

Case Study: Reducing Scheduling Errors

By Kate Aument and Julie Barkin

Tales from the Field, a monthly column, consists of reports of evidence-based performance improvement practice and advice, presented by graduate students, alumni, and faculty of Boise State University's Organizational Performance and Workplace Learning Department.

Problem

ProPower (a pseudonym), a non-for-profit organization in the domestic nuclear power industry, conducts a broad spectrum of large-scale operations including evaluations, assistance, training and accreditation. These activities frequently involve meetings at the ProPower facility with industry personnel. The 33 administrative staff members at ProPower schedule, coordinate, and track these meetings using the SchedConnect software application. In August 2015, ProPower identified an increasing number of SchedConnect data entry errors. The organizational pain points that result from errors in the SchedConnect application included

- increased costs, due to process inefficiencies and employees' time spent supporting internal activities and correcting errors;
- reduced opportunities for personal interactions with the industry, due to inaccurate and untimely postings of industry personnel visiting the ProPower facility; and
- risk of decreased reputation with ProPower's industry members, due to inaccurate reports generated from SchedConnect.

Approach

An instructional design team, composed of two graduate students at Boise State University, used the Bronco instructional design (BID) model (Figure 1) (Stepich, Villachica, & Conley, 2015) to address these pain points. The BID model provided detailed instructions to help the team successfully execute the instructional design process, while integrating human performance technology and instructional design standards and ethics. The team began its efforts by completing performance, learner, and task analyses.

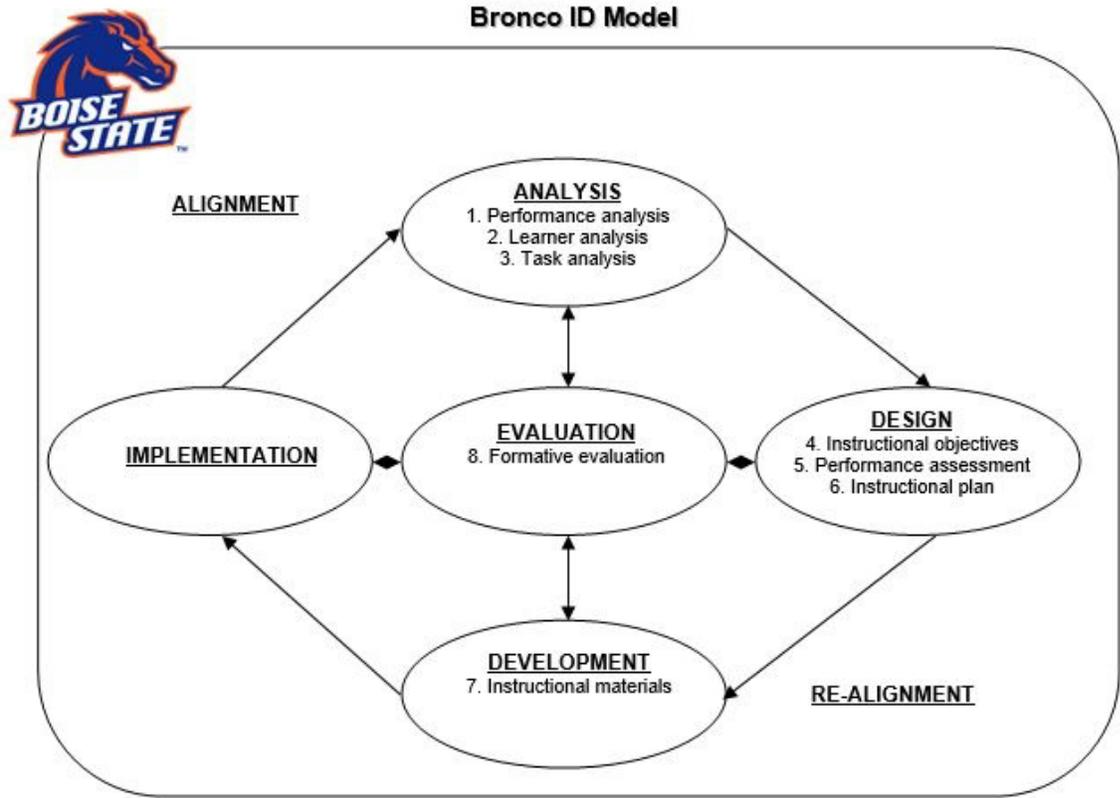


Figure 1. The Bronco Instructional Design model (Stepich, Villachica, & Conley, 2015).

Performance analysis

In the performance analysis phase, the team specified a performance gap, conducted an organizational analysis, and performed a cause analysis. Results of the gap analysis appear in Table 1.

Table 1

SchedConnect Performance Gap

| Current Performance | Desired Performance |
|--|--|
| <p>Our administrative staff is scheduling meetings in the following manner:</p> <ul style="list-style-type: none"> • untimely (12% of meetings during 1/01/14 and 12/31/15 were created in under 7 days or after the meeting occurred.) • inaccurate (35% of scheduled meetings during 01/01/14 and 12/31/15 had | <p>We want our administrative staff to schedule meetings in the following manner:</p> <ul style="list-style-type: none"> • timely (98% entered in SchedConnect at least 7 days before the meeting occurs, when circumstances permit.) • accurate (98% created with correct activity types, correct meeting titles [with no abbreviations or acronyms], correct |

| | |
|--|--|
| <p>errors—e.g., incorrect meeting titles or no online registration links.)</p> <ul style="list-style-type: none"> • with scheduling conflicts (unavailability of meeting room and/or mandatory participants for the meeting’s duration) | <p>attendees, and relevant meetings display on ProPower’s Member Calendar)</p> <ul style="list-style-type: none"> • free of scheduling conflicts (95% confirmed availability of meeting room and mandatory participants for the meeting’s duration) |
|--|--|

The organizational analysis confirmed that the performance gap was worth closing. The organizational pain points affected both ProPower’s organizational core values and strategic business objectives (i.e., increased productivity, responsible stewardship of resources, and enhanced internal and external customer service).

To conduct a cause analysis, the team used Gilbert’s (1978) Behavior Engineering Model to identify the sources of the performance gap. The results revealed the gap arose due to a lack of

- clear expectations, as well as appropriate guidance and tools, in the workplace environment, and
- knowledge and skills on the part of individual administrators in collecting the appropriate meeting information and managing meeting conflicts. These skills involve the dynamic conversations that the administrative staff holds with meeting requesters and the complex decisions that administrators make to schedule such meetings while avoiding potential conflicts.

The team used an instructional design solution to close the performance gap. Training would build the lacking skills. Training would also provide a safe environment for administrators to practice different scenarios and discuss questions as they arose. A job aid (Harless, 1986) would specify expectations and provide guidance in the form of an easy-to-use tool.

Learner analysis

The team conducted a learner analysis (Stepich et al., 2015) to identify relevant characteristics of the target audience (e.g., prior knowledge, targeted skills, motivation, learning environment, and transfer context) along with ways those characteristics might influence the design of the training program. Through in-person interviews as well as a web-based survey, the team found that administrators understood meetings needed to be entered into SchedConnect. However, they did not fathom its importance. ProPower uses the information from SchedConnect in other business processes. Incorrect meeting information ripples throughout a wide variety of business processes, most of which administrators were unaware.

Task analysis

The team conducted in-person interviews with subject matter experts to identify the most critical, difficult, and complex steps related to the procedural task of scheduling a meeting. Then the team produced a detailed outline of the task and accounted for main steps, cues, resources, details, and standards, following the strategies described by Jonassen, Tessmer, and Hannum

(1999). Table 2 features a sample portion of the task analysis—which the team later revised to create the job aid.

Table 2

Sample Task Analysis

| Questions to Ask Before Creating a ProPower-Sponsored Meeting in SchedConnect: | |
|--|---|
| 1. What is the purpose of the meeting? _____ | |
| 2. Is it a Top Tier meeting involving the Senior Leadership Team (SLT)? <input type="checkbox"/> Yes <input type="checkbox"/> No | |
|  Top Tier meetings are mandatory for designated SLT attendees with no substitute allowance. | |
| TIER 1? | THEN |
| Yes | If you do not have permissions to schedule this meeting, follow these steps to identify someone with permissions to schedule the meeting instead: Start → All Programs → SchedConnect Reports → Activity Authorities by Activity Type → OK → Select the activity type → Display Report |
| No | Continue processing the meeting request. |
| 3. Have we had this meeting before? <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| IF | THEN |
| Yes | The meeting will likely already have an activity type in SchedConnect. |
| No | Will we have this meeting again? <input type="checkbox"/> Yes <input type="checkbox"/> No |
| IF | THEN |
| Yes | Contact the Scheduling Dept. to create an activity type. |
| No | Contact the Scheduling Dept. for guidance on an existing activity type to use. |

Job-focused instructional objectives

Having identified a performance gap worth closing and having determined that a job aid and training could close it, the team began the design phase to create a training course entitled “Scheduling Meetings.” First, the team used Mager’s (1997) three-part model to design job-focused instructional objectives, with observable behaviors given certain conditions as well as measureable criteria, that administrator would be expected to perform upon completing the instruction and on the job. Table 3 illustrates one of the objectives.

Table 3

Job-Focused Objective

| # | Performance | Conditions on the job | Criteria on the job |
|----|--|--|---|
| 1. | Collect relevant information pertaining to ProPower-sponsored meeting. | <p><i>Cues</i></p> <ul style="list-style-type: none"> Someone asks the administrator to schedule a meeting, or A recurring meeting The administrator needs information to process a meeting request in SchedConnect <p><i>Resources</i></p> <ul style="list-style-type: none"> <i>SchedConnect Meeting Data Collection</i> job aid <i>Guidance for Meeting Preparation and Facilitation</i> document ProPower personnel including meeting requestor, Scheduling department staff, and Information Technology (IT) department staff | <ul style="list-style-type: none"> Follow guidelines contained in <i>SchedConnect Meeting Data Collection</i> job aid Collect relevant meeting information that allows for timely creation in SchedConnect (at least 7 days prior to the start date, when circumstances permit) Collect sufficient information to create the meeting in SchedConnect: <ul style="list-style-type: none"> full meeting title meeting dates and start/stop times location of the meeting requirement for meeting to appear on the ProPower Member Calendar mandatory and optional participants participant attendance durations online registration requirements meeting room requirements Avoid sources of potential meeting conflicts with: <ul style="list-style-type: none"> concurrent events participants' schedules meeting room availability |

Performance assessment

The team then developed a performance assessment instrument in the form of an observation checklist (Stepich et al., 2015). Instructors would use the checklist while they observed a participant collecting meeting information from another participant who role-played making a meeting request. This checklist helped the instructor assess the learners' mastery of the objectives at the end of the training. Table 4 provides a sample of the observation checklist.

Table 4

Sample of Observation Checklist.

| SchedConnect Meeting Data Collection Checklist | | | |
|--|--|---|----------------|
| # | Did the learner: | Meet the criteria? | Notes/Comments |
| 1. | Determine the purpose of the meeting. | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 2. | Determine if meeting has a Top Tier classification | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 3. | Determine past or future instances of the meeting. | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| Final Score: ___/17 | | | |

Instructional plan

The team integrated Merrill’s first principles of instruction (2002) and Keller’s ARCS model of motivational design (1987) in the design of the instructional plan which included the phases of activation, demonstration, application, and integration. A sample of the activation phase of the plan appears in Table 5.

Table 5

Sample of Activation Phase of Instructional Plan

Overview: Learners will practice using the *Scheduler Meeting Data Collection* job aid in several exercises with increasing level of difficulty. Learners will identify what information is required to schedule the meeting as well as identify sources of potential conflicts to the meeting. Learners will receive diminishing coaching and feedback on their performance from facilitators.

The activation phase incorporates the ARCS confidence strategy “C2.1 *Difficulty*: Organize materials on an increasing level of difficulty; that is, structure the learning material to provide a ‘conquerable’ challenge” (Keller, 1987). As learners work through increasingly difficult exercises, they will gain confidence in their ability to perform the task correctly, using guidance from the job aid. The exercises will also familiarize the learners with the desired performance as they use the performance assessment checklist to evaluate their fellow learners.

Formative evaluation

To ensure delivery of a quality product to the client, the team integrated feedback from peer instructional designers, the instructor, the client, and subject matter experts during each stage of the project.

The team delivered a comprehensive job aid, an instructor-led training plan, and additional instructional materials (e.g., training activities) to the client. The client piloted the training in January 2016 to four members of the administrative staff which resulted in positive reception and minimal adjustments to the job aid.

Results

The client delivered the training to the 33 administrators in March 2016. Following the training, participants provided reactionary feedback via a survey and, overall, gave positive feedback about the added value of the training and descriptive job aid for completing their task.

Two months after the training, the team compared the initial performance and post-training performance (Table 6). Early results show that the training has been effective in improving performance. Long-term performance measurements will continue to be reviewed by the client to determine lasting impact.

Table 6

Performance Comparison: Before Training, Post-Training, and Desired

| Performance Measurements: Our administrative staff is scheduling meetings in the following manner: | Performance Before Training as of October 2015* | Performance Post - Training as of June 2016* | Desired Performance |
|---|--|---|----------------------------|
| Timely <i>Created 7+ days in advance</i> | 88% | 95.6% | 98% |
| Accurately <i>Without errors (e.g. correct meeting title, meeting type, and registration option)</i> | 65% | 91.2% | 98% |
| Free of scheduling conflicts <i>Confirmed availability of meeting room and mandatory participants</i> | Qualitative data collected | Qualitative data collected | 95% |

*Performance before the training was analyzed from meeting data spanning 1 /1/14– 12/31/15, which were created in the SchedConnect from 4/1/13 to 9/30/15; whereas, post-training performance was reviewed from meeting data spanning 4/1/16 to 12/31/16, which were created in the SchedConnect from 4/1/16 to 6/1/16.

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About the Authors



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