

Learning theories



**ASSIGN
BUSTER**

Learning Theories

The idea of how we learn can be described in a multitude of different ways. Andrew Pollard describes learning “ as the process by which knowledge, concepts, skills and attitudes are acquired, understood, applied and extended. Children also discover their feeling towards themselves, towards each other and towards learning itself. Learning is thus partly a cognitive, partly social and affective.” Therefore a reflective professional must concentrate on these major concerns by focusing on pupil performance within curriculum based tasks and in the long term developing each child’s ability to progress as a successful learner. Another important aspect for the teacher is the ability to properly understand the process of learning, as this should enable the professional to know best how to engage pupils in the learning experience.

This idea of learning is not new and has been around since the beginning of mankind, be that the passing on knowledge of fire making to the learning of basic language within early man. It is only in more recent times that scholars have attempted to create theories which describe this act that most people carry out without really thinking about. Some of these theories will be looked at in this piece, however it is important to note that the idea of one theory that fits all individuals is in its self a misnomer, as people and the world they live in change faster than these theories can keep up.

Multiple intelligences: Howard Gardner

This theory of Multiple Intelligences was suggested in 1983 by the American psychologist Howard Gardner in his book *Frames of the Mind*. Gardner’s theory proposed that learners have particular types of intelligences that can

be classified, and each individual has differing levels of competence within each intelligence type or profile.

Gardner identified 8 intelligences:

Linguistic – the capacity to use words effectively

Logical-mathematical – the capacity to use numbers effectively

Spatial – the ability to perceive the visual-spatial world accurately

Bodily-kinaesthetic – expertise in using one’s whole body to express ideas and feelings.

Musical – the capacity to perceive, discriminate, transform and express musical forms.

Interpersonal – the ability to perceive and make distinctions in the moods, intentions and feelings of other people.

Intrapersonal – self-knowledge and the ability to act on that knowledge.

Naturalistic – expertise in the recognition and classification of the numerous species.

(Definitions from Multiple Intelligences in the Classroom – Thomas Armstrong)

Gardner’s theory proposed that the idea of I. Q. does not take into account the wide range of abilities humans display. In the multiple intelligences theory Gardner states that each intelligence profile can be improved to a high level and suggests that teaching should incorporate all intelligences into

the classroom so as to cater to a wide range of abilities and intelligences. This will enable the learner to learn in a way that best suits his or her individual intelligence profile. Gardner highlights the importance of the teacher acknowledging that individuals have different levels of competence within certain intelligences, and suggests lessons should be planned to help the learner improve in the intelligences in which they are weaker. This idea has been reinforced by research that proposes intelligence is developed through opportunity and the learner's experience (Shayer and Addy, 2002)

Some of the ideas behind this theory of multiple intelligences have been criticized in the psychology and educational theory communities (White, 1998), a common criticism is that the theory is based on the theorist's personal opinion. Psychologists such as George Miller believe Gardner's theory is based on his intuition and states that the theory lacks empirical data. Gardner's response to his critics stating, "The testimonials and stories are numerous enough from lots of different places to suggest it's worth taking seriously." There is a lot of anecdotal evidence in support of MI, but no formal studies. At the very least, many believe that MI theory merits further investigation and large-scale research". Other criticisms are based on teachers putting pupils into fixed intelligence profiles. This does not allow the learner to improve in intelligences in which they are deemed to be less able, leading to a non-inclusive environment.

Constructivism and Social Constructivism: Piaget Vygotsky

Constructivism theory suggests that people learn through an interaction between thinking and experience, and through the sequential development of more complex cognitive structures (Pollard 2002). The most influential

constructivist theorist was Piaget. Jean Piaget (1896-1980) was a Swiss psychologist, philosopher and teacher. He taught at Grange-Aux-Belles school for boys, he noticed when marking the pupils work that young children would consistently give the wrong answers to certain questions. When he looked closer at these results he found that there was a pattern to the mistakes that young children made, that older children did not. This led him to believe that there was an inherent difference in the way younger people learn than that of adults.

Piaget proposed through a process of “ accommodation and “ assimilation” children construct their own reality by means of experimenting on their own environment.

Piaget proposed that there are four key developmental stages in which children process their experience.

1 Sensorimotor – From birth to age 2 years. The infant builds an understanding of himself or herself and reality (and how things work) through interactions with the environment. It is able to differentiate between itself and other objects. Learning takes place via assimilation (the organization of information and absorbing it into existing schema) and accommodation (when an object cannot be assimilated and the schemata have to be modified to include the object).

2 Pre-operational stage – From 2 to 7 years The child is not yet able to conceptualize abstractly and needs concrete physical situations. Objects are classified in simple ways, especially by important features

3 Concrete operations stage – (7 to 12 years). As physical experience accumulates, accommodation is increased. The child begins to think abstractly and conceptualize, creating logical structures that explain his or her physical experiences.

4 Formal operations stage – (12 to 15 years) Cognition reaches its final form. By this stage, the person no longer requires concrete objects to make rational judgements. He or she is capable of deductive and hypothetical reasoning. His or her ability for abstract thinking is very similar to an adult.

The consequence of Piaget work has led to the idea of a child centred approach to teaching, this is especially true in Primary school classes. It has promoted the use of varied and stimulating classroom environments from which children can derive challenging experiences.

Some limitations of Piaget's work have been highlighted, one such criticism is that due to the fact that the ability of a child to learn is structured into stages, it can lead to the under estimation of their capacities. Studies have shown that children's capacities are much greater than those suggested by Piaget (Tizard and Hughes)

Another criticism of Piaget's work is that as it can be difficult to meet the needs of all individuals in a class, the need for a tailored learning experience for each individual class can lead to a detrimental situation whereby the teacher spends so much time managing the class room they are not able to spend enough time teaching their pupils.

Social Constructivism is a revision of Piaget's theory and was proposed by Russian psychologist Lev Vygotsky. He believed that Piaget's theory did not take into account a child's social interactions which he believed also had an effect on cognitive development. Vygotsky's theory proposed that.

- * interaction and culture have a dramatic effect on cognitive development.
- * Cognitive processes (language, thought and reasoning) develop through social interaction.
- * Learning is a shared social activity embedded in classroom interactions.
- * The relationship between learner and teacher is crucial.

Within Vygotsky's theory he introduces the idea of the zone of proximal development (ZPD) in learning this is stated as. " The distance between the actual development level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (Vygotsky, 1978, p. 86). This assisting the learner by a more capable other has been termed " scaffolding". Scaffolding is a process whereby the learner is provided with structure and support which allows them to understand task they could not do alone. As the learner develops an understanding of the task the scaffolding can be removed this results in " more sophisticated cognitive systems... the system of knowledge itself becomes part of the scaffold or social support for the new learning" (Raymond, 2000, p. 176).

Curriculum for Excellence lends heavily from these ideas with its AifL and inclusion initiatives. AifL formative assessment policies should bring more

balance to the position of more knowledgeable other as it aims to have class peers as well as the teacher filling this role. The active role of the learner in this theory should allow for a better understanding of what is being taught and why resulting in an improved learning environment.

Theories used in the classroom

Multiple Intelligences

During my time on SE1A I tried to accommodate a number of different intelligences into my lesson. During planning of any lesson I would implement different styles of learning, this was not always possible due to resource and time constraints, however in the instances where it was possible I noticed positive results.

Whilst taking a S1 class covering human body systems, I was able to use a selection of learning materials. I made sure that all pupils were exposed to all learning types, the aim of the lesson was to allow all pupils to reach the success criteria using three different learning styles. The styles I adopted were the use of a video (Visual) models of the human body (kinaesthetic) and group discussion (Linguistic-Intrapersonal). I found this to be a successful lesson as during plenary pupils were able to articulate which learning style they found most beneficial and which they found least.

With this in mind I will continue to utilize the multiple intelligences theory when planning my lessons and will try to accommodate as many learning intelligences as possible.

Social constructivism

I implemented social constructivist theory when setting a task to a S1 class I was teaching, the class was split into groups A, B, C, D, E each group was given the task of finding out about a specific cell type/s, during this time I moved around the class scaffolding. Once the group collected all the information that was required, the groups were rearranged so each member of the group had looked at a different cell. The aim of the lesson was for each member of the group to teach the rest of the group what they had found out. Each group successfully completed the learning and success criteria. The whole class were engaged and there was a high degree of learning taking place, having seen this theory in practice I will be continuing to use and improve it in my practice.

Assessment strategies

In recent years assessment has become the primary focus in education. This has occurred for two reasons (Pollard 2008). The first and most significant has been the need for governments to have a way of measuring educational output. This was seen as a way for parents to be able to compare between different schools test results, and therefore be able to make an informed choice as to what school to send their children to. The hope was that the publication of league tables would encourage all schools to raise standards and constantly improve on results to raise their position in the school ratings tables. The second reason for the increased interest in assessment came from the realisation of the value of continual assessment in informing teaching and improving learning (Black and William 1998). Their research highlighted that assessment can be used as a tool to determine not only

what has been learned i. e. end of topic tests and exams, but assessment can also be used as a tool for learning.

Assessment is for Learning (AifL)

Assessment is for learning (AifL) is an attempt to try and have more balance in the Scottish curriculum, the over emphasis of summative assessments strategies, such as end of topic tests and exams, does not necessarily give a good indication to the level of learning that takes place in the class room. Instead the use of formative assessment strategies should be at the core of effective teaching practice. The work of Black and William in 1998 established that there was strong evidence that formative assessment can raise standards of pupil's achievement. Assessment can be said to be formative when the results from the teachers and students assessing themselves generate an adaption to the teaching methods subsequently employed to meet the needs of the pupils. (Inside the Black Box). It is this idea of continual pupil teacher interactions leading to adaptation of teaching to meet the needs of individual pupils that lies at the heart of effective teaching.

The AifL framework incorporates three different aspects of assessment:

- * assessment FOR learning

- * assessment OF learning

- * assessment AS learning,

Assessment For learning

The purpose of assessment for learning is to “ focus on the gap between where a learner is in their learning, and where they need to be- the desired

goal” (LTScotland). This goal can be attained by a variety of means such as feedback to students, ensuring the pupils are aware of the learning intentions and effective questioning among others. Black and William have defined assessment for learning as “ all those activities undertaken by teachers and/or by their students, which provide information to be used as feedback to modify the teaching and learning activities in which they are engaged”

Key features

The key features as stated by LTS website are as follows

Focus on high quality interactions – Successful assessment in the classroom should involve high quality interactions based on thoughtful questions, careful listening and effective responses. This should involve giving pupils adequate “ wait time” before trying to answer questions as suggested by Mary Budd Rowe (“ Wait Time and Rewards as Instructional Variables , Their Influence on Language, Logic, and Fate Control,” Journal of Researching Science Teaching, vol. 11, 1974, pp. 81-94). This could also be the use of a no hands policy when answering questions

Involving pupils in their learning – Focus on the extent your pupils and staff are fully involved in deciding next steps in their learning and identifying who can help. This should involve the learners having a active role in what they are being taught were possible, and giving the learner choice in the ways which they learn as stated by Gardner’s theory of multiple intelligences

Feedback – Pupils and staff are given timely feedback about the quality of their work and how to make it better. This idea of positive reinforcement

regarding pupils work it part of Skinner's behaviourist theory. The importance of both verbal and written feedback allows the learner to know if there are any gaps in their knowledge, but also lets them know what areas they perform well in.

Sharing criteria – “ Pupils, staff and parents are clear about what is to be learned and what success would be like”

It is important that pupils are made aware of the task they are carrying out and what is to be learned by sharing learning intentions, in addition it is also important that they are aware of what the success criteria are for said task. This practice of sharing learning intentions and success criteria is a vital part of the assessment for learning strategy and is similar to Vygotsky's Zone of Proximal Development.

Assessment in the classroom

During my time on SE1A I implemented a number of different formative assessment techniques, I always shared the learning intentions with the class, they would be written on the white board allowing me to carry out the lesson on the smart board. This would allow the pupils to have a reference point which they could easily see throughout the lesson, helped the pupils to put the lesson into context. In my first lessons I did not share the success criteria with the pupils and would instead go over them in the plenary, however having spoken to colleagues I was advised that it would be beneficial to share the success criteria with the pupils this was reinforced when I went back to the literature which resulted in me watching teachers TV video (<http://www.teachers.tv/video/3311>). The sharing of learning and

success criteria did improve the classes understanding of a particular topic as they had a clear idea of what was expected of them.

With both my S1 and S2 I implemented a no-hands up policy, I would start by asking the pupils a question I would then give them at least a minute to think of an answer, then I would ask an individual for an answer. This took a bit of time for the pupils to get used to as certain pupils were getting frustrated by the wait time as they knew the answer. I think overall this strategy worked well for most children as it gave the whole class time to think and as they did not know who would be asked the question it led to a high level of engagement.

In a S2 class I was responsible for a revision lesson for an end of topic test. I implemented a quiz that was to be created by the class, this involved splitting the class into groups and getting them to come up with questions pertaining to the topic. This worked well as there was a high level of competition for the position of top team. Once I had made sure the pupils knew the nature of the questions they could ask they were left to come up with questions themselves. This actually challenged the pupils as they wanted to come up with challenging questions for their peers, which led to some high level learning and a high level of engagement.

Other strategies I have used include the use of a traffic light system whereby pupils who showed a green light for understanding a particular topic paired up with pupils who showed red light. The green light pupils would then help explain aspects of the topic.

I will be implementing other assessment strategies in my continuing practice, such as exit questions, show me boards and mind maps, while constantly improving my questioning skills.

A Curriculum For Excellence

The Curriculum for Excellence (CfE) is the new Scottish curriculum to be taught in all public Scottish schools by August 2010.

CfE came about due to the “ National Debate on Education” this debate was launched by the Scottish Executive in 2002, the aim of the debate was to build on the high quality education that was being provided to many of the young people in Scotland but also to ensure that “ all young people were being offered a welcoming and stimulating environment for the 21st century.” (Scottish Executive, 2002).

The result of this debate was that although there were many positive aspects of the current curriculum there was a need for change. In November 2004 the proposal for CfE was approved and published, it was implemented to broaden the learning experiences of young people and to make these experiences more enjoyable and relevant to a rapidly changing environment.

CfE has been designed to develop four main capacities in all young people between the ages of 3 and 18, these capacities being successful learners, confident individuals, responsible citizens and effective contributors. To achieve this goal CfE has 7 principles of curriculum design that have been devised to ensure the four capacities are met.

1. Challenge and enjoyment – Young people should find their learning challenging, engaging and motivating. The lessons planned by teachers should reflect this principle by encouraging high aspirations and ambitions for all pupils.
2. Breadth – All young people should be educated in a broad range of outcomes and experiences across all curriculum areas. The learning may be linked to vocational or other specialized contexts and will take place both in the class room and other cross-curricular activities.
3. Progression – The learning experience will take place between the ages of 3 – 18 and will show a continual progression within a single curricular framework. The rate of progression should be tailored to the individual so that it meets their needs and aptitudes, and leaves options open so that no choices within the curriculum are closed prematurely.
4. Depth – The learner should have opportunities to gain a deeper understanding for different types of thinking and learning. As they progress through the years they should be able to reach their full capacity by developing cognitive skills, while also gaining a better understanding of their moral values and beliefs.
5. Personalisation and Choice – the curriculum should accommodate every individual learners needs and support their aptitudes and talents. The learner should have an active role in how and what they learn.
6. Coherence – The curriculum should be a coherent learning experience from 3-18 and there should be clear links between different aspects of their

learning. This should include lessons which can draw from different strands of learning which cross over traditional subject boundaries

7. Relevance – The learning experienced by young people should be relevant to them. They should understand why they are learning and its relevance to their lives both inside and outside the class room.

The Curriculum for excellence aims to give all young people the skills and knowledge they need to succeed in the modern day world. If all schools can succeed at developing the four capacities in all individuals then it should give their pupils an ideal start in life and should make for a shining example of what can be achieved.

CfE in the class room

As the CfE outcomes and experiences have not yet been implemented in the school I was at on SE1 I was not able to plan lessons around them. The school I was placed at was still teaching the 5-14 National Guidelines, however this did not stop me from looking at the similarities in each set of outcomes. Looking at the outcomes it became clear that there was an overlap in both sets of outcomes which allowed me to teach lessons which would cover both 5 to 14 and CfE outcomes. During my observations at school it became clear that in many cases the seven principles within CfE were being adhered to, this allowed me to learn from my peers how best to implement them into my classes.

Challenge and Enjoyment

During my observation time on placement I was able to see exactly what was working well within certain classes, although at this point I had a lot of ideas

on how best to put together my lessons getting a pupils eye view on the lesson really helped me to choose activities that would work best.

I was responsible for a class of S1 pupils on SE1, through a series of lessons I implemented a range of different activities to keep the class stimulated and motivated. During the lessons the pupils were involved in card sorts, cut and paste activities, individual paired and full class investigations, smart board activities, videos, modelling, posters making and PowerPoint presentations. Appendix? Shows a poster made by a group of my pupils, the lesson involved doing research for the topic in the ICT suite followed by a presentation to the rest of the class using posters or PowerPoint. All the pupils were actively involved in the exercise and pupils had the choice of how they wished to present their information. I also left it up to the pupils to delegate certain tasks to each member of the team. These activities allowed the learners to have an active role in their learning and choose which method of learning they thought worked best for them. During the plenary session at the end of the lesson we would discuss if they had met the success criteria and in some cases if their chosen type of learning style was actually effective.

Relevance

When planning my lesson I always thought of ways to bring in real life examples to the topics I was teaching. When I was covering the electrochemical series with a S3 class I was able to show why we use different metals in producing batteries, this lead to me explaining the chemistry of mobile phone batteries and ways to extend their life. During a lesson on the respiratory system to a S1 class I was able to show the effect that smoking has on the lungs, and highlighted the importance of a healthy

diet in digestion. During the forces topic we investigated the varying levels of friction of different materials on ice, the pupils were then able to suggest the best types of footwear to either reduce or increase friction if they were out walking on an icy winter's day.

Literacy and numeracy

Literacy

Within CfE literacy had been highlighted as a core skill which is to be embedded throughout the curriculum regardless of the subject.

Literacy is defined as “ the set of skills which allows an individual to engage fully in society and in learning, through the different forms of language, and the range of texts, which society values and finds useful.” (LTS)

Improving literacy skills is of vital importance as it enables young people to “ develop skills for learning, skills for life and skills for work,” (www. Itscotland.org.uk/curriculumforexcellence/buildingthecurriculum/entitlements/skills/index.asp)

Literacy skills enable young people to better understand and interact with their subjects in the curriculum, not only this but these skills are transferrable to the out of school environment, be that the work place or in everyday living. If a pupil has trouble with literacy skills this can lead to a lack of progression in a particular subject, the impression that the teacher may have is that the pupil is not engaged in the subject. However the root of the problem is that the pupils have poor reading writing or listening skills.

The outcomes for literacy are: Reading, Writing, Listening and Talking
<https://assignbuster.com/learning-theories/>

CfE demands that all practitioners engage with improving levels of literacy, as the improvement in literacy will result in an increased understanding of all subjects within the school curriculum. By ensuring that all practitioners take responsibility for literacy within schools the pupil will have the opportunity to develop their skills for learning, skills for life and skills for the work place.

Numeracy

As with Literacy, numeracy is also a core skill within CfE “ All teachers have responsibility for promoting the development of numeracy. With an increased emphasis upon numeracy for all young people, teachers will need to plan to revisit and consolidate numeracy skills throughout schooling.”

(Building the Curriculum I)

Numeracy has been highlighted as a core skill, as like literacy competent numeracy skills are essential in everyday life, and as such to be able to contribute effectively to society young people should have a good grounding in these skills. Strong numeracy skills provide young people with better understanding of the world around them and are a basis for lifelong learning. The building of strong numeracy skills throughout the curriculum should give young people “ the confidence and competence in using number which will allow individuals to solve problems, analyse information and make informed decisions based on calculations.” CfE folder

Summary

It has been shown that strong skills in both literacy and numeracy benefits both the individual and the nation as a whole. The importance of these skills is highlighted in the ALNIS report which states “ Literacy and numeracy skills are critical for adults to achieve the goals they set themselves at work, at <https://assignbuster.com/learning-theories/>

home, in the community and as learners. The personal consequences of low literacy and numeracy skills can be serious. The national consequences for a modern, multicultural, competitive Scotland, and efforts to achieve social justice, are far reaching.” (ALNIS, p 12)

Literacy in the classroom

During placement SE1A, I paid particular attention to the literacy outcomes defined by CfE. When lesson planning I integrated literacy outcomes into all my classes be these reading writing talking or listening.

In one class I used a video to summarise main points that had been taught throughout the topic. I asked to take down note summarizing the main points of the topic, this would allow me to gauge whether they had understood the main learning intention of the topic. I made sure to stop the video at key points to allow the children with slower cognitive or writing skills time to think and write. This exercise planned to improve the children’s listening and note taking abilities as this is a important skill needed in the school and work environment. The children were then asked to report back what notes they had taken and why within groups. This exercise was also developed to improve there talking skills as they each had to individually report back the notes they had taken. I found this exercise invaluable as I quickly realised that there was a wide range of abilities within the class, as a whole the class found this task difficult. There were a number of aspects of the task the children found difficult which arose during the plenary discussion, many of which arose from having to watch the video and write down short concise notes. This task showed me the true extend of the importance of differentiation required in lessons, it also highlighted that note taking is a

skill that may not have been taught in any depth within the curriculum. In future I will make sure that before carrying out an exercise like this that a significant amount of time is spent teaching the skill as I think it will benefit pupils in the short and long term.

The creation of a lab write up within a class is an excellent way to improve writing skills. Every practical carried out by my classes is accompanied with an experimental write up. The use of experimental write ups gives children exposure to an unfamiliar way of writing. I always encourage my pupils to write up reports in a scientific manner with an aim, hypothesis, results and conclusion.

Before the write up I would ask for suggestion as to how the report should be worded, followed by an example provided by myself. This got the children thinking about the structure and register of the piece. In some cases I would ask an individual or group to present their findings to the class. In one class I split the class into four groups and asked each group to write up the aim, method and way to record results for the four different experiments. Once completed the group's swapped reports and tried to carry out experiment using the report they received. I will be continuing to use lab report writing as I think it does cover a wide range of outcomes for literacy, and when carried out well does engage pupils.

In a S2 science class I took, the pupils were required to remember a particular series of reactive metals. To