The portfolio as a summative assessment for the nursing student

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Abstract
This article looks at the effectiveness of the educational portfolio in the summative assessment of the nursing student. Findings of high inter-rater reliability point to the usefulness of the portfolio in summative assessment of competency, if accompanied by the appropriate supportive mechanisms. Shortcomings in the validity and reliability of the portfolio as an assessment tool are apparent and need to be addressed before this tool can be used in high-stake final decisions.

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Portfolio; Summative assessment; Nursing student

What is the educational portfolio?

New assessment strategies for students are being developed by a number of health care education programs in response to the ever-changing needs of the current health care system (David, Davis, Harden, Howie, Ker, & Pippard, 2001). The educational portfolio has been suggested as an alternative approach in the ongoing and formative assessment of the complex and integrated skills of the nursing student, with the intent that it will counteract any of the limitations that conventional assessment may impose (David et al., 2001). Students can be held accountable for their learning and, through the use of reflection, can demonstrate appropriate cognitive skills and affective behaviors required for the provision of high-quality patient care (Kunkle, 2009). Although this type of tool has been used for a variety of purposes by a number of different professions, it is a fairly recent evaluation mechanism in nursing education (Nash & Sacre, 2009).

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that demonstrate personal reflections, skills, knowledge, and accomplishments as evidence of a student’s progress and learning (Nash & Sacre, 2009). Benefits of the educational portfolio, as an assessment tool, include measurement and reinforcement of desired outcomes, as well as development of the strategies and skills required for lifelong learning (David et al., 2001). Kunkle (2009) claims “the portfolio provides a qualitative method of assessing student learning” (p. 4).

In the education of all types of health care workers, the debate continues as to whether competency is best measured using quantitative or qualitative means. Byrne, Delarose, King, Leske, Sapnas, and Schroeter (2007) assert that portfolios are useful in the evaluation of competencies that may be more difficult to assess, such as “practice-based improvements, use of scientific evidence in practice, professional behaviour, and creative endeavours” (p. 25). As a result of technological advances, nursing students are required to understand an expanded range of treatment modalities and diagnostic tools. The medical knowledge base has grown considerably, and the nursing student is expected to be a content expert while at the same time maintain the caring and empathetic demeanor that patients require. It is unlikely that one assessment tool alone can provide an accurate measurement of the various competencies and complexity of nursing practices required of a student nurse. Consequently, the portfolio is being used more often for learning and assessment of a variety of skills in nursing education programs.

What does the educational portfolio intend to measure?

The educational portfolio is being used in the assessment of a number of skills, including self-directed learning, personal growth, reflective ability, and professionalism (David et al., 2001). David et al. point out that the portfolio can be used to assess the desired learning outcomes and to emphasize skill development, learning strategies, attitudes, and cognitive processes necessary for competent practice in today’s health care system. The portfolio, as a formative assessment, is considered to be a good method of engaging the student in the process of learning through evaluation and assessment.

Kunkle (2009) suggests that problem-based learning provides the theoretical basis for the effectiveness of the educational portfolio. Problem-based learning compels the students to search and discover while they are learning, instead of passively listening or absorbing material from an educator. Students learn collaboratively through active questioning, discussions, problem solving, and critical thinking. In problem-based learning, students learn to be inquisitive and search out information, leading to the use of reflection, which is an important element of clinical competency. The portfolio can provide a similar learning experience through the selection and organization of the various pieces of evidence within the portfolio.

David et al. (2001) suggest that the portfolio provides the evaluator with an indication of student performance collected from an array of sources over a set period. This is different from traditional assessment methods that look only at performance of a particular skill at one point in time. By including a variety of evidence collected over a period, the ongoing progression of student learning is readily apparent.

The portfolio also aims to stimulate reflective learning strategies through the analysis of the student’s own clinical experience. Through decisive selection and collection of evidence, the portfolio helps the student identify his or her individual learning experiences and recognize his or her growth and development. In this type of formative assessment, the portfolio is a well-suited evaluation tool. Timmins and Dunne (2009) indicate that the assessment of reflective learning has been promoted as an advantage of the portfolio but express concern with the diversity of this process within individual nursing education programs.

With the plethora of information and evidence available in the literature, are the psychometric properties of the portfolio strong enough to justify its use for summative evaluation of the nursing student? This is a concern if looking at portfolios being used in high-stake decisions, such as entry to practice, credentialing, or certification. The portfolio appears to be a good instrument for assessment of competence, but mixed reports of their success are emerging (Driessen, van Tartwijk, van der Vleuten, & Wass, 2007).

In a comprehensive literature search, Driessen et al. (2007) found 30 articles reporting empirical data on the effectiveness of the educational portfolio. The remaining pertinent articles were in the form of descriptive papers or commentaries. Some evidence substantiates the use of the portfolio in the assessment of basic competencies including reflection, communication skills, and professional development. Other studies are less supportive of the portfolio and fail to provide enough information on the implementation of the portfolio, specifically in the context of the clinical setting. An analysis of the quantitative and qualitative evidence in nursing education will provide a detailed background for this particular debate.

Support for the portfolio as a summative assessment tool

An increasing number of health care professions have started to utilize the portfolio as an educational tool. As a result, there has been growth in the quantity of evidence endorsing the potential benefits of the portfolio as a summative assessment tool. In the nursing literature, studies describing the portfolio in competency assessment involve both pre- and postgraduate nursing educational experiences. In the pregraduate setting, the portfolio might be utilized in
the assessment of clinical competence, whereas the postgraduate setting would look at specialization or credentialing.

Nursing education programs are utilizing the portfolio for both learning and assessment of their students. One criticism of the portfolio as a potential summative assessment tool is the apparent subjectivity of the evaluation process (Taylor, Stewart, & Bidewell, 2009; Timmins & Dunne, 2009). Several evaluation tools and methods have been proposed to address this concern. Cook, Kase, Middleton, and Monson (2003) developed a tool to evaluate portfolios submitted by postgraduate nurses completing their credentialing in genetic counseling. Portfolios were assessed using a one-page evaluation sheet and numerical scores inputted into a specialized computer program or neural network. This computer program:

allows the aggregate scores of portfolio raters to be considered in toto to accommodate each expert rater’s critical judgments but also to be weighted according to both a predetermined and also an evolving set of parameters, much the way one might change an opinion based on new evidence or another point of view (Cook et al., 2003, pp. 87–88).

This evaluation process accommodated variations and differing opinions between the assessors. The authors report an accuracy and validity rate of 97% and claim that this process is a “comprehensive, individualized measure of clinical competence” (Cook et al., 2003, p. 89). This finding suggests that the potential for evaluation bias can be reduced and provides an alternative opinion to the claim that the portfolio evaluation process is too subjective. Through the careful development of specific performance criteria, assessors have the ability to compare portfolios in a more objective manner. Unambiguous tools that incorporate clear marking guidelines can provide the guidance necessary to reduce any uncertainty or possible bias the assessor may have when reviewing the portfolio.

Ongoing skepticism about the usefulness of the portfolio for summative evaluation purposes led to the development of another portfolio evaluation scoring tool by Karlowicz (2010). This tool yielded a statistically significant reliability coefficient (>0.80), which indicated that there was strong evidence of agreement among the assessors. Reliability coefficients between 0.80 and 0.90 indicate a highly reliable instrument for data collection (Cohen, Manion, & Morrison, 2007). This level of consistency provides additional evidence that portfolio evaluation can be a more objective process when the appropriate scoring tool is utilized.

A high inter-rater reliability of greater than 0.80 was found on a portfolio self-evaluation tool developed by Kear and Bear (2007). Using this tool, the authors investigated whether nursing program objectives were met according to the students’ perceptions of their academic experiences. The purpose of the evaluation tool was to compare program objectives with academic experiences, but quantitative evidence provided proof that the tool itself was valid and reliable.

Although most of the quantitative data provide credence about the usefulness of a portfolio evaluation tool, it is interesting to note that several of the studies also incorporated a comprehensive training program for the portfolio assessors. Assessors who participated in the Cook et al. (2003) study attended an intensive orientation program that also included an initial year paired with a mentor or expert. Assessors were asked to serve in this role for a minimum of 3 years, thus building up familiarity and expertise with the tool and the process during their term. Karłowicz (2010) also included faculty training prior to utilization of the evaluation tool, with favorable end results. This practice very likely ensures that the judgments from each assessor will be reliable and consistent, which are necessary conditions for summative evaluation decisions.

Driessen, Overeem, van Tartwijk, van der Vleuten, and Muijtjens (2006) examined whether there is a bias in assessment because of irrelevant qualities of the portfolio, such as spelling, writing style, and layout. These authors assert that portfolio assessment relies on the professional judgment of the assessor and investigated if judgment may be skewed by criteria that have little relevance to the assessment purpose. Their results indicate that final judgments are not affected by irrelevant qualities within the portfolio. Evaluators are able to focus their judgment and discriminate between the critical and noncritical components of the portfolio.

**Challenges of the portfolio for summative assessment**

Although the educational portfolio is being used more often in learning and formative assessment, there may be some concern about the potential of this tool for summative assessment purposes. Nursing education programs have produced a significant amount of anecdotal and descriptive information about the portfolio and have recently started to provide additional empirical evidence about the usefulness of this tool. Studies indicate that further qualitative and quantitative validation of the portfolio may be necessary, especially if intended for summative evaluation.

Although early research into the educational portfolio questioned its credibility, the strategy remained very popular and has been incorporated into many nursing programs (Taylor, Stewart, & Bidewell, 2009; Timmins & Dunne, 2009). This evolutionary process has continued over several years and has allowed nursing education programs to develop and continue their research into the usefulness of the portfolio. Some postgraduate nursing programs are confident that the portfolio can promote self-evaluation and reflective practice but cite that there is a lack of evidence supporting its use as a summative evaluation tool (Schaffer, Nelson, & Litt, 2005).

An early report by Karłowicz (2000) cited a lack of research-based evidence showing that portfolio analysis measures up equally or better than any other evaluation
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techniques. There were few studies demonstrating validity or providing an indication that a score assigned to a portfolio actually measured what it intended to measure. In nursing, that score intends to measure the acquisition of knowledge and skills necessary for the nurse to deliver competent care to the client. In addition, no published studies were found that compared nursing examination results with results from portfolio assessment. Valid assessment criteria need to be established if the portfolio is to be used for summative assessment purposes. These criteria will likely be program specific and will require the allocation of appropriate resources, including staff expertise and time, to be valid and defensible in a high-stake testing situation.

Karlowicz (2000) revealed concerns with validity of the portfolio including "vague terminology in the definition of scores and complexity of the scoring rubric" (Validity section, para. 2). With questionable validity, using the portfolio as the only method of summative evaluation may result in the competent student failing or the incompetent student passing. Endacott et al. (2004) examined the portfolio using grounded theory, strengthened with theoretical sampling. The findings revealed that in order for the portfolio to be effective as an assessment tool, students require thorough guidelines and assistance. Timmins and Dunne (2009) substantiate these findings and suggest that an electronic portfolio or e-portfolio may be able to provide the necessary structure.

In Gallagher’s study (2001), students created portfolios containing items preselected by the lecturer. A follow-up questionnaire was completed by the students asking for their perceptions about the portfolio. Results indicated that the students found the portfolio a fair and appropriate form of assessment but that the criterion about portfolio development was not detailed enough. Gallagher found few comparisons between the portfolio and other traditional models of assessment and rejected the notion that the portfolio was a higher quality assessment tool. Endacott et al. (2004) suggested the portfolio be included alongside current forms of assessment in order to provide an integrated or “holistic” form of evaluation. In other words, current evaluation methods would be supplemented using the portfolio, rather than replaced.

Timmins and Dunne (2009) explored the reflective items within the portfolio and found that lower levels of reflection were prevalent, indicating less than optimum learning benefits. This finding is relevant if looking for competent graduates who have the ability to make decisions based on their experience and be able to reflect on the learning stemming from that experience. The ability to critically reflect on experience and the decisions made as a result of that experience will result in enhanced learning, understanding, and clinical performance (Healey, 2008).

From the educational program perspective, the portfolio should provide a mechanism for students to demonstrate their competence (Taylor, Stewart, & Bidewell, 2009). Yet, students seem unsure of its relevance to learning and believe that the portfolio may be more suitable to formative assessment purposes (Timmins, 2009). The student needs to be able to link what they are doing in the clinical setting with the appropriate type of item to include in their portfolio. In addition, they need to connect this learning activity and item to the appropriate competency required for program completion. This is a complex process, and the difficulty in translation was also noted by Scholes et al. (2004). The student may need to spend considerable time learning how to develop a portfolio, possibly at the expense of valuable clinical learning time. To address this issue, Scholes et al. recommended careful and skillful facilitation throughout the process. Specific competencies need to match the clinical skill being assessed, and evidence needs to realistically match the progression of the student. Endacott et al. (2004) confirm that the contents of the portfolio should be clearly aligned with the competencies being evaluated, if the intent of the portfolio is a summative assessment.

Webb, Endacott, Gray, Jasper, McMullan, and Scholes (2003) concluded that competency assessment may require a more holistic approach and that qualitative evaluation methods might be a more appropriate method of evaluation because of the type of material found within the portfolio. Buckley et al. (2009) found that nursing programs tend to have portfolios that are primarily reflective journals or diaries, a format that also may require a more qualitative approach to data analysis. Due to the subjective nature of these types of portfolios, nursing programs need to ensure that the assessment criteria are fair, valid, and reliable. High stakes, entry-to-practice decisions require transparent and defensible evaluation processes. Moderate levels of consistency between evaluators do not provide the high level of accuracy required for these types of decisions.

Is the portfolio an effective summative assessment tool?

Nursing education programs can improve reliability of the portfolio assessment by providing precise scoring guidelines or tools for assessors. Comprehensive training should be provided to the assessors to increase familiarity with the assessment tool and process. Instructions for students should be explicit and clear direction provided with respect to the required and recommended items to be included in the portfolio. The recommended items within the portfolio should be clearly aligned with the competencies or skills being evaluated.

Although the quality of research on the portfolio appears to have improved throughout the last decade, it is apparent that evaluating the portfolio using traditional quantitative and qualitative assessment methods is extremely difficult. This is partly because of the lack of consistency in defining the purpose and utilization of the portfolio throughout a diverse number of nursing programs. This diversity makes it more difficult to standardize the validity and reliability of a
portfolio assessment tool. Colbert, Ownby, and Butler (2008) indicate that many portfolios contain student assessments or evaluations “where validity of score usage has already been established” (p. 342).

Does the portfolio really measure what we want it to? If we want the portfolio to be utilized as an assessment tool for summative evaluation purposes there must be valid and reliable scores and standardized criteria. Are there other options available? The e-portfolio has been suggested as an alternative to the paper-based portfolio.

The e-portfolio

The e-portfolio or electronic Web-based portfolio has been suggested as an alternative to the paper-based portfolio. Skiba (2005) claims that the e-portfolio can connect the student to learning through the process of “collection, selection, and reflection” (p. 246). After choosing the appropriate evidence for their e-portfolio, the student can reflect critically on his or her work, resulting in growth, development, and learning. This process can persuade students to look at their own strengths and weaknesses over a period. Application of formal academic knowledge into the clinical setting is facilitated as well. Skiba asserts that the e-portfolio can “foster creative thinking and collaboration” (p. 247).

McKenzie, Clearly, McKenzie, and Stephen (2002) support the notion of the electronic version of the portfolio and praise the potential of the e-portfolio to provide an interactive learning experience through computerized video and audio. Using an electronic version, the student can further develop their technological and computer skills, as well as maintain easy access and storage of required documentation. Presentation of the materials found within the e-portfolio can be enhanced, and the student is provided the opportunity to integrate new technology into their daily practice. These authors indicate that the e-portfolio offers easy accessibility for both the student and evaluator.

Driessen, Muijtjens, van Tartwijk, and van der Vleuten (2007) report that the e-portfolio enhanced the motivation of students and was more user friendly for the evaluator when compared with the standard paper-based portfolio. Accessibility is improved, and the e-portfolio can be shared among evaluators and classmates. These authors caution that students may become more concerned with the formatting of the material within the e-portfolio and possibly neglect the actual content. Although this is a concern, the numerous advantages of the e-portfolio may result in an increased acceptance of this tool for both learning and assessment. Although this study confirms that the e-portfolio can deliver the identical quality of content as the paper-based portfolio, there remains a gap in the use of the e-portfolio in competency assessment. Additional research is required if the e-portfolio is to be used in the summative evaluation of the nursing student. As with the paper version of the portfolio, valid and reliable scores, standardized criteria, and supportive measures are essential if we are to utilize the e-portfolio in high-stake, summative evaluation decisions for nursing students.

Conclusion

High-stake decisions require sound assessment procedures that will benefit both the nursing student and the clients they will be caring for. The summative evaluation process must validate the knowledge, skills, and judgment required by the student nurse to practice competently and safely. Available quantitative and qualitative data have provided some assurance that the portfolio can be a useful and reliable assessment tool, if the appropriate measures and supports are in place as well. These supports include providing assessors with a credible and holistic scoring tool and intensive training. Specific performance criteria should be developed so that assessors can evaluate portfolios in an objective manner. It appears that the number and quality of studies has been steadily increasing over the past decade, and if this trend continues, there may be a strengthening of the evidence on the usefulness of portfolios for learning and assessment. The e-portfolio has the potential to be a very useful tool for both student learning and assessment.

Summative assessment decisions can impact the nursing student in many ways. Failure to successfully demonstrate competency may result in program failure for the student. On the other hand, a defective evaluation tool may allow the incompetent student to successfully complete their program and enter the workforce with less-than-adequate skills. Keeping this in mind, and taking into account the evidence currently available, there is inadequate support to justify using only the portfolio for summative evaluation purposes. It is recommended that the portfolio be used in conjunction with existing evaluation methods and assessment procedures. By simultaneously using new evaluation tools alongside current evaluation methods, educators can be assured that the standards for students are upheld while allowing for growth and experimentation with new methodologies. Nursing education programs are encouraged to continue working with, researching, and publishing their experiences with the educational portfolio. There is significant promise associated with the e-portfolio in nursing education. As research and development continues, it is anticipated that the educational portfolio will have a role in the education of future nursing students.

References


