

Motivating learning : Why do we learn ?

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On the drive to work last week the only car that stimulated Allan to change what he knew was a yellow convertible being driven by a giraffe in a sailor outfit. None of the other 278 cars that passed Allan stimulated learning.

Jill has an intense interest in fishing. She attends talks and films, borrows videos about fishing, goes fishing whenever she can and is always experimenting with new ways of fishing.

Jack, Jill's boyfriend knew that if he were to retain her interest he would need to take an active role in fishing and so he goes to fishing classes.

Tina found that she learnt the TV commercial for selling a brand of carpets. The words and tune just seemed to 'drip in'.

What do these four episodes of learning tell us about why and when we learn ? In some of the cases, it is clear. Allan's curiosity was aroused by the giraffe driving the car. He didn't know whether giraffes were now being taught to drive convertibles or whether the driver was actually a human going to a fancy dress party. Jill has a thirst for knowledge about fishing, whereas, her boyfriend knows that he needs to show a similar interest if he is to retain her friendship. In these three cases you could say that the learner had a clear reason for learning. Something challenged the learner; the giraffe, to know more about catching fish and to catch and retain Jill.

In the last case, on the other hand, the learning seemed to engrave itself on Tina's mind. She did not seek it out the first time she heard it. And yet she puzzled over why she learnt it and none of the other hundreds of commercials she saw each week on TV. She recalled humming it without being aware that she was doing so until other people drew her attention to it. She realized that she enjoyed its beat and rhythm; it seemed to 'fit in with her'.

In this section we are looking at what provides the impetus for people to learn.

Topic : Motivating learning : Why do we learn ?

A key aspect of individual difference in learning is that some students

- are not interested in learning
- don't feel challenged to learn
- are not motivated to learn.

This unit examines the following issues :

- Conditions favourable to learning : When do we learn ?
- Curiosity and its place in formal education
- An interest in learning
- We learn when we are challenged
- Motives for learning.
- Motivation to learn.

Devaluing of learning is a major problem for contemporary education A major problem for contemporary education involves encouraging students to engage in learning. A higher level of formal education is needed for the future than it has been in the past. A substantial portion of our student population, however, seems to be disinterested in and not value education. This devaluing has been displayed in increasing classroom management and discipline problems. In many cases this has led to disenchantment with and alienation from formal education. It is often assumed that if these students are not sufficiently motivated to learn. Strategies for doing this can come from a consideration of why do we learn.

Why do we learn ? We learn when we want an outcome that we won't have if we don't change what we know. In the scenarios above Allan wanted to know how an event could be explained. Jill wanted to know more about an area of interest to her. Jack wanted to change what he knew so that he would be more acceptable to someone else. Tina learnt something that matched and extended her sense of rhythm. When you ask people why they learnt a particular set of ideas, they may tell you

- they wanted to know more about the ideas; they were curious to know more about a topic,
- they needed the knowledge for another purpose, for example, learning quadratic equations in Year 9 helps satisfy conditions for tertiary entry, learning the six times table helps a grade four child to get out to play, learning to spell a child to be valued by his peers.

These are some of the concepts 'thrown around' when people talk about why they learn. We need to link them into a possible explanation of why people learn.

What do we mean ? Discussion in this area often goes around in circles because the terms used are not clear. We will define what we mean by these concepts now :

Challenge: challenge in the present context means an unresolved query, a state of 'wanting to know' or 'wanting to resolve'. Individuals 'frame up' a challenge in response to environmental information. The information itself can be in the form of a question but learners experience the challenge or the 'want to know'.

Curiosity : a diffuse emotional 'wanting to know more', an amalgam of seeking answers to questions and emotion. It operates when people say to themselves "What's going on here ? That's unusual/ strange. I didn't expect that / It doesn't make sense".

Goal : a goal is the intention or desired outcome of the learning.

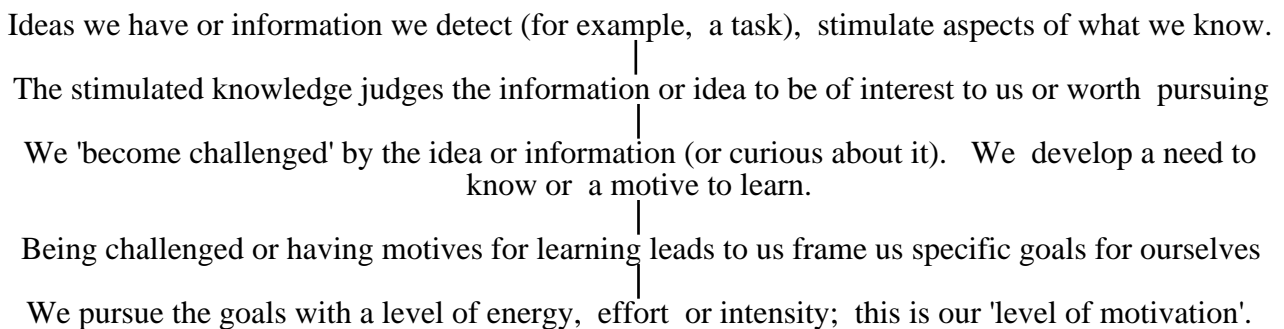
Interest : interest in the present context is a positive emotional state that is likely to lead to attention being directed to an idea in the future.

Motive : a motive is an emotional-desire-based factor that determines the direction of a person's activity towards achieving a particular goal or outcome.

Motivation is the level of effort, energy attention a learner invests in pursuing a learning outcome. This effort initiates and maintains the process or activity by which learners pursue their goals.

These definitions distinguish between initiating learning activity (stimulating interest, attracting attention), the desired outcome (the challenge, motive), the direction of the activity (the goals) and the means by which this activity is initiated and kept going (interest, motivation). Jack's motive was his desire to retain the interest of his girl friend Jill, his goal is to know more about fishing and his motivation is indicated by the drive with which he pursues his desire.

As a starting point to explain why we learn, we propose the following process :



Underlying relationships This process assumes that:

- learning is deliberate and purpose oriented; learners perceive desirable outcomes.
- the impetus or being challenged to learn and the motivation comes from what learners know. This has both cognitive and emotional or attitudinal components, including beliefs about
 - whether the ideas have been useful for achieving particular goals or outcomes, whether they are worth learning (useful, what they might allow learners to do or achieve), will have desired emotional outcomes (interesting, enjoyable, exciting to learn), how they 'fit' with learner's perception of 'where they want to go'.
 - how successfully they can learn these ideas, the reasons for earlier related learning success and failure and whether they have can learn it.
 - how the social group in which the learn occurs is likely to value the ideas, will allow them to be learnt and how.
- positive value beliefs and interest lead learners to frame up challenges or motives and goals for learning. The challenge is a desire to resolve an issue and provides a direction or orientation for the learning activity.
- learners invest effort or motivation in pursuing these goals or outcomes

- the motives for learning can differ; learners can be motivated to change existing knowledge
 - for its own sake, when learners are interested in the knowledge
 - for other purposes, to meet other criteria, to be more acceptable to others, achieve public or group recognition, etc.

Conditions favourable to learning : When do we learn ?

What is it that makes learners have a motive or a desire to learn ? To understand how we can help students learn better, we need to clarify the source of learners' motives. One aspect of understanding why we learn is to identify when we learn.

We don't learn all that we see or hear. Under what circumstances do we develop a desire to learn ? We have seen that exposure to information isn't sufficient. We don't learn from all of the information to which we are exposed. When we have asked this question of teacher groups, a frequent response has been "When we are interested in learning / are motivated" What determines our interest in an idea ? What determines our level of motivation ?

Curiosity and its place in formal education

Curiosity motivates learning. It arises when learners perceive their knowledge or understanding of a situation is incomplete; they are aware that they have 'unfilled holes' in their knowledge and a desire to 'fill these holes'.

It is important to recognise developmental trends in how learners show curiosity. Young children, show unbounded innate curiosity and are 'self-driven to explore their environment. This curiosity is ego-centred or self-directed. Before they begin to speak, their behaviours suggest implicit goals or purposes for learning. While it is unlikely that they are telling themselves "*That's unusual/strange. I didn't expect that*", their range of behaviours is consistent with this. They do not need to be taught how to be curious.

The display of egocentric curiosity diminishes as with progress through formal education in parallel with their awareness of peer group pressure. They learn that personally-initiated curiosity does not fit easily within classroom dynamics. Perhaps because of the 'cultivating process' of formal education, it is replaced institutional or 'socially mediated' curiosity. Classrooms teach students how to be curious in 'socially acceptable ways'. An implicit assumption seems to be that the knowledge taught in formal education doesn't 'mesh well' with innate curiosity, that it is not learnt through a fostering of personal curiosity.

Students learn the importance of being curious in socially acceptable ways. Being curious can lead to other outcomes such as social acceptance (or rejection), access (or non-access) to other opportunities. Students may not be interested in the ideas but value the outcomes that go with them. Their impetus to learn can be conditioned by social valuing. They learn the concept of conditional positive regard and worry about doing things that may lead to rejection by others.

Many older primary and secondary students are reluctant to show curiosity because they may seem unusual or 'odd' by the peer group. They do not see the peer group valuing or encouraging individual curiosity or supporting it. Some students resolve this and show curiosity in ways that are appropriate to the changed situation. Others don't and because they never display curiosity in the group context, they never have the opportunity of seeing whether the group will support it.

Some students have inaccurate beliefs about curiosity. They believe, for example, that because an idea does not attract their curiosity at one time, they will never be curious about it. They need to see that curiosity can change with familiarity with an idea. Factors such as the awareness of peer group influences, a trend away from egocentricity and the notion that there are times and places for displaying curiosity impact on how it is displayed.

Several issues are relevant here: whether

- the social directing of curiosity as part of socialisation and cultururation, is an essential aspect Western cultures and whether exposure to modern acculturating agents such as television and contemporary formal educational institutions. .
- formal educational institutions discourage the innate curiosity that guides early learning. These institutions often remark that students are less challenged and interested in learning.

Encouraging and fostering curiosity in students Formal teaching has the potential to either promote or diminish curiosity to learn. Teachers need to be aware of this and

- encourage students to frame up or recognise challenges for themselves, to clarify the problems or challenges they face. Encouraging students to predict or anticipate an idea or outcome and then see that their prediction or anticipation is incorrect can elicit curiosity.
- use a range of questioning techniques, encouraging students to ask open-ended questions without worrying so much about what others think, to use questions to guide their learning and to modify question sequences as the learning proceeds, encourage risk-taking and a valuing of individual worth, encourage students to be curious and ask questions .
- help students believe that they can be successful.
- provide access to a range of information bases that can be used on a personal interest basis, to pursue enquiries that attract their attention.
- give students the opportunity to direct their own learning and to teach themselves.
- validate the display of curiosity. Secondary level teachers may need to examine the features of teenage curiosity. These students need to see that curiosity helps them achieve personal goals more easily. and that teachers value it.
- demonstrate a practical valuing of curiosity in their teaching..

An interest in learning

Interest is a second issue frequently mentioned as a condition for learning. Interest is an aspect of what we know. It is useful to examine two types of interest ;

- personal interest; the preferences that learners bring to a learning context.
- situational interest; the environmental factors used to make ideas more interesting to learn; we learn to recognize information that suggest that something may be interesting.

Both facilitate learning by energising the necessary learner activity .

Do we learn better things that we rate as more interesting ? Student interest influences whether learning occurs. Information rated as more interesting by students is learnt and recalled more successfully, with a greater influence for boys. The speed of learning is influenced by a learner's level of interest. Interest influences how learners direct their attention, the effort they need to invest, their level of persistence with a task and how they use what they already know.

Beliefs about the value and interest level of a task or an idea are linked. Beliefs about its value predict task performance by affecting how a learner engages cognitively with the task or idea. They predict the types of cognitive and metacognitive strategies used and the management of effort.

What factors increase situational interest ? Situational interest is managed by teachers. Factors that affect it include features of the tasks and learning materials used. Students' situational interest is increased by including in the teaching features such as

- presenting information that leads students to question what they know,
- providing the opportunity for choice in the learning context.
- optimising the novelty value of information,
- using fantasy and
- building student surprise into the learning, presenting events that are unexpected.

It is obviously important that these features be within the capability range of the students involved.

When are students more likely to display interest in learning ? When they

- learn topics for which they have better -developed knowledge,
- use active learning strategies such as elaboration, seeking information, critical thinking rather than retention strategies such as rehearsal,
- judge them to be more likely to give pleasure, success or satisfaction using their knowledge of past similar events or ideas that were linked with pleasurable outcomes,
- judge them to be useful for dealing with future events and needs,
- judge an idea or event to have unusual, unexpected or not predicted characteristics.
- believe that we have a reasonable chance of learning them.

The influence of interest on learning is complex and multifaceted. Level of interest in a topic is not static, but changes as learning proceeds. At one time students may not display interest in an idea per se but in avoiding the consequences of not learning it. As their knowledge of the idea grows, so may their interest.

Is interest in learning sufficient ? Interest by itself is insufficient to explain learning. However, it determines the quality and quantity of the learning; those who aren't as interested in or value an idea may learn aspects of it but not necessarily at the same level of quality as those who are more interested in it.

It is not clear whether situational interest can compensate for personal interest. Teachers can include features that are likely to increase this interest, but unless it links with the existing knowledge of students, it is not likely to lead to change this knowledge.

Interest in an idea can grow as we learn more about an idea. We can be motivated to learn an idea in which we are not initially interested. Our interest can grow with continued exposure to the idea.

We are continually exposed to information, both familiar and unfamiliar. We don't show an interest in all of this information. We are not usually interested in information that was totally predictable. Nor we are likely to be interested in topics about which we know nothing. Consider Peter's episode earlier. The car in which he was interested was the one that was partly unexpected.

We learn when we are challenged

In the episodes at the beginning of this section we noted that all of the learners were challenged. Allan's challenge was to know more about the giraffe driving the car; this didn't fit his existing knowledge. Jill's challenge was to know more about fishing. The challenge may not have come from others but from her belief that she could know more about aspects of fishing. Jack's challenge was to retain Jill's friendship. All perceived a challenge because they believed their existing knowledge was inadequate. Linked with each of these challenges was a motive or desire to learn.

In our model of learning, we are suggesting that learners need to be challenged before they can have a motive to learn. Our curiosity needs to be elicited. Being challenged to learn is what Keeler (1983) called 'inquiry arousal'; the learner is aroused by a perceived query. That is,

Emotional feelings -----> being challenged -----> motives for learning -----> motivation
linked with ideas to learn to learn

Contemporary theories of motivation note that importance of being challenged for motivation :
" activities must be optimally challenging to be interesting and to promote intrinsic motivation"
(Deci & Ryan, 1992, page 11).

When is information likely to challenge us ? It may be novel but can be linked with what we already know. It may be unexpected. It also needs to be judged as having potential value, able to help us handle future situations more easily or achieve particular outcomes. It is of interest.

In teaching, activities are frequently described as 'challenging'. This description is appropriate only if they do challenge students, that is, ask questions that they want to resolve. Being challenged has a strong emotional loading; it is a desire, a wanting to know more about a set of ideas. It is what learners do, a quality of the pupil-teaching interaction rather than of activities or materials.

Being challenged is critical for learning. Learners 'frame up' for themselves the response to a challenge. Their active responses to the challenge determine learning by initiating the need to learn more. This is the concept of 'self-challenged'. We are challenged by an event or idea that we don't think we can make sense of. The self-challenge is framed when we believe we don't know and want to. It leads us to invest attention in the idea.

The conditions necessary for being challenged to learn new ideas are when

- we perceive novelty
- we are surprised by an experience or an event; there is an element of the unexpected; "That shouldn't have happened", "things don't fit".
- we judge a new idea, skill, etc., is useful for us to know or do; we need to learn it to achieve some goal.

So far we have focused on being challenged by a new idea. As well as the initial challenge to learn, a second aspect is continuing until a desired outcome is perceived to be achieved or the motive discarded. The two aspects of being challenged are

- (1) an initial attention-attracting aspect and
- (2) a challenge -sustaining aspect that continues until goals are perceived to be met or discarded.

Both of these aspects need to be accounted for in teaching.

Implications for teaching The extent to which learners are challenged is influenced by the teaching and other environmental factors.

For the initial challenge, teachers can

- wherever possible, introduce new ideas as problems to be solved, if possible in real-life, concrete or pictorial formats. This helps students frame up for themselves purposes or reasons for learning. In a supportive way, help them see that what they know is insufficient for dealing with the problem. They can learn respond to problems in a variety of ways;
 - to guess at solutions, to imagine what the solution will be like,
 - to try out potential solutions and
 - ask questions such as What might we do ? What alternatives do we have ? How will we solve the problem ? When encountering a new concept with students, for example, the teacher can ask "What could it mean ? What do you think ? How could you check your guess ?

My grade 6 teacher introduced our class to a new country by writing on the blackboard its initials; U.S.A. We had to guess the country. After several minutes guessing we were all surprised (and challenged) when he told us we would learn about the Union of South Africa.

- during the early stages of teaching a new idea, encourage students to decide the questions they think the teaching might answer and what they think the answers are. As they learn, they can check their guesses against the ideas presented.
- make the novelty of new ideas stand out.
- high-light the unexpected or unanticipated aspects of an idea, use procedures that encourage students to predict or expect particular outcomes, let them see that these are not met, and raise the issue of why.
- use ambiguous situations and open-ended tasks to elicit the challenge, for example, make a toy boat that isn't powered by an engine, design a worm farm, plan the ideal class room.
- use fantasy and imagination to encourage students to see possible questions and puzzles. The fantasy context can be used to generate intrigue and mystery in learners.

For the sustained challenge, teachers can

- let students see that they are getting closer to their goal, that they are making progress.
- ensure that corrective feedback at intermediate stages is provided
- encourage students to respond affectively to the idea, to comment on how they are feeling, that it is acceptable to say "*This isn't bad; I feel I am making progress*", that they are doing things they couldn't have done earlier
- encourage students to re-orient the challenge "We know this much. Now let's work on ..."
- break challenge into sequence of smaller challenges.
- encourage challenging from the group.
- vary the mode by which the information is presented

Wanting to learn. The notion of being challenged has been presented from a slightly different perspective, in terms of 'wanting' or 'being prepared' to learn, that is 'volition in learning'. There are two aspects of this (Egan, 1994);

- wanting to begin the learning activity and
- persevering or continuing with the activity until the goal is reached.

Egan uses the concepts of inertia and entropy as metaphors for difficulty getting started with the activity and ceasing the activity before the goals are reached. Obviously, in addition to the teaching conditions noted above for the initial challenge, learners need to believe that they can learn the ideas and to value learning them.

For the sustained learning, the desire to learn can diminish for several reasons, including change in personal priorities, environmental influences that alter these priorities. In the absence of these affects, the desire for sustained learning can be enhanced through the teaching conditions above.

The role of volition in learning has attracted little research attention in the past. This is surprising, given that in practice the desire to learn would intuitively be a major pre-condition in learning. Throughout the discussion in the following sections, the 'want to learn' will recur.

Motives for learning.

The episodes described earlier suggest that people have different motives or intentions for learning. We need to take account of these because students' motive for learning influence how they will learn the ideas. You may have three main motives for learning ;

- to reduce your lack of knowledge, to understand more about the idea, to explore it as widely as possible to satisfy your curiosity, to increase your independence or efficiency, to improve how you do things . This type of motive leads to 'deep' learning.
- to use your knowledge at a later time to meet a criterion unrelated to the idea (for example, pass an exam or an interview, survive in a group). You are not interested in the idea and know you won't need to use it except to overcome the hurdle. You want to learn the idea with as little personal investment as possible; your motive is simply to be able to show that you can recall the idea. This type of motive leads to 'surface' learning.
- to achieve at a level relative to others, for example, at the highest level of performance or to get others 'off your back'. This type of motive leads to 'achievement' learning. You may have several reasons for this;
 - to achieve high grades for entry to other subjects or courses,
 - to 'prove' to yourself that you can learn the idea well,
 - to move up through a hierarchy,
 - to secure one's future, for example, Jack's motive at the beginning of this chapter ,
 - to reduce parent pressure

These three types of motives are shown below for people learning about fishing;

motives for learning about fishing		
<i>I want to learn as much as I can about fishing; I am interested in it.</i>	<i>I have to pass a fishing test to move to the next level of work. Being able to fish qualifies me</i>	<i>Fishing will help me keep my girl friend. She is a keen fisherperson and she will like me better if I know about fishing.</i>
<i>I want to practise it whenever I can, try out new ideas.</i>		

Approaches to learning for the three motives. Our motive for learning a idea affects how we learn it. We learn in different ways for different purposes. The key features of the three types are:

<u>Motives for learning</u>	<u>Learning actions usually used</u>	<u>Learning outcomes</u>
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Surface

To meet minimal criteria, hurdles or demands, pass an exam, meet hurdle	Actions that help reproduction of ideas learnt; memorising, rote learning of ideas, noting details.	Ideas retained short term, not owned or understood by learner limited application and transfer
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<u>Motives for learning</u>	<u>Learning actions usually used</u>	<u>Learning outcomes</u>
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Deep

Understand the ideas, know more, solve problems, satisfy curiosity, achieve satisfaction by achieving long-term goals,	Actions that help understanding; taking ideas apart, exploring them as widely as possible, relating ideas to what is already known	Better understanding, commitment to the ideas, can teach ideas to others, know that learning is not finished, transfer and use ideas broadly
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Achieving

Meet the expectations of	Memorise, act to reproduce in an	Ideas retained short term, not
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others, reduce pressure imposed by others to feel valued

organised way, out-comes valued by others, learn procedurally not take risks, conform, copy

owned by the person, ideas

Achieve excellence, high marks or grades, skills to play the game, climb through a system secure one's future

Actions that help understanding; linking ideas with existing knowledge using a range of resources and materials. Structuring the learning in the most facilitative ways

Most of us have held each of these motives and used the strategies linked with them in different situations. It is generally believed that surface approaches are the least useful, and deep approach is preferable, leading to higher quality outcomes for adult learners.

Surface and deep learning strategies for children learning. Surface learning strategies may precede deep strategies in learning an idea. Attentional and working memory limitations may mean that a child needs to encode aspects of an idea in short-term working memory and automatize these so that when the child comes to relate or organise them a short time later, the child needs to invest a relatively small amount of attentional resources in understanding each idea and has therefore greater attentional resources to use for deep-learning processes. In other words, while we may permit a surface approach when a child is first learning an idea, we would not stop there but would instead want the child to move gradually towards motives and strategies typical of a deep approach.

The teaching conditions for deep and surface learning. To assist students to move from surface to deep approaches to learning, we need to know the learning conditions that encourage each approach. Adult learners are more likely to use memorising and rote learning strategies over meaning-analysis strategies when they perceive the learning environment to involve a heavy workload, and that they have little freedom to learn or to control the learning. More perceived freedom and good teaching is linked with a meaning orientation. It is the student's perception of the situation rather than the actual situation that is linked with the selection of the approach to learning.

The conditions associated with a surface learning approach include the following

- (1) students believe they will never need to use the ideas except for test situation; they do not see how the ideas are relevant to dealing with situations or solving problems in their lives.
- (2) when students are learning under conditions of pressure, for example, limited time to learn, not enough time to work on the ideas in more in-depth ways.
- (3) when students believe that they are not allowed to explore ideas and are not allowed to change the ideas.
- (4) aspects of the assessment of learning, for example, when students believe that the learning outcome valued is a reproduction of the ideas learnt rather than an active exploration.
- (5) when students believe that there is too much information to learn, when they can't see how they might organise the information to be learnt into 'digestible' parts.

The conditions that facilitate a deep approach In our experience with primary and early secondary level school children we have found that these include

- (1) modelling deep learning behaviours, using strategy sharing and thinking aloud techniques.
- (2) encouraging students to ask themselves questions while they are learning.
- (3) encouraging students to recognise how they go about learning most effectively.
- (4) encouraging them to take risks, to know that they are allowed to change their minds.

- (5) presenting ideas as open-ended problems to be solved, students using whatever strategies they and share their strategies with class peers, encouraging group problem-solving.
- (6) teachers asking open-ended non-directive questions such as "But what about ?", "Do you mean ... ?" or "But where does fit in with ?"

Motivation to learn.

Motives are reasonably long term in that they can endure across a range of learning situations. A related concept is motivation, and in particular, a motivation to learn. To clarify what we mean by motivation, it is useful to describe how it manifests. When individuals are motivated to learn, they 'put in place' the necessary cognitive and affective processes for changing what they know. They show an eagerness or a preparedness to learn. Those not motivated to learn do show not interest, drive or preparedness to engage in learning.

It is useful to link motivation to learn with having goals for learning. Motivation is the process by which goal oriented activity is initiated and maintained. Motivation to learn is related to what learners believe about how well they can control and manage their ability to learn.

You are motivated to learn an idea when you have a goal for learning it maps directly into pupil and teacher action. Students are motivated to learn when they are prepared to engage their existing knowledge and activate learning strategies. Two types of motivation are identified:

extrinsic motivation : when learners learn for purposes that are external to the change in knowledge, for example, they are motivated by the desire for high marks, for social acceptance, to out-achieve others. The learning is a means to an end.

intrinsic motivation : when learners learn because of a desire to know more about a set of ideas.

Both types of motivation exist in formal education, although extrinsic orientations dominate. Grading, tangible reinforcers such as colourful stickers and stamps are used as extrinsic rewards for academic outcomes and acceptable behaviour. The two types of motivation are mediated by different perceptions: learners are more likely to be

- ***extrinsically motivated*** when they perceive that to achieve a particular outcome, for example, high marks or social acceptance, they need to engage in the learning. Once the outcome has been attained, motivation for further learning has not base.
- ***intrinsically motivated*** when they perceive that they both
 - are capable of learning the ideas; perceived self-confidence and
 - can control or manage the learning situation in meaningful ways.

If one of these conditions is not in the learning context, intrinsically motivated learning is less likely.

When learners believe they can control how well they learn and how successful they can be, they display a higher level of persistence and effort on the task. As they see themselves making progress towards a learning goal, their sense of self-control is supported and further learning is more likely to ensue.

Developmental trends in the motivation used. It is usually accepted that intrinsically motivated learning is the earliest form of learning and is innate. Infants show global intrinsic motivation; they are motivated to explore whatever is in their environment.

Learning for motives other than the knowledge itself, for example, to get positive regard from others has its origins in early socialisation experiences.

- when grading or marking learning outcomes, indicate why the grades were given in terms of the ideas mentioned in the outcome, emphasise the criteria in the student's work that earned the grade and how the work could be improved, allow students to re-submit work after feedback has been provided on a first draft .

Avoid using extrinsic procedures when students display intrinsic motivation When students have begun to display intrinsic motivation for a topic, teacher feedback that is seen as controlling the learning needs to be used carefully. Extrinsic rewards can reduce students' beliefs about control and competence and their long-term intrinsic motivation. If the feedback is seen by the students to be informing them and allows them to modify their knowledge, even when grades are given, it is not as detrimental to intrinsic motivation. Teacher behaviours that decrease student opportunities for managing and directing their learning include

- stressing assessment, grades and the evaluation of outcomes rather than teaching functions,
- scrutinising and monitoring students while they are learning and
- emphasising time constraints and deadlines for learning and task completion.

While this type of intervention may be necessary for those students who do not display intrinsic interest in what they are learning, it may be detrimental to those who do. Teachers need to monitor learning situations and decide when and for which students it is most appropriate to intervene by providing increased structure and support. The combined effects of extrinsic and intrinsic motivation do not simply add up.

Fostering the two types of motivation : Teaching procedures

Extrinsic motivation is well-fostered in classrooms. Teachers use a variety of means to show a valuing of acceptable academic outcomes and behaviours. These include tangible concrete reinforcers (food, prizes, awards), tokens, praise that compares one student's outcomes with another's, avoidance of punishment.

Intrinsic motivation is not as well fostered. Teaching procedures need to develop simultaneously in students the beliefs that they can learn a set of ideas and that they can control or manage the learning situation. Intrinsic motivation is contextually specific; students will display it in some learning contexts but not in others. As they move between contexts, their perceived competence and self-determination may change. These areas of self-perception frequently improve only slowly and teachers need to identify small changes in behaviour as indicators of progress.

Teaching procedures for enhancing self-perceptions of control and self-management :

- making classrooms more predictable by familiarising students with classroom procedures, routines for teaching, informing students of the topics to be learnt, providing class study and topic programs, working with students to prepare assignment schedules, allowing students to make some decisions about when and how they will study particular topics .
- monitoring the difficulty of learning activities and maintaining a balance between tasks that students can complete by themselves and tasks for which they need assistance. Students need to see themselves making progress and that this occurs through their efforts.
- providing models to show students what they are required to learn and helping them learn how to use models. Models include peers, teachers, parents, characters in videos. To be maximally effective, students need to see that the model is like them in particular ways.
- organizing learning tasks into 'sub-tasks' helps students to be successful while in control. Teachers can break up tasks initially but gradually students can learn how to do this. Before beginning to work through a research project, they can develop 'action plans' showing how they will segment it and receive feedback for each component as well as for the task.

- encouraging small group activities in which students work collaboratively to complete tasks. Depending on the task, they can both pool their knowledge and then take on complementary sub-tasks, working in parallel and then bringing together their outcomes.
- helping students learn to see themselves controlling and directing their learning situations. Students make choices about aspects of a topic they might study in greater depth, how they might show their knowledge, which peers they might work with. Students can learn how to make choices effectively, beginning with small choices and gradually increasing the range and complexity of these. It is important in these choice contexts that students can see themselves optimally competent. The role of teacher feedback is important here; it can
 - affirm a learner's competence
 - pressure the learner to operate or think in ways valued by others
 - 'patronise' the learner, implying that the learner is not as competent as others.
- avoiding comparing student outcomes with peers since this lead them to believe that teachers value those who 'out achieve' others. This in turn leads to a restricted set of learning strategies, for example, learners avoiding taking risks or being creative. Assessing outcomes in terms of structure rather than on a comparative basis with peers, providing assessment feedback privately, specifying clearly criteria for assessment prior to task completion, encouraging students to decide standards for successful task completion reduce comparisons.
- encouraging and supporting students to develop various types of goals for learning. When students believe that acceptable achievement goals are to do with them increasing their knowledge in ways that interest them and that they can control, they are more likely to display intrinsic motivation. When they believe that acceptable goals are 'getting a high mark' they are more likely to respond to extrinsic motivation. One way of helping students to learn about each type of motivation is to encourage them to set different types of achievement goals for themselves.

Enhancing motivational patterns through setting achievement goals. Linked with each type of motivation are goals that specify the types of learning outcomes that are to be targeted.

Different types of achievement goals ----> different patterns of motivation -----> different ways of approaching, engaging in and responding to learning activities

Two types of achievement goals have been identified;

- ***intrinsic motivation*** has been linked with achievement goals referred to variously as learning, task involvement or mastery goals.
- ***extrinsic motivation*** has been linked with achievement goals referred to variously as performance, ego involvement or performance goals.

The two types of goals

- are linked with different ways of thinking about one's self, the task and how it is learnt ; students attend to, interpret and respond to the teaching information differently.
- are elicited by different teaching demands and lead to different motivational patterns.

Comparisons between the two types of goals are shown in the following:

Criterion	Mastery goal	Performance goal
Nature of challenge	How can I learn more about this ? goals associated with trying and doing better	How can I do better than JM ?

Beliefs	Effort ----> success; as effort increases, do does outcome	Success is doing better than others, achieving with little effort
Reason for Learning	Focus is on the intrinsic value of learning, and on the effort used; belief that effort leads to success or mastery	Focus is on public recognition; learning is a way to achieve a desired goal.
Learners' Preferred Outcomes	Learner is oriented to developing new skills, understanding, improving competence, achieving a sense of mastery based on self-referenced standards	Learner's self worth is determined by performing. Putting in effort can threaten self-concept of ability when trying hard doesn't lead to success
Motivational patterns produced	Motivational related factors that lead to positive achievement activity and that are necessary for self-regulated behaviours.	The use of self-regulated behaviours are not encouraged
	Positive attributional beliefs (<i>The harder I work the more I'll learn. When I fail I can change how I am learning.</i>)	Negative affect following failure (<i>I can't read</i>) and positive affect following success with little effort
Differences in Instructional Demands	Preference for challenging work and risk taking, interest in the learning activity. Positive engagement with tasks; increase in the time spent, persistence. Effective use of learning strategies	Avoidance of challenging tasks. Want quick, short-term confirmatory outcomes, small tasks Use short-term learning strategies (memorising, rehearsal)
	Self-concept of ability is not continually being monitored; you are permitted to 'learn to do better'.	Self-concept of ability determines how (and whether) learners engage in particular (more challenging) tasks.

Encouraging mastery goals in our teaching

Tasks that are more likely to lead to mastery goals have the following characteristics

- involve variety and diversity as perceived by learners; this can be achieved through games, novelty, computers, co-operative learning.
- help students see meaningful reasons for doing the task. What is challenging is idiosyncratic.
- tap students' interests over time
- offer students a sense of control over either process or content
- are seen by the students to require reasonable effort
- are defined in terms of short-term, specific outcomes
- take account of the social structure of the classroom, eg, when sharing solutions is validated.

Assessment and evaluation procedures that encourage mastery goals. Social comparison, grading responses normatively, is likely to lead performance goals. It is not the social comparison itself that has a negative impact on mastery goals, but how the information is used. If the grading focuses on self-improvement, students are more likely to frame up mastery goals. Social comparisons

- limit student's use of effort-based strategies that require deeper levels of information processing. Use of effective learning and problem-solving strategies depends on whether students

believe they are valued. Conceptual learning, metacognitive processes and interest in learning are restricted.

- restrict students who have low self-confidence. They are more likely to show learned helplessness when performance goals are emphasised, use ineffective problem-solving strategies and show negative self-attributions of ability. When the purposes of the task is presented in a non-normative way, for example, as "sharpening their minds", goals are more mastery-oriented.

Rewarding goal attainment. The extent to which rewards are motivating depends on what is perceived to be earning the reward. Teachers need to clarify what the feedback is for;

- extrinsic rewards need to take account of the abilities and interests of students. When they are seen to be given for comparative performance, they foster performance goal behaviours.
- when the rewards are given for effort, personal progress towards short term goals or on meaningful aspects of performance, mastery goal behaviour is more likely.

Teaching procedures differ in the extent to which they promote student autonomy and decision-making. Mastery goals are more likely to be fostered when teaching procedures encourage students to exercise control and choice in their learning by developing self-regulatory behaviours, learning how to learn, monitoring their learning progress and generally becoming more independent as learners.