Reader Time Investment as a Partial Impact Measure of Online Extension Content

Abstract

Information published online can help many vineyard workers better understand concepts that relate to job performance. The eXtension Grape Community of Practice (GCoP) created numerous articles and other content to extend information to their community of interest. Assessing impact of these interactions is difficult; however, using economic models such as opportunity cost could help assign monetary value to each page view. Although it presents an incomplete picture of the impact of the article, deriving the opportunity cost allows authors of online articles to assess how readers value their time and the investment they are willing to make to read online information.

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Introduction

In 2010, the eXtension Grape Community of Practice (GCoP) launched an online repository of viticulture articles to extend information to their community of interest. To date, hundreds of articles and other content have been published online via eXtension or the GCoP website, eViticulture.org. The effort is supported by a USDA-NIFA Specialty Crops Research Initiative grant and is subject to annual reporting.

Grant providers ask principal investigators to quantify the impact of their work, often as a dollar figure (O'Neill, 1998). Impact assessment has also become an important responsibility of Extension work; however, assessing the impact of some Extension activities, such as the development of online educational content, can be challenging. Online users are primarily anonymous, and most do not provide feedback that would set a baseline for assessing impact. Therefore, other data must be used, such as those generated by Google Analytics. Using such data to estimate the value of online

content could assist Extension personnel, such as those in the GCoP, in reporting impact to current and potential grant providers. The objective of this article is to establish a method to quantify reader time investment in no-cost online eXtension articles.

Materials and Methods

To estimate the opportunity cost of reading online content, average household net-adjusted disposable income data were obtained from the Organization for Economic Cooperation and Development (2013); other sources could be substituted. Leisure time, valued at 1/4 of work time, can also be used if reading is done during non-work hours (McDonald & Cranor, 2008). "Total page views" and "Average time spent on page" were data gathered from Google Analytics.

Assumptions:

- Opportunity cost is the net benefit of time spent in the best alternative activity or implicit cost of a good or service (Baron & Blekhman, 2002; Becker, 1965).

- Person reading the article is employed.

- Work hours are flexible (Baron & Blekhman, 2002) allowing for use of hourly wage as a model input.

- The number of hours in a work year is 2080 for U.S. readers.

Equation:

$$RTI = PV \times [T \times ((NDI / 2080) / 60))]$$

Where:

RTI = reader time investment value

PV = total page views

T = average time spent per page in minutes

NDI = average household net disposable income

2080 = number of work hours in a year

60 = number of minutes in an hour

Results and Discussion

The time to read the article is, essentially, a form of payment. Website visitors pay with their time to read the articles (McDonald & Cranor, 2008). The following is an example of how the reader time investment could be calculated. The following data are "page views" and "time spent on page" from Google Analytics (27 Dec. 2010- 14 Aug 2013) for the GCoP content on www.eXtension.org. In this example, average household net disposable income is for the U.S., although one could break it down

by country if needed.

GCoP Example:

$$RTI = 545,745 \times [2.15 \times ((\$37,708 / 2080) / 60))]$$

$$RTI = 545,745 \times [2.15 \times (\$18.13 / 60)]$$

$$RTI = 545,745 \times [2.15 \times \$0.30]$$

$$RTI = 545,745 \times \$0.645$$

$$RTI = \$352,005.52$$

In the above example, the value of the reader time investment was more than $350,000. This number does not include other potential impacts, such as how the knowledge gained from the content was implemented, potentially leading to dollar savings, earnings increases, or both. This equation could be used for individual articles as well to provide authors the dollar value of their work.

The time a reader spends on reading the online articles is an indicator of the value of the GCoP efforts. Determining "impact" when dealing with largely anonymous readers is not easy, but by calculating the reader's time investment, the GCoP can report one important portion of their impact. If time investment along with realized impact factors can be calculated, then a more complete picture of impact can be formulated. As calculated above, the article investment value can vary from year-to-year based on the average household net disposable income and the time spent per page. The value may increase or decrease based on these factors.

Conclusions

Although it presents an incomplete picture of the impact of the GCoP efforts, deriving the opportunity cost as reader time investment allows authors of online articles to see how readers value their time and the investment they are willing to make to read online information.

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