Adaptive Memory: An Exploration of the Survival Advantage in Sub-Saharan Africa

Dana M. Basnight-Brown1  Stephanie A. Kazanas2  Jeanette Altarriba3

1United States International University - Africa, Kenya  2Tennessee Technological University  3University at Albany, State University of New York

59th Annual Meeting of the Psychonomic Society, New Orleans, LA, November 2018

Introduction

Memory is optimized when information is processed for its survival-relevance (Nairne, Thompson, & Pandeirada, 2007). In the traditional survival memory paradigm, participants are asked to imagine that they are stranded in the grasslands of a foreign land, without any basic survival materials. Following presentation of the scenario, they are then presented with words (e.g., screwdriver, cathedral) and asked to rate how relevant each would be for this survival condition. This is often followed by a brief filler task, and finally a surprise recall or recognition task.

What does activating survival relevant information indicate?

- Researchers have confirmed a survival advantage: a memory benefit for words processed for their survival-relevance, relative to other encoding instructions.
- Rating words according to their survival-relevance may promote a similar or better memory benefit than many well-known mnemonic strategies: pleasantness ratings, imagery ratings, etc. (Kazanas & Altarriba, 2015).
- According to Nairne and Pandeirada (2016), a general survival optimization system may be responsible, wherein survival processing recruits/activates a number of fight-or-flight simulations, with cognitive components underlying these simulations.
- It has also been suggested that a word’s survival-relevance may increase its memorability because of the close match between a survival scenario and survival in our ancestral environment (Nairne & Pandeirada, 2010; Weinstein, Bugg, & Roediger, 2008).

Current Study

The aim of the current study was to test the boundary conditions of the survival processing effect by seeking a replication in a Sub-Saharan African population—a population notable for its linguistic and cultural diversity. Is this effect generalizable to populations other than those typically tested in this area of research?

Participants: 175 participants from the United States International University-Africa (Kenya)

Design/Task: Between-subjects design

1) Participants were presented with one of 5 experimental instructions/scenarios. This was followed by 30 word items, which were individually presented and rated one by one on each trial (sample items: door, eagle, orange; all items taken from Nairne et al., 2007).
2) Intervening task
3) Free Recall Task
4) Cultural Questionnaire

Experimental Conditions/Survival Scenarios:

1) Control Condition (pleasure rating) – “rate the pleasantness of each word presented”
2) Grasslands Survival (Self) – “imagine that you are stranded in the grasslands of a foreign land, without any basic survival materials. Over the next few months, you will need to find steady supplies of food and water and protect yourself from predators. We are going to show you a list of words, and we would like you to rate how relevant each of these words would be for you in this survival situation.”
3) Urban Survival (Self) – “imagine that you are stranded in the city of a foreign land, without any basic survival materials. Over the next few months, you will need to find steady supplies of food and water and protect yourself from attackers.”
4) Grasslands Survival (Family) – [same as initial grasslands scenario, but you was replaced by your family]
5) Urban Survival (Family) – [same as initial urban scenario, but you was replaced by your family]

*Self & family scenarios were considered in an effort to determine if recall was influenced by the activation of collectivist concepts

Conclusions

- Overall, the results indicated the absence of a survival advantage for some of the traditional survival scenarios that have been used in Western populations. In addition, the current findings support a recent meta-analysis revealing that the size of these effects may actually be smaller than previously reported, specifically for between-subjects designs (see Scofield et al., 2018).
- The finding of a survival advantage only for high SES participants in the family scenario suggests that the effect is dependent to some degree on the value placed on the resources generally available on a daily basis.
- Future directions within our laboratories are currently being directed toward investigating the survival advantage using scenarios (e.g., disease, terrorism, flooding) that may be more salient to this population, and which may evoke a stronger survival response.

Acknowledgments

This project was funded by a grant awarded to the first author from the USIU-A Office for Institutional Research. We would like to thank Nitai Chandaria, Bernice Nderitu, Joyce Ngugi, and Destiny Valentine for their assistance with this project.