Using Portfolios to Assess Student Performance in School Health Education

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ABSTRACT: Outcome-based education is a topic of growing interest in educational circles today. More performance-oriented than traditional learning approaches, outcome-based education requires students to demonstrate what they know and what they can do. Because of this emphasis, outcome-based curricula will require new methods to assess student achievement. One approach is the portfolio, a repository that enables students to document authentic examples of academic work and presentations as well as nonschool accomplishments. The possibility of using portfolio-based assessment as a viable mechanism to promote comprehensive school health education is examined. Practical recommendations concerning portfolio development and evaluation are offered. (J Sch Health. 1993;63(9):377-381)

The past 50 years witnessed a shift in the manner in which the public perceives the effectiveness of schools. Reformers through the 1940s and 1960s focused on inputs such as number of books in the library, teacher characteristics, and the physical plant as measures of school quality. The 1966 Coleman Report shifted the focus of discussion about equality of opportunity away from inputs to the outcomes of schooling. Presently, greater emphasis is being placed on the purposes and meaning of schooling with less emphasis on prescribed courses. Likewise, assessment shifted away from traditional paper-and-pencil tests to methods that determine degree of learning by changes in student performance or outcomes resulting from educational experiences.

Today, outcome-based education is a topic of intense interest and debate in educational circles. In its most succinct form, an outcome is a culminating demonstration of learning. The term “culminating” refers to the completion point of a segment of curriculum — what students ultimately can do at the end, once all formal education ends. Spady and Marshall write:

Culminating demonstrations become the starting point, focal point, and ultimate goal of curriculum design and instruction. Schools and districts work to carefully align (or match) curriculum, instruction, assessment, and credentialing with the substance (criteria) and processes of the intended demonstration. (p. 70).

Because an outcome-based program requires reworking traditional approaches to curriculum development that shifts the focus from objectives derived from content outlines to objectives based on desired changes in the learner, it also requires changes in the ways this learning is measured or assessed.

ASSESSING OUTCOMES WITH PORTFOLIOS

Given the limitations of using one assessment task to measure a student’s achievement, multiple measures of desired outcomes are preferable as these create a more accurate academic profile. Many outcome-based education initiatives in schools have subsequently centered on use of portfolios and related techniques that highlight student work and performances as core data for assessment. Portfolio-based assessment provides a holistic, in-depth picture of student achievement. It offers a richer understanding of student progress than traditional testing. By collecting and evaluating student work, the portfolio offers a clear picture of an individual’s strengths and weaknesses.

Historically, educators have used performance or portfolio assessment such as hands-on evaluation in vocational programs, essay assessment in advanced placement exams, and performances and exhibitions in the arts. Outside the United States, direct assessment of student performance is the norm rather than the exception. Not surprisingly, American students have sometimes been called “the most tested but least examined in the world.”

The portfolio represents a kind of learning resume in that it functions as a repository to enable students to provide authentic evidence regarding what they should know and be able to do. Vermont, for example, currently incorporates portfolios to help assess achievement in fourth and eighth grade students’ abilities in mathematics and writing. To prepare students for the workplace, Michigan schools piloted a portfolio approach to help students develop and document their employability skills. Kentucky also implemented alternatives to multiple-choice tests as a method to more accurately
measure achievement. California\textsuperscript{1} also will begin testing nearly every student in grades four, eight, and ten in reading, writing, and mathematics on examinations that will be primarily performance-based. Not only will assessment in the state eventually be expanded to include science and history for grades five, eight, and ten, but these new measures will incorporate student portfolios.

In this article, the portfolio represents a container of collected evidence from which the teacher can determine the students' attainment of knowledge, attitudes, and skills in the content areas of health education. The requirement that a portfolio have a specific purpose is the key to actually designing one. For example, is the evidence being collected to evaluate progress in the course or to represent only "best pieces" of work developed at the conclusion of study? Would a report on HIV/AIDS subsequently include all the drafts that led to the final product? Although portfolios are used in both ways, this article focuses on the latter as outcomes in their most refined form occur at the end of the year.\textsuperscript{2}

\section*{TYPES OF EVIDENCE}

The next task is to clarify what shall constitute evidence that the student has acquired proficiency in the requisite knowledge and skills to make informed decisions about health-related behavior. In experimenting with portfolios for science teachers and their students, Collins\textsuperscript{6} identified four classes of documentation including artifacts, reproductions, attestations, and productions. Artifacts are actual samples of student work. For an elementary school student, a health education artifact could be a collection of magazine or newspaper articles on a health topic being studied in class, or even a test. For an older student, a health education artifact might be a research paper, an opinion piece for a newspaper, or a script of a play designed to educate others about drug abuse, AIDS, or other contemporary concerns.

Reproductions are examples about typical events in the classroom that have no permanence and therefore must be captured in some permanent form for inclusion as a document in a portfolio. For younger students, reproductions might consist of a photograph of a bulletin board activity encouraging dental health, sound nutrition, or the basics of exercise. For high school students, this category could include a videotape of involvement in a health-related community project, an environmental clean up campaign, peer education, or a personal fitness program.

Attestations, the third class of documents, are written about the work of the student by someone other than the student. Related to the previous examples, attestations might be comprised of letters of gratitude from the organizers of a community project or a commendation from a teacher or administrator for their work in peer-teaching or developing an interactive theater production on HIV disease, date rape, or suicide. Appropriate attestations could also include letters describing involvement in voluntary health agencies or volunteer work in hospitals.

Productions, the final class of documents, are prepared especially for the portfolio to document knowledge and skills. A written reflection of the portfolio's contents and how its contents indicate acquisition of requisite learning is an example of a production. For example, a student might write a short paper describing the value of being an officer in the school's S.A.D.D. chapter. Another example is the caption, a statement attached to each document that describes what the document is, why it is evidence, and what it documents. Without captions, according to Collins,\textsuperscript{4} the content of the portfolio is just a collection of materials from which few inferences can be made regarding actual learning. In school health education, writing a caption means the student has to justify why a particular document is evidence of what one needs to know or be able to do to make an informed decision about health-related behavior.

By writing captions, students also became aware of how much they have accomplished as well as cognizant of the times when their health behaviors are not consistent with their knowledge or beliefs. Therefore, captions may prove useful in closing the gap between what young people know and what they actually do.

Deciding what to document is a key issue in portfolio development. No one knows the "right" number of entries a year-long portfolio for one course will require. Collins writes: \textsuperscript{5}

\begin{quote}
In the course of science education that has been taught for several consecutive semesters that has a portfolio component, it was found that between five and seven pieces of evidence — some prescribed and some selected — provide enough evidence for students to claim ownership and for the instructor to feel confident in making a judgment about how well the students have met the goals of the course. (p. 165).
\end{quote}

A school health educator might decide that students must document in some form the content knowledge of each major unit of study, record a demonstration of a related life skill, and collect evidence of critical thinking in the effective domain. To keep track of the documents students place in their portfolios, document folders divided into the 10 content areas can be used. Each document is given a number which is recorded in the left column of the document folder, a procedure which should be done for every piece of evidence inserted. In the second column from the left, a brief description or title for the document is written. After the document is entered in the folder, an "X" is placed in the right column to attest to whether the document is evidence of learning in the knowledge (K), affective (A), or skill (S) domains. Finally, the document number is placed to the right of the appropriate learning objective in the columns corresponding to the student's grade level (Figure 1).

Documents in the school health portfolio should match the overall goals of comprehensive school health education. Specifically, portfolio requirements should be designed to match the time frames necessary to achieve significant gains in student knowledge, attitudes, and self-reported behavior.\textsuperscript{17} Even the exercise of deciding what to document can be of value in strengthening existing school health initiatives. The decision-
making process itself provides the setting and the opportunity for faculty to clarify to students, parents, and administrators what kind of health outcomes are important and to secure adequate resources and calendar time.

GUIDELINES FOR PROPER USE OF PORTFOLIOS

Portfolio assessment, of course, has its limitations. Although they provide a record of performance, portfolios are not meant to stand alone as evaluation tools. Standarded tests and other "traditional" paper-and-pencil measures are still necessary to accurately gauge student progress.

Shulman and others raised the issue of how to assure that portfolio entries represent the students' own work. Related concerns center on the extent to which evaluation will be influenced by how the portfolio is packaged. Some of these issues can be addressed through follow-up interviews and discussions. In regard to questions surrounding the portfolios' appearance, Gellman and Berkowitz indicated:

The question of "gloss versus depth" is analogous to the old question of the extent to which handwriting enters into the score on essay examinations. There is no way of taking the subjectivity out of portfolio analysis and there is no doubt that a sloppy presentation will probably detract from the assessment. One would expect, however, that attention to this issue when focusing on the performance criteria would diminish the effect.

Finally, it is imperative to pilot some or all of the proposed assessments with a small group of students to uncover hidden problems. According to Wiggins, assessment design is similar to software design in that one can never accurately anticipate the naive user's responses beforehand. Even small pilot studies can result in timely corrections in matters relating to scoring, directions, and logistical procedures.

ASSESSING PORTFOLIOS

Methods for evaluating or assessing portfolios are still evolving. In establishing criteria for judging quality of the samples of student work, Herman cites several issues. For example, how will different reports, videos, and photographs be compared or weighted in the assessment? What is the role of journal entries and student reflection in the assessment? Should the portfolio be rated as a whole or as individual documents? Once these concerns are addressed, teachers must be trained to accurately assess the contents of the portfolios, a task that necessitates considerable time. To increase inter-rater reliability, Vermont is using a select group of raters as opposed to all teachers currently involved in the state's portfolio project. Pittsburgh schools also use a similar assessment system in their portfolio program.

Although portfolios are difficult to evaluate, a consistent overall rating process is feasible. Science students, for example, receive a single grade on a long-term, multidimensional project. Using their professional judgment and experience, university supervisors and cooperating teachers evaluate student teachers along several dimensions as well as holistically. Collins' caution:

Portfolios are difficult to design, develop, and evaluate. Don't expect to do a perfect job at any of those three tasks the first time. Begin your work with the expectation that portfolio development is an iterative process. After recognizing that portfolios are messy, then acknowledge that portfolios are the mode of assessment that allow teachers to present the context of their students in their classroom and know how the teaching and learning in the classroom evolves.

As challenging as they are, portfolio-based outcome measures for school health education can and should become a reality. In A Practical Guide to Alternative Assessment, Herman et al. offer guidance on creation and use of nontraditional measures of student achievement including portfolios. Arter and Apeland also address practical concerns in portfolio development including reliability in evaluation as well as staff development.

A promising development involves computerization of the student portfolio. A portfolio kept on a computer would occupy less physical space and need no additional filing equipment for storage. Compared to a manual portfolio, computerized portfolios can access, retrieve, and store necessary documentation quickly. Because computers are interesting, students may be more likely to initiate and maintain a computerized portfolio. Almost as important, they will enhance their computer literacy—a critical skill to acquire.

One format worth considering is the Electronic Student Portfolio or ESP. Designed by a private software company and the Michigan Dept. of Education to meet a new state law that requires student portfolios, the ESP utilizing IBM-compatible computers allows schools to implement portfolios without the expense of more clerical personnel. Other features include the ability to display and print documents that have been digitized or scanned. In addition, this program allows a student's
portfolio to be exported to another diskette or to another site where the system has been installed.

Another computerized portfolio program, the Grady Profile, 23 consists of a set of HyperCard stacks of which each student has a set. Operated on a MacIntosh computer (MacIntosh-Plus or later), the stacks can store textual, sound, and image information that has been collected. In addition, video clips of students demonstrating a skill or engaging in an activity can be displayed. Both programs are designed to involve parents in the evaluation process. At a time of diminished resources and increased pressure on state departments of education to be accountable for student outcomes, computerized school health portfolios represent a cost-effective and logistical solution to implementing multiple performance-based assessments of knowledge, attitude, and skills in the content areas of health education.

CONCLUSION

Outcome-based education and performance-oriented portfolios are emerging as major educational trends in the United States. Not only are more states using K-12 performance-based assessments, several teacher education organizations are calling for outcome-based accreditation systems that evaluate teachers' knowledge, dispositions, and performance. 24 Arkansas, California, Maine, and Pennsylvania, for example, are considering outcome-or performance-based assessments to license their teachers. 25 Specialty programs recognized by NCATE, including school health, also are being encouraged to shift from a focus on content to assessing performance. 26 School health teacher education faculty subsequently must prepare their graduates to design, implement, and evaluate performance-oriented assessments. Development of the school health portfolio is one possibility.

By taking the initiative in portfolio-based assessment, school health personnel can help ensure that school districts do not use the outcome-based education movement or similar reform agendas as a vehicle to reduce the curricular 'presence' of health education. A proactive approach to alternative assessments by enthusiastic health teachers and school nurses could engender increased support for a comprehensive school health program by making the activity more public. Assessment has become the focus of educational reform in the 1990s and the visible undertaking of a portfolio-assessment project in any subject area is certain to attract attention and excitement.

Portfolios also would help school health education thrive amidst other educational reforms. As schools reconstruct and forge a more integrated curriculum, the basic school subjects and their desired outcomes increasingly will be instructed by teachers in multidisciplinary teams. 27,28 A strong portfolio tradition would enable health education to retain its curricular identity and make it less likely to become so "integrated" into the other subjects that instruction becomes unfocused and thus incoherent.

Finally, to become institutionalized, current initiatives in portfolio-based assessment must be mindful of research on diffusion of school-based innovations. In citing reasons why the Growing Healthy curriculum was not continued in several districts, loss of a "program champion" and insufficient administrative leadership were identified. 29 To ensure broad input to, and continued support for portfolios, a school health portfolio "team" consisting of all health faculty, school nurses, and several supervisory personnel is essential. Such strategies can help secure the future of high-quality school health programs.

As school districts experiment with various portfolio designs and models, health educators must be cognizant of the overall purpose of alternative forms of assessment in the academic discipline of school health. Only where student well-being is viewed as the ultimate learning outcome will portfolios fulfill their potential to make K-12 health education a more engaging, respected, and publicly-supported undertaking.

References

20. Wolf K. The schoolteacher's portfolio: Practical issues in
The Health Educator Section of the American School Health Association is soliciting abstracts of original, innovative, and dynamic teaching techniques for presentation at the 68th National School Health Conference of the American School Health Association in Houston, Texas, October 5 - 9, 1994. Published material or techniques intended for commercial purposes will not be considered.

Guidelines
Abstracts must include a separate page with the title of the technique, author's name and affiliation, mailing address, and telephone number. The abstract itself must include:

1) A clear statement of the teaching technique's intended educational objectives, 2) A clear statement of the teaching technique's appropriate grade level, 3) A clear and detailed description of the content to be presented as well as methods used to implement the technique, 4) Necessary materials and aids for implementing and processing the technique, 5) A brief curriculum vitae (two pages maximum), and 6) Four copies of all application materials.

Abstracts must be no longer than two, double-spaced typewritten pages.

Selection
In evaluating the abstracts, a blind review system will give preference to techniques that:

◆ Can be used in one class period,
◆ Are innovative and involve the active participation of the learner,
◆ Are original and have never been published, and
◆ Can be presented at the Conference within a 20-minute period.

If not selected for a Teaching Techniques Forum presentation, abstracts will be considered for a Poster or Roundtable format. Please indicate your preference. No audiovisual equipment will be available for these sessions; handout materials are strongly suggested.

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Abstracts must be received by February 1, 1994.

Submission
Send abstracts to: Roberta J. Ogletree, HSD, CHES, Assistant Professor, Dept. of Health Education, Southern Illinois University, Carbondale, IL 62901-6618.