**Summary**

# MOOC Week 1: Defining Literacies in Engineering

The stated aim of the ELIC project is to ‘improve engineering literacy among secondary school pupils’ (ELIC, 2018) by providing high-school teachers from the natural sciences with materials that motivate pupils intrinsically to engage more closely with engineering content. However, before it was possible to realise this objective and due to numerous alternative definitions of the term literacy, it was necessary to ensure a common understanding of literacy for all parties involved in ELIC. This document summarises this common understanding, while outlining the theoretical underpinnings of the definition of literacy in the ELIC context.

The first question that must be answered is what does literacy mean? A brief examination of the term’s use both across subject fields and also across languages shows us clearly that it is not always used to mean the same thing. For example, while the English word for a person who cannot read - illiterate - can be clearly be linked to literacy, the French equivalent - analphbétism - bears no such morphological resemblance (UNESCO, 2006). Further, the French term la littératie, while clearly morphologically related, conveys quite a different message, for example being defined as ‘des processus continus et actifs qui commencent à la naissance et se développent tout au long de la vie’ (Alberta Education, 2019) or skills applied to the surroundings and workplace. Four different types of literacy were identified (UNESCO, 2006) from which the ELIC definition of literacy was derived:

1. **Literacy as *skills***: skills such as reading and writing, but also numeracy, skills applied in the workplace, as well as information literacy, the ability to use new media to communicate.

2. **Literacy as *applied and practiced***: functional literacy appropriate to a particular event, which can explain why illiterate people function well in certain situations.

3. **Literacy as a *learning process***: learning creates a cycle which itself increases literacy, as constructivist learning experiences enable learners to make sense of their learning. This idea is mirrored in the theory of the experiential learning cycle (Kolb, 1984), where concrete experience leads to reflection and then in turn to conceptualization and finally experimentation. This can be extended further in the concept of critical literacies, in which socio-cultural realities are integrated into the literacy learning process (e.g. how we are shaped and pigeon-holed in our society by the words / language / text we use / encounter).

4. **Literacy as *text***: literacy as subject matter – for example, the physical text. The text can vary according to genre, the complexity of language and its underpinning ideology. This has been exacerbated in recent years by new text types (or new literacies) such as so-called new media examples of which include not only websites and SMS messaging, but also Web 2.0 technologies including Facebook, WhatsApp and Instagram.

When viewing literacy in particular in the light of this fourth point – literacy as text – there is abundant evidence (Elliot, 2007; Lankshear & Knobel, 2011) suggesting a disconnect between these media to convey literacy as they are used by teachers and their pupils. A possible reason may be the digital nativeness of these actors (Prensky, 2001), which might be more easily represented by the typical age gap between teacher and pupil, where the average age of a high school teacher is 43 (TALIS, 2013), while the maximum age of a high-school student is 19.

Therefore, the challenge of ELIC was to bridge this disconnect in its pursuit of supporting interdisciplinary teaching through practical examples and employing such new literacies which are more aligned to students’ mindsets (Lankshear & Knobel, 2011). The challenge was extended to MOOC participants who were shown practical examples of new media relevant to the mathematics and the natural sciences – GeoGebra and PhyPhox – could work and they were then asked to contribute their own teaching experiences from within this area of the new literacies disconnect.

**References**

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