

# Learning Theory: Substantiating the Storyline Approach to Teaching

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Expectations of schooling

**A**n important issue in modern times is our belief that we, through education, can improve society. This way we achieve better production, create active citizens and improve the quality of life. The school is the institution we think of as having a major part of the responsibility for young people learning to participate in business life and in further education. The school is expected to teach children certain skills and knowledge before they leave it. In Denmark, and probably in most countries, we add something to this, aiming at e.g. reflective, democratic and social citizens. The result is called in Danish 'dannelse' – Bildung in German. In English, the authors Soltis and Fenstermacher (1998) express this by talking about becoming an 'EP' (educated person).

How people obtain new knowledge and new understanding is forever a subject for reflection and research. Also the way in which we design education is a constant matter for discussion. There has probably never been a time when society was satisfied with their schools, or with their way of teaching. It is easy to find examples of ruthless criticism of schools, though several studies, quite surprisingly, show general satisfaction among parents with the schooling of their own children.

It can be hard to understand why even the wisest people are not able to agree on what the ideal school is, or what good teaching is. The reason for this is that there are a great many aspects to learning and teaching, and few of these have absolute scientific or objective solutions.

Philosophers can agree, however, that an important aspect of education is the way pupils learn something new – the process by which a person

obtains new knowledge, new skills or new understanding.

How learning occurs cannot, of course, be answered seriously in this short article, and there will forever be new and different answers by different writers, both by people working in the educational system and by those outside, parents, politicians and philosophers.

In this paper I shall concentrate on providing some answers for two of the questions:

**How do we learn?**

**What types of learning processes are there?**

I shall also try to place the concept of learning that underpins the Storyline approach in an historical context.

## Discussion of how learning takes place

### **The classic discussion in the first half of the 20th Century**

As long as children learned what was necessary by looking at and copying their parents (and later through apprenticeship), there was no reason to discuss either teaching or learning. This approach worked, and consequently there was little questioning of its effectiveness. When you needed to know something new, someone told you, and you had to remember it. When you needed new skills, someone showed you, and you had to practise it until you performed well enough. Academic knowledge was only for the privileged and those who were able to apply it.

This in many ways seemed reasonable and appropriate, and it is still the methodology employed currently in apprenticeship learning and, in its modern version, situated learning.

### **Apprenticeship and situated learning**

These close relations, where the learning process based on being together with the master so as to watch his ways and listen to his instructions along the way, are regarded by many as ideal. In modern educational research this manner is well described by Jean Lave (1991). When she describes

situated learning, she emphasises that the learning takes place in the actual practice. Her studies help us to understand that there is a direct connection between the learners being in a situation and learning taking place. Even though you tell the apprentice to practise only limited parts of the production process at the start of learning, it will eventually be possible for him or her to do the entire process alone. This understanding of the entire production gives meaning when occupied with only part of a process.

This understanding of a learning process is highly respectable, and has a major role in modern learning philosophy. In many ways it resembles the contextual learning embodied in the Storyline approach, but the use of key questions in Storyline, asking the pupils for new solutions, counters the critics of situated learning approach by ensuring that the lack of awareness of what is being taught might leave the apprentices copying without reflection on what they are learning, and thus preventing further innovation and creativity.

### **Learning through teaching**

The development of society, especially industrialisation and urbanisation, created, on the one hand a need for learning in a more abstract way, and, on the other, a need that almost everybody acquired certain basic skills and knowledge.

The problems were increased by the development of a society demanding that all of its members have certain competencies. It was not only useful to be able to read, write,

and do some maths, but also to know something about history and culture. The need for education was due to the fact that society had less and less room for people without these competencies, which led to a necessary discussion about how teaching in school implements all of these demands. This is why the discussion about how you actually implement schooling was getting very heated around 1900.

### **Learning through activity**

By the end of the 18th Century, psychological thinking became a scientific discipline using modern scientific methods to attempt to change society. Essential thinking aimed towards more effective ways of teaching in general, but also ways of teaching pupils with special needs and abilities. It

is, of course, not a coincidence that this happened as society developed the need for workers with special skills.

From the traditional belief that children learn from what the teacher shows and says and the pupil then tries it out until it is learned, the view of teaching and learning changed. First of all it was stated that learner activity was essential.

This, in fact, was nothing new. One of the first to express this idea, among those whom we know of, was Comenius (1592-1679). In his understanding of educational practice he used the concept of *autopraxi* (self activity). He explained that 'pupils have to investigate things. They must continuously look for experience, and then discuss the matters based upon their own interest and own initiative...' (Fatum, 1967, p 130).

One hundred years later in the period of enlightenment, Rousseau (1712-1778) underlined the importance of personal experience. With his seminal work about the young Emile (Rousseau, 1762), he completely turned the understanding of the child upside down. Childhood was afforded its own value, and he told us to be very caring about the learning of the child via the interplay with free life out there in nature, where children get their own impressions by using all their senses while gaining experience. Rousseau stressed that experience comes before learning. With this insight he actually gave birth to the later philosophy of experiential learning. Rousseau's big contribution to educational philosophy is that he replaces the triangle of 1) the wise teacher who chooses 2) the curriculum, which he passes on to 3) the listening pupil, with the dynamic trio of the teacher and the pupil addressing the task together.

Overall, therefore, the educational views around the turn of the 19th Century were not new, but they became more relevant because of the new needs of society. It became obvious that most schooling gave pupils the passive role of listeners. Teaching was understood as 'giving'. Pupils should receive what the teacher told them and remember it. Children should mainly listen and remember. Control was letting the pupil repeat the teacher's words or what they had read in a text book. When this was done, the process was successful. It was implicit that these words became the child's thinking and understanding. Those who had difficulties learning in this way had to be more diligent, repeat more often, try again and again – otherwise they left school as early as possible.

To deal with this problem, discussion and reflection decided that the reason why such schooling was often unsuccessful, was because the pupils were inactive. In literature there are two major solutions to this. One

is learning through problem-solving; the other is learning through conditioning.

### **Learning through problem-solving (the philosophy of experiential learning)**

To learn through your own actions and the thinking deriving from these actions is the basis for the educational theory of the American philosopher John Dewey (1859-1952). He is thought of as the father of experiential learning. Dewey is probably the educational philosopher who has had the strongest impact on present understanding of how children learn.

He stressed the challenge of problem-solving, as well as a shift away from concrete experiences towards abstract thought, which implied learning through experience and the use of the senses.

Dewey was mainly interested in the kind of thinking that links the individual to his or her surroundings. He did not see understanding as something inherent, but as a potential that will develop in accordance with the tasks a person meets in life – the experiences.

While Rousseau idealistically stressed children's experiences in nature, Dewey was more realistically occupied by man's place in society. Dewey's focus was the connection between thought and action. The philosophy of experiential learning means 'the possibility to use prior experiences as servants not as masters. This implies that sense works within the frame that the experiences have set' (Fatum, 1970, pp 132-146).

Well-known phrases associated with Dewey are: 'Pupils do not need something to learn. They need something to do, and it must be the kind of things that demands thinking', and 'All thinking is research and all research is new and original for the person doing it even if the rest of the world already knows what he is looking for' (Fatum, 1970, pp 132-146).

Dewey's vision of children's learning in school is clear and explicit. Unlike most educational philosophers, Dewey actually established a school according to his principles – The Laboratory School in Chicago – in the year 1896. This, co-incidentally, happened at the same time, in the 1890's, as Francisco Ferrer founded a school on a similar scientific basis in Barcelona.

Dewey's key concept is the well-known expression 'learning by doing'.

Many schools were started in the first decades of the 20th century with this in mind. Pupils experimented and learned through their experiences. Many humanist-oriented teachers were enthusiastic. Others were rather sceptical, and the concept never really had any impact on public schooling until much later in the century.

Today Dewey's ideas are much more popular, and the project work way of teaching finds its roots in his philosophies. In Denmark, project work is compulsory in schools, by a law of 1993. The Storyline approach (in 'our version' as we chose to name it (Falkenberg, 2006)) has qualities similar to project work. The main difference is that the problems connected with project work usually are those of the 'real world here and now', whereas in a Storyline we find many of the problems to be solved within a fictitious story told by the pupils themselves.

Dewey wanted to educate within society by society and its culture. He said: 'Only in school teaching - never for a farmer, a sailor, a merchant, a doctor or a scientist - does knowing imply the stocking of knowledge isolated from action' (Fatum, 1970, pp 132-146). Dewey wanted the ideal school to be like a society. Learning must be seen as social practice – or in any case the child must feel challenged to attack the task. The teacher must understand that it is the mental process that indicates educational growth – not that the child is able to deliver 'the right answer'.

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Learning happens through solving problems. Parallel to this, the child's confidence in his/her own ability to think is strengthened. This is recognised as one of the most important features of the Storyline approach (Falkenberg, 2006, Chapter 3).

### **Learning through conditioning (behaviourist learning)**

Another part of the scientific literature about the psychology of learning through activity concentrated, on the one hand, on how to motivate children, and on the other, how to adapt the curriculum to the abilities of children.

Many studies have documented the effect of carefully planned reinforcement of learning. The point was that there was no confidence that pupils would learn what was necessary for society independently. It seemed necessary to find a mechanism to plan the pupil's activities carefully. Research in this area was very scientific in nature, with the

outcome being expressed as figures and outcomes to be measured. The research had to have objective results, and methods that should be capable of being repeated. This radical approach was represented by B.F. Skinner and others, and became known as behaviourism (Skinner, 1938).

To learn was seen as something that could be observed and measured. The only thing that could be observed for measuring was behaviour. Therefore, learning was understood as change of behaviour. Learning something new was defined as being able to achieve an observable change of behaviour. This was a gradual process, until the change from the old to the new desired behaviour was observed. The method used to change someone's behaviour was by rewarding every little step in the right direction. Almost always it was done just by positive reinforcement. It was important to avoid the learner experiencing any setbacks, because these negative experiences tend to restrain the pupil's inclination for further activity.

A very common way of rewarding pupils is praise. It is obvious that learning by conditioning could lead to manipulation of the learners. The ethical worries arise from getting pupils to reach externally established goals, about which they are not aware. The pupils may not know that the teacher's praise has the intention to make them do something they really do not want to. Older children, who may see through this mechanism, are not easy to manipulate in this manner, and they tend to put their classmates' opinions ahead of the teacher's intentions.

This behaviourist thinking became very popular, especially for children with special needs. Although critical views on this way of teaching have not been scarce, aspects of this educational approach still dominate in many schools. The idea of praising children a bit too much for their progress in school, and protecting them from feeling defeat in the learning process, is documented. Critics state that pupils in this way do not learn to learn but to get rewarded. Thus it does not create genuine self-esteem, reflection and urge for understanding, but well-adjusted beings.

## Discussion of learning in the second part of the 20th Century

### **Learning through interaction**

In the second part of the last century new ideas arose. Some of the important ones were those of the Soviet cultural history tradition - people like Vygotsky, Luria and Leóntjev. They developed an understanding of

practice in Denmark. Where American and Western European research concentrated on statistics regarding empirical studies, Soviet research developed a more profound understanding of concepts and human activity. The most influential writer is L.S. Vygotsky who lived 1896-1934. He was a pioneer in seeing man as embedded in his culture (Vygotsky, 1978). He was born the same year as Piaget, another epistemologist who influences our understanding of learning to such a degree that he deserves to be mentioned here too. They both came from different disciplines other than the philosophy of learning. Vygotsky wrote his thesis on Shakespeare's Hamlet, and Piaget started out as a biologist studying molluscs in Lake Geneva. It was a long time before they became broadly known in educational circles: Piaget in the 1960s, and Vygotsky not before the 80s. The majority of Vygotsky's revolutionary rephrasing of psychology took place within a decade, the last ten years of his short life, and is generally understood as the basis for the language and learning movement.

### **Learning as social action and the zone of proximal development**

An essential expression in the theory formed by Vygotsky is: 'learning takes place in the zone of proximal development', meaning that what you learn follows closely on what is already learned. The pupil undertakes something new that he/she was not able to before, together with a more competent person – e.g. the teacher. After this work with the teacher, he/she might be able to undertake the new skills without help. This is closely related to what Bruner later calls 'scaffolding' (Bruner, 1996). Learning is seen here as a process of interaction. The child's first attempts at a new skill happen in the company of other people - a social action. The 'situated learning' (Lave and Wenger, 1991) also finds its arguments here. Gradually, the actions are internalised and become individual tools for new action. Learning is described as a dialectical exchange between learner and a competent person. It takes place in the borderland between actual skill and possible skill, and between actual knowledge and possible knowledge.

### **The importance of language in the development of learning**

To Vygotsky, language became vital in the learning context. He was concerned about how the child, through the language (its mother tongue)

became part of the culture, and thus became a citizen. His focus was the relationship between language and thinking. His opinion was that language is a social tool for thinking. In this way he became one of the pioneers of the linguistic focus in the development of educational philosophy<sup>1</sup>.

In this philosophy, the content of learning is something which already exists – e.g. you learn a language. There is no talk of learning solely through one's experiences, because experience here always takes place in a certain historical and social context. This interaction with a range of contexts is always surrounded by language.

### **Learning as construction**

Another philosophy of learning which became well-known only in the last decades of the 20th century is constructivism – with versions like radical and operative constructivism – and a slightly different variety called social constructionism<sup>2</sup>. Its epistemological roots

- . 1 Together with e.g. Ludwig Wittgenstein (1889-1951). Later, another way of thinking became common in learning philosophy, where the development of a human being is seen, not only through a 'linguistic lens' but through the entire social context in which the learner is embedded.
- . 2 This theory is well described by e.g. Kenneth Gergen in *The social construction of the person*, from 1985. Social constructionism finds its basic understanding with Vygotsky.

are found in the theory of the Swiss philosopher, Jean Piaget, who lived 1896-1980. After having studied the development of his own three children, he published a three-volume work in 1936, where he uses the term construction about learning (Piaget, 1936), and thereby gave its name to what we now call constructivism.

Some scientists argue that Piaget's form of constructivism is critical of Vygotsky's theory of learning, and to some extent it is. Another way of reflecting on the debate would be to combine together the people thinking of Dewey, Vygotsky and Piaget on the one side, with Skinner's behaviourist group on the other. I shall return to some of the similarities later in this paper, because it is in Piaget's writings that we find the epistemological background for the strengths of the Storyline approach to teaching and learning.

What all of these modern educational philosophers keep pointing out is activity and personal experience as being crucial conditions for learning. A broad definition of this constructivist understanding of learning could be: learning takes place and knowledge is created as a subjective construction, an individual phenomenon via an activity the learner has to carry out by himself, and it happens in a social context.

Nevertheless, it is important to be aware that there are learning processes which take place subconsciously. The creators of commercials are very aware of this and use subconscious messages to achieve their purposes. In the educational system this learning is often referred to as 'the hidden curriculum'. Awareness of this form of learning caused a debate about indoctrination in the 1960s and the 70s. Overall, it is important to realise that on occasions we learn unconsciously, and, as mentioned, children can learn from being in a class without the teacher having any intention of such learning taking place – i.e. concomitant learning.

The main point in constructivism is that, however aware a learner is or is not about the learning process, it is a construction within the learner that is important - the learner can only do it himself. Nobody else can do it for him. Teachers are aware of this phenomenon, but it does not mean that teachers have no impact on the pupil's learning - because they do teach. In this constructivist connection it implies making it easier for children to learn. Teaching, therefore, can be described as facilitation of other people's learning processes.

### **The way Piaget understood learning**

Behaviourist learning theory focused on what could be observed. The process was described as stimulus and response (S-R), while what happened inside the child's head was not available for measuring, and therefore not of interest for scientific research. Piaget, on the other hand, found it very interesting.

Learning, he said, is an activity which takes place within the subject while the object (the surroundings) does nothing. Learning depends on the general possibilities of the subject for functioning, as well as its specific experience. With the latter he means the structures for action and thinking which have already been built up.

The learning, the comprehension, is for Piaget an adaptation, with an organisation of it connected to earlier adaptations and experiences. The individual constructs 'schemes' as a kind of cognitive framework. These structures contain linked experiences and knowledge that the individual

has at present. Using concepts from biology, Piaget distinguishes between increasing mastery which he calls assimilation, and creative and quantitative changes or extensions, called accommodation. This can be pictured as a

mental rack on which you keep on hanging more 'things' (assimilation), and sometimes having to extend the rack by making new possibilities for hanging even more 'things' on (accommodation). Piaget calls these two aspects of adaptation 'the twin functions'. They will constantly find a balance in their dependent interaction.

### **Radical constructivism (Ernst von Glasersfeld)**

A contemporary constructivist is Ernst von Glasersfeld (born in 1917), the father of Radical Constructivism. He claims that Piaget is his '...important cybernetic root. The person who in this century has laid the foundation to the study of cognitive self-regulation' (Glasersfeld, 1992). He also stresses that knowledge cannot be transferred from one person to another, but must be constructed in each person. This construction is so subjective that he, on a philosophical level, denies the existence of the objective. The world has an individual, constructed version in every person. There is no mutual 'true' world. This solipsistic view claims no ontological objectivity, which is why it is called *radical* constructivism, and it is so extreme that it deserves to be mentioned.

### **Operative constructivism (Niklas Luhmann)**

In present discussions of constructivism, the controversial philosopher of system theory, the German professor of sociology Niklas Luhmann, who lived 1927-98, exerts a major influence. His theory is rather complex, and this very short mention of him is merely because he recently was credited with a major part in the Danish understanding of constructivist learning.

His fascinating perception of the world consists of multiple self-referential systems. In his key book *Soziale Systeme* (Luhmann, 1984), he says, about educational matters, that only closed systems – e.g. the psychological and the sociological systems - are able to produce learning, but he also refers to many other kind of systems. All systems have their own media and values.

The psychological systems operate on the basis of consciousness – they think. A person is such a system. The sociological systems operate on the

basis of communication – they communicate. A group of people in a class room form such a system.

### **Similarities and differences in the theories**

There are differences in emphasis between these constructivists, but they are of no great importance to our understanding of their philosophies as a basis for reviewing of the qualities of the Storyline approach to teaching.

The similarities are that these theorists all support the view of learning as an individual and subjective construction that happens when one is actively engaged in learning.

They all adopt a child-centred perspective in the learning process, and they all claim, as well as the child being active, that the learning process is facilitated by being in a social context.

Among the differences to be mentioned are that Vygotsky more explicitly gives another person a major part in the process of the learner, when he describes the role of the more competent person taking the hand of the child to support its entry to the zone of proximal development. Piaget does not in the same way reflect on the teacher's role. He considers that being active with other children/people is what facilitates adaptation (i.e. the construction of knowledge).

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They all have different ways of considering the importance of language: Piaget understands the thinking of the child by listening to his/her language; Vygotsky sees the importance of how the child's development of language eventually influences his/her ability to think; while Dewey emphasises the importance of the relationship between the child's way of thinking and his/her actions.

Vygotsky read and criticised Piaget's work. Unfortunately, Piaget was not aware of this criticism before it was translated, after Vygotsky had died. Vygotsky's criticism was that Piaget seemed to imply that children were egocentric. Piaget actually later modified his way of expressing this. Vygotsky had thought that Piaget did not see children as social entities, but this was of course not the case. They both understood children as social beings.

Piaget, for his part, did not approve of the major role of the adults in the child's learning process. He was afraid that the child would just accept the

opinions and ways of adults, without really understanding them (Vejleskov, 1998).

### **Trying to teach accordingly**

To summarise, a radical Piaget teacher would plan some possible experiments, and leave the children to explore for themselves, while the Vygotsky teacher would guide the children's progress and support the children's thinking. The Dewey teacher, on the other hand, would make sure that the children were occupied with activities that made them do a lot of thinking – making him/her resemble a Piaget teacher more than a Vygotsky teacher. Despite their differences, they could easily, all three of them, choose the Storyline approach, but they might use it slightly differently.

(Should a Skinner teacher choose to work with a Storyline project, it would be conducted according to the prior described behaviourist principles, and would definitely be rather different from our understanding of this experiential approach.)

When looking at the definition of Storyline work in Denmark, for Falkenberg<sup>3</sup>, it is a simple deduction from the constructivist point of view on learning. The major points are:

- Learning is a subjective process. Only the learner can do it. Others can facilitate it – for instance by teaching.
- Learning is an active process. The learner has to do something, especially something s/he never did before. The teacher must challenge her/his pupils by letting them experience.
- Learning is about thinking. The pupil activity is not just activity, but the kind of activity that requires certain thinking.
- Learning is a social phenomenon. It takes place in a social and a meaningful context, and the result is also implemented in a social context. The children must work together and communicate in a learning context.
- Learning is developing new competencies: new skills, new knowledge and new

<sup>3</sup> Definition of 'our version' of the Storyline Approach: Storyline projects are thematic, problem-oriented teaching projects, in which the teaching progresses as a story – i.e. follows a Storyline. This story is the context for curricular and social learning, and is

created between the teacher and the pupils - thus the co-ownership of the project. This experiential approach challenges the pupils to learn by research, experience, reflection, communication and visualisation of their imaginations. By recognising and presenting the consequences of their dispositions, the pupils expand their understanding of the world. The pupils must be made aware that their own creative and argued thinking is important.

understanding. Learning creates new possibilities for action for the learner. The new competencies can only develop in already existing competencies. Either they are built on top of the old ones, or they integrate with them. The teacher must make sure that each pupil can start on the level of his/her own present knowledge and skills.

Reflective learning must come from the learner's own initiative. The learner must want to learn. The teacher must support the children's basic curiosity and desire for exploring and understanding their world.

The last point of 'to want to learn' is closely connected to the affective aspects of learning, and is only implicitly seen in the constructivist theories mentioned earlier. Good learning processes are facilitated by pleasure and desire.

Learning takes place:

in a pleasant and positive atmosphere, where people are friendly to each other, and feel comfortable and respected by their fellows. This atmosphere is created by open acknowledgement of the children's actual competencies and attempts. There is a fine balance between acknowledgement and excessive praising;

when it is nice to share your thoughts and impressions with others;

in an exciting and involving atmosphere, where what is going on is interesting and challenging;

in a motivating atmosphere – e.g. created by a teacher's narrative competencies or by playing;

when it is fun, when there is laughter and joy.

This short description of modern learning philosophy will hopefully add to

the under- standing of why the Storyline approach, when conducted according to these principles, is a very good way to facilitate learning and to allow children to develop into educated human beings, suited to a democratic society, where reflective abilities are imperative.

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