



## THE OPINIONS OF ELEMENTARY 6. CLASS STUDENTS CORRESPONDING TO THE EFFECTIVENESS AND UTILIZATION OF ALTERNATIVE MEASUREMENT AND EVALUATION APPROACHES USED IN SCIENCE AND TECHNOLOGY LESSONS: SCIENCE NOTEBOOKS APPLICATION

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### Abstract

This research is a case study performance which aims getting the opinions of 23 individual 6. class students who joins a three-week application process corresponding to a model improved and applied by the researchers which includes the utilization and effectiveness of alternative measurement and evaluation approaches and analysis of that opinions. Through the improved model; in this performance, it is tried to determine the opinions of the students corresponding to the effectiveness and utilization of evaluation techniques which are applied in science and technology lessons excluding examinations. At the same time, within the framework of the activities done; students realized the effects of developing a studying schedule on the providence of processing their studies in a determined plan. It is tried to determine the opinions of the students who are presented the multiple evaluation opportunities according to the constructive approach within the framework of the process which includes the usage of the science notebooks which is planned within the context of sound subject prepared in three weeks by the researchers which also includes the usage of activity rubrics, peer assessment, self assessment, performance assessment forms. In the research; observation, meeting and document analysis which are qualitative data collection tools are used in the determination of the opinions of the students tending to this three-week application process. In the process; the usage of science notebooks provides the students to improve their creative, critical, reflective thinking skills. In the process in which the opinions of the students are taken in the assessment; it is observed that students are got to be more willing for the lessons, self-confidence of the students are

developed by this condition. This condition proves that; alternative assessment provides to have decisions in learning process.

*Keywords:* science and technology lesson, alternative measurement and assessment, science notebooks.

## INTRODUCTION

The change fact which occurs in education includes; scientific developments, technological developments, social changes, reorganization and habituation of knowledge. By that reason; social expectations are changed besides individual missions in information community and individual's specifications. Community expects from individuals having the skills; learned to learn, lasting learning, creative, knowing all the processes of the work, tended to team work, not afraid of making mistakes, flexibility. All of these expectations brings the changes; getting away from traditional education and it is aimed to make learning more effective. By that reason; in science and technology lesson, too, as a learning-teaching approach, constructive approach is used which involves students to join actively, student centered, prediction of doing-experiencing-thinking learning.

In constructive learning theory; assessment saves a far cry measurement-assessment techniques from traditional assessments. It is known that traditional assessment includes standard-structure tests, fillings-in-the-blanks, open-end or short answered questions applied by the teacher. In traditional apprehension; it is absolutely seen that teacher is in the center of assessment (Martin, 1997).

The goal of assessment is the elimination and development of deficiencies in education schedules, elimination of learning deficiencies of the students and providing life-long learning. Formative assessment is the assessment model which is designed to increase learning and teaching. In learning and teaching process, in the classroom, is the determination and elimination of learning deficiencies of students to increase learnings and understandings. (Cowie, Bell, 1999). In this performance; the opinions of the students are tried to be determined about the effectiveness and utilization of alternative measurement and assessment approaches which is improved by applying the three-week model improved in the context of 6. class light and sound topic by using alternative measurement and assessment techniques.

The science notebooks which are constructed during the process as a model portfolio includes self assessment, performance assessment forms, rubrics that will be used after the activities. It is tried to be determined that; how the students are affected by the process in which alternative measurement and assessment is used, the opinions of the students in the framework of the utilization of these approaches are tried to be found out. In the process; the opinions of the students about the utilization of these approaches are constructed by themselves individually. By that reason; understanding the visions of the students who joined the process became valuable in the performance.

The goal of this case study, is to investigate the opinions of 23 individual 6. class students about the utilization and effectiveness of a model that involves alternative measurement and assessment approaches which is improved and applied by the researchers.

## METHOD

### *Participants*

The research is done in the framework of a three week model which is planned to be applied by using alternative measurement and assessment approaches as a context of sound subject of light and sound chapter by the 23 individual 6. class students who are in Yenice Elementary School 6/B class in Haymana region during 2009-2010 education term.

### *Instrument*

In the three week application process; focus group meetings are done with the six students selected to be observed , science notebook are used as documents in the research. Besides observation and meeting documents, notebooks are used in the construction of themes while coding. Group performances, registration to the process in which performance activities and science notebook utilization and alternative assessment are applied, roles in the process, responsibilities, providences for constructing the process and opinion-offers about the process of the students are all described with the observations done. Various data resources are used to provide validity and dependability of the research. In the research; three week application process, roles and responsibilities of students and teachers, specifications of learning media, are determined as specified before, besides sampling selection, meeting and observation protocol are realized as specified. In the research; the datas collected from focus group meetings are coded by another researcher and collected datas are compared. While the notebooks that are developed in the process are analyzed, registrations of students to activities, apprehension levels , in which way the notebooks are used, the codes tending to assessments about the process are developed. During investigating the answers of the students; it is examined which skills are improved effectively. In the observation of the process; registration of students to performance activities , their roles and responsibilities in the group works , their utilities to the process which is improved by usage of science notebooks , their answers to critical thinking questions are focused on and codes are deveopled.

### *Data Analysis*

In the research; tending to this three week application process, observation, meeting and document analysis are used which are qualitative data collection tools to determine the opinions of the students. Application and analysis of these techniques are realized by the researchers. While

percentages and frequencies in the group assessment forms are determined , all the assessments of the students are taken into account.

## FINDINGS

Through the model in the research; opinions of students are tried to be determined related to the effectiveness and utilization of assessment techniques excluding examinations in science and technology lessons in the performance. Student opinions are tried to be found out by the participation of them to the assessment process. Besides showing vital details; appearing opinions of the students about the process who joined to the process, provides those approaches to be used more effectively. Since science notebooks are developed during the process ;while collecting data , firstly data collected from the observation are studied by. While the observation; usage of science notebooks, roles and responsibility of students in the group studies , their registration to the performance and activities are focused on and these topics are determined as themes. At the final of the process; when the opinions of the students are taken about the process , assessment utilities except exams , participations felt about having decisions in learning and taking opinions of students in the assessment are added into themes. In the examination done in the end of the process; the data codes obtained related to science notebooks are examined in the context of usage of science notebooks theme. During the process; science notebooks are constructed that might be a vital guide on following the improvements of students while the three week application. It is seen that ; usage of science notebooks drives the students to make expressions with their own sentences. Students used their own sentences continuously to answer the controversy questions asked during the process about relating with the daily life. Also students related with the daily life using science notebooks. In the process; student's relating with the pre informations by the questions asked to students is observed. For instance; students likened reflection of sound with reflection of light and associations with pre informations are constructed. During the activities applied in the process; step by step feedback is provided to students. After every activity; suitable duration is given and then learnings are checked out with the controversies. At the same time; in this process, opinions, utilities and offers are taken and then construction of other activities is supplied. Feedback supplyance process to students is vital for the control of task focused studies in construction. By that reason; studies are checked out after every activity. In the meetings done with the students, when how usage of science notebooks utilizes them, mostly they brought out providence of self-confidence. Science notebooks are useful at improving problem solving skills of students, providing creative and critical thinking. It is desired students to present a solution offer for solving the matter in a theatre room in which sound reflects strongly back. While students solve the matter, both problem solving skills are improved and creative and critical hinking skills

are used. A student expressed opinion for the solution of the matter using creative thinking skill in such a way that:

*'In the theatre room; sound is reflected since there are a few and hard things, sounds are mixed by crashing to each other, could not be absorbed. Soft and ragged materials should be put into the room. For example; curtain, armchair, painting and so on. Painting constructed by linen shows the room beautiful aesthetically, too.'*(K2)

It is desired from the students to make assessments using group assessment forms while determining the roles and responsibilities of students in group studies. When the average values calculated according to the points given to the materials with respect to given answers are investigated, we see that (frequently(4)/always(5)); the students are: conscious of works of their teammates, task distribution is equal between them, every group member completes his responsibility, group members are respectful to ideas of each other and harmonic with each other, respectful and tolerable, evaluating their studies with team members, group members studies synchronously and decides together. In the construction of performances and activities applied in the process, too, opinions and utilities of students are important, as in the construction of other components of the process. Activities are improved according to the answers given by the students to controversy questions. In these activities; it has been important skills that; making observation, prediction, comparison of students, recording the observation results. When the students are asked about performance activities and utilities of evaluation of these activities; they mentioned that; it is useful about remembering the subject and providing visual learning. Students' opinions are tried to be taken about alternative measurement and assessment approaches in the context of how the assessment activities are useful utilized during the whole process. Students said that; these assessments provides to understand the subject better, remembering better, seeing their mistakes and missings, revision. During the process; students had opportunity about self assessment, group assessment, assessment of done activities in the evaluations completed. In the process; effective registration of students has been vital. In the assessment; students opinions are taken and process is constructed in the framework of their utilities. This condition proves, how important the goal of having decision in learning of alternative assessment is, in becoming willing for lesson. Students said also taking their opinions in the assessment process provides self confidence, and interest to lesson during the meeting

## DISCUSSION

In this study; in the process in which alternative measurement and assessment approaches of students are used, they are asked for opinions about usage of science notebooks, group studies, performances and activities, assessments except examinations. Registration of students to the assessment process is vital in alternative assessment. Tending to usage and effectiveness of these

approaches, taking the opinions on construction of process to the goal in a more suitable way. The mentions of students' opinions about this process, who joined the process, provides these approaches to be used more effectively and helps to show vital details. In the process; usage of science notebooks helps creative, critical, reflective thinking skills of students to be improved. Students had no matter in using the notebooks. However; an important topic to be taken in mind is; it is needed to give enough thinking time to construct their own sentences to students. Teachers should take this into account while doing the application. The activities constructed in this process involves controversy questions about daily life which tends students to interpret. In the process; pre informations of students should be checked out and making relations between concepts should be provided. Another part of alternative assessment and this process is evaluating roles and responsibilities of students in group studies. During these studies; students have been responsible of learning of each other and have evaluated each other. We can say that; students; are conscious of studies of teammates, equal task distribution of teammates, every group member completes his responsibilities, team members are respectful ,easygoing and tolearable to each other's ideas, evaluates their studies together their team members, works efficiently with team members and decides together during group studies. In the context of these specifications; group studies supports efficient conditions. Teacher should provide all the students to join these activities during these studies. Because students said they were against of teammates who did not join group studies. Students presented a proposal which shows the parts to be corrected by showing the assessment forms to each other. It must be taken into account that; performance and activities should be tended to improve scientific process skills of students in the process. Activities should be improved by the answers of students to discussion questions. Here, registration of students to the process is vital. In the process in which students opinions are taken in the assessment, it is observed that ; this condition makes students more willig to lesson, provides self confidence. This condition proves the result that; alternative assessment provides having decision in learning. How assessment activities used during the whole process is useful for students is focused on and their opinions are taken about usage of alternative measurement and assessment approaches. These assessments provides; students to understand, remembering the subject better, see their mistakes and missings, revising. The goal of the assessment is to eliminate, improve missings and provide lifelong learning. Therefore; by the assessments done during the process and registration of students to assessment process, it is possible to get these goals more effectively.

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