1. Learning Styles and Preferences

The way a person approaches learning and studying is known as their learning style. Although many different learning styles have been described, one theme that unites most of the styles is the differences between deep and surface approaches to processing information in learning situations.

- Individuals who have a *deep-processing approach* see the learning activities as a means for understanding some underlying concepts or meanings. For example, those of you reading this lecture who take a deep-processing approach may be thinking, as you read, about situations and examples from your own experience which relate to what you are reading in order to understand them properly. Deep-processing learners tend to learn for the sake of learning and are less concerned about how their performance is evaluated, so motivation plays a role as well.
- Learners who take a *surface-processing* approach focus on memorising the learning materials, not understanding them. So, surface-processors may be trying to remember certain aspects of this lecture as you know you are having a test about learning styles. Surface-processing learners tend to be motivated by rewards, grades, external standards and the desire to be evaluated positively by others. Of course, the situation you are in can encourage deep or surface processing depending upon how interested you are in the material, how tired you are, how much time is available, and so on, but there is some evidence that individuals have tendencies to approach learning situations in characteristic ways.

1.1. Cautions about learning preferences

Learning preferences are often called *learning styles* in these writings, but preferences is a more accurate label because the 'styles' are determined by your preferences for particular learning environments – for example, where, when, with whom or with what lighting, food or music you like to study.

You may like to study and write in fairly short chunks with clear deadlines in place. You usually have some kind of a plan in your head about how long each piece of work will take and you try to stick to that, adjusting it accordingly if some things take more or less time. Then you may take a day off. When you plan or think, you often make a note of the main points so that you remember them clearly. A close friend of this co-author carries his plans in his head and is able to reactivate them when he is ready to use them. She also has a colleague who draws diagrams or 'mind maps' at meetings or when listening to a speaker or planning a paper. You may be very different to this profile, but we all may work effectively. The question is, are these preferences important for learning?

There are a number of instruments for assessing people's learning preferences: the *Learning Style Inventory*, *Learning Style Inventory* and the *Learning Style Profile: Examiner's Manual*. However, tests of learning style have been strongly criticised for lacking evidence of reliability and validity. Thus, they should not be used in education or business.

However, learners, especially younger ones, may not be the best judges of how they should learn. Sometimes, learners, particularly those who have difficulty, prefer what is easy and comfortable; real learning can be hard and uncomfortable. Sometimes, individuals prefer to learn in a certain way because they have no alternatives (e.g. they may prefer pictures because they are unable to read) and it is the only way they know how to approach the task. These learners may benefit from developing new – and perhaps more effective – ways to learn. One final consideration: many of the learning styles advocates imply that the differences in the learner are what matter, but recent research points to the person in the context of the entire teaching–learning system as a better way to understand people's learning.

1.2. Visual/verbal distinctions

There are three dimensions to visual versus verbal learning: ability, style and preference. Individuals can be high or low on any or all of these dimensions:

Facet	Types of learners	Definition
Cognitive ability	High spatial ability	Good abilities to create, remember and manipulate images and spatial information.
	Low spatial ability	Poor abilities to create, remember and manipulate images and spatial information.

Cognitive style	Visualiser	Thinks using images and visual information.
	Verbaliser	Thinks using words and verbal information.
Learning preference	Visual learner	Prefers instruction using pictures.
	Verbal learner	Prefers instruction using words.

The value of considering learning styles

Even though much of the work on matching learning styles and preferences to teaching is suspect, with unreliable measures and inflated claims, there is some value in thinking about learning styles. First, by helping learners think about how they learn, you can develop thoughtful self-monitoring and self-awareness. Second, looking at individual learners' approaches to learning might help teachers appreciate, accept and accommodate learner differences.

2. Learning Strategies and Study Skills

Powerful and sophisticated learning strategies and study skills are seldom taught directly until secondary or even higher education, so younger pupils have little practice with these powerful strategies. Furthermore, younger pupils are usually encouraged to use repetition and rote learning. They have extensive practice with these strategies because, unfortunately, some teachers think that memorising is learning.

The way something is learned in the first place greatly influences how readily we remember and how appropriately we can apply the knowledge later. First, pupils must be *cognitively engaged* in order to learn – they have to focus attention on the relevant or important aspects of the material. Second, they have to *invest effort,* make connections, elaborate, translate, organise and reorganise in order to *think and process deeply* – the greater the practice and processing, the stronger the learning. Finally, pupils must *regulate and monitor* their own learning – keep track of what is making sense and notice when a new approach is needed. The emphasis today is on helping pupils develop effective learning strategies and tactics that *focus attention and effort, process information deeply* and *monitor understanding.*

2.1. Learning strategies and tactics

Learning strategies are ideas for accomplishing learning goals, a kind of overall plan of attack. Learning tactics are the specific techniques that make up the plan. Your strategy for learning the material in this lecture might include the tactics of using mnemonics to remember key terms, skimming the lecture to identify the organisation, using a mind map to explore the connections and then writing outline answers to possible essay questions. Your use of strategies and tactics reflects metacognitive knowledge: that is knowing about knowing; learning about learning. Using learning strategies and study skills is associated with better examination success in school and higher student retention rates in higher education

Researchers have identified several important principles of using learning strategies:

- Pupils must be exposed to a number of *different strategies,* not only general learning strategies but also very specific tactics, such as the graphic strategies described later in this section.
- Pupils should be taught *conditional knowledge* about when, where and why to use various strategies. Although this may seem obvious, teachers often neglect this step. A strategy is more likely to be maintained and employed if pupils know when, where and why to use it.
- Pupils may know when and how to use a strategy, but unless they also *develop the desire to employ these skills,* general learning ability will not improve. Several learning strategy programmes include a motivational training component.
- Pupils should receive *direct instruction in schematic knowledge;* this is often an important component of strategy training. In order to identify main ideas – a critical skill for a number of learning strategies – you must have an appropriate schema for making sense of the material. It will be difficult to summarise a paragraph about ichthyology, for example, if you don't know much about fish.

2.1.1. Deciding what is important

Distinguishing the main idea from less important information is not always easy. Often

pupils focus on the 'seductive details' or the concrete examples, perhaps because they are more interesting. You may have had the experience of remembering a joke or an intriguing aside from a lecture, but not being clear about the larger point the lecturer was trying to make. Finding the central idea is especially difficult if you lack prior knowledge in an area and the amount of new information provided is extensive. Teachers can give pupils practice using signals in texts such as headings, bold words, outlines or other indicators to identify key concepts and main ideas. Teaching pupils how to summarise material can be helpful, too.

2.1.2. Summaries

Creating summaries can help pupils learn, but pupils have to be taught how to summarise. For each summary, ask pupils to:

- Find or write a *topic sentence* for each paragraph or section.
- Identify *big ideas* that cover several specific points.
- Find some *supporting information* for each big idea.
- Delete any *redundant information* or unnecessary details.

Pupils begin doing summaries of short, easy, well-organised readings. Teachers then introduce longer, less organised and more difficult passages gradually. They ask pupils to compare their summaries and discuss what ideas they thought were important and why – what's their evidence? In the next section we explore the idea that 'selection' is one spur to engagement with the subject knowledge, particularly where enormous amounts of information is available on the internet.

2.2. Engaging with knowledge – engaging with learning

2.2.1. Pupils' understanding of how they are learning

Rather than constructing meaning randomly, good learners use conscious and subconscious strategies to derive meaning from text. As individuals become increasingly aware of the processes involved in understanding text, they begin to exercise a degree of control over their own learning. This metacognitive awareness and problem-solving approach should be taught to beginning and unskilled learners and reinforced during the learning experience.

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1) *Cognitive mindfulness*: a learner's perception about their own cognitive resources and an evaluation of the learning task to be accomplished.
2) *Self-regulatory measures* (cognitive scrutinising): a person's ability to actively regulate what they know during learning (comprehension monitoring) and when problem solving.
3) *Compensatory strategies*: a person's use of fix-it strategies during the actual 'information-in' process.

2.2.2. Underlining and highlighting

Do you underline or highlight key phrases in textbooks? Underlining and note taking are probably two of the most commonly but ineffectively used strategies among university students. One common problem is that readers underline or highlight too much. It is far better to be selective through learning critical reading skills. In addition to being critically selective, readers actively transform the information into 'own words' as they underline or take notes. They do not rely on the words of the book.

Critical readers make notes about connections between what they are reading and other things they already know. They draw diagrams to illustrate relationships. Finally, they look for organisational patterns in the material and use them to guide their underlining or note taking

2.2.3. Taking notes

As you sit in a lecture or seminar, filling your notepad with words or furiously trying to keep up with a lecturer, you may wonder if taking notes makes a difference. It does, if used well:

- Taking notes focuses attention during class and helps encode information so it has a chance of making it to long-term memory. In order to record key ideas in your own words, you have to translate, connect, elaborate and organise. Even if pupils don't review notes before a test, taking them in the first place appears to aid learning, especially for those who lack prior knowledge in an area. Of course, if taking notes distracts you from actually listening to and making sense of the lecture, then note taking may not be effective.
- Notes provide extended external storage that allows you to return and review. Pupils who use their notes to study tend to perform better on tests, especially if they take many high-quality notes – more is better as long as you are capturing key ideas, concepts and relationships, not just intriguing details.
- Expert pupils match notes to their anticipated use and modify strategies after tests or assignments; use personal codes to flag material that is unfamiliar or difficult; fill in holes by consulting relevant sources (including other pupils in the class); record information verbatim (word-for-word) only when a verbatim response will be required. In other words, they are *strategic* about taking and using notes.
- To help pupils organise their note taking, some teachers provide matrices or maps. When pupils are first learning to use these maps, you might fill in some of the spaces for them. If you use maps and matrices with your pupils, encourage them to exchange their filled-in maps and explain their thinking to each other.

Epistemological beliefs

Finally, what pupils believe about knowledge and learning (their epistemological beliefs) will influence the kinds of strategies that they use.

Using questions like those in the Pause and Reflect below, researchers have identified several dimensions of epistemological beliefs

For example:

- **Structure of knowledge:** Is knowledge in a field a simple set of facts or a complex structure of concepts and relationships?
- **Stability/certainty of knowledge:** Is knowledge fixed or evolving over time?
- **Ability to learn:** Is the ability to learn fixed (based on innate ability) or changeable?
- **Speed of learning:** Can we gain knowledge quickly or does it take time to develop knowledge?
- **Nature of learning:** Does learning mean memorising facts passed down from authorities and keeping the facts isolated, or developing your own integrated understandings?

Pupils' beliefs about knowing and learning affect their use of learning strategies. For example, if you believe that knowledge should be gained quickly, you are likely to try one or two quick strategies (read the text once, spend two minutes trying to solve the word problem) and then stop. If you believe that learning means developing integrated understandings, you will process the material more deeply, connect to existing knowledge, create your own examples, or draw diagrams, and generally elaborate the information to make it your own.

3. What is Motivation?

Motivation is usually defined as *an internal state that arouses, directs and maintains behaviour.* Psychologists studying motivation have focused on five basic questions:

a. *What choices do people make about their behaviour?* Why do some learners, for example, focus on their homework and others watch television?

b. *How long does it take to get started?* Why do some learners start their homework straight away, while others procrastinate?

c. W*hat is the intensity or level of involvement in the chosen activity?* Once the learner has begun a task are they absorbed and focused or just going through the motions?

d. *What causes a person to persist or to give up?* Will a learner read the entire Shakespeare assignment or just a few pages?

e. *What is the individual thinking and feeling whilst engaged in the activity?* Is the learner enjoying Shakespeare, feeling competent or worrying about a forthcoming test?

Answering these questions about real learners in classrooms is a challenge. As you will see in this section, many factors influence motivation including its internal and external aspects.

Intrinsic and extrinsic motivation

some explanations of motivation rely on internal, personal factors such as needs, interests and curiosity. Other explanations point to external, environmental factors – rewards, social pressure, punishment, and so on. A classic distinction in motivation is between intrinsic and extrinsic. **Intrinsic motivation** is the natural tendency to seek out and conquer challenges as we pursue personal interests and exercise capabilities When we are intrinsically motivated, we do not need incentives or punishments, because *the activity itself is rewarding.* So, we do something for the joy of doing it rather than the reward at the end.

In contrast, when we do something in order to earn a grade, avoid punishment, please the teacher, or for some other reason that has very little to do with the task itself, we experience **extrinsic motivation**. We are not really interested in the activity for its own sake; we care only about what we gain by doing it.

The essential difference between the two types of motivation is the person's reason for acting, that is, whether the **locus of causality**[1] for the action (the location of the cause) is internal or external – inside or outside the person. Learners who read or practise their backstroke or paint may be reading, swimming or painting because they freely chose the activity based on personal interests (*internal locus* of causality/intrinsic motivation) or because someone or something else outside is influencing them (*external locus* of causality/extrinsic motivation).

3.1. Psychoanalytical approaches to motivation

Freud suggested that all actions and behaviours are a result of internal, biological instincts which drive them. The concept of 'drive' within **psychoanalytical theory** corresponds with the notion of motivation. Thus, the person responds to either the drive towards life (sexual) or death (aggression), but this is complicated by the fact that these drives become unconscious as children learn that overt sexual and aggressive behaviour are unacceptable. In other words, society does not allow these to be shown and so they are punished by parents and others in authority. Eventually, children repress or hide these feelings even from themselves.

So, Freud suggested that people are often unaware of their real reason for acting in a certain way (motivation) which results in internal conflicts. While many of Freud's followers, such as Erikson and Jung, rejected this idea because it neglected other key areas (such as social relationships and disposition) the psychoanalytic approach to motivation does provide deep insights into human behaviour and was dominant within the field of psychology for the first part of the twentieth century. However, the behavioural view of motivation rejected the notion of hidden, internal processes because they were impossible to observe or measure in a systematic way.

3.2. Behavioural approaches to motivation

According to the behavioural view, pioneered by theorists such as Watson, Skinner and Pavlov, an understanding of learner motivation begins with a careful analysis of the incentives and rewards present in the classroom **reward** is an attractive object or event supplied as a consequence of a particular behaviour. For example, a biology teacher might believe that bonus points are rewards for pupils who submit neat, accurate diagrams. An **incentive** is an object or event that encourages or discourages behaviour. The promise of a 20/20 may be an incentive. Actually, receiving the grade is a reward.

If we are consistently reinforced for certain behaviours, we may develop habits or tendencies to act in certain ways. For example, if a learner is repeatedly rewarded with affection, money, praise, or privileges for gaining dance certificates, but receives little recognition for studying, the individual will probably work longer and harder on perfecting their pirouettes than on understanding geometry. Providing grades, stars, stickers and other reinforcers for learning – or demerits/black marks/unhappy faces for misbehaviour – is an attempt to motivate learners by extrinsic means of incentives, rewards and punishments. Of course, in any individual case, other factors may affect

[1] The location – internal or external – of the cause of behaviour.

how a learner behaves because all individuals are complex, human beings. Let us look at an alternative way of explaining motivation which takes more account of internal factors.

3.3. Humanistic approaches to motivation

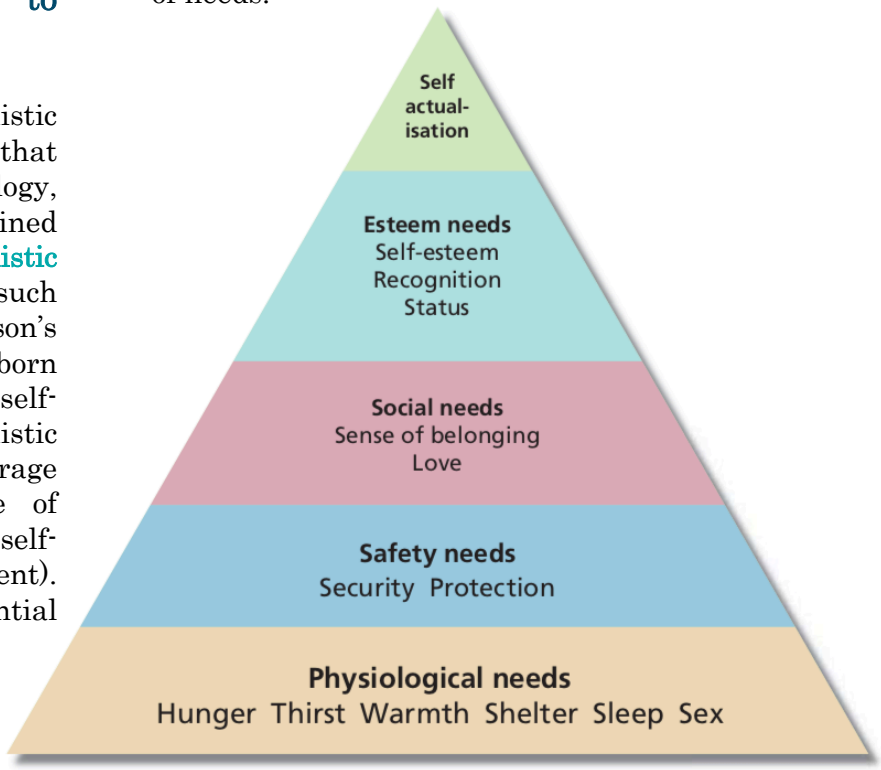
In the 1940s, proponents of humanistic psychology such as Carl Rogers argued that neither of the dominant schools of psychology, behavioural or Freudian, adequately explained why people act as they do. **Humanistic interpretations**[2] of motivation emphasise such intrinsic sources of motivation as a person's needs for 'self-actualisation', the inborn 'actualising tendency', or the need for 'self-determination'. So, from the humanistic perspective, to motivate means to encourage peoples' inner resources – their sense of competence, self-esteem, autonomy and self-actualisation (successful personal development). Maslow's theory has been an influential humanistic explanation of motivation.

Maslow's hierarchy

Abraham Maslow (1970) suggested that humans have a **hierarchy of needs** ranging from lower-level needs for survival and safety to the top-level of self-actualisation (see Figure 01). **Self-actualisation** is Maslow's term for self-fulfilment and the realisation of personal potential. Each of the lower needs must be met before the next higher need can be addressed.

Maslow (1968) called the four lower-level needs – for survival, then safety, followed by belonging and then self-esteem – **deficiency needs**. When these needs are satisfied, the motivation for fulfilling them decreases. He termed the top-level growth needs or **being needs**. When they are met, a person's motivation does not cease; instead, it increases to seek further fulfilment. Unlike the deficiency needs, these 'being needs' can never be completely filled. For example, the more successful you are in your efforts to develop as a teacher, the harder you are likely to strive for even greater improvement.

Maslow's theory has been criticised for the very obvious reason that people do not always appear to behave as the theory would predict. Most of us move back and forth among different types of needs and may even be motivated by many different needs at the same time. Some people, such as those dedicated to saving lives or discovering new things, deny themselves safety or friendship in order to achieve knowledge, understanding or greater self-esteem. The following figure (01) shows Maslow's hierarchy of needs.



However, criticisms aside, Maslow's theory does give us a way of looking at the whole person, whose physical, emotional and intellectual needs are all interrelated. A child whose feelings of safety and sense of belonging are threatened by divorce may have little interest in learning how to divide fractions. If school is a fearful, unpredict- able place where neither teachers nor pupils know where they stand, they are likely to be more concerned with security and less with learning or teaching. Belonging to a social group and maintaining self-esteem within that group, for example, are important to learners. If doing what the teacher says conflicts with group rules, learners may choose to ignore the teacher's wishes or even defy the teacher.

The next general approach to motivation (cognitive and social-cognitive) focuses upon the way that individuals think about themselves and the world.

[2] Approach to motivation that emphasises personal freedom, choice, self-determination and striving for personal growth.

3.4. Cognitive and social cognitive approaches to motivation

In cognitive theories, people are viewed as active and curious, searching for information to solve personally relevant problems. Thus, cognitive theorists emphasise intrinsic motivation. In many ways, cognitive theories of motivation also developed as a reaction to the behavioural views. Cognitive theorists believe that behaviour is determined by our thinking, not simply by whether we have been rewarded or punished for the behaviour in the past. Behaviour is initiated and regulated by plans, goals, schemas, expectations and attributions.

The following table summarises the three views of motivation:

	Behavioural	Humanistic	Cognitive
Source of motivation	Extrinsic	Intrinsic	Intrinsic
Important influences	Reinforcers, rewards, incentives and punishers	Need for self-esteem, self-fulfilment and self-determination	Beliefs, attributions for success and failure, expectations
Key theorists	Skinner	Maslow	Weiner

Interests and Emotions

Learners are more likely to pay attention to, learn about and remember events, images and readings that provoke emotional responses or that are related to their interests. Sometimes, emotions interfere with learning by taking up attention or working memory space that could be used for learning

Tapping interests

There are two kinds of interests – personal (individual) and situational – the trait and state distinction again. *Personal* or *individual interests* are more enduring aspects of the person, such as an enduring tendency to be attracted to or to enjoy subjects such as languages, history or mathematics, or activities such as sports, music or films. Learners with individual interests in learning in general seek new information and have more positive attitudes towards schooling.

Situational interests are more short-lived aspects of the activity, text or materials that catch and keep the learner's attention. Both personal and situational interests are related to learning from texts – greater interest leads to more positive emotional responses to the material, then to greater persistence, deeper processing, better remembering of the material and higher achievement. Interests increase when learners feel competent, so even if individuals are not initially interested in a subject or activity, they may develop interests as they experience success.