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Communicating Program Outcomes and Impact Using Data Visualization Dashboards

Amanda D. Ali, Paul A. Hill, and Dominic C. Bria

Abstract

Governed by the Government Performance and Results Act (GPRA) of 1993, program performance benchmarks within the Cooperative Extension System relate to (a) relevance, (b) quality, and (c) accomplishments. This study discusses the development and implementation of data dashboards for the Rural Online Initiative, adhering to GRPA's benchmarks of performance.

Introduction

Many extension programs obtain funding from county, state, and/or federal agencies that require frequent program performance and effectiveness reports (Lamm & Israel, 2013). For example, the United States Economic Development Administration reports on performance measures consistent with the Government Performance and Results Act (GPRA) of 1993 and its Modernization Act of 2010 amendment (EDA, n.d.). The GPRA mandates all agencies to collect, analyze, and report on their performance (EDA, n.d.). As such, funding agencies require all grantees to evaluate their programs. The GPRA's performance benchmarks within the Cooperative Extension System relate to (a) relevance, (b) quality, and (c) accomplishments (Narine & Meier, 2019). These metrics are obtained from robust evaluation plans (Hetherington et al., 2019). However, as more emphasis is placed on reporting and accountability related to federal budgets, communicating real-time data on program results can inform funders of program performance and outcomes in a timely manner.

Response

The Rural Online Initiative (ROI) created data dashboards for its Master Remote Work Professional (MRWP) and Leader (MRWL) certificate courses. The objectives were to (a) create visually appealing dashboards that easily communicated statistical data, (b) use these dashboards to report on GPRA's benchmarks of performance for Extension, and (c) provide shareable real-time data on program outcomes to funding agencies. Data dashboards for the courses were created in Zoho Analytics.

Evaluation data and course information are collected and recorded in Zoho's customer relationship management (CRM) system. Data collected from evaluation instruments, along with other manual entries, are stored in the CRM which automatically updates with new entries. Data collected from surveys pertaining to course demographics, enrollments, completion rates, and outcomes were all linked from Zoho CRM to *Zoho Analytics*. Widgets, and interactive graphs and charts were then created with dashboards, set to automatically update with new course enrollments. With user interactions, data can be layered onto graphs and charts without complicating the visual appeal or comprehension of large datasets.

Participants

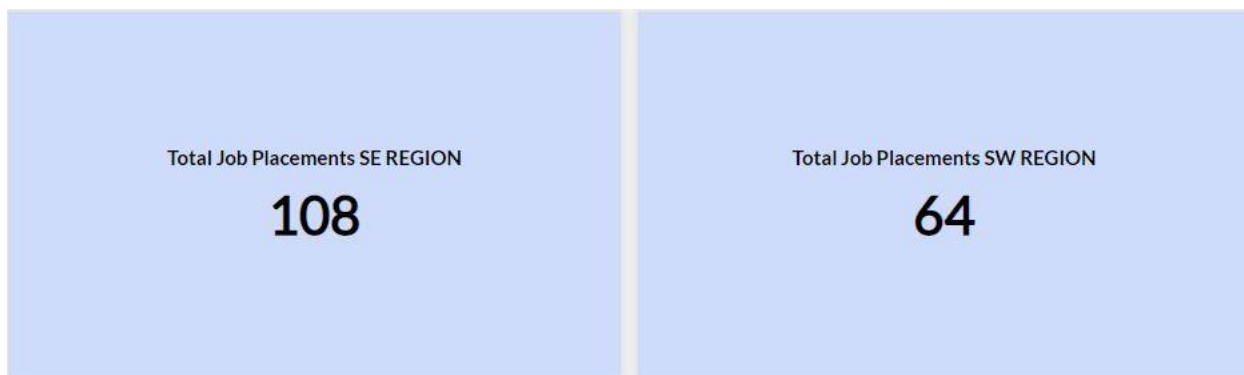
Survey data reflected all enrollments since the course began in October 2018 to present ($N=1,700$). Basic demographic data included gender, race, and age distributions, ethnicity, and course completion by county. Outcome indicators were tailored to the program, and short, medium, and long-term outcomes focused on (a) participants' intent to seek remote employment after completing the course, (b) total number of job placements (broken down by each Utah region, year, month, and county), (c) reductions in carbon emissions, (d) increases in median income, and (e) the county equivalent of one job in rural Utah counties to urban counties.

Outcomes and Impact

Collectively, the information presented in the dashboards solidify the (a) relevance and quality of ROI's courses as it presents meaningful data, and (b) accomplishments based on outcome data. Dashboards were separated into demographic and enrollment data and course outcomes. Four dashboards were developed upon collecting relevant data, guided by the course's evaluation plan, and requested metrics from funding agencies and other stakeholders. Each dashboard is automatically updated, therefore real-time data is always available on course performance. This ensures updated information can be shared with stakeholders on demand as they can check in for accountability and transparency measures. Additionally, the dashboards allow for easy reporting for mid-year and year-end assessments.

All boards are used internally by the ROI team and are published on the ROI's website (<https://extension.usu.edu/remoteworkcertificate/dashboards>) for public access. All graphs and charts are interactive. Other dashboards created for program improvement include program fidelity data and weekly reviews of team goals regarding remote jobs and hires. As the ROI program continues to expand, it becomes essential to track program outcomes and impact in real-time. See Figures 1 and 2 below for snapshots of selected dashboards.

Figure 1: Dashboard – Job Placements for the MRWP Certificate Course



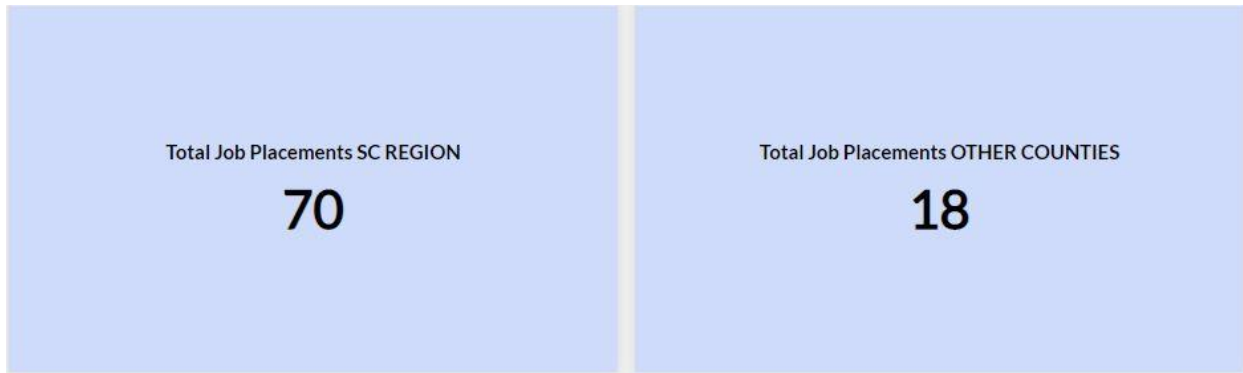


Figure 2: Dashboard – Medium-term Outcomes and Impact for the MRWL Certificate Course



Public Value

Presenting results in an interactive and accessible format is highly useful as it captures ongoing data important for reporting purposes. While real-time dashboards require specialized skills and resources to execute, it effectively conveys the value of extension to stakeholders by demonstrating program relevance, quality, and accomplishments. It could also help extension professionals communicate the status of their programs with team members, helping to motivate and direct daily efforts. As with many evaluation processes in extension, the frequency of reporting outcomes and impact can become tedious. As such, data dashboards can be a long-term solution to evaluation reporting, especially for expanding programs.

While the ROI team used Zoho Analytics to create the dashboards, other visualization software such as Tableau Desktop, Microsoft Power BI Pro, Domo, Oracle Business Intelligence, or Amazon QuickSight can help provide meaningful results. The use of impactful visualizations could be an effective way to communicate real-time program outcomes and impact to funding agencies and stakeholders. With increased competition for program funding, it is vital that extension professionals effectively communicate their programs' outcomes and impact.

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