Although spoken dialogue systems have greatly improved, they still cannot handle communications involving unknown topics. One of the problems is, that they experience difficulties when they should pronounce unknown words. We will investigate methods that can improve spoken dialogue systems by correcting the pronunciation of unknown words. This is a crucial step to provide a better user experience, since for example mispronounced proper nouns are highly undesirable. Incorrect pronunciation is caused by imperfect phonetic representation of the word. We aim to detect incorrectly pronounced words, use knowledge about the pronunciation and user’s feedback and correct the transcriptions accordingly. Furthermore, the learned phonetic transcriptions can be added to the speech recognition module’s vocabulary. Thus extracting correct pronunciations benefits both speech recognition and text-to-speech components of the dialogue systems.