



# The Performance Technologist's Toolbox

## — Work Samples —

by Anne F. Marrelli, CPT, PhD

**T**he work sample method of data collection involves the systematic collection and review of products created during the normal course of work. Work samples can be written documents, such as reports, memos, letters, or journal articles; or tangible products, such as a bowl created by a potter, a poster created by a graphic designer, or an educational videotape developed by an instructional designer. Work samples may also include routine recordings of work, such as daily audiotapes of a customer service representative's conversations with clients or computer records of a data entry clerk's output for the day.

Work samples are similar to performance tests and observations because all three methods of data collection focus on work products or the directly observable results of work. In performance tests, which are commonly administered in selection, training, or certification situations, people are given tasks to perform that closely simulate tasks performed on the job (Binder, 2004). In observations, data are collected by systematically observing employees as they perform their jobs and documenting their behaviors (Marrelli, 2005).

Work samples are different from performance tests in that work samples are actual specimens of routine on-the-job work, while performance tests are specially administered for a specific purpose outside the usual job context. Work samples are different from observations in

that observations are specifically scheduled for a set period and are typically of relatively short duration. In contrast, work samples are collected from routine work performed over an extended period. While performance tests and observations both require the presence of the worker, work samples examine the tangible results of work performance, but the worker is not present during the review of the work.

### Applications of Work Samples in Performance Technology

Work samples are an excellent method of data collection for many applications of performance technology, including job analysis and competency modeling, employee selection, performance analysis, evaluation of interventions, certification, and individual performance assessment.

#### Job Analysis and Competency Modeling

In combination with other methods of data collection, reviewing work samples is a helpful approach for understanding the duties and tasks of a job and then identifying the competencies required for successful job performance. The work products offer concrete examples of job outcomes that are especially helpful to the analyst who is not familiar with the job. It is important to distinguish between examples of superior performance and those of lower quality, and to use the superior examples to determine the level of competency proficiency needed for the job (Gilbert, 1996).

Early in my career, I led a selection test development team for a county government. As a component of our data collection methodology for a job analysis of the position of Deputy Sheriff Trainee, my team and I collected samples of patrol reports. Deputies were required to write these reports following each incident they responded to while on patrol. The reports described the events such as automobile accidents, robberies, burglaries, and assaults as well as the accompanying facts regarding their physical setting, witnesses, time, and location. We used the patrol reports to define the reporting task, an important part of the deputies' duty of responding to incidents in their assigned territories. We reviewed samples of both well written and poorly written reports. By carefully examining the reports, we could identify the levels of proficiency in both writing and analytical ability needed to properly complete the report. These competencies were included in the list of required competencies for the job, which we used to develop a selection test for the Deputy Sheriff Trainee position.

### **Employee Selection**

Work samples can be a valuable component of selection processes. They are typically high in both validity and reliability, two essential characteristics of effective and legally defensible selection procedures. Candidates for positions are asked to submit samples of products they have created in previous work experiences. For example, a graphic artist may be asked for a portfolio of previous work, an instructional designer for samples of course materials, and a pianist for a recording of pieces performed.

In designing selection processes for various jobs in both the private and public sectors, I have frequently included the review of candidates' work samples as a key element of the process. For example, when I designed a selection process for instructional designers, it included the structured review of course materials the candidates had previously created. As a hiring manager, I have often asked candidates for positions that require a substantial amount of writing to submit samples of articles and reports they have written. These are excellent predictors of the individual's writing skill on the job.

### **Performance Analysis**

The examination of work samples is an efficient and effective approach to identifying performance problems. Methodical review of the samples provides performance technologists with insight into the performance gaps and the concomitant learning and organizational intervention needs.

At the large government agency where I was employed, there were persistent problems with the quality of civil service selection examinations developed by human resources analysts. My assignment was to determine the source of the

problem and design effective interventions. The data-collection methods I used included discussions with the analysts and their managers, a review of appeals filed by job candidates who participated in the examinations, and a review of samples of the examination materials produced by the analysts, including written tests, structured interview protocols, and ratings of training and experience. As I reviewed these work samples, it quickly became apparent that good test construction principles had often not been applied, and I was able to identify specific deficiencies. With this data, as well as additional data collected from the discussions and appeals, I determined that the performance issues included inadequate knowledge of both test construction and county policies for the development of tests, insufficient motivation to develop good tests, and the inappropriate assignment of analysts to tasks for which they were not well prepared. The interventions I recommended were a classroom and on-the-job training program for the analysts, explicit statements of county policies and performance standards in a manual, a certification program to ensure readiness for test construction responsibilities, and the inclusion of test development in the analysts' performance evaluations.

### **Evaluation**

Work samples are also an effective data-collection method for the evaluation of performance improvement interventions. Samples of work can be compared before and after the introduction of an intervention, such as an incentive or training program. Comparisons can also be made between two groups in situations where one group participated in the intervention and the other did not.

While I was employed by a large aerospace firm, one of my responsibilities was to conduct business process improvement studies. One process I reviewed and redesigned was the exit interview process. The review of work samples was an important element of the data collection for the study. At the beginning of the study, I examined samples of departing employees' responses to the exit interview questions as documented by the interviewer, as well as samples of the reports of summarized data from the interviews. The review of these samples was important in identifying problems in the process. After the process was significantly revised, I again reviewed samples of the interview documentation and data summary reports. This review, in combination with feedback from the managers who used the data, led me to determine that the revised exit interview process was resulting in substantially more accurate and useful data.

### **Individual Performance Assessment**

Work samples are also an effective data-collection method to assess individual performance. For example, employees can be asked to provide work samples as evidence that they meet the qualifications for certification in a specific discipline.

Work samples can also be used in annual or semi-annual performance evaluations of individual employees. For example, in a two-year academy program for information technology managers I designed for a government agency, review of samples of the managers' work was part of the certification process.

## Advantages and Disadvantages of Work Samples

Advantages and disadvantages of using work samples as a data-collection method are summarized below.

### Advantages

- Work samples provide direct evidence of performance and therefore offer strong validity. Unlike data collection methods such as surveys and focus groups, in which data are based on the reports of people, the data in work samples are not filtered through others' perceptions.
- Work samples are an unobtrusive measure that do not involve direct involvement of the performance technologist with the individuals under study. They therefore are not susceptible to the changes in behavior that may occur when individuals know they are being observed (Borg & Gall, 1979).
- Because the review of work samples does not require the presence of workers, no scheduling is required. Review of the samples can be conducted any time.
- Routine video, audio, and computer recordings expand the collection of work samples to intangible behaviors such as interactions with others.
- Work samples can be used for any position in which a work product is created from unskilled jobs to extremely complex jobs.
- Because samples of routine work are studied, employees do not need to take time away from work to participate in the data collection effort, as they do in focus groups, surveys, and interviews, nor do they need to be motivated to participate.

### Disadvantages

- The collection of an adequate number of work samples can require substantial administrative coordination and time.
- It can be difficult to ensure that the work samples obtained truly represent the employees' output. Especially in situations in which individuals choose the work samples they provide, as in asking job candidates to provide samples, the samples may not be representative of the individual's usual products.
- Work samples offer a limited view of job performance because they typically represent only one of several job duties and tasks. It is important that other data collection methods be used along with work samples.

- The review of work samples can be expensive and time consuming, especially when highly trained reviewers are required.
- Employees can be uncomfortable about handing over their work for review. They may suspect that the collection is a prelude to layoffs or punitive performance evaluations. Strong sponsorship of the data collection by a respected and trusted executive and copious communication can overcome this reservation. However, in many cases, it is not necessary to inform employees that their work is being reviewed, because the work they produce is the property of their employer and the review is not focused on individual outcomes.

## Guidelines for the Use of Work Samples

First, a sampling plan should be created to ensure that the work samples collected and reviewed are representative of all the work in your sphere of interest. Stratify the sample on the variables that are important in your study, such as years of experience, amount or recency of training, work location, gender, ethnicity, and so on. A basic research methods textbook will provide valuable guidance for readers not familiar with sampling strategies.

A checklist for consistent review of all the work samples is essential. Begin by establishing the review dimensions that are important for the study. These will be based on the objective of the study. For example, if the work samples will be used to evaluate the effectiveness of a training program in teaching supervisors how to write good performance appraisals, the checklist should include the elements of a good appraisal that are included in the training program content. If the work samples are being used to analyze performance, the checklist should initially focus on the presenting problem such as complaints from clients about the quality of a product. Examine 15 or 20 of the work samples to understand their content and format, identify common errors, and establish parameters of interest before you develop a draft checklist. The draft review checklist should be pilot tested for comprehensiveness and ease of use, and any necessary revisions should then be made.

Figure 1 provides an excerpt from a checklist used to review samples of written tests in a study of the performance problems involved in examination test items.

In large-scale studies, several assistants may be needed to help review the work samples. Training should include a careful review of the checklist and practice in using it until the assistants can demonstrate they are accurately reviewing and rating the work samples.

Data analysis should be carefully planned and pilot tested before review of the work samples begins. Three common methods of analysis are simple frequency counts, yes-no dichotomies, and the application of rating scales. If a frequency

Place a check in the "YES" column if the item meets the performance standard for multiple-choice items. Place a check in the "NO" column if the item does not meet the performance standard.

PERFORMANCE STANDARD	YES	NO
1. The question is stated in simple, concise language.		
2. Acronyms are spelled out.		
3. Gender references are absent.		
4. The question is asked in the positive form.		
5. The item is independent of other items in the test.		
6. Inclusive terms such as "all," "always," "never," and "only" are absent in the stem.		
7. Hints to the correct response are absent in the stem.		
8. All response options are logically and grammatically congruent with the stem.		
9. The response options are all of similar length.		
10. The misleads are plausible.		
11. The response options are placed in a logical order.		

**Figure 1. Excerpt From a Work Sample Review Checklist for Written Test Items.**

count is used, the number of occurrences of dimensions established in the checklist are counted, such as the number of errors, the presence or absence of key elements of the products, or the inclusion of specific content or characteristics. For example, in a review of technical writing samples, the number of misspelled words or grammatical errors may be counted or the inclusion of reference citations may be noted.

In the yes-no dichotomy approach, reviewers indicate the presence or absence of specific characteristics. For example, in a review of a competency model, a checklist may ask the question: "Are behavioral examples at three levels of proficiency provided for each competency?" The reviewer simply indicates "yes" or "no."

Rating scales are used when the quality or extent of specific characteristics is important. In this case, a rubric is created with definitions of each point on the rating scale. For example, for the review of posters created by graphic artists, a rating scale of 1 to 5 may be developed for each key element of poster design, such as use of color, balance of the design, clarity of message, appropriateness for the audience, and uniqueness. There can be a good deal of qualitative judgment in this approach, which may reduce the reliability of the reviews. Specific definitions of each point on the rating scale and training on the use of the scale will reduce the amount of disagreement among reviewers.

## Conclusion

Because they are a direct and concrete product of work performance, work samples are a valuable method of data collection in performance technology. They offer insight into the key elements of performance on the job without the filtering of perception that afflicts more commonly used methods such as interviews, focus groups, and surveys. Performance technologists would do well to add the work sample method of data collection to their toolkit. 🌟

## References

Binder, C. (2004, October). Using high-fidelity simulations to certify performance [On-line]. Available: <http://www.performanceexpress.org/0410/main-frame0410.html#titlemeasure>. *PerformanceXpress*.

Borg, W.R., & Gall, M.D. (1979). *Educational research: An introduction* (3rd ed.). New York: Longman.

Gilbert, T. (1996). *Human competence: Engineering worthy performance*. Silver Spring, MD: International Society for Performance Improvement.

Marrelli, A. (2005). The performance technologist's toolbox: Observations. *Performance Improvement*, 44(2), 39-43.

---

**Anne Marrelli**, CPT, PhD, has more than 20 years of experience in the performance technology field with deep and broad expertise in selection and assessment, performance management, instructional design and development, performance improvement, evaluation, organizational development, competency modeling, and leadership development. Her former employers include Caliber Associates, American Express, Hughes Electronics, Educational Testing Service, and the County of Los Angeles. Anne earned a BS degree in Psychology and Sociology from Whittier College and MS and PhD degrees in Educational Psychology from the University of Southern California. She is the author of numerous journal articles, book chapters, and technical reports. Anne may be reached at [annemarrelli@earthlink.net](mailto:annemarrelli@earthlink.net).