How to Assess if QM Can Break Down Barriers

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Abstract

Requiring savvy, online courses can present a perceived barrier to adult learners for a variety of reasons, but ease of access due to inadequate navigability should not be one of those barriers. Re-tooling online courses to standards of Quality Matters (QM) can lessen that barrier to access, making adult learners more participatory. Internal statistics gathered routinely by a learning management system (LMS) can test this claim, as a way to show successful, measurable increases in participation. Though only an approximate method at this time, as presented herein, a detailed examination of user-progress data from a standard, stable LMS appears nominally promising for development into a prospective analytic tool of assessment of adult learners.

Keywords: adult learner, ahea, analytics, assessment, desire2learn, d2l, learning management system, lms, national louis university, online course, quality matters, user progress data

A typical learning managements system (LMS), like Desire2Learn (D2L), collects an ongoing amount of data about students as they access and navigate a digital environment for a given online course (Brightspace Tutorials, 2015). These data, known as user-progress data, are readily available to the course's instructor in an effort to track performance, identify problem areas, and, to maintain an accurate assessment of levels of participation as a basis for grading. At National Louis University, the use of these data for tracking students is similar (Brightspace Tutorials , 2015).

Once the course is completed, these data are still available for instructors to return for a deeper assessment of whether the course was cleanly accessible to students, or, as one means to determine whether there are unintentional roadblocks and barriers that prevent students, especially adult learners, from accessing online content. In that assessment, one can likely turn to ways to make content more readily accessible for adult learners. For example, in recent years one way requires the application of principles utilized by Quality Matters (Underlying Principles of Quality Matters, n. d.).

Quality Matters (QM) is a nationally recognized and tested system of increasing the utility of online courses by streamlining these courses' navigability for potential and active users. Colleges and universities that apply QM principles to their online courses find greater accessibility due to greater ease of online navigation within those courses. That is, prior research on the efficacy of Quality Matters has shown its demonstrable improvement for the navigability of online courses (Regon, 2007). It is the intent herein to present a simple, straightforward approach by which one might measure that improvement in navigability using data gathered by a LMS.

Re-tooling a course in QM, after evaluation by a team of qualified QM peer reviewers, can allow a course's content to become more readily accessible. Though QM makes no determination on the quality or quantity of a course's content, its application to a course does allow an instructor to make the course's navigation cleaner so that access to its content can be improved.

The initial premise of this paper is that user-progress data, gathered by a LMS, can be used as one means to determine whether a course can become more readily accessible after an application of QM principles. A supporting premise is that online courses, once defined by, or revamped under, QM principles can allow greater access to online users, such as adult learners, than they might otherwise have an opportunity to navigate successfully.

The overall assessment from these two premises is based on the prospect of a relatively measurable rate of improvement through a comparison of user-

progress data of two courses gathered by a LMS, namely, D2L, through which courses, before-and-after QM re-tooling, were offered at National Louis University.

Since the user-progress data were readily available from two NLU courses, both before and after a controlled application of QM principles, it seemed a likely test of whether QM re-tooling can be as efficacious as QM asserts. To do this effectively, under controlled circumstances, one would need before-and-after data that can be compared from an offering of the same course at different intervals. Ideally, it would be useful to have an identified cohort of students on which to compare these data, though that may not be possible at all times. Also, it would be necessary to have some indication that the course was composed entirely of adult learners, in order to test the validity of the two premises.

Note that while the number of students from course-to-course ought to be more equivalent in number for an accurate comparison, there is no actual control for the number of students signing up for any given course. To set the premise for any comparison, though, one can assume that the majority of students in any given course at NLU tend toward the expected demographic of an adult learner, since that is the anticipated audience to which NLU has appealed for students.

That is, these students are often, but are not limited to, those who are greater in age than the typical career student, working at one or several jobs, and, have genuine, day-to-day family concerns. This demographic often includes students returning to complete an academic degree, either undergraduate or graduate (NLU at a glance, 2014). Pertinent to this sample, it was fortunate to be able to compare two science courses, primarily in an effort to determine the efficacy of QM as one more means to assist adult learners in apprehending the content increasingly provided by universities in an online environment. As QM does require a certain level of online familiarity for users to get the most benefit, it seemed reasonable that one may be able to track the efficacy of a website's improved navigability through the use of a LMS. While a lack of familiarity with digital technology may be problematic

to certain student populations, it can be perceived as a distinct mental barrier to participation for adult learners. QM may offer the chance to detect and reduce this perceived barrier.

In addition, as adult learners, students in an online environment may confide a lack of ability to their instructor in an attempt to preface their performance within a digital environment if they have not had productive exposure to online courses. QM also appears to present an opportunity to encourage those same students to convey a greater level of confidence in their ability to apprehend content better with greater ease of navigation in an online environment.

Conceptualization

The technical requirements to access a typical learning management system may discourage adult learners from engaging in an online course. This can present a very real barrier to successful progress, requiring intervention by the host institution. Though adult learners are largely self-directed in taking online courses, it is a trait of adult learners that if they continually find the course inconsistent in its presentation or difficult in its navigation, one can reasonably assume that adult learners will participate less in the course as a whole (Pappas, 2013). As a systematic means to improve course presentation and navigability, QM can encourage greater participation for adult learners.

While QM's utility is demonstrable among online courses, its success as a way to reduce the perceived barrier that online courses presents to adult learners can be shown, but with obvious and prudent caveats. That is, while QM does improve the navigability of online courses, its specific improvement among adult learners can be best measured under controlled circumstances, allowing for measures that take into account specific requirements of adult learners. To that end, this presentation offers a small measure of possible evidence to bolster this latter assertion. Comparing the same kind of online courses that do (and do not) employ recognized standards of QM appears an adequate way to test whether adult learners can increase their rates of participation to access online courses. That is, one can test for increased rates of participation before and after the application of

QM, thereby drawing a measurable inference, not only of the relative efficacy of QM, but as a means to lessen the perceived barrier.

Design & Development

QM offers a tested means to organize a cleanly accessible online presentation with straightforward navigation to encourage greater participation. While QM does not validate or assess the specific content presented in a given online course, it does offer the instructor helpful recommendations to organize that content, promote its presentation, and streamline its access (LinkedIn SlideShare, 2014). As application of QM principles can improve students' online experience, it offers adult learners confidence in online navigation. Greater confidence can lead to greater participation. To test for this greater participation, one can readily compare science courses before-and-after QM re-tooling. General education science courses offer a good environment, as they often have little subjective content. This makes the tally of user progress unambiguous. Fortunately, a LMS does often employ internal statistics to monitor the progress of students through specific online courses. This user progress is often typically available to the instructor as one of several online analytic tools (Meyer, 2015).

By comparing levels of user progress for the same courses for which specific content is presented, one may determine a relative rate of access by adult learners before-and-after re-tooling. The rate of access can be gauged by activity levels of adult learners during randomly chosen times during which all students are obliged to access specific content. Internal statistics on user progress for any chosen time frame typically reveal amounts of time spent on areas within the LMS for that course.

To attempt this comparison, an existing 300-level natural-science course was chosen that was representative of adult learners attempting to take and access an online course. The course, LAN 300 Ecology, is an online course with a laboratory component, according to the NLU Course Catalog (NLU Course Catalog, 2016). There are two main reasons for its straightforward selection, namely, the course was a relatively long-standing course in the roster of

courses offered online at NLU, but it was offered as an online course on a well-known and stable LMS; and, though its content and textbook were largely the same, QM principles had been applied to the layout of the course over the past year (i.e., by 2015) to make it more straightforward to navigate.

In selecting this course for its inclusion in this presentation, there are several obvious caveats. For example, for this to be a truly accurate assessment of course navigability before-and-after an application of QM principles, the class would have to consist of the same composition, size in numbers, and age range of adult learners. Ideally, one might need the exact same class, in order to assess improvement from learners "before" QM to learners "after" QM. Of course, no class would likely take the same course twice.

In addition, to show conclusive results of a demonstrable improvement for adult learners, that is, for a true course-to-course comparison of progress before-and-after QM re-tooling, the course content would need to remain the same (or largely the same, after updating, as needed) while its navigability would be streamlined by application of QM principles. In this latter instance, that course content was preserved. So, though the comparison is not learner-to-learner, an initial comparison can be made course-to-course.

To a lesser extent, then, it would be useful to know the identity (i.e., relative age) of those adult learners taking this course successively online. While personal information on students is not made available for this presentation, one can infer from its weekly discussion forums that a majority (if not all) were adult learners. This inference can be gleaned from the incidental content of the discussion forums, namely, by what the students revealed about themselves as they took the 10-week course and attempted to meet its online requirements of assignments, quizzes, discussions, and a final exam.

Implementation

The straightforward approach of applying QM has already been underway at NLU since 2014 (Donahue, 2014). This is why it can be instructive now to compare selected courses before-and-after QM re-tooling. To determine

whether the application of QM principles to streamline the navigability of online courses might actually improve their accessibility for adult learners, a pair of natural-science courses, made available online one year apart, were selected for an examination of their user-progress data as archived by the LMS on which the courses were offered. That is, two courses of LAN 300 Ecology were selected as representative of before-and-after examples of QM re-tooling. The first ten-week course was offered in NLU's Spring Quarter 2014 (from 04/01/2014 to 06/03/2014) and hosted eight students. The QM-retooled course was offered in Spring Quarter 2015 (from 04/06/2015 to 06/14/2015) and hosted sixteen students. Re-tooling to QM occurred just prior to the start of the course in SQ 2015.

To effect a comparison between these two courses (viz., LAN 300 Ecology offered at two distinct times) before-and-after QM re-tooling, user-progress data were compared from both courses. On the LMS known as D2L, user-progress data indicate the actual times of logins, and length-of-stay during those logins, among all enrolled students for the duration of the ten-week course. This collection of user-progress data is a built-in analytical tool of (Brightspace Tutorials, 2015) to assist teachers in tracking how often and for how long students are actively engaged in their assigned work for an online course.

From the initial two premises of this paper, it is assumed that an established rate of logins over a distinct period of monitored time within a given course may offer an indication of the relative barrier that online courses might offer to adult learners. That is, if online courses present a true barrier to adult learners, that barrier may be perceived by the frequency, or lack thereof, of logins over a selected period of time as students become acclimated to a given online course. If the frequency of logins appears to increase, or, if a previous dearth of login frequency does not manifest itself after the application of QM principles, all other things equal to the extent that can be known, then a course re-tooled by QM may be perceived as less of a barrier to adult learners than a non-re-tooled course. Repeated logins and a relatively high percentage of completion of content may infer a constant search for content and a sincere level of engagement. By comparison, few logins and

scant time spent in any given area obviously show a distinct lack of engagement and interest. While the former instance may show a genuine attempt by adult learners to access content, the latter instance offers no other logical conclusion than disinterest as an adequate explanation.

Of course, one cannot gauge access based on time of day, since online adult learners will access content asynchronously; rather, one likely has only to look at both the frequency of login and each login's duration to gain any insight into any hesitancy with accessing an online environment. So, without any other corroborating evidence, such as specific complaints from students about inaccessibility to content or difficulty in navigation, one can reasonably assume that poor presentation and difficult navigability present distinct barriers to the learner's participation.

For a QM-tooled course, the increased number of consistent logins over a defined period of time and their increased duration can infer a relative ease with access and navigability. Coupled with a relatively high rate of successful content completion, as indicated by the LMS analytics, one can infer that QM offers improved presentation and navigability, which lowers the barrier to adult learners' participation.

Evaluation

A formal, side-by-side comparison of the same course, before-and-after QM application, may show similar, encouraging results to engage adult learners. This side-by-side comparison is worth exploring as host institutions seek to attract and retain adult student populations. Though the courses, as noted earlier, were not set up for review under controlled circumstances (that is, complete demographics of adult learners were not known with certainty and frequency of logins could not be directly attributed to a full application of QM principles), only a rough comparison can be made at this time. In a more complete evaluation, an adult student cohort participating in a series of before-and-after QM re-tooled courses with a built-in template to guide navigation and access would be needed for a more accurate assessment.

So, for the purpose of this paper, one can examine available user-progress data for a rough approximation. For example, comparisons of LMS user-progress data showed that the earlier course (in SQ 2014, pre-QM) had spotty access to content modules, and, logins appeared primarily to meet designated deadlines. Though the course offered a full set of content-rich weekly modules, the adult learners appeared not engaged. More to the point, the user-progress data, while useful to see logins over a period of time, show little regularity. (See Screenshot 1.) Presumably, too, there were other reasons for poor engagement. For those learners who did access the previous course, the duration of time spent on content areas inferred that the content was presented in an unappealing manner.

By contrast, the latter offering of that same course (in SQ 2015, post-QM) shows students far more engaged in accessing the course; that latter course has a slightly more welcoming presentation and clearer navigation, i.e., more neatly arranged content modules, than its previous installment as an online course. Like its previous installment, this latter course contained the same, full set of content-rich weekly modules, along with (at least) some QM-added navigational assistance (such as a welcome module). In the latter course, the user-progress data show more and regular access by all students. (See Screenshot 2.) Certainly, for example, twice as many students in the latter course would stimulate more logins, as students were required to respond to one another in weekly discussions, but the access is demonstrably greater than the previous (pre-QM) course.

There are obvious caveats to keep in mind. Certainly one cannot infer too many reliable conclusions based on this rough comparison. This paper is intended simply to offer an insight for instructors who may wish to craft a similar assessment on their own, in order to determine the efficacy of QM re-tooling. This approach might be useful for those institutions that have started to apply QM principles, but requires more time to do a thorough job of it. As these institutions seek to apply QM principles to online courses, they might add to their QM re-tooled courses an internal (perhaps weekly) checklist (usually available on the LMS) to organize their adult learners toward completing various assignments, so that their user progress can be more

easily interpreted after the course concludes. While this paper offers just one approach of assessment, it is likely that a more controlled comparison between online courses, "before" and "after" QM, is necessary to have a more meaningful discussion of data. That controlled comparison may determine whether the application of QM principles can indeed improve navigability enough to remove barriers for adult learners to access course content. In the interim, it may be useful as well to seek user-progress data from the QM organization itself, in an attempt to carry forth this assessment.

LAN 300, SQ 2014, pre-QM application
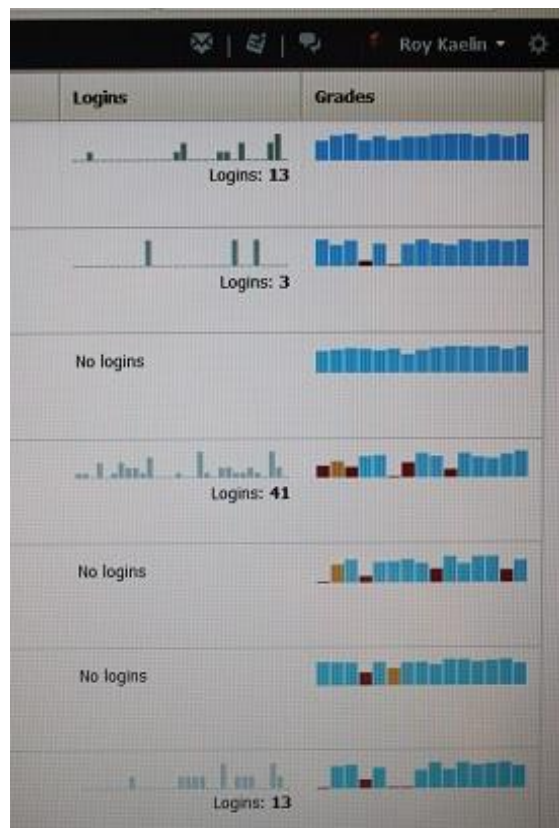
Screenshot 1. User-progress data, while useful to see logins over a period of time, show little regularity in access to

LAN 300, SQ 2015, post-QM application
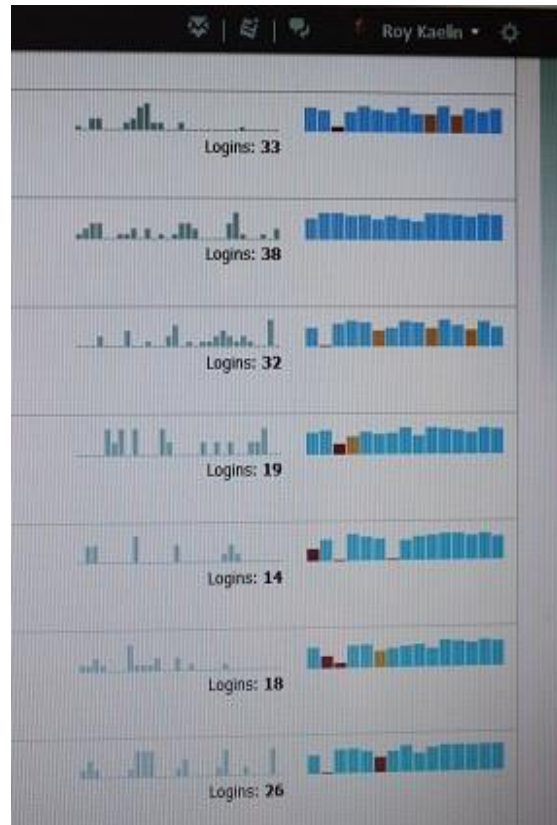
Screenshot 2: User-progress data, while useful to see logins over a period of time, show demonstrably greater access in

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