So the information is quite old obviosusly, still these are the facts that I will be talking about. The purpose of this paper was to report different findings on virtual reality and to evaluate it effects on education.

These days education can seem quit stale and boring, genal methods of learning havent really changed. This is where Vr techonolgy could come in. The main benefit of Vr is the ability to vizualize abstract concepts, to observe events at atomic or planetary scales, to visit diferent enviroments, that are unreachable in reality. And so it is said, that students are more incline to obtain knoladge by activaly involving them selfs in it.

It is important to mention, that in this paper Till 1998 an estimated twenty or more public schools and colleges, and many more have been involved in evaluation or research efforts. I chose this sourse because there is a lot of information. The first practical use of an educational VR application that has been identified occurred in 1993. People who did evaluations where researchers and teachers.So they did most of the work.

There are three types of virtual worlds and aplications prie-developed, student developed, and multiuser, but since multi user aplications are not that important and less information where presented about them, that is why i wont be going deeper in them. Over forty efforts in this category where reported. And this number is the langest compared to other two. Nearly three-quarters of the applications are immersive, giving students either a head-mounted display (HMD) or cave display to visually immerse a user in the virtual world. Bcause these aplications where predeveloped no other development was needed from students, that is probably why there was no collaboration between students.

Almost half as many efferots whre reported in this category compared tto pre-developed aplications. These efforts are equally slipr between desktop or imersive use of Vr sistems. And most of the world where developed by students working in groups., becouse it is a lot harders for one student to create a virtual world.

So what generaly has been found of Vr technology is that the use of both pre-developed Vr aplications and student developed virtual worlds and aplications were educationaly efective. Students found enjoynment in the use of Vr technology, it motivated them highly to keep workin with them, some of the students for example where bad at sertain subjects in their school but after trying vr technology they gladly participated in their lesons. Also it is interesting that teachers reported their role in classrooms changing, they were more of a facilitators than teachers, becouse Vr technology was stillk quite new to them and students were able to do most of the work them selfs. And also because of the high cost of Vr technology it is mote suitable to use desktop Vr instead of immersive Vr technology.

It is important to understand that this paper evaluated only one-time uses of virtaul worlds and it is only speculation what Vr technology could do in along term use. And that the exisisting data does suggest that this technology could bring positive support for education, it indicates potential value. That is why meny more reports need to be done on this technology, to ensure the value of it.

There are two types of ways to learn sertain information. The traditional way of listening to teachers, memorising presteded information. The other way is of construtivist learning. Constuctivist phylosophy says that students are better at learning, memorizing and optaining knoledge, when they are acively participating in constucting their knowledge – it is the way of learning-by-doing instead of teachning by teling. Constuctivist say thatt studentts are to restricted in the ways that they are tough, that the rules are to excesive. Students should be alowed to constuct their own knloledge by finding their own ways of lerning. The ares in witch students are thought are allso important, for exaplde classrooms are to restrictive and other aryes should be explored. This obviasly indicates constructivist suport of Vr technology. Vr technology opens the posibilitys of students to explore subatomic levels, space and diferent planets. There are almost no boundries.

This ration could be a great expretion to why I wont be talking about multiuser worlds, because there is to little information about them.

So I will be ginving cople of examples of these created virtual worlds. Fistly, student use of pre-developed virtual worlds examples. In the first picture as you can see a student is using HMD – headmounted display and two remotes. One of the remotes alows a student to open up a menu and the other to naviage it. By using the menu a student can select diferent option for manipulation of given 3d representations. This projets goal was to determin if students cound construct accurate models of abstarc sience concepts. The other project was Vari House – in witch two linked virtual worlds show the Vari site as excavated and the other Vari house as reconstructed. Students are guided in the virtual world by answering different questions that help dvelop critical thinking skills. So the main purpose of this project was to see if students could develop critical thinking by navigating a virtual world.

This is a table of different pre-developed aplications, and it is only one of 11 tables that were presented it the analysis paper that I have read. So I wont be showing all of them but to give you general idia of how it looked in the paper itself. The developed is written in the werry left corner, than the name of these aplications, their descriptions, learning objectives, intended audience – students and other types of users, for example students with disabilityes, displays, usages, organizations and release dates. For example there is a virtual Egyptian Temple, that provides a walkthrough of an Egyptian temple. It helps students to better understtand Greek culture. It was given to middle schollers, they used dekstops. So the whole Vr experientces where not to imersive.

To your right you can see a picture of pre-developed virtual worlds and aplications used in many diferent eduactional subjects. And to the left there are two pictures of pedagogical suport for users of these aplications. The top picture shows aplications that gave no pedagogical suport, besicly no hand holding, these virtual world where basic walkthroughs and provided minimal interaction for users. The bottom picture shows apliocations that gave pedagogical suport with more abilities to interact with the world itself.

Now I would like to talk more about student development of virtual worlds and give some examples. First example if of Unit on Antarctica - four students were tasked to design a permanent Antarctica base, large enough for two people. This task developed studenst critical thinking skills. And reserchers concluded that the development of critical thinking ocured, but this project of designing Antarctica base could have been done on a paper, a virtual aplication was not that nesesary. However it was esyer to corects mistakes that were made in the aplication instead of paper for exampole. And so this is only one of 20 other examples presended in that paper.

Completed evaluations where also presented in tables. To the left right corner you can see an organization performing the evaluation, then the Vr aplication, world, purpose of the evaluation, its description and major findings.

In conclusion, todays educational system is trying to find new ways of teaching students. Instead of memorizing facts, more emphasis should be placed on the higher-level thinking skills. Even though the analysis paper that I have read does not conclude that vr technology is somehow superior to traditional ways of learning. In my opinion Vr technology should be inmpalmented in many more classrooms, so that the lesons would become more interaasting and engaging. And obviously vr technology is still maturing and the cost of it is till quit high.