

STIMULATING GROWTH BY USING TEACHING AIDS AND RESOURCES

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Abstract

In this paper, I explained my observations and impressions about teaching aids and resources in OBO mathematics classes. I looked for the answer of what kind of classroom environment helps learning and focused on some points such as *symbolic identification*, *task instrumentality*, and *stimulating growth*. I noticed that they were relevant with the effects of resources and materials on learning. I noted these teaching aids and resources and expressed my own ideas on the issue.

Key Words: teaching aids and resources in mathematics classes, stimulating growth, teacher's archive.

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Introduction

The purpose of this article was to express my observations of teaching aids and resources in OBO at mathematics department. It involves a general impression of mathematics classrooms in OBO from my point of view. Until now, I observed the 6th and 7th grade mathematics classrooms in OBO. Recently, I have observed the 5th grade mathematics classroom with the teacher Ms. Zerrin Toker. I noted the materials and resources and how they were used by teachers and students during the mathematics classes.

What Are the Effects of Teaching Aids and Resources on Learning?

In all classrooms that I observed, I looked for an answer to this question: What kind of classroom environment helps learning? Of course, functions of the classroom setting could be classified under the small headings such as *security and shelter*, *social contact*, *symbolic identification*, *task instrumentality*, *providing pleasure* and *stimulating growth*. But I wanted to focus on the effects of teaching aids and materials during students' learning period. I noticed that *symbolic identification*, *task instrumentality*, and *stimulating growth* are relevant to what I looked for.

So, I had a glance of all the classrooms when I first entered in these classrooms. There was a board which included students' works; projects about some popular mathematics topics such as *golden ratio*, *Fibonacci numbers*; articles with such issues *Why Mathematics?*, *Mathematics in Real World*, and so on. It was an example of symbolic identification about students. One thing that I observed in 5th grade mathematics classroom was really nice. There were group work papers on almost all walls of the classroom. And very pleasantly, the groups had studied on their solutions by considering Polya's problem solving steps.

Task instrumentality is relevant with a supportive learning environment, too. In the 5th grade mathematics classroom, students knew where things belong. They had their own working

files at the back part of the classroom. Frequently used materials were accessible for all students. There were two cupboards which were on the right part of the class, against the wall. There were some supplementary textbooks and workbooks such as *Seviye Belirleme Sınavına Hazırlık (5.Sınıf)*, *Benim Matematik Kitabım*, *Okulda*, *Evde*, *Tatilde Matematik*, *5. Sınıf Matematik Konu Anlatımlı Soru Dünyası*. In the other cupboard, there were some reading books such as *Kraliçeyi Kurtarmak*, *Göz Göre Göre Görsel Zekâ* which were the lesson materials at the same time and all students had them already. Additionally there were some booklets and brochures about *origami* and *krigami*, science journals such as *Bilim Çocuk*. Except these, there was a list of materials on the door. It was such a recall about which materials must be with the students during the classes.

A variety of teaching aids and resources helps stimulating growth. As I mentioned above, there were many different books, science journals, dictionary, booklets etc. in the cupboards for students' use. Additionally it was very nice to meet a large table with some works about origami and krigami in front of the 5th grade mathematics classroom. Except these, I observed some instructional materials such as colorful cards which it was written about Polya's problem solving approaches on them. For example it was written *draw a picture/diagram*, *look for a pattern*, *solve a simpler problem* etc. on these cards. And there was a *model of problem solving cycle* which placed at the right corner of the board.

One other important thing that I observed in 5th grade mathematics classroom was that there were monthly calendars on the walls from September to January. But they were not ordinary calendars. It was written the objectives and planning of the units/topics on these calendars! It was very nice since the teacher made provisions in the schedule to allow students to look at, select and use invitational materials.

All classrooms that I observed in OBO had some visual aids such as a projection and sound system. Teachers had their own laptops in their cupboards. These laptops were accessible just for teachers, not for students. But during teaching practice period, they were also available for trainee-teachers. There were not computers and software for students to use in the class. However it is being used a moodle system in the school and it was encouraged to use some office programs such as Word and Excel thanks to some homework/projects etc. which are needed to upload on moodle.

Personal archives are other effective resources for teaching. When I asked about them to my mentor, Ms. Toker, she was very excited and opened a part of her personal archive for me. There were a range of interesting and entertaining books which were designed for primary and middle school students such as *Eğlenceli Bilim*, *Meraklı Minik*, *Bir Sayı Düşün*, *Kıvrak Zekâ 1*, *Süper Zekâ 1*, *Eğlenceli Sözel Mantık*, *Çıldıratan Sayılar*, *Maceralı Matematik*, *Bilinçli Tüketiyorum*, *Piramitleri Kim İnşa Etti*. Ms. Toker told me that she liked to spend time in the school library, METU and Bilkent Libraries, other libraries and bookstores. It helped her to follow the publications and catch the new ones.

When I asked Ms. Toker about her materials and resources, she said the point of origin was her own mind. Ms. Toker explained it with these words: “First, I decide on my own needs which are necessary for my classes. Then I look for them; search it on web, in my previous lesson plans/notes/files, in my books/resources. After gathering them together in my mind, it becomes easier to select/combine the appropriate one(s) for me”. Here are the some books and web pages that Ms. Toker frequently utilized from: *Elementary and middle school mathematics: Teaching Developmentally (Van de Walle)*, *İlköğretimde Karşılaşılan Matematiksel Zorluklar ve Çözüm Önerileri (Erhan Bingölbali)*, *Koza Yayınları Öğretmen Kılavuz Kitabı*, *Problem Çözme (Gündüz Eğitim ve Yayıncılık)*, *NCTM Journals*, <http://illuminations.nctm.org/>,

<http://www.vitaminegitim.com/>, <http://www.morpakampus.com/>,
<http://www.mathmaterials.gen.tr/>, <http://www.shodor.org/>, <http://mrssmoke.onsugar.com/Free-Worksheet-Generators---Printable-Interactive-2771769>, <http://www.teachertube.com/> and
<http://www.inspiration.com/Kidspiration>.

There were different resources that Ms. Toker utilized from. She said “Sometimes I use some actual news/videos, current/popular events, ads as a lesson material”. She told that for example she adjusted an ad as an engagement of the class. The other thing is that Ms. Toker utilized from TIMSS, PISA, and DPYB questions. Sometimes she adjusted them as an activity in her classes. By the way, Ms. Toker uses some software such as GSP (Geometer’sSketchPad) and GeoGebra as a teaching aid.

Conclusion

The purpose of this article was to express my observations about teaching materials and resources in OBO mathematics classrooms. I learned a variety of teaching aids and resources helps stimulating growth and provides a supportive learning environment for teaching/learning. It is also necessary to begin to build up on my own archive. I looked through these resources (especially webpages) and their uses and I think it is a good starting point for my future teaching profession.

"A Bilkent student does not lie, cheat, or steal or tolerate those who do. On my honor, as a Bilkent student, I have neither given nor received unauthorized aid on this academic work."

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