With digital devices permeating many aspects of our daily lives, there are also high hopes that
digital tools will give education a big boost. Focusing on second language education, we will
argue that in order to fulfil those hopes, digital tools should be more systematically grounded
in the general learning and language acquisition mechanisms established in psychology and
second language acquisition (SLA) research.

We will sketch a broad range of opportunities for adaptive digital tools grounded in SLA
research, from providing motivating, meaningful input that is rich in developmentally proximal
forms, via facilitating noticing through input enhancement, to supporting practice and pushed
output with scaffolded feedback on form and meaning in a context that functionally links such
practice to genuine language tasks. For each of those opportunities, we will showcase digital
tools integrating artificial intelligence methods that successfully foster language learning - as
confirmed by large-scale field studies in authentic learning settings. By adaptively taking the
prevalent individual differences into account, such digital tools also readily complement
traditional classroom-based instruction.