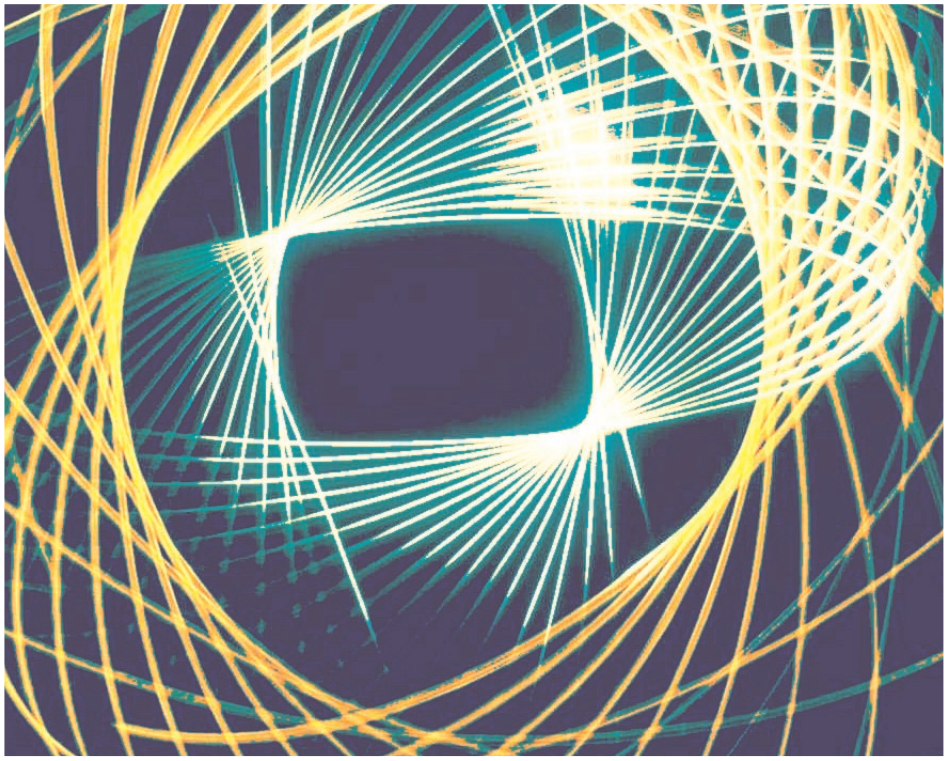
How do you develop instructional materials for training that capture the essential components of a given job or occupational area?



SCID

Systematic Curriculum and Instructional Development

Center on Education and Training for Employment

THE OHIO STATE UNIVERSITY

SCID: A Model for Effective Instructional Development

How do you save money on curriculum development? By using a model that is so efficient and effective, it practically guarantees the production of relevant, high-quality competency-based materials at the lowest possible cost. The SCID model incorporates the critical tasks essential for developing competency-based curriculum and instructional materials needed to train tomorrow's workforce today. Twenty-three components—a few optional but most essential—are grouped into five phases: **Curriculum Analysis**, **Curriculum Design**, **Instructional Development**, **Training Implementation**, and **Program Evaluation.**

Phase 1. ***Curriculum Analysis*** comprises six components. First is a *needs analysis*, in which actual needs are determined; for example, the need for training, for a change in management or production procedures, for updated technology, or some combination of needs. If the need for training is confirmed, a *job analysis* is next (the DACUM approach is recommended). Next is *task verification*, which can extend involvement in the job analysis from a few to 100 or more expert workers and can provide a means of rating the importance and difficulty of each task and obtaining other valuable decision-making information such as the percentage of workers performing the task.

Armed with this information, it is possible to *select tasks* (or deselect them, as some industry trainers say) for inclusion in the program.

The next component in this phase is the *standard task analysis*. The information obtained in this component is absolutely essential in identifying performance steps and decisions, essential knowledge, industry standards, safety and worker behavior information needed to develop accurate and relevant teaching and learning materials. A sixth component, the *literacy task analysis* is optional here but recommended sometimes.

Phase 2. ***Curriculum Design*** comprises four components. Based on information collected in Phase 1, it is necessary to *make decisions about the training approach*—type of instructional program and materials to be developed, the degree to which instruction will be individualized, and support media to be developed. Next is the *development of learning objectives* for each task or group of tasks, followed by the *development of job performance measures*. This phase concludes with the *preparation of a training plan*, which should be fairly detailed and include all aspects of personnel, facility and equipment needs. Implementation of this plan must occur concurrently with the development phase.

Phase 3. ***Instructional Development*** comprises four main components, although depending on the type of materials to be produced, the first two components may vary. One choice—usually for competency- or performance-based programs—is to *develop a competency profile* and then to *develop learning guides or modules*. The second choice is to *develop learning aids or job aids*. The third choice is *to develop a curriculum guide and then to develop lesson plans*. The next component in either case is to develop supporting media, which can be simple transparencies, posters, and slides, or more expensive videotapes or PowerPoint presentations. Appropriate media add variety and clarity to the instructional process, motivate the learner, and help demonstrate or illustrate difficult concepts and procedures. The final step in development is to *pilot-test and revise the materials*. This step is important and worth the extra time and money to make needed improvements and modifications. Keep in mind that the purpose of these materials is to help learners achieve the performance objectives as efficiently, effectively, and economically as possible. In many cases, some existing materials and resources may be used or adapted.

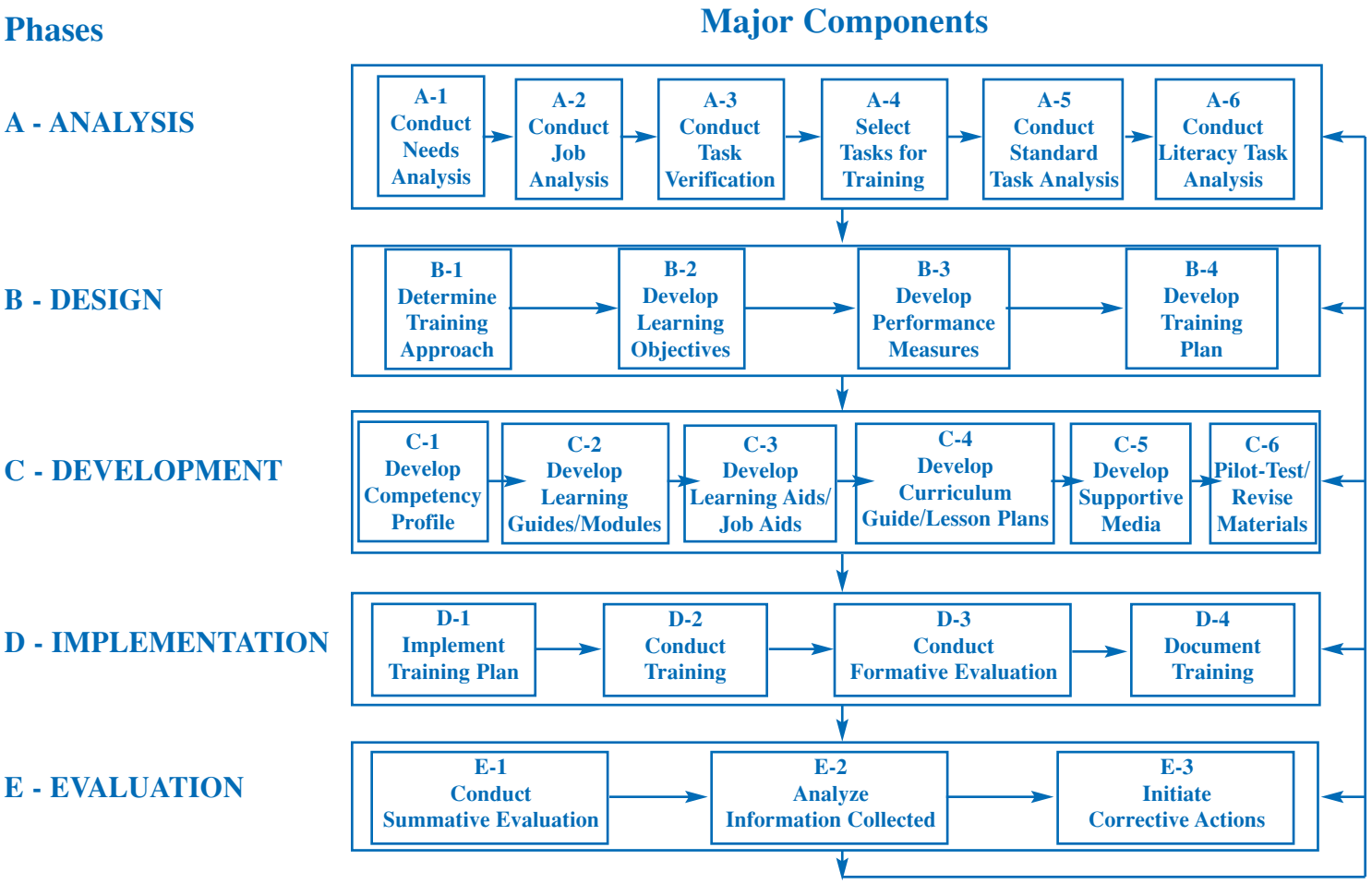
Phase 4. ***Training Implementation*** comprises four components, beginning with *activating the training plan* developed in the design phase. By now, learners have been recruited, instructors selected and trained, and the availability of facilities, supplies, equipment, and other resources confirmed. The next step after pretesting is to *conduct the training* and then to *conduct a formative evaluation* of learner and instructor performance. This information is invaluable in making in-course corrections, should this become necessary. *Documenting training* in the form of student achievement and instructor performance records is the final step in this phase. The student competency profiles can be used to report achievement to parents and potential employers as well as to administrators.

Phase 5. ***Program Evaluation***, the final phase, comprises three components. With the formative evaluation complete, the next important step is to *conduct the summative evaluation* to collect data for use in decisions on maintaining or improving the education or training program. This involves gathering data on the overall instructional process, program outcomes, student follow-up, worker productivity, and cost-effectiveness. *Analyzing and interpreting this information* will lead to recommendations for program improvement and, finally, *taking corrective action*. Completion of the evaluation phase produces the performance data and feedback vital to any education or training system concerned with quality and improving its worth.

The SCID Model

The SCID model—Systematic Curriculum and Instructional Development—represents a proven curriculum development process successfully used by organizations around the world. Universities and community colleges, businesses, and government agencies have taken advantage of the efficient, effective SCID method to produce relevant, high-quality, competency-based instructional materials.

This instructional design system derives its content from competencies—carefully identified tasks to be learned and performed, which are verified in advance of instruction—and bases assessment on learner performance. Instruction emphasizes the critical ability to DO, in addition to knowing the what, how, and why. Learner performance and knowledge are evaluated individually against stated criteria, rather than against group norms.



SCID Participant Reactions

"Excellent workshop! I believe this week has altered our direction in education…a much needed catalyst!"

"This workshop gave me a different outlook on approaching educational competencies. I am excited that I have the bulk of a learning guide done for a critical need on one of my units. I know that I will now be able to complete this goal."

"I wanted to learn how to assist instructors in 'turning' a DACUM chart into curriculum. I feel my goal was met in a significant way by learning to write a learning guide."

"Superb! One of the most friendly training experiences I've had since DACUM!"

"When you held a SCID Workshop for us last January, little did we know the impact that this knowledge would have on us an an organization! Our workshop group included Education Managers from most of our department and, as you remember, by the end of the week, **all** the managers were excited and motivated about this systems approach to education and training.…Education at our hospital has never been so exciting as it is now!"

SCID Workshop Sponsors (since 1997)

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Carver-Scott Educational Cooperative, Chaska, MN
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SCID Workshop Participants' Affiliations

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Johnson and Wales University, Providence, RI
Dansville Central Schools, NY
Batavia City Schools, NY
Attica Central School, NY
Marathon-Ashland Petroleum, Ashland, KY
Kentucky Community & Technical College System, Lexington, KY
U.S. Department of State, Washington, D.C.

International Participants

Ministry of Education, Department of Technical Education, Gadong, Brunei
German-Malaysian Institute, Kuala Lampur, Malaysia
Chungnam National University, Daejon, South Korea
Organization for Technical Education and Vocational Training, Riyadh, Saudi Arabia
INACAP Chile, Santiago, Chile
Barbados Vocational Training Board, Bridgetown, Barbados

The SCID Workshop

During a SCID workshop, a variety of instructional methods are utilized to provide hands-on opportunities in the knowledge, skills, and behaviors (attitudes) of the SCID process of instructional design. The comprehensive five-day workshop is structured to enable participants to learn:

- Key phases and components of the SCID curriculum development process
- Alternatives for conducting needs analysis
- Key elements and benefits of the DACUM job/occupational analysis process*
- Specific procedures for task verification
- Specific procedures for standard task analysis
- Key elements of competency-based education programs
- Factors to consider in designing instructional programs
- Guidelines for developing learning objectives
- Procedures for developing performance measures
- Key components of a training program plan
- Alternatives for instructional materials development
- Procedures for developing learning guides/aids
- Procedures for identifying existing materials
- Guidelines for developing instructional media
- Specific procedures for conducting field tests and field critiques
- Implementation–Phase IV and Evaluation–Phase V are addressed on a limited basis

* While participants will gain knowledge of the DACUM process, its benefits and outcomes, it is not possible to certify participants as DACUM facilitators in such a short time. Such training should take place before the SCID workshop, or could be a logical follow-up, if desired.

Workshop Activities

Workshop activities will include large group presentations, small group discussions, and individual hands-on practical exercises and activities. Additionally, powerpoint, video, and a variety of other media will be utilized.

Who Should Attend?

- Secondary and postsecondary instructional/curriculum specialists, teachers, supervisors
- Business/industry trainers, instructional development specialists
- State staff and curriculum center/lab personnel
- Career-technical teacher educators, training program managers
- Government agency trainers and program developers

Expected Outcomes

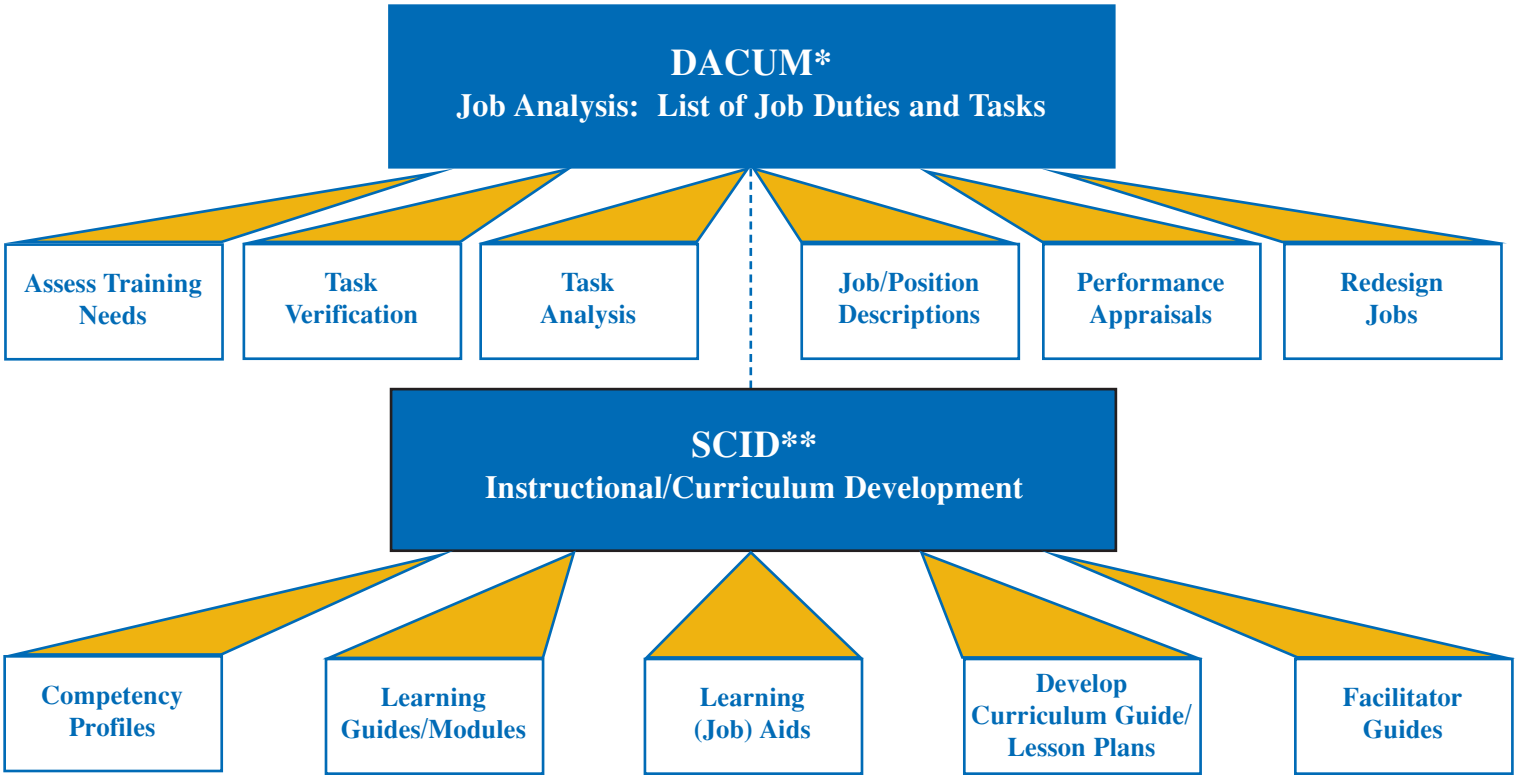
Participants will acquire knowledge, skills, and behaviors through individual and small group hands-on experiences. These experiences will enable them to develop competency-based instructional materials such as competency profiles, learning guides, learning aids, job aids, modules, curriculum guides, and lesson plans. These materials will be appropriate for secondary and postsecondary career and technical education, business-industry training, as well as for local, state, and federal government training programs.

An important workshop take-away is one or more learning packages that consists of actual instructional materials developed by each participant, incorporating the SCID methodology:

- **Learning Guide**: A type of learning package that usually contains a performance objective, enabling objectives, a series of learning activities including knowledge self-checks, a listing of the external supportive resources needed, one or more practice activities with feedback, and a performance test.

- **Learning or Job Aid**: A shortened version of a learning guide that usually contains performance objectives, the steps required to successfully perform the task, essential information about each step, a practice exercise with feedback, and a performance test.

DACUM and SCID Outcomes



*Develop **A** **CU**rriculu**M** **Systematic **C**urriculum and **I**nstructional **D**evelopment

SCID-Related Services

The Center on Education and Training for Employment at the Ohio State University offers a number of SCID-related services and training options.

SCID (Systematic Curriculum and Instructional Development) – Prepares occupational educators and trainers for instructional development roles and responsibilities

DACUM (Developing A CUrriculuM) Facilitator Training Institutes – Prepares trainees to be qualified and certified DACUM Facilitators

DACUM Occupational/Job Analysis – Certified Facilitators conduct on-site DACUM job analyses

DACUM On-Site Application Program – Provides a personalized follow-up to your training as a facilitator

DACUM Research Chart Bank – A comprehensive collection of over 400 high-quality DACUM charts covering a wide range of occupations

For information about CETE's SCID or DACUM Training Services and/or DACUM Charts, please write, call, fax, or e-mail:

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