of the name of a university for a case study, the text should state “the University”. The margins should be one inch all around on 8½ x 11 pages with Word’s one-column format, left-justified. The title and section titles should be 14-point bold Calibri font. The text font should use 11-point Calibri font and a line spacing of 1.5 is preferred.
Section headings should be 12-point bold Calibri and left justified. Typical section names are: Abstract, Introduction, Background, Literature Review, Methodology, Results, Discussion, Suggestions for Best Practices, Summary or Conclusions, Recommendations, Future Work/Research, Acknowledgments, and References. The actual headings will depend on the focus of the manuscript. There may be two additional levels of sub-headings. The first set of subheadings would be left-justified with the first letter of each word capitalized and in bold, 12-point Calibri. The second level of sub-headings would be the same but in italics.
2. If you are familiar with the APA formatting, we prefer the APA format, but will accept a well-formatted manuscript following these already mentioned guidelines.
3. The manuscript should be between 3,500 and 5,000 words including the abstract, tables, and references. It should include no more than six tables or figures. If you feel strongly that more tables or figures are needed to support the manuscript, we ask that you submit the additional tables or figures and provide an explanation for including them.
4. Tables should be included at the end of the article and must be in Microsoft Word. Each table must be referenced in the article and labeled and centered on a separate line, such as <Insert Table 1 About Here> with the caption for Table 1 on the next line, such as Table 1: Graduation Rate by Major. Do not embed .jpg, .tif, .gif, or tables in other similar formats in your article.
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6. We can use photos if they enhance the article’s content. If you choose to submit a photo with your article, it must be a high-resolution .jpg or (at least 300 dpi and at least 4” by 6” in size). Photos should be sent in separate files and referenced in the article. Photos should be accompanied by a complete caption, including a left-to-right listing of people appearing in the photo, when applicable. Do not include any text with the photo file. All persons in the photo must have given permission to have their photo published in *Quality Approaches in Education*.
7. Also submit a separate high-resolution electronic photo (at least 300 dpi) for each author. Author photos should be at least 1” by 2”. Author photos should have a plain background, and the author should be facing toward the camera. Please include a separate Word document with a 75- to 100-word biography for each of the authors, mentioning the place of employment, as well as contact information.

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Author Guidelines

Citations and References

Quality Approaches in Education follows the 6th edition of the *Publication Manual of the American Psychological Association*. Citations and references should use the (author's last name, year of publication) notation in a citation in the text and use the APA style.

The reference section should be headed with the section heading of "References" and all references are to be listed alphabetically by the first author's last name. Each reference should list all authors. List the online URL with a hyperlink. Retrieved date is not needed. Here are some examples:

Book examples:

Veenstra, C., Padró, F., & Furst-Bowe, J. (eds). (2012). *Advancing the STEM agenda: Quality improvement supports STEM*. Milwaukee, WI: ASQ Quality Press.

Sorensen, C. W., Furst-Bowe, J. A., & Moen, D. M. (2005). *Quality and performance excellence in higher education*. Bolton, MA: Anken Publishing Company, Inc.

Journal article examples:

Dew, J. (2009). Quality issues in higher education, *Journal for Quality and Participation* 32(1), 4-9. Retrieved from <http://asq.org/pub/jqp/past/2009/april/index.html>

Plotkowski, P. (2013). Guest commentary: Real-World engineering education: The role of continuous improvement, *Quality Approaches in Higher Education*, 4 (1), 2-4. Retrieved from <http://rube.asq.org/edu/2013/05/best-practices/quality-approaches-in-higher-education-vol-4-no-1.pdf>

Reference example:

National Science Board. (2012). *Science and engineering indicators 2012*. Arlington, VA: National Science Foundation. Retrieved from <http://www.nsf.gov/statistics/seind10/>.

If the authors cite their own work, they should simply state (Author, year) and the same in the reference list (no title) in the initial manuscript (since the reviews are double-blind).

One of the most common errors we have observed with submitted articles is improper referencing due to improper attribution in the text and reference section. Please make sure that all the material in the submitted article is properly referenced and cited as appropriate.

Submission

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