

Clever Hans

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Just because we **know** something does not mean that we are right. Even when this is **seen** to be true, stated in our **scriptures**, **believed** by many, **spoken** by famous teachers. This vital point about Buddhism is illustrated by the story of **Clever Hans** in Germany at the start of the 20th century. Clever Hans was a horse, famous throughout Europe for his ability to answer questions, that is, until the psychologist Oskar Pfungst showed what really happened.

The genius horse

Hans's owner, von Osten, was an eccentric retired schoolteacher who believed that horses could be as intelligent as humans with proper education. He spent 4 years tutoring Hans in the way that German children were schooled. He used flash cards, counting frames and so on, teaching his horse reading, arithmetic, history and other scholarly disciplines.

Von Osten rewarded Hans with praises and carrots. Since the horse could not speak like us, he taught it to the letters of the alphabet represented by his hooftaps, and to answer questions with a nod for "yes" and head-swings for "no." After 4 years of training, Hans, it seems, was able to answer practically any question put to him, either spoken or written, on almost any subject, even in other languages.

Von Osten was not a charlatan and genuinely believed that Hans could do all this. Even some eminent zoologists and psychologists came to agree with von Osten. Even when von Osten was absent, Hans could correctly answer those questions. Several circus trainers studied Hans and could find no evidence of trickery.

The "genius" explained

The mysterious genius of Hans was finally explained and exposed by the psychologist Oskar Pfungst. He theorized that Hans answered questions not through understanding them and knowing the answers, but through responding to visual cues inadvertently produced by the questioner or other observers.

Pfungst further noticed that Hans failed to answer questions when he was fitted with blinkers so that he could not see anyone. Even without blinkers, Hans could not answer questions unless at least one person in his sight knew the answer.

With further study, Pfungst discovered just what the signals were. Immediately after asking a question that demanded a hoof-tap answer, the questioner and other observers would naturally tilt their heads down just a bit to look at the horse's hoof. This was the cue for Hans to tap. The questioner and observers would then count the taps; thus, unintentionally, making responses when the correct number was reached. Different people gave the same cue: a slight upward movement of either the whole head or some facial feature, such as eyebrow movement. This was the signal for Hans to stop tapping.

Hans's yes–no headswing responses, too, depended on visual cues. Questioners and observers would unconsciously produce slight up-and-down head movements when they expected the horse to answer yes and slight back-and-forth head swings when they expected him to answer no. Hans would “answer” accordingly.

All the cues for Hans's responses were so subtle that even the most astute observers failed to notice them until Pfungst pointed them out. Pfungst himself noted that these cues were so natural that even after he had discovered them, he had to deliberately prevent himself from sending them after asking a question. For 4 years, what von Osten had really done was to teach the horse to respond to a few simple, subtle gestures!

Fact, theory, hypothesis

The story of Clever Hans is an instructive lesson on the roles of facts, theories, and hypotheses in scientific research and proper learning. A **fact** or direct observation is an objective statement that we can reasonably agree to be true. A fact, then, is a particular behaviour or pattern of conduct of persons or beings, or some observable condition (especially through observing how patterns of causes and effects work).

When Hans was tested by von Osten, the horse's hoof taps or headswings gave the appearance that he was answering questions correctly. That is a **fact** that no one involved disputed.

A **theory** is an idea or a conceptual model that is formulated or designed to explain existing facts and make predictions about new facts that may be discovered. Any prediction about new facts made from such a theory is called a **hypothesis**. Nobody knows what facts (or rather delusions) led von Osten to develop his theory that horses have human-like intelligence.

However, once von Osten conceived his theory, he used it to hypothesize that his horse, Hans, could learn to give correct answers to problems and questions. The psychologist, Pfungst, had a quite different theory of horse intelligence: Horses don't think like humans and cannot fully understand human language.

Pfungst then developed a more specific theory that the horse responded to visual cues from the people present who knew the answers. This theory led Pfungst to hypothesize that Hans could not answer questions correctly when fitted with blinkers or when asked questions to which nobody present knew the answer.

In Buddhist learning: Facts lead to **views** (theories), which lead to **conclusions** (hypotheses), which should be tested with experience, experiments and expertise (records of experience and experiments), which lead to new facts and clearer views (better understanding), and so on.

This happens only when we do not cling to our views thinking that they are the final answers that will bring us awakening. As long as we remain unawakened, all such theories and views are just that: **provisional**. They help us seek deeper views to refine and correct our current

views until we **become** the true reality to which the facts only point. This is called **awakening**.

Otherwise, we know only **facts**, but we are no more wiser than Clever Hans!

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[an occasional re-look at the Buddha's Example and Teachings]

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Reading:

Peter Gray & David F Bjorklund, *Psychology*, 7th edition, 2014:29-33.