

Knowing and the Feeling of Knowing

An important property of memory that is evident in everyday experience is that the information that we can retrieve at any point in time represents only a fraction of what we actually know. However, even when we fail to recall a name or a word, we can still judge whether it is stored in our memory and is worth searching for.

Everyone is familiar with the “tip-of-the-tongue” (TOT) state that we sometimes experience, when we block on a certain word or name. William James (1893), one of the founders of modern psychology, described the TOT state as follows:

“Suppose we try to recall a forgotten name. The state of our consciousness is peculiar. There is a gap therein; but no mere gap. It is a gap that is intensely active. A sort of wraith of the name is in it, beckoning us in a given direction, making us at moments tingle with the sense of our closeness and then letting it sink back without the longed-for term. If wrong names are proposed to us, this singularly definite gap acts immediately so as to negate them. They do not fit into its mould. And the gap of one word does not feel like the gap of another, all empty of content as both might seem necessarily to be when described as gaps” (p. 251)

What is fascinating about the TOT state is that it represents knowing about the unknown. It illustrates a discrepancy between the subjective conviction that we “know” the name, and our actual inability to produce it. Naturally, the question arises: How do we know that we know? This question, in fact, applies to memory in general, because by and large, we are quite accurate in our meta-cognitive judgements, that is in what we know about our own knowledge.

The feeling of knowing (FOK) has been traditionally regarded as a mystery, and has been typically discussed in connection with the concept of “intuition”. This concept emerges, for example, in the study of creativity: The reports of highly creative people about their thought processes suggest that they often have the intuitive feeling that they are on the right track to a solution, and can even sense that they are about to reach that solution before they actually do so. In fact, descriptions of the creative process suggest that a great deal of the cognitive work goes on unconsciously (Ghiselin, 1952), and yet people can monitor these underground processes without actually being aware of them. This is very similar to the FOK that we have about some piece of information before we can retrieve it.

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My work as well as that of others (Koriat, 1993; Metcalfe, 2000) has attempted to demystify the FOK. The classical account of the FOK (as well as other types of meta-cognitive judgements) is that it is based on accessing an internal monitor that “knows” whether the solicited information is present in memory. Thus, Hart (1965), for example, proposed the existence of a Memory Monitor that can inspect the contents of memory and detect whether the trace of a particular item is stored there or not. Therefore, when I am presented with a question (e.g., “what is the word for ‘thanks’ in Norwegian?”) I first consult the Monitor to ensure that the information is stored in memory. The result is a subjective feeling of knowing like that associated with the TOT state. Of course, the existence of such a Monitor is adaptive, because it can save me the time and effort looking for something that is not there.

The advantage of this “trace access” account is that it can also explain why our feelings are accurate. The problem however, is that this account only pushes the question one step back because we have now to ask How does the Monitor know that I know?

An alternative account that has been gaining popularity is that meta-cognitive feelings in general are based on an inference, but this inference operates unconsciously: We are not aware of making any inference; we are only aware of its end product – a sheer subjective feeling. When we are asked a memory question, the FOK that we experience is based on a variety of subtle cues. One such cue is the overall accessibility of partial information that the question brings to mind. Even when we cannot remember a name or a word (e.g., *takk*), we might recall that it is a short word, that it contains k, that it has a certain feel, etc. In one study (Koriat, 1993) I have shown that such partial pieces of information contribute to the FOK whether they are correct or not. Thus, if I recall that the elusive word is long, and contains the letter f, I should still have a strong FOK about *takk*. This is because according to the accessibility account that I proposed, people have no privileged access to the contents of their memory over and above what they can retrieve from it, and furthermore, they have no way of knowing whether the partial information that comes to mind is right or wrong. All they can base their FOK on is the overall amount of partial information and the ease with which it comes to mind (for example, if the letter f jumps more easily to mind, one may have a stronger FOK about the Norwegian word for ‘thanks’ than if the same letter comes more slowly to mind).

According to this account, then, the accuracy of FOK judgements is not at all guaranteed, but depends on the validity of the cues on which they are based. Why is the FOK nevertheless generally accurate? This is simply due to a basic quality of memory: The information that comes to mind is much more likely to be correct than wrong. Therefore, the overall accessibility of information is generally predictive of correct memory.

However, in the exceptional conditions in which such is not the case, FOK judgements can be completely inaccurate. For example, when a question brings to mind a great deal of information (sometimes information that is not helpful for getting the answer) it might precipitate a strong unwarranted feeling of knowing. It has even been shown that some such questions can result in a TOT experience. For example, when presented with the question “What is the last name of the Canadian author who wrote the novel *The Last Bucket?*” a considerable proportion of people

report that they feel the answer is on the tip-of-the-tongue even though the question has actually no real answer (Schwartz, 1998). This feeling presumably stems from many activations that are produced by the question that have nothing to do with the answer. Possibly, when we search our memory, we cannot zoom in precisely on the correct answer in memory (even if it is there), and activations deriving from many related elements may contaminate our subjective feelings. Indeed, activations stemming from “neighbours” of the answer have been shown to create an illusion of knowing about the answer.

Thus, there is nothing magic about “intuitive feelings”. In fact, I have shown that although by and large FOK ratings are valid predictors of one’s actual memory performance, under some special conditions the correlation is negative: The more one feels that one knows the less likely is one actually to know (Koriat, 1995).

Research on the FOK has applied as well as theoretical implications. On the applied side, it is important to stress that people generally follow their intuitions blindly. Therefore the accuracy of these intuitions is critical. When we visit a doctor we would like to be sure that he can accurately monitor his own knowledge to the extent of requiring a second opinion when he (accurately) feels uncertain. In recent years we have learned a great deal about what factors contaminate one’s intuitive feelings, leading them astray. Some people are bound to have illusions of knowing, failing to recognize their own incompetence. As Dunning et al (2003, p. 83) argued: “People tend to be blissfully unaware of their incompetence. This lack of awareness arises because poor performers are doubly cursed: Their lack of skill deprives them not only of the ability to produce correct responses, but also of the expertise necessary to surmise that they are not producing them”.

The following proverb has something to say about individual differences in meta-cognitive accuracy:

He who knows not and knows not that he knows not is a fool; shun him.

He who knows not and knows that he knows not is ignorant; teach him.

He who knows and knows not that he knows is asleep; awaken him.

He who knows and knows he knows is a wise man; follow him.

On the theoretical side, the importance of meta-cognitive research is that it illuminates a particular mode of cognitive operation. In general, we distinguish between two levels of experience, each with its own mode of operation. The higher level involves an explicit mode of operation, characterized by relatively high degrees of consciousness and control: When we have to act, we consider various options in a conscious and rational manner, and control our behaviour accordingly. The lower level, in contrast, is relatively unconscious and involves automatic effects on behaviour: A variety of factors may affect the person’s behaviour outside his/her consciousness and outside his/her control.

Within this scheme, meta-cognitive feelings are assumed to mediate between the two modes of operation. On the one hand, they are shaped by an inferential process that operates automatically and unconsciously to produce a sheer subjective feeling. On the other hand, once they are formed, they can serve as the basis of conscious, controlled action. Thus, they play the role of a go-between, allowing a transition between an unconscious-uncontrolled mode of operation and a conscious and controlled mode. Indeed, I have argued that the function of subjective

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experience, in general, is that of augmenting self control, that is, of allowing some degree of control over processes that would otherwise influence behaviour directly and automatically, outside our awareness.

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