



The Use of Portfolio to Assess Student's Performance

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ABSTRACT

Recent educational developments such as constructivism and multiple intelligence theories as well as society requested new trends engendered to radical change in traditional approaches of instruction and assessment. For this reason, alternative assessment approaches are needed in assessing both learning process and learning product. Nowadays, one of the alternative assessment techniques used in various disciplines such as mathematics, science and social sciences so forth is portfolio. The purpose of this study was to introduce portfolio assessment method which is used commonly in educational contexts recently. To achieve this aim, some information of portfolio such as its definition, its developing process, selection of contexts, its advantage and disadvantage were presented. Also, portfolio assessment method is compared with traditional one in terms of different aspects. Further, to exploit portfolio assessment method effectively some suggestions were made.

Keywords: Alternative Assessment, Performance Assessment, Portfolio Assessment Methods

INTRODUCTION

Recent developments and demands in science and society have deeply affected education. Especially theories such as constructivism and multiple-intelligence and new social trends such as changing labor market, information-age needs engendered to radical change in traditional approaches of learning, teaching and assessment. Since learning approach is changed, it affects assessment procedures and approaches (Fourie & Van Niekerk, 2001). For example, the main goals of earlier academic education enable students to know a certain domain. Since learning of basic knowledge was very important, behaviorist approach generally uses traditional instruction. In this instructional approach, knowledge is merely abstracted, and "learning" and "teaching" process is viewed as individual process, and "learning" is conceived as the accumulation of stimulus-response association. Drill and practice play an important role in this process. Also, the assessment practice is mainly based on testing basic knowledge. Because, the proof of learning generally is seen as changing the behaviors and increasing the right answer in test and changing between pre-test and end-test in this approach, tests such as multiple-choice, true false, matching items for assessment are used. This traditional assessment approach mostly

promotes students to memorize rules or algorithms rather than conceptual understanding, and focus on small, discrete components of the domain (Dochy, 2001). Also, these tests which provide less useful information about students' understanding and learning are not enough to assess higher order cognitive skills such as problem solving, critical thinking and reasoning (Romberg, 1993), not measure a students' ability to organize relevant information (Shepard, 1989), and assess what is easy to test-memorization of rote skills and procedures (Mumme, 1991).

On the other hand, the constructivism based on Piaget's and Vygotsky's assuming that students are able to acquire and socially construct their knowledge and understanding. This approach pays more attention to students' prior learning, their problem solving skills and their collaborative learning (Baki, 1994). However, in this new environment students' learning can not be assessed within a shorter time using multiple choices tests (Mumme, 1991; Romberg, 1993). Therefore, it is needed a broader range of assessment tools that be able to assess the students' skills such as open-ended problem solving, and critical thinking, analyzing, reasoning, be able to apply theirs knowledge in new problems, and to express oral and writing. Further, constructivist epistemology requires us to assess students' individual performance and group performance together during their learning experience (Shepard, 2000).

Nowadays, society asks for students who have cognitive skills such as problem solving, critical thinking, analyzing data, and presenting them orally and written format and so on (Dochy, 2001). Since society request new trends, educational developments have improved towards a more powerful learning environment. For this reason, alternative assessment approaches are needed in assessing both learning process and learning outcomes. Therefore, the various communities such as NCTM and NRC published the Standards about assessment and curriculum. The Assessment Standards for School Mathematics (NCTM, 1995), call for the use of multiple and complex assessment tools including written, oral, and demonstrations formats, and recommend that assessment should contribute to students' learning. This implies that assessment techniques should focus an assessing what students know as well as what they do not know. These recommendations can be achieved through alternative assessments measuring students' performance and developments in learning process.

One of the alternative methods in education used in the assessment of the students' individual or group performance is portfolio. Necessity of using portfolio is emphasized by many researches (Birgin, 2003; De Fina, 1992; Gussie, 1998; Micklo, 1997; Mumme, 1991; Norman, 1998;). According to them, portfolio gives more reliable and dynamic data about students for teachers, parents and also student himself. Also, using this assessment method in primary schools provides getting clear information about students and fulfilling their weaknesses and helps teachers planning teaching progress.

In Turkey, Ministry of National Education (MONE) suggests that the assessment activities should be done in order to find out the weaknesses of students and to fulfill them (MONE, 2004). Although Ministry of National Education (MONE) has made such kinds of suggestions, teachers' attitudes in measurement and assessment applications cause many problems. For instance, up to now, being lack of pedagogical knowledge and limited in-service course prevented teachers from being qualified (İşman, 2005). Besides teachers were not given enough information and resources about how to make assessment or which materials should be used and assessment method is given to teacher's initiative. Furthermore, common use of traditional measurement and assessment methods prevents finding out students' skills and their developmental potentials (Baki & Birgin, 2002). This situation also prevents the use of assessment methods in primary schools as they have been mentioned in the purposes of MONE.

Turkish teachers usually try to do their assessment activities through Bloom's (1976) theory of school learning which exists in teaching programs. However, disadvantage of this approach is that it ignores the students' different skills and developmental potentials in assessment (Çepni, 2006). Thus as parallel to recent developments in education contemporary approaches such as constructivism and multiple-intelligences become dominant in new teaching programs in Turkey. It is stated in new primary school curriculum of Ministry of National Education that portfolio assessment should be used in courses such as in Turkish, Science and Technology, Mathematics and Social Sciences. However, many studies (Birgin & Tutak, 2006; Çakan, 2004; Özsevgeç et al., 2004) showed that teachers did not have enough knowledge and experience about alternative assessment methods especially about portfolio. It is still a question that how a teacher can apply alternative assessment methods properly without having enough knowledge and experience about it. Because of this reason, portfolio assessment method as an alternative one to traditional assessment approaches becomes quite significant.

The purpose of this study was to introduce portfolio assessment method commonly used in educational contexts recently. To achieve this aim, some information of portfolio such as its definition, its developing process, the types of portfolio to be used, selection of contexts, its advantage and disadvantage were discussed in depth. Also, portfolio assessment method is compared with traditional one in terms of different aspects.

(1) What Is Portfolio?

Although portfolios are used in the assessment of student's performance in nowadays, they are used as a method by architects, painters, photographers and artists in showing their works. However, as portfolio has been used for different purposes it maybe different from than that of artists. It is not possible to use only one definition for portfolio. Definition of portfolio may change according to users' purpose and way of usage. Many researchers defined portfolio in order to explain its features. Some of them are as follows;

According to Arter and Spandel (1991), portfolio is a purposeful collection of student work that exhibits to the student, or others, her efforts or achievement in one or more areas. Paulson, Paulson and Mayer (1991: 60) define that portfolio is a purposeful collections of student's work that exhibits the student's efforts, progress and achievement in one or more areas. The collection must include student participation in selecting contents, the criteria for selection, the criteria for judging merit and evidence of student self-reflection. Grace (1992, p.1), who stresses the learning process, defines as "portfolio is a record of the child's process of learning: what the child has learned and how she has gone about learning; how she thinks, questions, analyzes, synthesizes, produces, creates; and how she interacts--intellectually, emotionally and socially-with others". Collins (1992, p. 452) identify portfolio as "a container of collected evidence with a purpose. Evidence is documentations that can be used one person or group of persons to infer another person's knowledge, skill, and/or disposition".

Winsor and Ellefson (1995, p.68), who stress the learning process and learning product, define that "portfolio is a fusion of process and product. It is the process of reflection, selection, rationalization, and evaluation, together with the product of those processes". Simon and Forgette-Giroux (2000, p.36) define as "portfolio is a cumulative and ongoing collection of entries that are selected and commented on by the student, the teacher and/or peers, to assess the student's progress in the development of a competency". De Fina (1992, p.13), who emphasizes the characteristic of portfolios, state that portfolios are systematic, purposeful, and meaningful collections of students' work in one or more subject areas. On the other hand, Birgin (2003, p.22) defines portfolio as "the assessment of some data about students' skills

in one or more areas in a certain time period, regular collection of his studies and performances according to predetermined criteria.

There are some essential characteristics to the development of any type of portfolio used for assessment. Barton and Collins (1997) state that portfolios should be multi-sourced, authentic, forms of dynamic assessment, explicit of purpose, establish a correspondence between program activities and life experiences, based on student's ownership, and multi-purposed. Therefore, portfolios should be on going so that they show the students' efforts, progress, and achievement over a period of time.

When the descriptions stated above, portfolio is not either the arbitrary collections or observation of student's works to be filled haphazardly. It is important that the portfolio collections should be purposeful, systematic, the determined evaluation criteria, and take a period of time. Thus in this study portfolio is described as a systematic and purposeful collection of the evidence which reflect the success, performance, and efforts of the students in one or more areas over a period of time.

(2) Organization of Portfolio Content

A portfolio is not a collection of a students' work haphazardly over time. Thus, in developing a portfolio it is important to decide its' purpose, evidence consisting of portfolio, and its' assessment criteria (Barton & Collins, 1997). There is a closely related three aspects, and these aspects affect each other directly. What should be considered during the organization of the portfolio contents explained in details as follows?

(a) Determining the purpose of the portfolio: The first and most significant acts of portfolio preparation are to determine the purposes for the portfolio. The purpose of the portfolio directly affects the process by which the portfolio is created. Also, the purposes of portfolio determine what kinds of items should be in it. Explicit purposes prevent the portfolio from becoming busy-work. Portfolios can be used for different purposes in education. The purpose of the portfolio can be shaped depending on the users' demands. The aim of teacher using portfolio is to assess the progress of the student over a period of time, to determine the efficiency of the teaching, to have connection with the parents of the students, to evaluate the education program, to enable schools to have contact with the commodity, to help students for self-assessment and to determine the students' weak points in learning process (Mumme, 1991; De Fina, 1992). As a result, it has been needed to determine the purpose for the portfolio firstly so it will effect directly on the qualifications and the collections stills of items in the portfolio. During determining the purpose of the portfolio, it is very important for teachers to consult his colleagues, students, parents and school administrations. In this concern, it will help to appropriate and carry out the portfolio implementation.

(b) Determining the evidence including in portfolio: Considering the purpose of the portfolio, it should be determined which evidence should be collected, who will collect the works, how often they will be collected, and how they will be assessed. Consulting students during the selection of the studies which will be filled in a portfolio is important since it enable students to have responsibility and possession feelings (Kuhs, 1994).

It is suggested that there has been a caption that is a statement attached to each piece of portfolio evidence that describes what it is, why it is evidence, and of what it is evidence (Barton and Collins, 1997). The caption helps students become aware of their learning as they share what they can prove they know. There is not a strict rule for the portfolio content since portfolio has a different purpose in terms of its evidence. However, the quality of the portfolio has a variable quality depending on whether it is organized by

teacher or student. This means that content of portfolio can be variable depending on its users or purposes. For instance, a portfolio organized by a student can contain a lot of visual or activity materials such as individual or group studies, his/her best studies, tests, projects, presentations, control lists, problem solutions, questionnaire, teacher comment, reading list and reviews, self-assessment/peer-assessment checklist, interview notes, course note, cd and disks. However, instead of random selection of evidence in student's portfolio, selecting of evidences which reflect the performance and products of students during learning process have an important role in learning.

Because items are collected over time, its selection is important for portfolio process. According to De Fina (1997) when decided the contents of a portfolio, two compelling factors should be kept in mind: the students' desires and the purpose for collecting each item. Ideally, the portfolio should be as student-centered as possible and the teachers facilitate, guide, and offer choices rather than inform, direct, and predetermine priorities. It should be remembered in the process of preparing a portfolio that each student has different cognitive, affective, psychomotor skills, different experiences, social environments and socio-economic levels. Thus, items which will be put in the portfolio should be designed to reflect each student's performance as an individual or as a group and to reflect their cognitive, affective and skills properly. Further, portfolio assessment should be multi-dimensional and in order to make a reliable assessment, data should be collected from different sources such as student himself, teachers, student's friends and parents. Also, it is important that students have the opportunity to choose work samples for their learning.

Simon and Forgette-Girous (2000) call for the cross-curricular sampling of items that provide evidence of the cognitive, behavioral, affective, meta-cognitive and developmental dimensions of a single but complex competence such as problem solving or effective communications. For example, in the portfolio designed by Birgin (2003) for mathematics course in primary school 7th graders there have been "problem solving assessment form, observation form related to learning in a unit, group work observation form, parent observation form, assessment form of students' affective dimension, assessment form for students' ideas related to mathematics course and assessment form of students' academic success. However, the portfolio which was used for mathematics course in 1990 in Vermont State, in USA, consisted of only problem solving activities. In this portfolio application students have been asked to present the solutions of open-ended problems in detail. In addition, such kind of portfolio consists of "best pieces".

(c) Determining assessment criteria: First, the purpose of portfolio is mentioned explicitly and then, assessment criteria of the each item in portfolio need to be explained. It is very important to determine the criteria for assessing the portfolio. Because an assessment criterion allows students to recognize, and select work that is considered high quality. It also allows and encourages discussions among teachers, students, and other concerning the outcomes and quality of outcomes. Assessment criteria which have been used to determine the quality of the student's performance should be clear and easy to understand. This is quite important in terms of student to assess his own works and to be able to fulfill his weaknesses. Rubrics should be used in order to determine quality of the evidence in portfolio and to make a reliable and valid assessment.

(3) Important Points in Portfolio Developing Process

It is a challenging situation for teachers to make portfolios an integral part of their instruction. Asturias (1994, p.87) and De Fina (1992, p.14) made some suggestions to

solve this problem and enable portfolio as an important learning and assessment tool. Some of them are as follows;

- It should be consulted to teachers, students, parents and school administrations in deciding which items would be placed in it.
- It should be created a shared, clear purpose for using portfolios. Students should clearly understand what purpose of and for whom a portfolio is consisted.
- It should reflect the actual day-to-day learning activities of students. Also, items in portfolio should vary and be multi-dimensional.
- It should be ongoing so that they show students' efforts, progress, and achievements over a period of time.
- Items in portfolio should be collected as a systematic, purposeful, and meaningful.
- It should give opportunities for students in selecting pieces they consider most reprehensive of themselves as learners to be placed into their portfolios, and to establish criteria for their selections. Also, it should be make students responsible for keeping their portfolios up to date.
- It should be viewed as a part of learning process rather than merely as record-keeping tools, as a way to enhance students' learning.
- Students can access their portfolios.
- Share the criteria that will be used to assess the work in the portfolio as well as in which the result are to be used.
- Teachers should give feedback to students, parents about the use the portfolio.

In conclusion, in portfolio making process some necessary steps are; students' ideas should be taken, each study should have a purpose, assessment of studies should be clearly explained, the process should cover a certain time period, portfolio should encourage students to learn, and items in the portfolio should be multi-dimensional and should address different learning areas. Besides, it is virtually important that the studies in a portfolio should be designed in order to present students' performance and development in a any time period in detail.

(4) Assessment of Portfolios

There has been no exact way or method for the assessment of portfolios. However, some different methods can be used in terms of their aims. If the purpose of portfolio is to improve the students' learning and to diagnose his/her learning needs, then the works in the portfolio usually are determined by teachers. Student is given feedback for his/her works by teachers and peers. These kinds of feedbacks are used to improve the students' learning. If the purpose of the portfolio is to assess the student progress over an extended period of time, and to provide evidence for grades, than the portfolio contains some standard work for everyone and the works in the portfolio are selected by students. This portfolio includes the best works of student in a term or year. They are assessed by teachers in terms of the criteria determined before.

The goal of portfolio grading is to strike a balance between product and process. In other words, a student's improvement in learning process is just as important as their ability to produce a well-shaped product which meets standard rubric-like criteria, so portfolio grading focuses on both the learning process as well as the quality of products. Consequently, portfolios are graded as a whole, and each item in a portfolio can be used to showcase a student's best works or provide evidence for a student's self assessment of his or her learning process and growth.

It is used a variety of different approaches to grade portfolios. Kuhs (1994, p.87) states that three basic approaches can be used. The first is to evaluate each piece of work in the portfolio and average those grades to determine the portfolio grade. The second is to use an analytic scheme where separate grades are given for different performance. For example, a teacher might review the portfolio and given one grade each for the problem solving ability to communicate mathematical ideas, to carry out procedures accurately, to demonstrate insight and understanding of ideas, and to apply mathematics in problem solving situations. Unlike in the first approach, this approach is based on reviewing several pieces of work in the portfolio. This assessment strategy was used in 1992 Vermont became the first state to use portfolios as the centerpiece of a statewide assessment of students achievement in mathematics courses. Each piece in this mathematics portfolio was rated on seven dimensions and each dimension was scored on a different 4-point scale. There were four problem solving dimensions and there communication dimensions (Koretz, Stecher, Klein & McCaffrey, 1994). Also, this strategy was used by Birgin (2003) in a computer-based portfolio for assessing at the seventh-grade students' mathematics performance. The third approach to scoring students' work, when a single score is determined focusing on several dimension of performance, is termed the focused-holistic approach. This approach allows the teachers to give a single grade for all pieces contained in the portfolio such performance attributes as the student's ability to interpreted the problem and information in the problem, select and use appropriate solutions strategies, and evaluate and connect the answer to the given problem situation.

(5) Portfolio Types

There is no an absolute description and content for portfolios. The types of portfolios are varied according to their purpose and collected items in it. Therefore, many researchers define different types of portfolio. For example, according to Haladyn (1997), there are five types of portfolios that named ideal, showcase, documentation, evaluation, and class portfolio. The *ideal portfolio* contains students' all works. It is not given to students a grade. Thus, it is important for students to assess their own portfolio. The *showcase portfolio* is included only of the students' best works. It is important for students to select own works and to reflect theirs works. These types of portfolio are not suitable to be assessed and graded. The *documentation portfolio* involves a collection of work over time showing growth and improvement reflecting students' learning of identified outcomes. This portfolio contains quality and quantity data. The *evaluation portfolio* includes a standardized collection of students' work and could be determined by the teacher or, in some cases, by the student. This portfolio is suitable for grading students. The *class portfolio* contains student's grade, teacher's view and knowledge about students in the classroom. This portfolio can be defined a classroom portfolio.

Slater (1996) describes there types of portfolio as showcase, open-format and checklist portfolio. A showcase portfolio is a limited portfolio where a student is only allowed to present a few pieces of evidence to demonstrate mastery of learning objectives. In an open-format portfolio, students are allowed to submit anything they wish to be considered as evidence for mastery of a given list of learning objectives. A checklist portfolio is composed of a predetermined number of items. Often, a course syllabus will have a predetermined number of assignments for students to complete.

Melograno (2000, p.101), who made more detailed descriptions, defines nine types of portfolios. These types of portfolios are not exhaustive and can be used separately or in combination. These classifications are given below appropriately;

(a) Personal portfolio: For other students and teachers to form a more holistic view about students and to celebrate their interests, items may be included from within and outside school. The portfolio could contain pictures, awards, videos, or other memorabilia. The personal portfolio serves as a catalyst for self-reflection and sharing.

(b) Working portfolio: The ongoing, systematic collection of student work samples and exhibits can be maintained in a working portfolio. This collection of daily, weekly, monthly, or unit work products forms.

(c) Record-keeping portfolio: This type of portfolio is usually kept by teachers. It contains necessary assessment samples and records that may be required (e.g., written exams, proficiency tests). It could also include observational information (e.g., anecdotal notes, frequency index scales, narrative descriptors, behavior checklists) and progress reports that supplement traditional report cards.

(d) Group portfolio: Each member of a cooperative learning group contributes individual items along with group items (e.g., samples, pictures, community project) to demonstrate the effectiveness of the entire group.

(e) Thematic portfolio: This portfolio would relate to a unit of study with a particular focus, normally lasting from 2 to 6 weeks. For example, if a portfolio is constructed related to "Rational Numbers", "Force" unit, this portfolio could reflect cognitive and affective skills and their views about these units.

(f) Integrated portfolio: To view the whole student, works from all disciplines showing connections between or among subjects would be included. Selected items, either required or optional, could be drawn from several or all subjects. For example, this portfolio can be prepared in math and science courses.

(g) Showcase portfolio: A limited number of items are selected to exhibit growth over time and to serve a particular purpose. Usually, only the student's best works are included. For instance, in Vermont and Kentucky, at the beginning of the 1990 years, this type of portfolio was implemented for mathematics and writing in grades 4 and 8. In both states, portfolios are supposed to contain five to seven examples of the students' best work during the school year and scored are supposed to reflect optimum performance. Writing portfolio must contain work in number of pre-specified genres of writing. Mathematics portfolio based on collections of open-ended students responses to extended mathematics problems. Also, portfolios proposed to use in the new primary curriculum which was put into practice in 2004-2005 school years by Ministry of National Education in Turkey can be an example for the showcase portfolio.

(h) Electronic portfolio: Technological advances have made electronic portfolios. However, if they are simply software databases (storage for pictures, sound, or words) they are really no different from a hanging file or milk crate. Since current technology allows for the capture and storage of information in the form of text, graphics, sound, and video, students can save writing samples, solutions to mathematics problems, samples of art work, science projects and multimedia presentations in one coherent document (Lankes, 1995). Electronic portfolios offer many advantages such as to collect, and store, and manage the information electronically according to traditional portfolios. In recent years, because of the educational opportunities supported with the technological development, electronic portfolios are used much more. For instance, computer-based portfolios introduced by Baki and Birgin (2004) and Korkmaz and Kaptan (2005) in their studies can be shown as examples.

(i) Multiyear portfolio: Students would collect items from a cluster of grade levels over 2-, 3-, or 4-year intervals. The multiyear portfolio would be stored at the school. For example, this portfolio can be use to follow students' progress periodically during primary and secondary school and university education.

In sum, it is clear that different types of portfolios are described by researchers in terms of their purposes and contents. Besides the portfolios described above, it is possible to mention different types of portfolios. However, it is very difficult to make a clear distinction between these ones. On the other hand, the portfolios mentioned above can be used separately or different portfolios can be used together. So teachers should select proper ones and should apply them.

(6) Advantages Of Using Portfolio Assessment Methods

Portfolio can present a wide perspective of learning process for students and enables a continuous feedback for them (Adams, 1998). Besides this, it enables students to have a self assessment for their studies and learning, and to review their progress (De fina, 1992). Since it provides visual and dynamic proofs about students’ interests, their skills, strong sides, successes and development in a certain time period, portfolio which is the systematic collection of the student’s studies helps assessing students as a whole (Baki & Birgin, 2004). Portfolio is strong devices that help students to gain the important abilities such as self-assessment, critical thinking and monitoring one’s own learning (Asturias, 1994; Micklo, 1997). Furthermore, portfolio provide pre-service teacher assessing their own learning and growth, and help them become self-directed and reflective practitioners, and contribute them the individual and professional developments (Birgin, 2007; Mokhtari et al., 1996). Mullin (1998) stresses that portfolio provides teachers to have new perspective in education. For instance, portfolio can answer these questions: what kind of troubles do students have? Which activities are more effective or ineffective? What subjects are understood and not understood? How efficient is the teaching process?. On the other hand, portfolio assessment has many advantages comparing with standardized testing. It is shown in the Table 1 (De Fina, 1992, p. 39).

Table 1. *Comparing to Portfolio Assessment with Standardized Testing*

Portfolio Assessment	Standardized Testing
❖ occurs in the child’s natural environment	❖ is an unnatural event
❖ provides an opportunity for student to demonstrate his/her strengths as well as weaknesses	❖ provides a summary of child’s failures on certain tasks
❖ gives hands-on information to the teacher on the spot	❖ provides little diagnostic information
❖ allows the child, parent, teacher, staff to evaluate the child’s strengths and weakness	❖ provides ranking information
❖ is ongoing, providing multiple opportunities for observation and assessment	❖ is an one-time “snapshot” of a student’s abilities on a particular task
❖ assesses realistic and meaningful daily literacy tasks	❖ assesses artificial task, which may not be meaningful to the child
❖ invites the child to be reflective about his/her work and knowledge	❖ asks child to provide a singular desired response
❖ invites the parents to be reflective of child’s work and knowledge	❖ provide parents with essentially meaningless and often frightening numerical data
❖ encourages teacher-student conferencing	❖ forces teacher-administration conferencing
❖ informs instruction and curriculum; places child at center of the educational process	❖ reinforces idea that the curriculum is the center of the educational process

As shown in Table 1, portfolio assessment enables measuring high-level skills with meaningful and realistic activities for students instead of measuring low-level skills in a limited-time, using multi assessment methods instead of using only one measurement method, making assessment not sometimes but continuously, and determining the student’s weaknesses and strengths. Besides, it also encourages students to participate in

the assessment process actively and to make an affective communication with his teacher and parents. As portfolio assessment places student at the center of the teaching process, it enables students to direct teaching.

Portfolio assessment method also has many benefits for teacher, parents and students. Making use of portfolios affectively largely depends on using their purpose properly. Many of theoretical and empirical studies in the literature were reported superiority of portfolio assessment to traditional assessment tools in education (Asturias, 1994; Baki & Birgin, 2004; Barton & Collins, 1997; Birgin, 2003; Birgin, 2006a; De Fina, 1992; Gilman et al., 1995; Ersoy, 2006; Klenowski, 2000; Kuhs, 1994; Mullin, 1998; Norman, 1998; Sewell et al., 2002). Some of them are presented as follows.

- *Portfolio provides multiple ways of assessing students' learning over time*
- *It provides for a more realistic evaluation of academic content than pencil-and paper tests.*
- *It allows students, parent, teacher and staff to evaluate the students' strength and weakness.*
- *It provides multiple opportunities for observation and assessment*
- *It provides an opportunity for students to demonstrate his/her strengths as well as weakness.*
- *It encourages students to develop some abilities needed to become independent, self-directed learners*
- *It also helps parents see themselves as partners in the learning process.*
- *It allows students to express themselves in a comfortable way and to assess their own learning and growth as learners.*
- *It encourages students to think of creative ways to share what they are learning*
- *It increases support to students from their parents and enhances communication among teachers, students and parents.*
- *It encourage teachers to change their instructional practice and it is a powerful way to link curriculum and instruction with assessment*

In sum, portfolio assessment provides more authentic and valid assessment of students' achievement and comprehensive views of students' performances in contexts, and encourages students to develop independent and self-directed learners, and enhances communication among teacher, student and parents. It can provide opportunities for learners to demonstrate his/her weakness and strengths and for teachers to direct their teaching. It also can encourage students to take responsibility for their own learning, and enhance student-teacher communication. In addition, portfolio assessment has a potential to demonstrate students' learning process and leaning product over time. As a result, portfolio gives detailed information about students' development in learning process to teacher, parents and students themselves.

(7) Problems and Disadvantage of Portfolio Assessment Methods

Although using of portfolios has some advantages and benefits in education, it has some disadvantages and burdensome. Thus, when it is developed and used, these disadvantages and burdens should be considered. Beside the disadvantages and burdensome of portfolios, the precautions which should be taken for overcoming these disadvantages and burdens of portfolios are explained below.

Scoring a portfolio may be seen as less reliable or fair than multiple choices test scores (Cicmanec & Viecknicki, 1994). When the specific, clear, and measurable criteria

for each item are used in portfolios, the reliability of portfolios can increase. If the purpose and assessment criteria of portfolio are not clear, the portfolio can be just a miscellaneous collection of works that can't reflect students' growth or achievement accurately. Thus, the purpose and assessment criteria of portfolios should be explained detailed and clearly

Another disadvantage of using portfolio is very time consuming for teachers to score students' works and to assess students' performance over time in the crowded classroom (Birgin, 2006b). Therefore, it is suggested to use checklists, rubrics and digital portfolio form to reduce time for the assessment of it (Birgin, 2006b; De Fina, 1992; Lustig, 1996).

Like any other form of qualitative data, data from portfolio assessments can be difficult to analyze. To use checklists and observation lists can be facilitate to analyze process. If it is possible, designing the computer-based portfolio and electronic portfolios for students make easier to examine the portfolios and to give feedback to students (Birgin, 2003; Chen et al., 2000; Lankes, 1995).

When comparing students' performance and schools by considering the portfolio scores, the questions "whom did the study belong to?", "Did the student do this work with someone else or alone?" are sometimes discussed. This statement may cause anxiety about the validity and reliability of the portfolio assessment. There are many researches which support this finding (Herman & Winters, 1994; Geathart & Herman, 1995; Koretz et al., 1994). In this case, students' scores in portfolios may not show their real performance. To overcome this problem, students' performance should be followed by teachers continuously and they should be required to present their works

Developing portfolio assessment criteria, rubrics, and determining the works in portfolio can be difficult for teachers at first. Moreover, organizing and assessing the portfolio and giving feedback to students can be time consuming (Stecher, 1998). Therefore, both in-service and pre-service teachers should be informed about the portfolio assessment.

One of the problems of using portfolio is to store, to handle and to control the portfolios in the crowded classroom. Also, asking students to bring their portfolio materials to each class can be burdensome. To overcome this problem, electronic portfolios (e-portfolios) which easily stored, handled and controlled can be used (Baki et al., 2004; Chen et al., 2000).

Another problem of portfolio assessment is parental or community support for such a new and unfamiliar system of assessment. Most parents is accustomed to their child receiving a letter grade on a report card at the end of a designated grading period. Such a change could be difficult for parents to accept or adjust to without considerable effort to educate them as to the nature and advantages of the new system (Thomas et al., 2005). Therefore, parents initially should be made aware of what is going to transpire with the new assessment method at the beginning of the school year. Also, at least once a month, parents should be invited in to discuss and view their child's portfolio with the teacher. Parents should be an essential part of this assessment process, and include as equal partners and stakeholders.

Consequently, the most important disadvantage of portfolios is that its low reliability of scores. To overcome this problem, rubrics should be used in the assessments of the students' works. Moreover, portfolio assessment place new demands on teachers such as professional development time to learn portfolio, preparation time to create new materials and lessons, to produce and refine portfolio pieces. Teachers also need additional time for reviewing and commenting on students work. Such kinds of requirements force teachers to develop themselves in their fields. However, researches show that some teachers see portfolios as a worthwhile burden with tangible results in instruction and student motivation (Koretz et al., 1994; Stecher, 1998). This fact is very important in terms of the

application of portfolio. To cope with the possible limitations or disadvantages of portfolios, teachers who tend to use portfolios should be educated before, assisted and supported in the portfolio application process by experts.

RESULTS AND SUGGESTIONS

It is necessary to assess the students' performances as an individual or in a group during the learning process rather than assessment with traditional methods or multiple-choice methods. Portfolios are alternative assessment methods to observe students' developments and assess their performances during learning process. Moreover, portfolios are assessment tool based on contemporary learning approach such as constructivist learning theory, multiple-intelligences theory and brain-based learning theory

Portfolio assessment enables students to reflect their real performance, to show their weak and strong domain and to observe student's progress during the learning process, and encourages students to take responsibilities for their own learning. Since portfolio enable collecting information from different source such as students' parents, friends, teachers, and him self, it provides teachers to have reliable information about student. They are important tools for assessment of students' learning products and process. Different theoretical and applicable researches show that portfolio can be used both as learning and assessment tools (Birgin, 2007; Ersoy, 2006; Klenowski, 2000; Kuhs, 1994; Norman, 1998). Thus, portfolio has a potential which enables students to learn during assessment and to be assessed during learning (to assess for learning and to assess of learning). Therefore, it should be exactly applied in primary education for different courses such as Science and Technology, Mathematics, Social Science to observe the students' progress during the learning process and to provide the required assistance depending on their performances.

During the preparation of a portfolio, first of all, it is necessary to determine a purpose of the portfolio, to plan its items by covering the students' different skills and learning dimensions (cognitive, emotional, and psychomotor) and to explain its assessment criteria clearly. In addition, it should be considered that there are different extents which portfolio has a restricted usage. It should be use computer-based portfolio and electronic portfolio to decrease the problems such as carrying, reaching, and saving portfolios. Considering this situation, it decreases the burden in crowded classes in Turkey.

Effective use of the portfolio as a learning and assessment tools depends on the knowledgeable and experienced teachers who apply them on a large scale. However, some researches (Birgin, 2003; Çakan, 2004; Özsevgeç et al., 2004; Yiğit et al., 1998) emphasized that teachers don't have enough knowledge and experience about portfolio assessment methods and other alternative assessment methods. It is stated that teachers don't have sufficient information about portfolio assessment in the in-service seminars organized within the new primary education programs (Battal, 2006; Birgin & Tutak, 2006). Thus, it is very important to teach pre-service teachers about using an assessment tool of the portfolio which has a great potential in Turkish education system during their education and to introduce it for teachers with the help of in service courses. In this context, pre-service teachers, who will be the runners of the new education program and is a teacher of future, should have experiences about contemporary assessment methods such as portfolio during their education so they will be apply it theirs courses in future.

It should be sent to teachers the materials explained in details with examples for the portfolio assessment methods which are to be used in the new primary curriculum, and comprehensive in-service courses should be held supported with professional staff.

Ministry of National Education should serve an electronic online service through which teachers can make examine and share different materials and examples about portfolio

The school masters should arrange different occupational development activities with the new education program so that teachers can be master themselves in terms of professional development and be apply the contemporary methods in their courses and, should take some measures to encourage implementation of the new program. Besides, the school masters should inform parents and students during the process of applying portfolio and organize the meetings for parents regularly. In these meetings, parents should be well-informed about the portfolio assessment and importance of it for both teachers and students.

In sum, although portfolio is an important tool for the assessment of the students' performance, it is not intensity cure for removing the measurement and assessment problems in Turkish education system. So it is not completely true to leave the traditional assessment methods aside, and accepts the new assessment ones. Besides using portfolio assessment method, using the other assessment methods will enable more reliable information about students. As a result, it should not be forgotten that using both alternative and traditional assessment methods in proper time may be very useful

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