What We're Learning from Quality Matters-focused Research:

Research, Practice, Continuous Improvement

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May 18, 2012

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Abstract

Improving practice from themes and strategies suggested by research and best practices is at the root of most educational improvements. Quality Matters (QM), a continuous improvement program for assuring the design quality of online courses and online components of blended courses, was developed in the early 2000s under such expectations. The QM Rubric™, the guideline used by a peer review team of online instructors to assess and improve the design of online courses, continues to be informed by analysis of ongoing scholarly research. Less than a decade after the development of QM, research is emerging on its impact in higher education. This article provides an overview of what is being learned from that research and recommendations for future research.

What We're Learning from Quality Matters-focused Research: Research, Practice, Continuous Improvement

Quality Matters is a continuous improvement program for educational institutions to adopt and adapt in their efforts to assure the design quality of both online courses and online components of blended courses. It includes a specific and rigorous process of online instructors reviewing the design of a peer's online course and providing recommendations for improvement of the course design. A determination is made as to when the course design meets established QM thresholds of quality. The Quality Matters Program is an outgrowth of a 2003-2006 FIPSE (U.S. Department of Education Fund for the Improvement of Postsecondary Education) grant to MarylandOnline for development of a replicable pathway for an inter-institutional system of assuring quality in online courses (Shattuck, 2007).

The program that was developed under the federal grant included a collaborative, instructor-centered process of faculty growth and peer review of the design of online courses. Word of the program spread outside of Maryland through an ever-growing community of practice to the point that, at the conclusion of the federal grant in 2006, MarylandOnline formed a not-for-profit educational organization to continue the project. The Quality Matters Program currently has approximately 600 subscribing institutions in 45 states, plus a growing international presence. In addition to the Quality Matters Rubric™ for higher education, rubrics and review processes have been established for grades 6-12 and for publishers' content. A continuing education rubric and process are currently being developed with planned release in 2013.

Quality Matters is both a process and a rubric.

In the Quality Matters process, an online course is identified by a participating institution for QM peer review. A team of three certified peer reviewers, all of whom must be actively teaching online, work collaboratively with the instructor whose course is under review. The Quality Matters Rubric™ is the guideline at the center of the review process. Forty-one specific standards with annotations are associated with eight general standards of quality online course design. In the spirit of continuous improvement, all courses undergoing a QM review are expected to meet QM standards upon revision as guided by feedback and recommendations from the peer reviewers.

Research and Quality Matters

Research relating to online distance learning has informed the Quality Matters Program since the program's inception. Analyses of independent course design-related research informs the bi-annual reviews and refreshment of the QM Rubric.[1] In preparation for the 2011-2013 edition of the Rubric, it was recognized that while there was strong support in the professional literature for learner-learner interaction to be an essential feature in all online courses, the research literature was not so clear. In preparation for review of the 2008-2010 edition of the rubric, a panel of internationally recognized researchers in online learning was organized to provide additional input on the issue to the QM Rubric Review Committee. In a web forum, Terry Anderson, Zane Berge, Charlotte "Lani" Gunawardena, M.D., "Peggy" Roblyer, and Karen Swan met during the November 2009 QM Interaction Summit[2] to discuss the relevant research and its possible impact on QM Rubric standards. The panelists summarized that (1) There is a lack of consistency in the research literature, making it unethical to state broad

conclusions about group interactions as a requirement for all course designs. (2) There is a lack of replication in the literature on the value of learner-learner interaction, except for some work underway using the Community of Inquiry framework[3]. (3) There are too many variables influencing outcomes of most studies to draw cross-study conclusions.

Specific research focused on the impact of the QM process is also encouraged by the Quality Matters Program. This article describes emerging themes from QM-focused research and provides recommendations for future research. There is one important caveat: Quality Matters has no access to subscribing institutions' internal data; therefore, QM can only encourage and professionally support rigorous research on the impact of the QM process as one component of an institution's total effort in continuous improvement in online learning.

Emerging Themes in QM-Focused Research

As early as 2005, leaders of the QM Program began inviting and subsidizing research focused on the impact of Quality Matters. Emerging themes and an overview of findings from that research will be presented. Themes include (1) learner satisfaction, (2) student learning, (3) professional growth, and (4) organizational impact. Discussion of the findings will be followed by recommendations for future research.

Learner Satisfaction

Surveying students about their satisfaction and perceptions of quality in online distance education courses has a broad and deep history (Davies, Howell, & Petrie, 2010). Some of the earliest QM-focused studies followed that research tradition. A QM-funded study done in 2005 at Prince George's Community College in Maryland (Finley, 2005) analyzed the end-of-course evaluations after course design improvements were implemented as recommended by the QM

peer reviewers. The data revealed that student satisfaction increased as a result of the improvements. Students were less confused about how to navigate the course and locate course requirements. It was also noted that students asked fewer procedural questions and expressed less concern about what they needed to do to succeed in the course.

On a much larger scale, Aman (2009) collected data on student satisfaction in 2006 and 2007 from 554 students at nine institutions located on opposite coasts of the United States. Some institutions were engaged in the Quality Matters peer review process, and some courses offered at the QM- participating institutions had met QM standards. Care was taken in locating online courses representing various academic discipline areas. Students were invited to respond to a survey about factors contributing to their perception of quality. A significant relationship was found between student satisfaction and QM peer-reviewed courses.

A QM-funded study done at Park University (Knowles & Kalata, 2010) yielded interesting results that perhaps provide more information about methodology than about whether students agree with quality standards. The study surveyed students as to whether QM standards were met in two online courses. The vast majority of students in those courses answered "yes" to all questions on the survey. This response was compared to results from two QM-certified master reviewers who had independently reviewed the courses and completed the survey. The master reviewers had determined that neither course met many of the QM standards. The researchers commented on the surprising difference and suggested that perhaps it indicated a discrepancy in expectations between students and experienced QM master reviewers. Other possible explanations were offered: (1) that students did not take time to completely read the questions and just checked "yes" to complete the survey, or that (2) perhaps during the delivery of the two courses the instructors contributed clarifying statements and directions to the students

that were required because of some weak areas in the course design. Unfortunately, the study was a one-time event with no follow-up or further analysis.

Two years later, another QM-funded study done at the University of the Rockies found that students', as well as faculty's, perceptions of quality were met in the course before, as well as after, the official QM Review. Analyzing the results, Parscal, Frey, and Lucas (2011) suggested that one of the unintended consequences (Ruhe & Zumbo, 2009) of the study was discovering that by embedding QM standards in the course development process, few courses failed to meet QM standards upon formal review. Therefore, for most courses both pre- and post-QM reviewed courses met standards and were perceptively the same to students.

The student voice.

Two early QM-funded exploratory studies focused on adding the student voice. Iyengar (2006) surveyed students in four blended courses about online course design items found in the 2005 QM rubric. She learned that students, even in blended courses, valued design elements identified in the Rubric. In a similar vein, Mott (2006) related missing design features, as reported by students in an online course, to the QM standards. The student voice was also sought in a small 2010 study QM-funded study with Dallas TeleCollege (Bowen & Bartoletti, 2009). Student input was gathered on course design issues relating to learner accessibility (QM standard 8). Even students who did not identify themselves as requiring specialized adaptive services noted the importance of a course being designed to meet needs of all learners, including those who might need assistive technologies. Student involvement at the institutional level in accessibility efforts was strongly suggested. In an ongoing study, Ralston-Berg (2011) has surveyed more than 3,000 online students from 31 institutions in 22 states about their perceptions

of course design features that indicate quality. The results were ranked by importance to students for success and revealed that students' responses correlated with standards of quality identified in the QM Rubric. The study lays groundwork for future quantitative studies.

Retention.

Course retention is often associated in the literature with student satisfaction. Even in the earliest days of QM's existence, many practitioners expressed a gut feeling that improved course design would improve course completion rates. Loser and Trabandt at Northern Virginia Community College (2006) used a QM research grant to explore the impact of learning activities on online course completion. The authors hypothesized that by revising learning activities to be more engaging (one of the QM Rubric standards) more students would complete the course. They reported that there was no apparent difference in completion from a previous semester completion rate; however, they noted positive comments about the revised activities from students' end-of-semester evaluations.

Two later studies have attempted to determine if there is a relationship between a course's meeting QM standards and student completion of the course. While Aman (2009) found students expressed their satisfaction with courses that met QM standards (described above), he could find no relationship with retention. He pointed out that the literature supported the complexity of studying student course retention, especially because of the myriad of influences and expectations that students bring into a course. (A separately funded MarylandOnline project provides additional information on why 3,352 students reported they withdrew from online courses. See Hilke, 2010). The Aman study was also challenged by lack of access to student records, requiring reliance on reports from surveyed instructors to gather

course completion data. In an earlier, more focused study, Dietz-Uhler, Fisher, and Han (2007) noted that the challenge of studying student retention in online education begins with a lack of common definition of retention. However, they found that course completion in two courses, a psychology and a statistics course, that met QM standards of quality and were taught by the same instructors was consistently higher (95.5 and 95 percent) in an 11- and a six- semester timeframe than the average course completion rate for online courses.

In attempting to explore the impact of QM course recognition on student course retention, a QM research grant was provided to Cleveland State University. The study (Rutland & Diomede, 2011) narrowly focused on implementation of a QM review as part of institutional systems to positively impact attrition in distance education (other attributes identified by Diaz and Carnal in 2006 were identified as student situations, student dispositions, and course content). By categorizing improved course design as the institutional systems factor, the Cleveland State team hoped to determine if course retention increased in a QM-improved course. Statistical significance was not found. However, the study revealed much to consider for future research attempts. Unlike the Dietz-Uhler, Fisher, and Han study, which described course completion rates in QM certified courses over a six- and 11-semester timeframe with the same instructors, the Cleveland State University team had hoped to find immediate (next semester) improvement in course retention without cross-referencing other dimensions of attrition. Rutland and Diomede (2011) posited the following:

> Although this study as completed in a short two-semester "turn-around" did not find statistically significant evidence either supporting or refuting QM's effect on withdrawal rates, there are ways to expand upon the research to tell a greater piece of the story of attrition.

> One important factor in future research would be to control for the delivery variable--meaning instructor level of interaction with students. According to our survey, instructor presence seems to have a direct effect on students' perceptions about their online learning experience. This likely impacts decisions that students (even in QM-reviewed courses) are making when deciding to persist or withdraw from a course. Therefore, to further understand the effects of QM recognition on attrition, a more accurate control for variables is necessary. (p. 11)

An ongoing study at the University of the District of Columbia (Harkness, Soodjinda, Hamilton, & Bolig, 2011) is following withdrawals and passing rates in online courses that have met QM standards. To date, some encouraging data is being generated, and Harkness reports, "We continue to see an impact. We see fewer students withdrawing from online courses. We see higher pass rates (earned grades A-D) and fewer failures" (personal communication, March 8, 2012).

Student Learning

Grade improvement is a frequently used measurement of student learning in educational research. Runyon (2006) led a QM-funded research project to determine the impact on grading of improving learning activities to meet QM standards. Specifically, content modules in a community college computer science course were enhanced with more interactive activities. Results were that students engaged more with the course content and grades improved. While the focus was on improved course design, Runyon noted that the quality of teaching was as important as the improved quality of the design.

In a continuing study originally funded by a QM research grant, Swan and colleagues (2010, 2011) at the University of Illinois/Springfield redesigned a graduate-level education course after an informal QM review. Improved scores were statistically significant on a major written assignment and in the final exam, as well as in overall course grades. The interaction of course design, teaching, and learning was noted by the researchers, who posited "Arguably, student performance improved because the QM revision led instructors to focus on objectives and the mapping of objectives to outcomes, such focus translated into their activity in the course" (2011, p. 7). The study also attempted to find a relationship between QM- influenced course design improvements and measurement of Community of Inquiry (CoI)[3]. They concluded

> The linking of online course design and implementation to learning outcomes is long overdue in online education. This online study is not only a first step in that direction but it employs what are probably the two most commonly used theoretical frameworks in online education in the process. Findings suggest that both can be linked to improved outcomes but unfortunately not to each other. However, they do suggest a trajectory--QM review and revision of courses and incremental 'tweaking' of course implementation relative to deficiencies revealed by the CoI survey--for incremental improvement of online courses. (p. 11)

Hall (2010) took a different approach in a QM-funded project by using the CoI framework in attempts to connect QM-influenced course design improvements to student learning. She narrowly focused on CoI dimensions of teaching presence[4] that include (1) design/organization and (2) directed facilitation. She equated QM-influenced course design improvement to the design and organization dimension, and instructor interaction during the course delivery with the directed facilitation dimension. She then coded all exchanges made on

the discussion board of 14 sections (five pre-, nine post-QM reviews) and in instructor-student email interactions of an undergraduate sociology course taught by the researcher. She discovered that the improved design and organization increased teaching presence by reducing course management tasks, thereby allowing higher quality directed facilitation by the instructor. The improved design also improved students' self-management of their course activities by reducing time and effort previously expressed as a concern. Reported findings included a positive effect on students' higher-order cognition via higher teaching presence, resulting higher grades on discussion board activities, and a positive effect on student satisfaction.

Professional Growth

Two avenues of professional growth are emerging from analysis of the QM-focused research. The first comes directly from online instructors participating in formal QM course reviews. Data captured in the course review exit survey focuses on procedurally consistent application of the QM process, as well as on the experience for the individual peer reviewer. Analysis of open-ended comments provided anecdotal evidence of the impact of participation in a QM peer review (Sener, 2011). Emerging themes were identified: (1) Peer reviewers learn about improving online learning through the collegial interaction with others on the team during the review process. (2) Review team chairs gain valuable leadership experience. (3) Peer reviewers make changes in their own courses by idea shopping and by doing a parallel review on their own courses while participating in a formal review of a peer's course.

The second avenue for professional growth evolved from the original purpose of QM training, which was to prepare and certify online instructors to participate in formal QM peer reviews. Reported acceptance and comments on the ease in applying the QM peer review

process came almost immediately from the field and was quickly followed by requests to expand the course design topics offered by QM training. Thus, expanded professional development and growth became a key component of QM offerings. As of spring 2012, 15,000 faculty and staff from educational institutions have participated in 14 different training courses.

As early as 2006 the positive impact on members of a design team was noted when using the QM Rubric as a guide for revising a course (McMahon, Tipperman, & Paugh) and later as an easy-to-use self-assessment tool for developing an online course (Pollaci & McCallister, 2009; Pollacia, Russell, & Russell, 2009; Effken, McEwen, Vincent, Shea, Garcia-Smith, & Kang, 2009; Little, 2009; Bento & White, 2010). Greenberg's 2010 dissertation study found that the use of QM design standards led to "development of a quality product, as defined by faculty, course designers, administrators, and students, primarily through faculty professional development and exposure to instructional design principles" (p. 214). Monroe (2011) found that the QM Rubric could be effectively used by instructional designers, faculty with subject-matter expertise, peer faculty with no subject-matter expertise, and administrators. Ashbaugh (2011) used a modified version of the publicly available 2010 QM Rubric as she identified instructional designers' leadership competencies. Trying to capture the "conspicuously absent faculty voice in the online course quality debate," Reif (2009, p. 52) traced the development of the QM Rubric (Shattuck, 2007) as influenced by the seminal work of Chickering and Gamson (1987). Reif used the publicly available (2005) QM Rubric to represent best online learning practices and concluded that the QM Rubric "provided a useful checklist for evaluating online coursework but it cannot tell the complete story [and] cannot be used as the sole measure of an online class because it lacks the ability to measure the instruction itself" (p. 126). This

conclusion refers to the original and continuing emphasis of QM on the course design features of quality online learning as one component in an institution's quality assurance program.

A small study by Wright (2010) asked this question: Can training on the QM framework positively increase faculty perceptions of their ability to design, develop, and deliver online courses? Utilizing the Online Technologies Self-Efficacy Scale (OTSES), Wright found a significant increase in self-efficacy after QM training. It was pointed out that participants in this study might have been early adopters of technology. Taking a somewhat related approach, Ward (2011) hypothesized that the use of the Quality Matters process would help new online instructors develop complex knowledge that would enable them to discuss, develop, and implement more effective online learning. Under a QM research grant, she and colleagues at the University of Akron used TPACK (Technological, Pedagogical, and Content Knowledge) as the conceptual framework. They found that participation in the QM training and the related course improvement process helped instructors understand the interaction among technology, online learning principles, and subject content (dimensions of the TPACK framework). They concluded

> The data analysis results from this study suggest a developmental model that depicts a few key transitional points in order to become effective online instructors, and how QM training can effectively consider these transitional points to deliver the training more efficiently to enhance the quality of online courses with more explicit guidelines to not only course design, but permeate to the other aspects of online teaching and learning. (p. 10)

Organizational Impact

As described above, the Quality Matters program expanded training opportunities to meet subscriber requests. Another unanticipated development from the 2003-2006 federally-funded FIPSE grant to MarylandOnline (MOL) came at the conclusion of the grant when requests for participation from higher education institutions challenged the capacity of a centrally-managed QM process. At that time, requests for reviews and training nearly overwhelmed the primarily volunteer staff. MOL established the subscription-based, not-for-profit Quality Matters Program and devised a framework for dissemination of the program through institutional subscriptions. Subscribing institutions could choose to either contract with QM to conduct course reviews or conduct their own course reviews after appropriate QM-facilitated training. The model allowed subscribers to adapt the QM institutional needs while MOL/QM maintains rigorous control over the QM Rubric, the QM flagship training courses, and the official review process.

Over the past few years, information has emerged on the impact participation in the QM program has beyond improving the design of a single course. This impact was first suggested in the Aman (2009) dissertation (described above in the Learner Satisfaction section) when he noted that there may be a carryover effect to non-reviewed courses when an institution is actively participating in the QM peer review process. Statistical analyses revealed that students in both QM- reviewed and non-reviewed courses were more satisfied than those at non-QM participating institutions.[5]

Following that lead, and in an attempt to determine how QM was disseminated across a large educational system, a 2010 QM research grant was provided to Strickland and Alarcon at the Maricopa Community College system, which encompasses 10 colleges, 4,000 faculty, and

250,000 students. Through a survey and a series of focus groups it was learned that the informal sharing among faculty and administrators at departmental meetings and among colleagues was the most prevalent method of dissemination, followed by sharing during college-wide meetings.

As noted previously, while initially planning to study student and faculty satisfaction rates in pre- and post-QM recognized courses, Parscal, Frey, and Lucas (2011) found that their project was challenging because most of the online courses at the University of the Rockies initially met QM standards during an official QM Review. Further analysis called attention to the fact that the university had established an extensive six- to- eight week system of using the QM Rubric and a team approach to approval in developing courses. Therefore, most courses easily met QM standards when reviewed officially. It was posited that measurement of students' satisfaction by using the simple, pre- and post-test did not reveal any significant change in satisfaction rates, but revealed the unanticipated positive consequences of QM adoption at the organizational level.

Further impact of the QM Rubric can be found in the work currently being done by Frey and King (2010) at the University of Pittsburgh regarding institutions' accessibility practices and policies for online courses. From a sampling of administrators and faculty from 84 QM subscribing institutions, Frey and King learned that many do not have defined practices and instructor training in creating accessible online course-level materials (p.10). Frey and King are continuing their work under a 2012 QM research grant to develop a template of policies and suggested practices that would be available to QM subscribing institutions.

Discussion and Recommendations

The emerging Quality Matters-focused research follows trends of other online distance education research: It is dominated by non-interactive survey and questionnaire data collection (Bebell, O'Dwyer, Russell, & Hoffmann, 2010) and, as expected in the case of Quality Matters, it is focused on instructional design and student learning processes (Zawacki-Richter, Bäcker, & Bogt, 2009). Calls for increased use of meta-analysis in distance education research (Zawacki-Richter, 2009; Shacher, 2008) are premature for Quality Matters because of the relatively few QM-focused studies completed to date.

Although QM-focused research is a relatively recent pursuit, researchers interested in exploring the impact of QM need to heed the criticism that plagues much of online learning research (Moore, in press; Shacher, 2008; Roblyer, 2010)- -that is, the lack of a theoretical underpinning and of awareness of related existing research, lack of consistency, and lack of replication. Calls for increased use of learning analytics[6] methodologies (Anderson, 2010; Berge, 2010; Roblyer, 2010; Swan, 2010; Ice, Boston, & Gibson, 2011) fit the direction in which QM-focused research must continue. Learning analytics methodologies have the potential to better identify the impact of course design by providing predictive information in relationship to non-design variables. For example, Boston, Ice, and Gibson (2011) identified five key "predictor variables" of student retention (defined as returned the following semester) that were extrapolated from institutional data (n=20,569) by the use of educational analytics.

While the QM-focused research is to be applauded for establishing exciting baseline information in the first decade of QM's existence, specific challenges to be addressed are evident:

1. There is too much reliance on simple surveys without control or analytical follow-up. Using deeper learning analytical methodologies would add value to study outcomes. The example above of the Boston, Ice, and Gibson study fits here.
2. Too often the relationship between course design and other components of quality assurance is neglected in the interest of focusing on QM as a stand-alone measure of quality. For example, addressing the impact of the instructor has been noted by Runyon (2005); Reif (2009); Knowles and Kalata (2010); Swan, Matthews, Bogle, Boles, and Day (2011); Rutland and Diomede (2011). Cross- tabulating data on instructor impact would assist in exploring the interaction of course design and course delivery (teaching).
3. There are still studies utilizing the publicly available, original 2005 QM Rubric, which has now been refreshed and refined three times (2006, 2008, 2011). Without using the current, official version of the QM Rubric, it is impossible to access the annotations (explanation and examples for each standard) which provide invaluable information to a reviewer on the 41 specific standards. In addition, lack of understanding of all facets of the QM process can result in the findings being misconstrued.

Then comes the dilemma of educational research. As was noted by one of the authors of the seminal *Implementing the Seven Principles: Technology as Lever* (Chickering & Ehrmann, 1996): "Coherent patterns of learning usually must accumulate over a series of courses and extracurricular experience…to enable large scale changes in the methods and resources of learning" (Ehrmann, 1995, para. 44). Early QM-focused research studies, with few exceptions, have used a single-year timeframe. Developing and implementing a study, gathering data, and

analyzing are challenges, especially when the implementation phase most likely includes identifying courses to be improved, training internal reviewers, scheduling a QM review, enduring the rigors of a formal QM peer review, making design changes recommended by the reviewers in one semester, and then immediately offering the course to a new group of students (perhaps led by another instructor), followed by quick data collection and analysis. The needed tracking, documenting, and analyzing of actual course design improvements is difficult to accomplish during a short timeline crunch of getting through the QM review and improvement process.

Recommendations

QM-focused research can continuously contribute to the improvement of online education. Some recommendations are in order

- Studying student perceptions of quality and satisfaction with the experience of an online course is important; however, it is time for QM-focused research to include methodologies that can cross-tabulate or at least segregate other known factors, such as the impact of teaching, learner readiness, or student support services. Those factors can cloud an understanding of the impact of course design. Learning analytics methodologies would greatly assist with this goal.
- Narrowing the search for impact of a QM review to specific groups of standards would be productive. These groupings of standards might be organized around the QM emphasis on alignment, but could also be groupings of specific standards related in other ways.
- Designing a study that is supported by a scholarly review of the literature is a must for QM-focused research to move from primarily exploratory in nature into theoretical and deeper

levels of action research. New research must be built on existing research by identification of the gaps and replication possibilities to avoid falling into stagnation on a few popular and basic topics (Berge & Mrozowski, 2001; Lee, Driscoll, and Nelson, 2004; Shachar, 2008; Zawacki-Richter, 2008; Davies, Howell, & Petrie, 2010; Bebell, O'Dwyer, Russell, & Hoffmann, 2010; Simonson, Schlosser, & Orellana, 2011).

- Conducting longitudinal studies of the impact of QM on a specific course, program, or even institution are needed. Quick, one-shot descriptions and anecdotal evidence should be seen as exploratory and used in future and continually refined study of the effectiveness of QM.
- Expanding research by collaboration and inter-institutional sharing among colleagues in the QM community would promote the underlying principles of QM: collegiality, collaboration, and continuous improvement to promote student learning. The Scholarship of Teaching and Learning[7] provides an excellent venue for that public process of instructors collaborating for the study of teaching and learning.

Summary

It is an exciting time in online learning, but care must be taken to move forward with well designed, implemented, and analyzed research studies. Quality Matters, a program of course design improvement and evaluation, can be an important component in an institution's total quality improvement and assurance efforts. This article described the known QM-focused research that has been conducted during the first nine years that Quality Matters has existed. The hope is that this article will inform and encourage further research on improving online learning.

Notes:

[1] http://www.qmprogram.org/latest-research-support-rubric-standards

[2]http://www.qmprogram.org/summary-summit-learner-interaction

[3] http://communitiesofinquiry.com/model

[4]http://communitiesofinquiry.com/teachingpresence

[5]Aman's observation was one of the factors that led QM in 2009 to introduce a recognition process for multi-year institutional QM Implementation Plans. These plans, unique to each institution or program, outline a minimum of three years of activity to embed QM in the institutional culture and include a pledge to adopt QM standards across all online and blended courses. More than twenty institutions now have such plans approved by the QM Academic Advisory Council.

[6]http://maestrias25.sagrado.edu/presentaciones_siemens/Siemens-EducationalTransformationOpennessAndLearningAnalytics.pdf

[7] http://www.issotl.org/

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