Psychological Adaptation to Urbanization, Technology Reflected In Word Usage Over Last Two Centuries

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New research shows that as culture has evolved over the last two centuries — with increasing urbanization, greater reliance on technology, and widespread availability of formal education — so has human psychology. The findings are forthcoming in *Psychological Science*, a journal of the Association for Psychological Science.

"This research shows that there has been a two-century long historical shift towards individualistic psychological functioning adapted to an urban environment and away from psychological functioning adapted to a rural environment," says psychological scientist Patricia Greenfield of the University of California, Los Angeles, author of the new study.

Greenfield measured culture-wide psychological change over two centuries using the Google Ngram Viewer, examining the frequencies of specific words in a corpus of over 1,160,000 English-language books published in the United States between 1800 and 2000.

Drawing on her Theory of Social Change and Human Development, Greenfield hypothesized that the usage of specific words would wax and wane as a reflection of psychological adaptation to sociocultural change. Data from the corpus of books supported her hypothesis.

For example, the words "choose" and "get" — markers of the individualism and materialistic values that are adaptive in wealthier urban settings — rose in frequency between 1800 and 2000. Words that reflect the social responsibilities that are adaptive in rural settings — such as "obliged" and "give" — declined over the same period.

Interestingly, there was a short-term deviation from this overall trend: Usage of "get" declined between 1940 and the 1960s before rising again in the 1970s. Greenfield believes this deviation may reflect a decline in self-interest motivation during World War II and the Civil Rights movement.

Greenfield also observed a gradual rise in the use of "feel" and concomitant decline in the use of "act," suggesting a turn toward inner mental life and away from outward behavior.

The corpus also revealed a growing focus on the self, with the use of "child," "unique," "individual," and "self" increasing from 1800 to 2000. Over the same period, the importance of obedience to authority, social relationships, and religion in everyday life seems to have waned, as reflected in the decline of "obedience," "authority," "belong," and "pray."

The same patterns in word usage also emerged in the corpus of books published in the United Kingdom over the last 200 years. Furthermore, Greenfield was able to replicate the findings using synonyms for each target word in the both the U.S. corpus and the U.K. corpus.

"These replications indicate that the underlying concepts, not just word frequencies, were changing in importance over historical time," says Greenfield.

She points out that empirically testing hypotheses about psychological adaptation to long-term cultural change wouldn't have been possible a decade ago:

"The Google Ngram Viewer is a revolutionary tool in that it counts word frequencies in a million books in less than a second. Not only that, it's a publicly accessible tool. Anyone can go to the Google Ngram website and replicate all of my results!"

Being able to examine culture-wide changes over hundreds of years allows for broader view of how cultural values are shifting, says Greenfield.

"This research shows that the currently discussed rise in individualism is not something recent, but has been going on for centuries as our society moved from a predominantly rural, low-tech environment to a predominantly urban, high-tech environment," she notes.

Because the sociodemographic changes driving cultural and psychological change are global, Greenfield hopes to replicate these findings using Google Books' Spanish, French, Russian, and Chinese databases.