1. Introduction

The technologies which undergird writing facilitate language use and literacy in a wide range communicative environments. The position and function of literacy within a society is often considered one of the language vitality indicators (Lewis & Simons 2010: 10, UNESCO 2003: 12). Conspicuously, the impact or assessment of accessible writing technology for language users is almost absent from the language vitality discussion.

While many agree that literacy is a key component in assessing language vitality, fewer are willing to suggest that writing is foundational to social literacy. Additionally, many agree that the language choice of an individual will vary depending on the domain (communicative event, function, location, or topic). Language vitality indexes also generally assess the breath of variation, or the different kinds of domains for which a language is used. However, no language vitality index currently expresses or assesses language use in digital environments. In part this may be because some do not view the internet as a separate domain which universally exists across languages (Grenoble & Whaley 2006: 10). In contrast to Grenoble and Whaley, others do consider the internet and digital modes of communication as separate domains (Rusten & Skerratt 2008: 129).

The proliferation of digital devices and communication technologies challenges the traditional domain assessment of language use. For instance, if a language user sends an SMS message to their brother in different part of the country, is this an example of language use in the domain of: “digital”, “familial” or “language use in the home”? The proliferation of devices and the communicative interactions they enable has not gone unnoticed in the academic community. However, no-one has yet proposed a taxonomy or model of digital device based interactions which extends or augments existing typologies of non-digital domains for language use.

At the intersection of digital technology and writing is the text input method. There are several kinds of text input methods which are briefly discussed in section (1.2). This thesis focuses on the computer or laptop keyboard. It argues that keyboard layout design affects language vitality.

It is easy for the keyboard to be overlooked because much of the effort on technology development is focused on the creation and deployment of Socio-technical systems. Following definitions laid out by

Whiteworth and Ahmand (2013) socio-technical systems, are technology systems which attempt to solve sociological problems. For instance, a mailing list is a technology which enables people to discuss and communicate about an issue or topic, solving the communication challenges for discussing a topic. Trello is a web-based product which allows developers to discuss, and prioritize their plans for application development. Facebook is a web-based product which allows users to communicate, share content including photos and videos. It solves a communication challenge induced by physical separation its users have encountered in the non-digital world. Socio-technological systems are increasingly important in today's communication ecology - even for languages with small speaker populations. Socio-techincal systems often presuppose that users will have a text input solution. However, for under-resourced languages this is not aways the case.

When discussing language vitality and language domains, Grenoble and Whaley (2006: 9) suggest that when new speech domains can be added to a language. They also suggest that the vitality of the language goes down when new domains are introduced to a speaker population, but the population chooses to not engage in the functions of that domain in their language. That is, to asses language vitality, the total quantity of domains in which a language is used including 'new' and 'traditional' domains is required. Language attrition can be considered the case when new domains are introduced but are embraced in a new language. For instance when speakers of under-resourced languages, are introduced to computers which language do they use with computers?

Under resourced languages are languages for which digital interfaces and computing components have not be developed. These languages are often spoken by ethnolinguistic minorities, and languages with small speaker populations. Increasingly the speakers of these same kinds of languages find themselves in situations where they want to increase the vitality of their language.