The purpose of this article is to share a competency-based method of job analysis known as DACUM (“Develop A CUrriculuM”) that provides a credible and defensible framework for developing job descriptions, identifying training needs, and prioritizing staff development initiatives. The process capitalizes on the power of group synergy, interaction, and consensus and facilitates employer/employee buy-in. It is easily adapted for use in any occupational setting, and may be particularly appreciated during organizational restructuring efforts.

Little has been published in traditional journals regarding the DACUM method; in fact, most information about this form of job analysis can be found in the Educational Resources Information Center (ERIC) database, accessible on the World Wide Web at http://www.accesseric.org. Benefits of a DACUM analysis were two-fold: (1) a quality framework was developed from which competency-based training could be created; and (2) the process skills required to conduct the training were learned quickly and transferred to other group process activities. With regard to the first benefit, the dynamic nature of healthcare has increased the demand for rapid responses to training needs. Systematic approaches to developing competency-based training, such as the DACUM analysis, can serve as invaluable models because the information is...
gained from experienced workers who are considered competent practitioners in their area of expertise. The effectiveness of competency-based training programs depends upon the quality of the information upon which the training is based.

Secondly, the ability to conduct focus groups or brainstorming sessions in a professional manner requires that the facilitator receive appropriate training in managing group processes. Failure to do so can contribute to the collection of misinformation that can result in costly, ineffective, or misdirected training. The process skills developed during the 5-day DACUM training (to become a certified DACUM facilitator) provided additional value by enhancing the author’s professional repertoire of transferable skills—specifically group facilitation skills.

Competency-Based Models for Developing Training Programs

According to Kelly-Thomas (1998), there is a shift toward staff development programs that assess and contribute to the development of competence. She argued that the field of clinical staff development (CSD) requires fresh approaches to competence assessment and development in order to remain dynamic in an evolving healthcare system. Competency-based methods of developing curriculum “attempt to define good performance and then facilitate it” (Rothwell & Sredl, 1992, p. 349). These authors described three types of methods: instructional systems design (ISD), behavioral skills-outputs (BSO), and the DACUM method, noting that each model has advantages and disadvantages and advising individuals to review each model to determine “best fit.” For example, ISD is a thoroughly integrated, complete model that is associated more often with technical training than with “soft-skills” instruction. It concentrates on gearing performance to norms based on job, task, or content analysis rather than focusing on “what’s wrong,” and it can be time consuming and costly to conduct. BSO emphasizes work outputs and desired performance, but places emphasis on the present. It can be costly and requires specialized skills to design the BSO curriculum. Advantages of the DACUM process include the power of group synergy, interaction and consensus, the production of a future-oriented comprehensive product; and employer/trainee buy-in (Norton, 1997). A disadvantage of the DACUM analysis is that the process has low visibility in the public sector. It also has key areas of vulnerability (i.e., the quality of the outcome lies inherently in the proper composition of panel members, the ability of the facilitator to effectively manage group dynamics, and the use of proper technique in conducting the analysis). If any of these components are compromised, the results can be compromised as well.

With regard to the workshop previously mentioned, it appeared that the DACUM method would serve as the most appropriate tool for assessing the training curriculum because it was believed that high-quality results could be obtained in a timely, low-cost manner. The author, as Program Coordinator, was available and willing to attend the DACUM training (conducted through The Ohio State University, Columbus, OH) for the purpose of facilitating the DACUM workshop. This was considered to be more cost-effective than hiring an outside vendor because the trained DACUM facilitator would continue to serve as an internal departmental resource.

Description of the DACUM Process

DACUM Analysis

The Center on Education and Training for Employment (CETE) defines the DACUM analysis as an “occupational skill profile which can be used for instructional program planning, curriculum development, training materials development, organizational restructuring, employee recruitment, training needs assessment, meeting ISO9000 standards, career counseling, job descriptions, competency test development and other purposes” (CETE, 1999, p. 1). This process has been used with increased frequency in the United States since the mid 1970s, when the CETE at The Ohio State University began to actively use and promote the process (Norton, 1997).

A DACUM workshop consists of a trained DACUM facilitator and a committee of 5 to 12 individuals.
who are considered experts in their field. The 2-day process culminates in a graphic chart representing specific job-related duties and tasks from which training objectives can be defined. The DACUM process is designed to reduce two errors in training: (1) the failure to teach what should be taught and (2) teaching what should not be taught. It is based upon three assumptions:

1. Expert or experienced workers are the most competent to describe their own jobs;
2. Any job can be precisely defined according to its tasks; and
3. All job tasks demand the use of certain knowledge, skills, tools, and positive worker behaviors in order to be correctly performed.

As previously stated, the primary key to the success of this process is the correct identification and selection of DACUM panel members who are experts in their fields.

Selecting the DACUM Panel Members

The most expedient way to begin the process of identifying competent Instructors of Nurse Aides, in our opinion, was by way of PDE representatives’ recommendations. These representatives are responsible for conducting on-site visits across Pennsylvania for the purpose of assessing the Nurse Aide Training programs. They were asked to either (1) “nominate” instructors with at least 10 years of teaching experience in the field whom they personally considered “exceptional” or (2) ask facility administrators to make those personal recommendations. Because the quality of the results relies primarily on the knowledge of panel members, they must be considered “experts” defined by years of experience (which is discretionary) and/or personal recommendation (further elaboration is found in the “Implications for Staff Development Personnel” section of this article). Emphasis on applied experience was articulated as being of utmost importance. Of the 10 instructors who were recommended, five were both available to participate in the DACUM and were able to solicit administrative support (time off). Compensation was arranged to include all costs associated with meals, travel, and accommodations during the workshop, which was conducted at The Pennsylvania State University’s University Park campus, June 17 and 18, 1999.

DACUM Procedural Steps

1. Orient the committee
2. Review the job/occupation:
   a. Conduct initial brainstorming
   b. Develop organizational chart
3. Identify duties (general areas of responsibility)
4. Identify specific tasks performed
5. List:
   a. General knowledge & skill requirements of the job
   b. Worker behaviors (desirable attitudes & traits)
   c. Tools, equipment, supplies & materials
   d. Future trends/concerns
6. Review/refine task & duty statements
7. Sequence the task & duty statements
8. Other options as desired

DACUM Panel Profile

The five female panel members were employed as full-time RNs who collectively represented 68 years of teaching experience, 40 of which were served in the capacity of Instructor of Nurse Aides. Their job titles included Staff Development Coordinator, Director of Health & Safety Services, Director of Staff Development, Program Coordinator, and Faculty/School of Nursing; thus, their diverse occupational responsibilities were reflected. Level of education ranged from Associate Degree in Nursing to Master’s Degree in Nursing. There was heavier representation from the Western region of Pennsylvania. (This lack of equal geographical representation would be addressed in the verification process, which will be discussed later.)

Conducting the DACUM Workshop

Conducting a DACUM workshop requires a method of soliciting information from panel members in a structured manner by a trained facilitator. Although oversimplified, it is essentially a process of asking panel members the question “What do you do?” (see Figure 1).

By the completion of the second day, a chart was constructed which precisely identified duties and tasks associated with the occupation of Instructor of Nurse Aides in PA. Lists of general knowledge and skills, worker behaviors, tools, and future trends were also documented. The next step involved a verification of the results gleaned from the DACUM workshop.

Figure 1

**Verification Process of DACUM Chart**

The process of verifying the chart constructed by the DACUM panel serves to confirm the accuracy of the results, although the need to complete this step is considered by some as unnecessary (Norton, 1997). For our purposes we were willing to perform this step to ensure the quality of the product, considering the state-wide scope of the analysis. Again we asked the PDE to provide a list of 50 instructors instrumental to the success of the Nurse Aide Training programs, with equal geographical representation across the Commonwealth, to verify the results. The verification was designed using a Likert-type scale to determine the perceived extent to which respondents identified the following:

1. Importance of the task-How important is the performance of this task in your job as an Instructor of Nurse Aides? (0 = No Importance, 5 = Extremely Important).
2. Criticality of the task-How critical is the performance of this task in your job as an Instructor of Nurse Aides? (0 = Not Critical, 5 = Extremely Critical).
3. Frequency of the task-How frequently do you perform this task in your job as an Instructor of Nurse Aides? (0 = Never Performed, 5 = Frequently Performed).

Instructors were also asked to express their perceptions of general knowledge, skills, worker behaviors, and tools necessary to perform as Instructors of Nurse Aides, in addition to anticipated future trends and personal concerns about the discipline.

**Verification Results**

Thirty-two verification forms were returned for a response rate of 64%. Overall, the respondents concurred with the duties and tasks identified in the DACUM chart originated by the DACUM panel with the exception of five tasks. Responses to these tasks were nearly equally divided between those who performed the task and those who did not, and were modified to include “if applicable” on the final product (see Figure 2A and 2B).

**Application of the Results**

The results were applied in the following four ways:

1. The DACUM chart was immediately included as part of the workshop training materials to provide a “big picture” of the duties and responsibilities that a new instructor should be prepared to assume. This information has also been disseminated through different statewide initiatives targeting this group of health professionals, and is used to guide focus group discussions.
2. The DACUM chart served as the foundation for the design of a curriculum development model for novice Instructors of Nurse Aide programs (see Figure 3).
3. The DACUM Chart served as the basis for a state-wide survey that was sent to over 700 former workshop participants to ask what they believed should be emphasized in the existing training, and what they would like to see incorporated into additional programs.
4. The verification process provided a snapshot of training needs by identifying the frequency, level of importance, and critical nature of each task, as well as the percentage of respondents who perform each task. Although the results of the verification process are too lengthy for review here, a sample is provided to give the reader an understanding of how the results can be organized (see Table 1).

<table>
<thead>
<tr>
<th>Task</th>
<th>Performing Task (%)</th>
<th>Importance of Task (%)</th>
<th>Criticality (%)</th>
<th>Frequency of Performing Task (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verify clinical agreements</td>
<td>31</td>
<td>2.68</td>
<td>2.69</td>
<td>2.10</td>
</tr>
<tr>
<td>Assure compliance w/PA Department of Education Guidelines</td>
<td>94</td>
<td>4.81</td>
<td>4.94</td>
<td>4.87</td>
</tr>
<tr>
<td>Assure compliance w/Department of Health Guidelines for student assessments</td>
<td>75</td>
<td>4.25</td>
<td>4.37</td>
<td>4.23</td>
</tr>
<tr>
<td>Orient self to unit routine</td>
<td>88</td>
<td>4.78</td>
<td>4.66</td>
<td>4.50</td>
</tr>
<tr>
<td>Coordinate orientation schedule w/clinical site</td>
<td>75</td>
<td>4.27</td>
<td>4.40</td>
<td>4.23</td>
</tr>
<tr>
<td>Establish parameters for student utilization</td>
<td>88</td>
<td>4.56</td>
<td>4.65</td>
<td>4.61</td>
</tr>
<tr>
<td>Establish criteria for student assignments</td>
<td>94</td>
<td>5.00</td>
<td>4.56</td>
<td>4.81</td>
</tr>
<tr>
<td>Plan pre-postconference</td>
<td>72</td>
<td>4.34</td>
<td>4.42</td>
<td>4.22</td>
</tr>
<tr>
<td>Develop system of tracking student progress</td>
<td>81</td>
<td>4.71</td>
<td>4.74</td>
<td>5.00</td>
</tr>
<tr>
<td><strong>DUTIES</strong></td>
<td><strong>TASKS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------</td>
<td>-----------</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| **A** Administrative Duties | **A-1** Contribute to budgeting process, if applicable  
**A-2** Assist in admission process, if applicable  
**A-3** Participate in textbook selection  
**A-4** Obtain teaching supplies  
**A-5** Schedule resource personnel  
**A-6** Maintain student records  
**A-7** Provide facility w/ required student & faculty information  
**A-8** Review policies re: bargaining units w/in facility, if applicable  
**A-9** Make recommendations re: student academic progress  
**A-10** Participate in grievance procedures, if applicable  
**A-11** Compile information for PDE on-site review  
**A-12** Participate in PDE on-site review |
| **B** Create Viable Student Learning Environment | **B-1** Comply w/ PDE Guidelines in classroom  
**B-2** Comply w/ PDE Guidelines in practice lab  
**B-3** Assure availability of supplies  
**B-4** Assess physical environment  
**B-5** Utilize available learning resources |
| **C** Prepare Course Content | **C-1** Define learning objectives  
**C-2** Determine teaching modalities  
**C-3** Prepare lesson plans  
**C-4** Construct daily calendar  
**C-5** Select teaching aids  
**C-6** Adjust syllabus to coincide w/ daily schedule  
**C-7** Distribute course syllabus/outline  
**C-8** Update course content to comply w/ PDE Guidelines |
| **D** Coordinate Clinical Learning Activities | **D-1** Verify clinical agreements, if applicable  
**D-2** Assure compliance w/PDE Guidelines in clinical setting  
**D-3** Assure compliance w/DOH Guidelines for student assessments  
**D-4** Orient self to unit routine  
**D-5** Coordinate orientation schedule w/ clinical site  
**D-6** Establish parameters for student  
**D-7** Establish criteria for student assignments  
**D-8** Plan pre/post conference  
**D-9** Develop system of tracking student progress |
| **E** Develop Student Role & Function | **E-1** Define behavioral standards  
**E-2** Establish dress code for classroom  
**E-3** Establish dress code for clinical setting  
**E-4** Identify N.A. role on healthcare team  
**E-5** Develop cooperative relationships in class/clinical setting  
**E-6** Define scope of practice for N.A.  
**E-7** Notify students of NATCP competency requirements  
**E-8** Enforce behavioral standards |
| **F** Conduct Classroom Learning Activities | **F-1** Teach content of lesson plan  
**F-2** Identify diverse student needs  
**F-3** Utilize variety of teaching modalities  
**F-4** Adapt delivery of content to meet diverse student needs  
**F-5** Facilitate student participation  
**F-6** Assess effectiveness of delivery  
**F-7** Maintain classroom order |
| **G** Conduct Clinical Learning Activities | **G-1** Select student assignments  
**G-2** Disseminate student assignment information  
**G-3** Orient students to unit  
**G-4** Guide student performance  
**G-5** Maintain residents’ safety  
**G-6** Monitor documentation of resident records  
**G-7** Conduct pre/post conference  
**G-8** Utilize performance checklist as evaluation tool  
**G-9** Maintain compliance w/unit/facility policies, procedures & practices |
| **H** Evaluate Student Performance | **H-1** Monitor student attendance  
**H-2** Observe student adherence to dress code  
**H-3** Assess student interaction with staff, peers, residents, visitors, & families  
**H-4** Observe return demonstration  
**H-5** Administer written/oral tests & quizzes  
**H-6** Maintain system of tracking student progress  
**H-7** Provide performance feedback to students |
| **I** Evaluate Course Content | **I-1** Review student evaluations of course  
**I-2** Examine results of student clinical performance  
**I-3** Analyze student performance  
**I-4** Request feedback from facility staff  
**I-5** Utilize employer feedback to modify course content  
**I-6** Assess results of State Competence Exam  
**I-7** Review instructor performance evaluations |
| **J** Maintain Professional Competency | **J-1** Keep nursing license current  
**J-2** Maintain nursing skill competency  
**J-3** Develop support network  
**J-4** Recognize current healthcare issues & trends  
**J-5** Attend instructor meetings  
**J-6** Attend seminars, workshops, & conferences  
**J-7** Read professional journals |

**FIGURE 2A**

DACUM Research Chart for Instructors of Nurse Aides in Pennsylvania. PDE = Pennsylvania Department of Education; DOH = Pennsylvania Department of Health; NA = nurse aide. Note: Developed by J. DeOnna for the Center for Professional Personnel Development at The Pennsylvania State University (June 1999).

(Continues)
These results were considered in conjunction with the survey results, and yielded information that reflected where training needed to be modified or enhanced. For example, responses were clustered heavily in Task B-1 (“Comply with PDE Guidelines in classroom”) and B-2 (“Comply with PDE Guidelines in practice lab”), which prompted the review of training in those areas. Consequently, supportive materials (e.g., video, examples of lesson plans) were added to existing training. The development of a state-wide Nurse Aide Curriculum, sanctioned by the PDE, will provide a foundation for new and existing nurse aide programs, as well as a foundation from which to teach the workshop—thereby promoting consistency across all nurse aide programs and reducing incidences of noncompliance.

### Implications for Staff Development

Although the scope of the training is state-wide, the DACUM process is readily adapted for use within one facility or multi-site facilities. It can be used to develop, refine, and/or restructure orientation and preceptorship programs; create new or refine existing job descriptions; integrate existing jobs to create new job positions or to prepare for cross-training; identify training needs; and establish priorities for training programs.

Competent workers can be recruited to participate in the DACUM workshop according to the institution’s protocol for defining competence. For example, existing criteria established by the National Organization for Competency Assurance (NOCA) or the National Council of State Boards of Nursing may serve as guidelines. Other standards that would provide a rational basis for panel selection would include performance appraisals, personal observation and recommendations, and years of experience. The decision to conduct a verification process is arbitrary (Norton, 1997), thus removing a time-consuming step. Norton (1999) stated that when the tasks have been identified in a consensus workshop, “you may or may not decide to submit the list for further verification. It will depend on your situation, your purposes, and your resources” (p. A-3-1). Yet, in large organizations the verification could be conducted in a timely manner by soliciting feedback from additional employees through the recommended verification process. If the DACUM analysis is conducted “in-house,” it can contribute to increased morale because of personal “ownership” and involvement in the process. Information gathered from “how things are done here” can be compared to benchmarking practices and revised accordingly.

The challenges facing staff development personnel are obvious: They are simply required to do more with fewer resources. In 1997, the American Society for Training & Development (ASTD) reported that healthcare firms trained the highest percentage of their employees (87.9 %) with the least expenditure and the fewest payments to external vendors among all industry sectors (Bassi, 1999). Abruzzese (1996) noted “as the financial picture for a
hospital becomes bleaker, dollars budgeted for staff development are frequently the first to be reduced or eliminated” (p. 88). Any training must be closely scrutinized for its cost-effectiveness in order to justify the “bottom line.” Having qualified in-house personnel capable of conducting job analyses and designing training programs can arguably demonstrate cost savings when compared to costs associated with consulting fees and the purchase of prepackaged products.

REFERENCES


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