

The implications of memory, thinking and language for the modern essay



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Cognitive psychology ' is the attempt to understand human cognition by observing the behaviour of people performing various cognitive tasks' (Eysenck and Keane, 2010: 1). This essay examines the cognitive processes of memory, thinking and language and how they can be applied to the third level student. The modern, third level Irish student has many challenges to face when entering third level education. Most students are school leavers who are leaving the family home for the first time to live independently. They must contend with new challenges such as budgeting, shopping and cooking and various other life skills. Socially, their identity is changing as they become young adults. Added to this, they are undertaking an educational experience where every aspect is new, from the building to the syllabus to the people. The optimum use of cognitive resources is paramount during this time.

This essay is divided into three sections. The first section outlines the process of memory, focussing on how information is encoded, stored, retained and retrieved. The following section reviews thinking behaviours including reasoning, decision making and problem solving. The final section explores the cognitive ability of language. In the process, the relationship between language and thought is examined. The acquisition of language is briefly considered as are the three broad theories of language development. Throughout the essay, the practical implications of memory, thinking and language for third level students are highlighted.

According to Atkinson and Shiffrin in Feldman (2010), memory allows human beings to encode information, store it and retrieve it as required. There are three different memory stores consisting of sensory, short-term and long-
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term memory. Information must pass through these three stages in order to be stored permanently. Sensory memory is the initial stage through which information must pass.

It stores a highly accurate copy of the material to which it is exposed but it is only able to store this information momentarily and it cannot make sense of its meaning. If the information is not passed into short-term memory, it is lost permanently. The second stage is short term memory. Here information has meaning and is stored for fifteen to twenty seconds. It is kept in short-term memory through repetition. Long term memory is divided into procedural memory, memory of procedures and skills, and declarative memory, the aspect of memory that stores facts. Declarative memory includes semantic and episodic memory. Once stored in long-term memory, information will remain there on a fairly permanent basis. In order for it to be transferred into long-term memory, 'elaborate rehearsal', such as organising the information in some way, must take place (Feldman, 2010).

This could involve elaborative processing, when what needs to be remembered is embellished with extra information. The success of study techniques using elaborative processing (such as the PQ4R method by Thomas & Robinson, 1972) has been documented and could be beneficial for third level students when studying text material. In fact, at the beginning of many third level psychology textbooks such techniques are offered as a method for studying the book. These techniques usually instruct the student to generate questions before the material has been read and to then try and answer these questions while processing the material. This encourages a '

deeper and more elaborative processing of the text material' (Anderson, 2000: 193).

An example of elaborate processing is when students find it easier to recall information from movies and novels (which they had not intentionally tried to remember) than information from lectures and textbooks (which they had intentionally tried to remember). This happens because usually a movie or a good book is easier to elaborate and provokes elaborations (Anderson, 2000). In accordance with this, there has been influential research that the most crucial part of retention is the depth to which information is processed rather than the length of time which it is rehearsed.

This hypothesis is known as the levels of processing or depth of processing theory. As opposed to passive rehearsal, it suggests that information rehearsed in a meaningful, deep way improves levels of retention (Anderson, 2000). In contrast, during rote memorisation, processing happens at a superficial level and is therefore not very beneficial when trying to recall information successfully (Feldman, 2010). This has practical implications when considering the third level student. Third level students are usually school leavers. In second level education, learning by rote is actively encouraged. In third level education it is actively discouraged and this may be challenging for new students.

When a particular piece of information needs to be recovered it is known as recall. Retrieval cues, stimuli which enable material to be retrieved from long term memory, are a useful method in recall. For students retrieval cues are crucial during examinations. In contrast, recognition occurs, when presented

with a stimulus, a student is able to identify previous exposure to specific material, and is able to distinguish it from other information (Feldman, 2010). During lectures students are initially exposed to new material. Later, when students study the material on their own 'recognition' may occur. Recognition may also happen during examinations which involve multiple choice questions.

When information is recollected consciously it is known as explicit memory. Everyday students consciously recollect specific information concerning their coursework, classmates and every other aspect of their lives. In contrast, implicit memory relates to memories which a person is not consciously aware of, but which can still impact on their life. Classical conditioning is an example of implicit memory. A student could experience fear when entering the office of a member of the teaching staff because of past associations with discomfort (Gazzaniga and Heatherton, 2006). Extraordinary memories are easier to recall than commonplace ones and these are termed flashbulb memories. Flashbulb memories are not especially relevant to students relative to the general population.

It is widely accepted that memories are in part constructed and influenced by the meaning given that is given to events. Constructive memory processes include schemas and autobiographical memories. 'People tend to recall their past attitudes and beliefs as being consistent with their current attitudes and beliefs, often revising their memories when they have a change in attitude' (Gazzaniga and Heatherton, 2006: 286). A student who is trying to create a positive impression on his new group of friends may revise his memories of fondness for heavy metal music. If his new friends are really

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keen on this type of music, his moderate fondness for heavy metal during secondary school may be revised as an extreme fondness for heavy metal music.

Hermann Ebbinghaus carried out the first in-depth investigational study of human memory. His research on forgetting, the forgetting function (1885), showed that initially there was a sharp decrease in memory (relative to the time of original retention) but that this was then followed by a slower decrease over time (Anderson, 2000). His work also demonstrated that it is normally faster to relearn previously known matter than it is to learn completely new material (Feldman, 2010). This would suggest a case for students to use a measured, consistent approach to studying as opposed to 'cramming' new material before exam time.

Forgetting is necessary to remember. This may sound contradictory but in order for human beings to remember relevant information, irrelevant and inconsequential information needs to be forgotten. Although it should be noted that information encoded in long-term memory can be forgotten for other reasons such as decay, cue-dependent forgetting, failure to encode the information properly in the first place and interference. Proactive interference is when prior information impedes the retention of new information. Conversely, when new information inhibits the retention of old information this is known as retroactive interference (Gazzaniga and Heatherton, 2006). Through the use of effective methods for studying such as keyword technique, organisational cues, effective note taking, practice & rehearsal and not believing claims that drugs improve memory, the retention ability of a third level student can be improved (Feldman, 2010).

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Memory and thinking are interconnected. Thinking may be defined ' as the manipulation of mental representations of information' and such ' mental representations of information' are encoded in the mind through memory (Feldman, 2010: 220). Symbolic and analogical representations are two fundamental types of representations used by people on a daily basis. Concepts, the categorisation of objects, episodes and people that share similarities, are symbolic representations. A highly characteristic example of a concept is known as prototype. A mental image, an object or event reproduced in the mind, is an analogical representation (Gazzaniga and Heatherton, 2006). Through the use of mental imagery, new third level students can become familiar with new classrooms, new buildings and new faces in a short space of time. Furthermore, for students involved in sports, evidence has shown that mental imagery, such as visualisation, can also be used to enhance sports skills such as athletics (Feldman, 2010).

The basis of thinking behaviour is the capability of humans to reflect in an intricate way on their lives, to plan various aspects of their lives and to find solutions to the problems that arise on a daily basis. Forms of thinking include reasoning, problem solving, decision making and judgement (Eysenck and Keane, 2010). The third level student regularly engages in all these thinking behaviours throughout their academic lives.

Reasoning ' refers to the processes by which humans infer new knowledge from what they already know' or to put it more simply it is the process of ' making up your mind' (Anderson, 2000: 314). On a daily basis students must ' make up their mind' about any number of things, from what books they should borrow from the library to whether to take the recreational drugs on <https://assignbuster.com/the-implications-of-memory-thinking-and-language-for-the-modern-essay/>

offer at a college party. They use the information they have to ‘ draw conclusions and make decisions’ (Feldman, 2010: 223).

Decision making frequently involves the use of heuristics. Heuristics are cognitive shortcuts or rules of thumb which require minimal amounts of thinking and usually result in a positive solution. In contrast, algorithms are procedures that if followed correctly will lead to a solution. Heuristic thinking regularly takes place at an unconscious level. ‘ The processing capacity of the unconscious mind is limited’ so one of the advantages of heuristic thinking is that it enables people to multitask, such as a student talking on a mobile phone while cycling (Gazzaniga and Heatherton, 2006: 306). An example of heuristic thinking is a student, existing on a limited budget, always buying the cheapest option available of a product when shopping in the supermarket. When it comes to decision making, such rules of thumb are quick and often result in positive decisions (Gazzaniga and Heatherton, 2006).

Everyday third level students solve problems such as how to survive on a limited budget, how to use household appliances or how to study for a particular subject. Preparation, production and judgment are the three stages typically involved in problem solving. The first stage entails comprehending and identifying the problem. In the second stage potential solutions are considered, possibly using a heuristic (such as means-ends analysis). The final stage is when the merit of a solution is evaluated.

Cognitive methods of problem solving involve thinking in a sound, reasonable way; however, barriers to solutions, such as functional fixedness and mental set, can still occur (Feldman, 2010).

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The linguistic-relativity hypothesis suggests that ' language produces thought' given that language influences and determines perception of surroundings (Feldman, 2000). Usually during college a student's vocabulary increases. If language does produce thought this could therefore directly impact on the depth of thought which a student experiences.

In contrast, recent research claims that thinking produces language, although it is recognised that language does influence thinking and that ' language and thinking interact in complex ways' (Feldman, 2000: 234). Either way, ' language is inseparably involved with processes of thinking and reasoning' (Potter and Wetherwell, 2005: 9). Research has shown that speaking two or more languages gives cognitive advantages over speaking just one language (Feldman, 2000). Due to the second level education syllabus, most students entering third level education have a proficiency in at least one foreign language which can only impact positively on academic performance.

Language is defined as the ' communication of information through symbols arranged according to systematic rules' (Feldman, 2010: 230). As ' the most basic and pervasive form of interaction between people' it is easy to see why it is such an extremely important cognitive ability (Potter and Wetherwell, 2005). Some studies indicate that language is different from other cognitive abilities. This claim is based on research on the acquisition of language by children (Anderson, 2000). Children's first attempt at language is called babble. This sounds similar to regular speech but does not contain any meaning and usually occurs when children are three to twelve months old. At the age of two children begin to use telegraphic speech which is when they

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use words only necessary to communication and do not use any unnecessary words. By age three children apply language rules inappropriately. This occurrence is known as overgeneralization (Feldman, 2000).

Older children and adults carry out most activities in their lives, such as talking and writing, through language. This is especially applicable to third level students as college life involves copious amounts of writing, reading, talking and socialising. These activities 'do not live in some purely conceptual realm, but are mediums for action' (Potter and Wetherwell, 2005: 9). Thus, the implications of language on third level students cannot be stressed enough.

There are three broad theories concerning the development of language. The basis of the learning approach is that language is an acquired skill. The nativist approach suggests that humans are born with an inherent linguistic ability. Whereas the interactionist approach advocates that the development of language is an amalgamation of the two aforementioned theories (Gazzaniga and Heatherton, 2006).

Students enter third level as young adults. Part of becoming an adult is establishing an identity and learning 'who you are'. Language plays a major role in the consolidation of identity. Language is one of the first benchmarks that people use in judging or defining a person. Students who are apt to be impressionable may change their language, consciously or unconsciously, in order to conform to their new social group. For example, a student from rural Ireland may adopt 'D4' terminology and accent while studying arts (predominantly made up of students from the south side of Dublin) in Trinity.

Conclusion

From the beginning of college the third level student usually employs tremendous effort to utilise these three abilities because their success (academic, social and general life skills) and how well they adapt to a totally new environment is almost wholly dependent on how effectively these processes function.

Apart from third level students, the theories of memory, thinking and language have a massive impact on all aspects of life for every human being from young babies to elderly people. For children, how well these processes are developed early on will contribute to how successfully they will perform later in their lives academically, socially and in every other area. In later life for adults, the emphasis is on the consistent use of these processes, especially memory and thinking, in order that they do not deteriorate or become lost altogether. The well known phrase 'use it or lose it' takes on special significance as adults grow older.

These three cognitive processes are exalted and emphasised by western culture. Levels of intelligence and education are judged based on these abilities. The advertisement industry is entirely constructed around these processes. Through advertising and marketing, the consumer industry of the western world directly depends on memory, thinking and language for its continued survival. As outlined in this essay thinking and memory can be manipulated, interfered with and erased. This is quite concerning and poses further deliberation when considering mass advertising, the media, the

internet and other mechanics of western society that influence these processes on a daily basis.