

Do primitive people have illusions?

Jüri Allik

I think that Anton Yasnitsky (2013) got this famous story basically right. One of the main and perhaps crucial reasons why Luria published results of the second Central Asia expedition not immediately after 1932, but only some 40 years later, was disagreement between his own initial results and Koffka's observations concerning optical illusions. During the first expedition in 1931 Luria was too eager to find proofs that social-cultural practices shape almost every aspect of human mind which resulted with his triumphant telegram sent to Vygotsky: "Uzbeks do not have illusions!" In the report of the second expedition Luria (1934) was already more reserved: "With very few exceptions the men and women examined by us succumbed to the optical illusions—of which a great variety was shown—just as we do." (p. 257). Political reasons keeping him from publishing results of this expedition were more realistically anticipated than actual forming a believable cover-story for many following years.

Of course, Luria's expeditions to Central Asia in 1931 and 1932 were not the first attempts made by psychologists to study "primitive" people who were not spoiled by literacy and school education. Cross-cultural studies of perception were initiated by famous British expedition to the Torres Straits where several well-known visual illusions were presented to people of New Guinea. In the report of this expedition Rivers (1905) found that Todas made more accurate and less biased judgments of the Müller-Lyer illusion than European participants which he explained by carpentered-world hypothesis. Living in the world of rectangular objects and buildings the observers may have different expectations, sometimes wrong, about lengths and distances. A reversed expedition was organized during celebrations of the 100th anniversary of the Louisiana Purchases which was marked by The World's Fair which was held in St. Louis, Missouri, in 1904. Many larger and smaller celebrities visited this World's Fair including Max Weber, who was amazed by everything that American capitalist spirit had to offer, especially by the dazzling lights of the Palace of Electricity (Ferguson, 2011, p. 260). However, the main attractions were "savages" who had been brought to St. Louis from all over the world and arranged into "villages" ordered according to their supposed closeness to apes (Deutscher, 2010). Robert Woodworth (1869–1962), one of the founding fathers of American psychology, sized an opportunity by carrying out an extensive psychological study of these "savages" brought to St. Louis. Like Luria thirty years later, Woodworth published his report in *Science* concluding that "we are probably justified in inferring... that the sensory and motor processes, and the elementary brain activities, though differing in degree from one individual to another, are about the same from one race to another" (Woodworth, 1910, p. 179). What concerns sensory processes and optical illusions, the conclusion reached by Luria-Koffka is very similar to one made by Woodworth three decades earlier.

However, if there was a real contest between Luria's initial hope that Uzbeks do not have illusions and Koffka's universalist account that they see illusion just as we do, then there were very slim chances to resolve it in 1932. Even by the standards of these old days it would have been very naïve to think that optical illusions are binary phenomena, they either exist or do not exist. Perhaps with used simple two-dimensional figures such as Mach's book, Necker's cube and Schröder's staircase the perception of tridimensional image is either present or absent. The perceptual outcome is certainly more graduated with such illusions as Müller-Lyer, Ebbinghaus

or Poggendorf. All these illusions have their magnitude which can be measured in terms of spatial interval, size or visual angle. Thus, it is necessary to specify a threshold above which we can talk about the illusion in addition to a typical interindividual variation of the illusion magnitude characteristic to given population.

The choice of geometric illusions such as Müller-Lyer, Ebbinghaus and Poggendorf as a test of cross-cultural differences was very unfortunate. There was no good and generally accepted explanation for these illusions eighty years ago. It is questionable whether or not we have a simple explanation of these illusions even today since many different factors such as eye movements, size constancy, and spatial frequency content seem to contribute to these illusions. It is also not obvious that the illusions of spatial intervals (Müller-Lyer), sizes (Ebbinghaus), or perceived angles (Poggendorf) have a common explanation. As a consequence, not very well understood perceptual phenomena were used to explain cross-cultural differences. Not knowing exact underlying mechanisms it was no more than a lucky guess that some of these mechanisms could be sensitive to cultural learning or training.

What both Luria and Koffka did not realize was that measures of biases and sensitivities in most classical illusory configurations, such as the Müller-Lyer, are practically independent. It was found that sensitivities (thresholds or just noticeable differences) were generally not affected by the introduction of illusory biases (Morgan, Hole, & Glennerster, 1990). The illusory bias can be easily changed for example by a slight change in the instruction while the slope of the discrimination function remains practically unchanged (Morgan, Dillenburger, Raphael, & Solomon, 2012). This means that less experienced non-European participants could have a diminished sensitivity (higher threshold) which potentially disguises the size of illusory bias. Being not able to separate illusory bias from accuracy there was very little chance to reach a meaningful comparison between the prevalence of illusion among illiterate Uzbeks and European participants. Thus, Koffka's experiments done in Central Asia proved that there are perhaps not very robust differences between different cultures which, of course, do not exclude existence of culture-induced differences in some sophisticated perceptual functions.

Perhaps Luria acknowledged his defeat from Koffka prematurely. More realistic was to assume, as Vygotsky and he actually did, that psychical functions contain both a culturally acquired component and a natural component shared by all human beings. The disappointing discovery that Uzbeks succumbed to the optical illusions just as we do signified nothing more or less than that our biological sense organs are relatively well adapted to the perception of two-dimensional graphical figures drawn on paper. Strangely enough, it took another about 30 years to publish the first comprehensive treatment of the question how culture influences visual perception (Segall, Campbell, & Herskovits, 1966). The conclusion which seems sustained is that there are no qualitative cultural differences in the elementary perceptual functions exploited by the most optical illusions. Relatively small quantitative differences are sufficiently well explained by attributes of physical environment in which people are used to live. However, there are substantial differences in the way how people with various cultural backgrounds understand pictorial conventions representing spatial relations including depth.

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