Curriculum designers frequently must construct methodologies that facilitate the learning of processes. This module, a companion to 2.3.7 Learning Processes through the Use of Methodologies, provides a step-by-step procedure for constructing methodologies. It explains in detail the importance of each step, it offers a detailed example of a methodology, and identifies obstacles to the successful application of the procedure. This module pays careful attention to the underlying theory and benefits of using such a methodology to convince skeptics who question the need for a methodology to create methodologies.

**Introduction**

A methodology, or multi-step model for performing a complex process, can be a powerful teaching and learning tool ( Cleary & Duncan, 1997). Proven methodologies for common classroom processes can be found in widely-used educational references (Dick, Carey, & Carey. 2004; McKeachie & Svinicki, 2006) and in other modules in this book (2.3.8 Learning Process Methodology, 3.2.3 Facilitation Methodology, 4.1.4 Assessment Methodology, 1.4.7 Evaluation Methodology, 2.4.6 Methodology for Program Design, and 2.4.8 Methodology for Course Design). However, faculty members often need to construct course-specific methodologies that are unique to their discipline.

**Need for this Methodology**

It is a complex process to create a methodology, but the process can be made easier by formalizing its steps. The methodology for creating methodologies is intended to help curriculum designers create more effective tools for learning (Wiggins & McTighe, 2005) and to strengthen institutional memory (Senge, Cambron-McCabe, Lucas, Smith, Dutton, & Kleiner, 2000). Any methodology should be comprehensive enough to cover the full range of performances for a process, and should stimulate reflective thought about the performance (Schön, 1990). Table 1 gives a general-purpose methodology to help educators create new methodologies for their courses. Users will benefit from following it closely in the beginning and then internalizing some of the steps with repeated use.

### Table 1  **Methodology for Creating Methodologies**

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Define the direction.</td>
<td>Specify objectives for the process and identify who benefits from it.</td>
</tr>
<tr>
<td>2. Identify key issues.</td>
<td>Identify key performance factors that affect the quality of the process.</td>
</tr>
<tr>
<td>3. Put the process into context.</td>
<td>Obtain a systematic overview to determine the scope, focus, and use of the process.</td>
</tr>
<tr>
<td>4. Set criteria.</td>
<td>Set criteria and determine outcomes that will be used to assess the quality of the process and its results.</td>
</tr>
<tr>
<td>5. Inventory information &amp; resources.</td>
<td>Collect expertise in the use of the target process, including quality, quantity, timeliness, and the cost of relevant information.</td>
</tr>
<tr>
<td>6. Logically order process.</td>
<td>Organize the process into steps; include implicit feedback loops.</td>
</tr>
<tr>
<td>7. Execute the methodology.</td>
<td>Test the methodology, using it as a guide, not as a rule book.</td>
</tr>
<tr>
<td>9. Facilitate the process.</td>
<td>Use facilitation, assessment, and management skills to help participants learn the process.</td>
</tr>
<tr>
<td>10. Assess performance.</td>
<td>Determine necessary changes in the methodology by analyzing the differences between the desired and actual outcomes.</td>
</tr>
</tbody>
</table>
Discussion of the Methodology

Step 1—Define the direction.

Before you begin to construct a methodology, set the scope of the process by establishing its starting and ending points. Identify the purpose and objectives of the process as well as who benefits from it. As you construct the methodology, keep in mind the audience and objectives so that the completed methodology remains true to the context in which the process is practiced and experienced.

Step 2—Identify key issues.

This is one of the most important steps in the methodology and the one most often overlooked. Take time to identify 7-10 key issues or performance factors that affect the quality of the process. As you contrast expert performers with novices, what major differences do you see? Ask yourself what is difficult in the process. What does a quality performance entail? What factors hinder the quality of a performance? Be sure to focus on affective as well as cognitive and social issues. Take on the perspectives of different stakeholders in the process.

Step 3—Put the process into context.

Next identify a larger system in which the process is a component. The context is critical because the use of the process is greatly impacted by the culture, values, and systems in which the process will be performed. As you create the methodology, you may need to expand or contract the context, but it is important at this point to determine the scope, limits, and focus of the process. Often a review of key issues and process objectives will help identify an appropriate context.

Step 4—Set criteria.

In order to assess the quality of a performance achieved by following the methodology, you will need to set criteria for the process and for its results. Criteria serve as a guiding force as well as a means of focus; they help ensure that the desired outcomes have been met. Identifying five criteria for both process and product will enhance the design of the constructed methodology.

Step 5—Inventory information and resources.

Before continuing, it is important to review the quality, quantity, timeliness, and cost of relevant information. If essential information needed to address the key process issues is missing or is of poor quality, take time to correct this problem now. An expert in the use of the process is a great resource. If the person who is creating the methodology is not an expert, it is especially important to consult someone who is.

Step 6—Logically order the process.

Now organize the process into a methodology by logically ordering the steps, adding feedback loops if necessary. First, break the process down into stages. Within each stage, determine the key things that must be done and how they can be sequenced most effectively. At each step, ask whether there are gaps in the methodology. Is every step valuable to the whole and thus worth highlighting? The goal is to have the minimum number of steps while at the same time keeping each step manageable. It can be very helpful at this point to observe an expert performing the process.

A key thing to remember in the event of a feedback loop is not to repeat steps: simply note that an earlier step might need to be repeated. If more than a dozen steps seem necessary, try to reduce the number. Ask an expert whether some may be omitted or combined without disrupting the flow. If the process is too complex for a single methodology, it may need to be broken down into component processes. For examples of stages in a process, see 2.3.8 Learning Process Methodology or look at the example of a process for critiquing student papers which immediately follows this discussion.

Step 7—Execute the methodology.

As you create a methodology, it is important to assume the mindset of a person performing the methodology for the first time. Execute the process using the methodology as a guide. Pay attention to any confusion that a first-time user may experience in performing each step and ask how the step might be rewritten to make it clearer. Be especially alert for missing or extraneous steps. Once you are satisfied, ask both an expert and a novice to test the methodology. Carefully document their performance at each step.

Step 8—Assess each step.

Once the methodology is deemed sound and it achieves the objectives identified in Step 1, it is time to collect the data observed in Step 7, and use the criteria from Step 4 to measure performance in “real time.” The goal here is to improve the quality of the methodology as seen both in the effectiveness of following the methodology and in the product that results. Repeat Steps 7 and 8 until you are satisfied that the methodology meets expectations.

Step 9—Facilitate the process.

Test the effectiveness of the methodology by choosing a context in which to facilitate it (i.e., a class of students, a group of colleagues, a workplace setting, etc.). Use facilitation, assessment, and management skills to help par-
participants use the methodology to learn the process (2.3.7 Learning Processes through the Use of Methodologies). Collect data from this experience. Be sure to ask the participants to assess every step while the activity is being facilitated.

**Step 10—Assess performance.**

Use the performances and assessment data collected in Step 9 to determine what improvements should be made to the methodology; analyze the differences between desired and actual outcomes. Every time a change is made, repeat Steps 7-9. When participants use a methodology in a real-life context, they often have trouble understanding steps that seem clear to experts. Pay careful attention to any rewording suggested by participants.

**Example of the Methodology**

The context for this example is a classroom activity in which students learn how to critique a paper. This example was constructed from insights given by Bean (1996) as well as from input from writing instructors at a Pacific Crest workshop.

**Step 1 Define the direction.**

Starting with a given paper, produce a high-quality constructive assessment of the paper; include the feedback stage to improve current and future papers.

**Step 2 Identify key issues.**

The following issues are key in producing a high-quality constructive assessment of a paper:

<table>
<thead>
<tr>
<th>Affective issues</th>
<th>Cognitive issues</th>
<th>Social issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>honesty</td>
<td>quality of reading</td>
<td>clear articulation of ideas</td>
</tr>
<tr>
<td>confidence in expressing ideas</td>
<td>quality of thinking</td>
<td>willingness to help others</td>
</tr>
<tr>
<td>focus</td>
<td>understanding criteria</td>
<td></td>
</tr>
<tr>
<td></td>
<td>use of criteria</td>
<td></td>
</tr>
</tbody>
</table>

**Step 3 Put into context.**

The context for the process (critiquing a paper) is a college writing classroom.

**Step 4 Set criteria for the process and for the product.**

<table>
<thead>
<tr>
<th>Process</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>is quick (less than 30 min.)</td>
<td>is comprehensive</td>
</tr>
<tr>
<td>produces high-quality feedback</td>
<td>written comments are specific</td>
</tr>
<tr>
<td>uses the established criteria</td>
<td>written comments are pertinent to key issues</td>
</tr>
<tr>
<td>is assesssee-oriented</td>
<td>it offers interactive feedback</td>
</tr>
<tr>
<td>motivates the assesssee</td>
<td>valuable feedback that motivates the assesssee</td>
</tr>
</tbody>
</table>

**Step 5 Inventory information and resources.**

Seek the advice and help of writing experts. Locate resources related to writing papers.

**Step 6 Logically order process.**

The following steps were developed based on the work done in the previous steps of the methodology. They fall into three stages: preparation (1-4), assessment (5-9), and reporting (10-11).

**Methodology for Critiquing a Paper**

1. Inventory the criteria and feedback mechanism to be used.
2. Decide whether it is to be a collaborative or individual assignment.
3. Allocate the amount of time for the assessment.
4. Read the paper and record observations.
5. List several observable strengths in the paper based upon the criteria.
6. List several observable areas for improvement in the paper based on the criteria.
7. Select the top four strengths and explain why they are strengths.
8. Select the top four areas of improvement and explain how to make these improvements.
9. Determine the three most meaningful insights gained and answer the question “So what?”
10. Articulate your assessment clearly and interactively to allow the writer to ask questions.
11. Ask the writer to assess the critique, or ask an expert or others who will critique it.
Step 7  Execute the methodology.

Work through the methodology with a few student volunteers using a representative sample of student papers.

Step 8  Assess each step.

Make sure each step of the process is placed in its proper sequence and is designed to handle anticipated complexities. Be alert for missing or superfluous steps. Adjust the methodology accordingly. Check that both the process of critiquing a paper and the critique itself meet the criteria listed in Step 4.

Step 9  Facilitate the process.

Design an activity to help students learn how to use the methodology for critiquing a paper and facilitate this activity with a class of students. After they use the methodology have them assess it.

Step 10  Assess performance.

Have the students assess their performance when they follow the methodology; also assess it yourself. Analyze the differences between the desired and actual outcomes. If necessary, adjust the methodology to improve performance.

Obstacles to Successfully Creating a Methodology

Although the methodology for creating methodologies given here has proved successful for creating methodologies, it is not unusual for one or more of the following obstacles to arise.

1. A Lack of belief in the utility of a methodology. This common obstacle can be countered by reminding the skeptic that a methodology accomplishes four objectives: it forces the creator to analyze the process; it provides a clear procedure for assessing the process; it allows an expert who models the process to be better understood; and finally it provides a basis for shared understanding of the purpose, scope, results, and quality of the process.

2. Lack of patience with setting up the process. People always want to skip the planning stage and start doing. In the case of this methodology to create methodologies, people tend to want to jump to Step 6 immediately. The quality of a methodology so created, however, will suffer. A methodology will only be as good as the quality of the setup steps allows. Without objectives, key issues, context, and criteria, it is impossible to assess the quality of a methodology. On the other hand, remember that a methodology should be viewed as a guide, not a rule book. Experts do not need methodologies to perform familiar processes until they must help someone else gain similar expertise.

3. Losing the knowledge and documentation of the underlying rationale for the methodology. Even when people carefully follow the methodology for creating methodologies, they rarely save the setup process in institutional memory by documenting it. Without this documentation, it becomes more difficult to improve methodologies when their underlying processes change, or to teach the process of creating methodologies to new curriculum designers.

Concluding Thoughts

This module introduces a methodology for creating methodologies, a tool that could be called the “mother of all methodologies.” Though it is challenging to use this methodology, it is absolutely essential to do if one wants to support the effective and efficient acquisition of procedural knowledge within a learning community. The first time one creates a methodology, it is helpful to work through the steps described here with an experienced mentor. After new methodologies are created, it is helpful to keep documentation on each of the ten steps. Analyzing the documentation produced in each step can be a rich source of discussion among faculty and students who use the methodology.

References


