

What is Tactual Resources?

Tactual Resources include methods, learning aids and strategies to learn, when the hands are active. They are also called “hands-on-learning”. There are many old reliable tactual resources such as Cards, Electro Boards, Puzzles, Table Games and Wrap-ups. The hands must be involved in the learning activity in order to improve learning - concerning short- and long-range memory, attitudes towards the subject and behaviour. There is convincing evidence within research that these resources are favourable for many students (see above). Many researcher claims that the human potential is immense and the wish to succeed and develop are great. To increase learning an optimal environment, and to let student use their individual strengths is necessary.

Why Tactual Resources?

For people not acquainted with the Learning Style Theory it is important to bring order into why tactual resources are needed and what tactual learning is. Let us start from the beginning: The Dunn & Dunn Learning Style Model consists of four perceptual strengths: the visual, the auditory, the tactual and the kinesthetic. Students who do well in school prefer to learn with their eyes (visual) or by hearing (auditory). This is however only a smaller part of the students. Many of them learn best tactual (with their hands involved) or kinesthetic (with the whole body involved). This is a huge challenge for all pedagogues and leaders because there is a great need for resources for those who don't learn best through lectures, to listen and talk or from books. These teaching strategies are not adapted to some learning style characteristics and therefore it is likely that the students will learn less, or not at all. Teaching should be adapted to the students' way of learning.

People who are tactual learn new and difficult information best when they can touch and manipulate objects. To have a strong tactual preference means that you need tactual stimulation while learning. The traditional way of teaching “all the same way” is therefore both unfair and immoral. It places some children in learning difficulties which may cause low motivation, frustration and lack of self esteem.

Characteristic for a tactual person is that he/she fiddles about with objects. This might be irritating to a person who is *not* tactual. I have personified the tactual type in my books as Tactual Tom¹. Below you can see a picture which illustrates his typical behaviour. Via his hands he confirms his learning. Many tactual individuals like subjects as handicraft, woodwork, computer science, drawing and home economics etc in which they are supposed to use there hands.

Many of our children (kindergarten – elementary) have strong tactual preference, approximately 50 %². Many students will not become visual until 9-10 years old or auditory until 12-13 years old. Some boys will not be either visual or auditory in high school. You find the same trend for adults. 30 % of the adult population have strong tactual preference.



Figure 1. Tom, the tactile

1 I use masculine form since research shows that more boys than girls are tactual.

2 I write *approximately* because it is difficult to give an exact number since there is different ways of measuring learning styles preferences.

Who needs Tactual Resources?

Mostly people with tactual preferences will be helped by tactual resources. They learn quicker and more effectively with them. It is also more favourable for those who meet the new information via their strongest perceptual modality (other than the tactual) to reinforce tactual (strengthen the long time memory). It must be emphasized again that many people in a class or group, children as well as adults, are tactual.

Research has shown that students with learning or behaviour problems have strong tactual and kinesthetic preferences and therefore are especially helped by these resources.

When shall you use tactual resources?

Tactual resources shall be used first of all in order to learn new and difficult information, in other words, basic facts or foundation about a theme/area/subject. They might also be used for reinforcement and deeper studies, but then the questions should be made in relation to that.

How do you use Tactual Resources?

There are many ways to use these resources. Usually the teacher himself creates them. In some cases you will find fixed resources, for example Pic-a-Holes or Table Games in maths and biology. One good idea is to let the student create their one – then their learning will be reinforced. Another example is to let a team of teachers create one theme, and then let the rest of the school take part of that. This could be done in schools, between schools and areas of schools. A piece of advice is to create a “learning-styles-room” on the school's intranet.

With the help of what can you create Tactual Resources?

Earlier teachers have been forced to measure, cut and paste these resources and tools. Teachers with computer technology knowledge have created patterns on the computer (for example the Loop) but they have been forced to do it over and over again for every different subject.

For the first time in the history of learning styles there is possible to get 13 different tactual resources out of one single input of question – answers when using LESYRE. With the help of this software program you create pdf-files containing complete resources, which easily can be shared among colleagues and schools. You don't need to measure, create new patterns or create them manually. The software LESYRE does the job.

Research about tactual resources!

In the international research about learning styles there are some studies in which you find the result of using tactual resources in different subjects, concerning short-time and long-time memory, attitudes and behaviour for students in different ages. Research also shows different types of methods in order to discover the potential of these.

Since the beginning of 1970 there are studies made on tactual resources (Dunn & Dunn 1972, 1978, 1992, 1993, 1999). They are all based on question cards (question & answer) with the question on one side of the card and the answer on the other. The alternative could be two- or three-step puzzles. The cards often contain pictures, colours and symbols in order to emphasize its information. These question & answer can be used as easily as a Flip Chut, Electro Board as a Pic-a-Hole. They are used to learn new and difficult information, for example the multiplication table or spelling, but have also been used to more complex information. The resources must be self corrective; the students must be able to use them without asking the teacher for the correct answer.

There is a wide research on these resources on primary, elementary and secondary schools, but also on adults (Dunn & Dunn, 1999). A special branch of the theory of learning styles is reading styles with Marie Carbo as front figure (www.nrsi.com). There are many studies about tactual resources for learning to read.

The best places to read about research about tactual resources are in the manual *Synthesis of the Dunn and Dunn Learning Styles Model: Who, what, when, where and so what?* and on www.learningstyles.net (bibliography).

Below you find some examples of the international research on tactual (and kinaesthetic) resources.

Tabell 1. Selected research on tactual and kinesthetic resources.

RESEARCHER, DATE	SAMPLE	SUBJECT	OUTCOME
Bauer, 1995	Junior High School	Mathematics	Students Achieved Best with T/K Resources
Fine, 2001	Special Education High School	Science	Significantly higher Achievements with T/K Resources
Michell, 1999	LD, Junior High School	Literature/ grammar	Greatest improvement with T/K resources
Michell, Dunn et.al., 2003	LD, Junior High School	Writing	Significantly higher grades with T/K resources
O'Connell MacManus, 2000	10 th Graders	Science	Significant Achievements Gains with T/K resources
Boström, 2004	Upper high school, Adults	Swedish Grammar	Significant Achievements, Retention, Attitudes and Comprehension with Instructional methods for T/K students

Referenser:

- Boström, L. (2004): *Lärande & Metod. Lärstilsanpassad undervisning jämfört med traditionell undervisning i svensk grammatik*. (Avhandling för doktorsexamen, Högskolan för lärande & kommunikation, Jönköping & Helsingfors Universitet).
- Dunn, R. & Griggs, K. (1972). *Practical approaches to individualizing instructional programs: Contracts and other effective teaching strategies*. Nyack, NY: Parker Publishing Company, Division of Prentice-Hall
- Dunn, R. & Griggs, K. (1975). *Educator's Self Training Guide to individualizing instructional programs*: Nyack, NY: Parker Publishing Company, Division of Prentice-Hall
- Dunn, R. & Dunn, K. (1992). *Teaching Secondary Students Through their Individual Learning Style*. Boston: Allyn & Bacon.
- Dunn, R. & Dunn, K. (1999b). *The complete guide to the Learning Style in Service System*. Boston: Allyn & Bacon.
- Dunn, R., & Griggs, S.A. (2007). *Synthesis of the Dunn and Dunn Learning Style model: Who, what, when, where, and so what?* NY: St. John's University, Center for the Study of Learning and Teaching Styles.

www.larstilscenter.se

www.learningstyle.com

www.nrsi.com