

# Chapter 1

## A Conversation Between Colleagues: Defining Multiple Literacy in Science Education

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### ABSTRACT

*At the University of Dundee, in the School of Education, Social Work and Community Education, there is a Science, Mathematics and ICT Education research group. The transcript that follows represents a conversation on the topic of literacy implications of technology driven practice. The authors hope the transcript will help situate their rationale for the inclusion of multiple literacy, rather than digital literacy, in the title of this book. In essence they suggest that multiple literacy in science education is the ability to identify, understand, interpret, create, apply, communicate, compute and use technology based resources associated within various science education contexts to achieve goals, develop knowledge, skills and understandings relevant to science information and ideas.*

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**Joe:** *What is literacy all about? Is it to do with digital literacy?*

**Susan:** *Yes, digital literacy. It's because my understanding at the moment is that we are using the word digital literacy to mean lots of different things and if we don't have a shared meaning about it then someone else reading the book might be coming from a completely different place ...*

**Colette:** *I have looked at how I would develop digital literacy with the students in fourth year using the stimulus of a newspaper headline claiming that some breakfast cereals contain more sugar than chocolate bars. I don't know if that is being too specific? The students have to decide how to determine whether the newspaper report is accurate using the statistical facts presented by the manufacturers (on breakfast cereals and chocolate bars). The students then have to use mathematics as a "truth tool" to analyse the statistical data. They then use persuasive language to advertise their decision on the healthiest option.*

**Susan:** *What exactly is a truth tool?*

**Colette:** *In this case - it is deciding whether there is truth behind the headline and behind the advertising. They have to decide what constitutes a "healthy cereal" and use their statistical and numerical skills to decide which cereal they consider to be healthiest from a selection of cereals.*

**Joe:** *So that is more in line with what you mean by numeracy rather than digital literacy?*

**Colette:** *At that point – yes as they have to make sense of the statistical data (presented in a variety of ways) and decide whether the newspaper report is valid. They have to uncover the information that is presented (in a variety of formats) by advertisers (using persuasive language) to decide whether a cereal is healthy. Having selected their healthiest cereal, they have to advertise their*

*selected cereal using a range of digital formats: powerpoint, website, radio broadcast, rap, jingle, digital movie, pod cast or other digital format of their choice.*

**Susan:** *Colette, why is that not scientific literacy?*

**Sheila:** *I was just about to say that. Before we go anywhere we need to decide what our terms mean. What do you mean by numeracy, what do you mean by literacy, scientific literacy? So before we do anything we need to be sure we know what we are talking about.*

**Colette:** *I think that in answer to your question as to whether it is scientific literacy or not, I think it becomes numerical if they are using numbers to make their informed decision.*

**Sheila:** *But they are not just using numbers and things like that, because on packs of cereal there will be pie charts with information so they are actually using graphics as well, so it's more to do with mathematical literacy, as well as numerical.*

**Susan:** *So why is that then literacy? On your graphs you have got mainly language so they would have to understand what the scale is or what the title is. So why is that not literacy and why is that numeracy?*

**Colette:** *It's a combination of numerical and graphical.*

**Joe:** *We are introducing four distinct terms. There is digital literacy, there is numeracy, there is literacy and there is also this idea of scientific literacy. In relation to these four literacies, they are all going to sort of intertwine with each other. As far as digital literacy is concerned I tend to think of it as more a set of competences, a set of generic competences, if you want, that some of our students will have when they are entering*

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