

On the Use of Developmental Portfolios for Growth and Assessment

Alec J. Engebretson, Ph.D.

**Associate Professor of Information Science and Technology
Doane College
Crete, NE 68333
aengebretson@doane.edu**

Abstract

Developmental portfolios are used by individuals to record personal growth. Over time, several entries are made in a developmental portfolio. Each entry is for an activity which was a catalyst for personal growth. The entry includes an overview of the activity, how the activity helped foster personal growth, and a personal reflection on individual strengths and weaknesses and what future activities can be pursued in order to further development.

This paper describes how one institution is using developmental portfolios in recording and assessing the growth in specific skills and abilities of students pursuing computing degrees. These skills and abilities have been identified by a council of industry professionals as being important foundations for a successful career in the computing field.

Specifically, over the course of their college experience, students majoring in information systems or computer science make several entries in their portfolios. Some of the entries are related to experiences inside the classroom. Some of the entries are related to experiences outside the classroom. Some of the experiences are directly related to the computing field. Many are not. At two points in their college careers, students review their portfolio entries with faculty and fellow students. The reviews allow the students and faculty to assess students' strengths and weaknesses and to provide suggestions on how to further develop specific skills and abilities.

The purpose of this paper is to share what one department is doing and experiencing in having students develop, maintain, and review developmental portfolios. Topics of the paper include a description of the developmental portfolio and its purpose, contents, and method of assessment.

Introduction

Portfolios have long been used by individuals to display work to *others* in order to demonstrate skills and abilities. *Developmental* portfolios, however, are used by individuals to display work over time to *themselves* in order to recognize and assess the growth of their own skills and abilities. This paper describes how one institution is using developmental portfolios to facilitate and assess student growth in specific skills and abilities. The skills and abilities assessed in the portfolios have been identified by an advisory council of industry professionals as being important foundations for a successful career in the computing field.

The purpose of this paper is to share what one department is doing and experiencing in having students develop, maintain, and review developmental portfolios with the intent that it contributes to a dialogue in which others share their experiences in this area.

Specific topics of the paper include:

- a general description of the developmental portfolio and its purpose,
- a discussion of the contents of portfolios, and
- a description of how the portfolios are assessed.

General description and purpose

Developmental portfolios have been used in the Doane College Department of Information Science and Technology (IST) since the 1997 academic year.

The developmental portfolio provides the student the opportunity to document his/her growth in the knowledge and abilities expected of all IST graduates. With the guidance of our department's advisory council, which consists of a number of industry professionals, four knowledge and skill areas have been identified as being important foundations for a successful career in information technology. These areas have been placed in our mission statement and provide the structure for the developmental portfolio entries. These four areas are as follows:

- a demonstrated understanding of information science and technology concepts and processes, their relationships to each other, and their relationships to existing and emerging computing technologies,
- the confidence and skills to independently learn and apply existing and emerging computing technologies and processes,
- the confidence and skills to solve an unknown problem and to efficiently research, learn, and apply an unknown topic or skill to novel problem-solving situations, and
- the confidence and skills to effectively communicate (read, listen, write, and speak).

All students majoring in computer science or information systems, or minoring in computer studies are required to maintain a developmental portfolio. The main purposes, and benefits, of the portfolio are to:

- allow the student to record accomplishments,
- allow the student to reflect on his/her development and to set goals and plans to achieve future progress,
- provide the student with a useful self-assessment tool to be used in the career or graduate school search process, and
- provide the Information Science and Technology Department with information by which to assess its programs of study.

Initially, each student's portfolio was organized in a manila folder and stored in a central, secured filing cabinet. In the 2000-2001 academic year, a student completed a project that placed the developmental portfolios on-line. Today, the portfolios are maintained on our departmental server. Access is via the web. To see sample entries, please visit <http://ist.doane.edu> and follow the developmental portfolio link.

Portfolio contents

Portfolio development begins in the introductory course typically taken as the first course towards a computer science or information systems major or computer studies minor. In this course, the developmental portfolio is formally introduced and demonstrated. In addition, students complete an analysis project and are required to make a portfolio entry as part of the project's requirements.

From that point on students make several entries in their portfolios until they graduate. Students are solely responsible for adding entries and reviews to their portfolio. The entries consist of a description of the experience, a description of how the experience helped the student grow in the four knowledge and skills areas, and a description based on self-assessment of the student's strengths and weaknesses and what the student can do in the future to further develop.

Entries may come from a wide variety of experiences. The entries in a portfolio may be generated from experiences in a course, whether in computing or not, or entries may be created from experiences that occur outside the classroom, whether related to computing or not. Most Information Science and Technology courses will identify in the syllabus specific items that must be included in the portfolio. However, we stress that entries are not and should not be limited to those items. Basically, anything that the student feels somehow documents growth and development in one or more of the four knowledge and ability areas expected of our graduates should be included in the portfolio.

Examples of possible entries include:

- Undergraduate research or experience papers
- Presentations, speeches and demonstrations
- Class projects or class assignments
- Independent study or special topic experiences
- Internships, jobs, and volunteer experiences
- Personal experiences working with computing technology
- Workshops, conferences, symposium, and seminars attended
- Peer and faculty assessments
- Organization memberships and leadership roles

Portfolio assessment

At two points in their college careers, students review their portfolio entries with faculty and fellow students. The reviews allow the students and faculty to assess student's strengths and weaknesses and to provide suggestions on how to further develop specific skills and abilities. As they also are completed on-line, the reviews also become an entry in the portfolio.

The first time the portfolio is formally assessed by IST faculty members and peers is during Activity 137 - Doane Information Solutions Cadre (DISC), typically taken during the sophomore year. The assessment includes a presentation of the portfolio entries to the IST faculty members and fellow ATV 137 students who all provide constructive feedback and suggestions.

The second time the portfolio is formally assessed is in Information Science and Technology 495 - Information Science and Technology Seminar for all majors and minors, and in Information Science and Technology 326 - Methods of Teaching Information Science and Technology for all students obtaining a teaching endorsement. At this point, each student develops an informal reflective statement describing the contents of the portfolio and how the contents demonstrate the student's development in the knowledge and abilities areas. A presentation of this reflective statement and the contents of the portfolio are given by the student to the class. Oral feedback from the class following the structure of the portfolio assessment form is provided.

In addition, an informal review of the portfolio may be performed by the student and a member of the Information Science and Technology faculty in the semester immediately prior to the student's graduation. The purpose of the review is for the faculty member to assess the student's readiness to graduate with an Information Science and Technology degree from Doane, and for the student to provide feedback on the program from which that student is about to graduate. This provides assessment data about our program.

Summary

The developmental portfolio content and process is continually being reviewed and improved. The goal is to keep the process efficient yet valuable in achieving the intended purposes. The use of developmental portfolios has achieved the intended purposes.

In recording and reviewing their accomplishments, students are reflecting on their development, especially as it relates to their particular field of interest. As they see what other students are doing to prepare themselves, they often realize that if they were competing for the same position as other students in our program, they would not get the position. This is a strong motivational tool that has directly resulted in better planning and preparation on the part of students.

As students seriously start the career or graduate school search, they are very grateful they have recorded their accomplishments over the last four years. This is particularly true when updating resumes, developing cover letters, and preparing for interviews. For four years, they have been examining their strengths and weaknesses and have been seeking out projects and experiences that help build the knowledge and skills necessary for their career in a computing field. These are all the types of information employers and graduate schools like applicants to be able to articulate.

Finally, the portfolio reviews have been very useful in assessing the value of projects and other experiences that are part of our curriculum. In reviewing the portfolios, students are typically very forthright in providing their opinion on the usefulness of various experiences. Information from the portfolio process has been a useful element of assessment and has been a catalyst for positive change to the IST program.