

The effect of phonetic features on the perceived urgency of warning words in different languages

Mirjam van den Bos¹, Judy Edworthy², Elizabeth Hellier², & Addie Johnson¹
¹University of Groningen, The Netherlands
²Plymouth University, UK

Abstract

Previous studies have shown that acoustic and semantic features of warning signal words influence the perceived urgency of these words. The present study shows that phonetic features may influence perceived urgency as well. Experiment 1 presented listeners with eight warning signal words, each spoken in five different languages and two acoustic styles, non-urgent and urgent. The perceived urgency of the words was affected by acoustic style, even when the listeners did not understand the meaning of the words. Experiment 2 controlled for acoustic effects by using only one speaker and only non-urgently spoken words. This experiment showed that the words that were rated as least urgent tended to have a phonetic feature in common, the so-called 'sonorant'. This finding suggests that the use of warning signal words can be improved by avoiding words that contain certain phonetic features that make the word sound less urgent.

Introduction

Imagine you are at Moscow Airport and that you do not speak Russian. Suddenly, a stream of incomprehensible Russian words is spoken loudly through the speakers and the whole crowd starts running towards the exit! Obviously, something urgent is going on. But how could you have known, without observing the behaviour of the other people? An interesting question is whether people are able to estimate the urgency of a situation just by listening to the sounds, rather than the meaning of the words in a warning message. Just as there are general acoustic urgency features like high pitch and high intensity (Hellier, et al., 2002), it may be that there are also general phonetic features, that is specific vowels and consonants that make words sound urgent. The main aim in the present study is to explore the question of whether there are phonetic features of urgency and whether these are the same across different languages.

The acoustic determinants of urgency in warning systems have been thoroughly investigated over the past decades. Patterson (1982) introduced an ergonomic approach to auditory warning systems. His work elicited a stream of further research, mainly concentrated on the concept of 'perceived urgency' (e.g., Edworthy, Loxley & Dennis, 1991; Haas & Casali, 1995). Perceived urgency is considered to be