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Curriculum Planning for the Development of Graphicacy

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Introduction

The ability to imagine a better future and work towards materialising this is 'key' to economic development and technological change. Recent research has highlighted the importance graphicacy has in these developments as well as in our everyday lives; professionally, socially and culturally (Considine, 1987; Stokes, 2002). Graphicacy concerns the ability to communicate through still visual images, such as maps, diagrams, graphs and symbols (Danos, 2012). The cognitive requirements that accompany such skills, e.g. modelling 'in the mind's eye' and critical thinking, support activity in numerous fields. Important 'life skills' are introduced through education from an early age, using policies on literacy, numeracy and articulacy. Graphicacy, however, which is used extensively in the early years and later through school and beyond, has yet to be introduced through a strategic approach (Hope, 2008; Danos, 2012; Anning, 1997; Wilmot, 1999). Currently graphicacy does not explicitly feature in the structured curricula in England; this is similar in many other countries within Europe, the US and Australia, among others (Danos, 2012; Krane & Dyson, 1981; Balchin, 1996). The main reasons for this are believed to be; the low significance attached to graphicacy skills for the development of an intellectually well-balanced human; and the high complexity level involved in analysing and defining the areas of graphicacy, which are both related to a lack of research effort in this area (Danos, 2012; Fry, 1981).

Images are powerful and affect people regardless of their academic, economic, cultural or religious status (Poracsky et.al, 1999). They can educate, inform and inspire; affect perception and decisions; and be used for communicating, learning and recording ideas. Baynes (2011) believes they are fundamental to all peoples and cultures; an intellectual activity that links sensing, feeling, thinking and doing. 'They can be used to effectively model core aspects of future reality which cannot be adequately modelled through language or numbers, such as colour, space, shape, distance and scale amongst others' (ibid:4). The power of images includes these and many more possibilities, as our exposure to more media messages increases. However, young people are given little guidance on how to read, interpret and critically evaluate the images and information they are exposed to (Danos, 2012; Hope, 2008). 'This renders them visually vulnerable and potential victims of a language that can influence and manipulate them' (Considine, 1987, 635).

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Educationalists use visual images as teaching aids, yet little is known about how these are perceived by children with different abilities. There is an emerging need to consider the potential for the development of a graphicacy policy within the curriculum. This paper considers a potential route towards this goal, reporting on research conducted focused on identifying and defining graphicacy; investigating its significance in the curriculum; exploring how children deal with it and ultimately how it can affect their learning (Danos, 2012).

Method

To complete an initial audit of graphicacy in the curriculum, a research tool clearly defining graphicacy was required as part of the research methodology. A number of diverse taxonomies were identified through literature review, covering areas of graphicacy from different aspects. Fry's taxonomy (1974) was the closest one identified relating to the research tool needed for this study; enabling the identification of the still visual images used for teaching and learning. Although being over 30 years old, this taxonomy provided strong foundations for a more modern, up-to-date taxonomy, incorporating images accommodating the technological trends currently available such as coloured 3-dimensional and more complex still images (Figure 1).

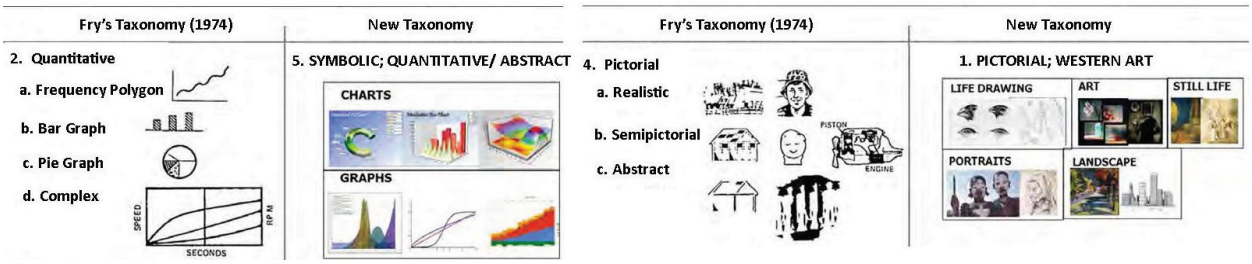

Figure 1. Images from Fry's taxonomy (1974) and Danos' updated version (2012).

The updated taxonomy of graphicacy is considered to be constant work in progress and its effectiveness has been tested in various ways during its development and use. It has been discussed with a number of independent researchers prior its use; and has been validated through an initial study to identify graphicacy use across the curriculum through the analysis of school textbooks in schools in Cyprus, the UK and USA. All the textbooks in an opportunistic sample from 3 schools were analysed. The schools in the UK and Cyprus were for the age range 11-14 and the school in the USA for 16-18. All the subjects for which the teachers agreed to participate in the research were included (the majority, see Table 1). It has been further validated through conference presentations, education publications as well as a formal Delphi study with leading researchers from the UK, Cyprus, Sweden and America.

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Results

Results from the above studies covered in this paper include the new taxonomy developed, as well as cross-curricular links of graphicacy use (Table 1) identified within the 3 schools, in each of Cyprus, UK and the USA and the unexpected and surprisingly similar patterns of graphicacy use across the 3 schools (Figure 2).

Results on progression and development descriptors in graphicacy are also reported. Research explored these in relation to the new taxonomy. A research strategy has been developed to test a number of methodologies to construct progression level descriptors, regarding 5 types or elements of images in 3 different areas of the taxonomy; rendering (graphic arts: still life), symbolic representations (symbolic: abstract), perspective drawing (pictorial: diagrams), star profile (symbolic: quantitative) and portrait drawings (pictorial: western art). Tasks for each area have been designed and pilot-tested during workshops and lessons. The analysis of the results tested different methods of analysis and provided new information for more detailed and exact descriptors of continuity and progression (CaP). A few examples of these are described in this paper.

Discussion

Graphicacy is believed to be used in most subject areas and lessons in schools across the world. The analyses of school textbooks have validated this position and have shown cross-curricular links between the subject areas studied. Hence, although a graphicacy policy would not necessarily introduce anything new, it could potentially develop existing practice. A more structured approach would enable teachers to share information across subject areas, and share common terminology. In other words, teachers will start taking advantage of each other's pedagogy rather than working in isolation.

The tools to develop such a policy have yet to be developed fully, but the overall skeleton structure as well as samples of what can be done, and how, have been completed. This paper describes the essential starting point of an up-to-date taxonomy of graphicacy, and illustrates the next steps of working in particular areas of the taxonomy independently. Through analysis of children's work, continuity and progression (CaP) descriptors have been developed in 5 different areas, which could be used as guidelines during teaching each graphicacy element. Having descriptors in each area of the taxonomy would enable teachers to make comparisons and connections between subject areas, leading towards a systematic and co-ordinated teaching approach.

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Table 1. Inbound graphicacy skills concerning two areas of the taxonomy.

			UK school								Out of 7 subjects	Cyprus school														Out of 13 subjects	USA school									Out of 8 subjects	Out of 28 subjects over 3 schools
		Graphicacy elements	Maths	Science	DT	English L.	French L.	Geography	RE			Maths	Biology	Chemistry	Physics	DT	Art	English/ French/ German L.	Greek	Geography	History	Music	ICT	RE		Calculus	Geometry	Biology	Chemistry	French/ German L.	ICT Java	History	Art		
PICTORIAL	Graphic arts	Art	x		x						2				x	x	x		x		x	x		x	7	x						x		3	12
		Life drawing			x						1							x							2							x		0	3
		Landscape									0					x	x			x			x	x	4									0	4
		Portraits	x								1					x	x								2									0	2
		Still life		x	x						2					x	x								1									0	3
	Drawings	Drafts			x						1					x	x								1									0	2
		Sketching	x	x	x						3				x	x		x							3	x				x				3	9
		Drawing	x	x	x	x		x			6	x	x	x	x	x		x			x	x	x		9	x		x	x	x	x			5	20
		Architectural			x						1													x		3	x	x							2	6

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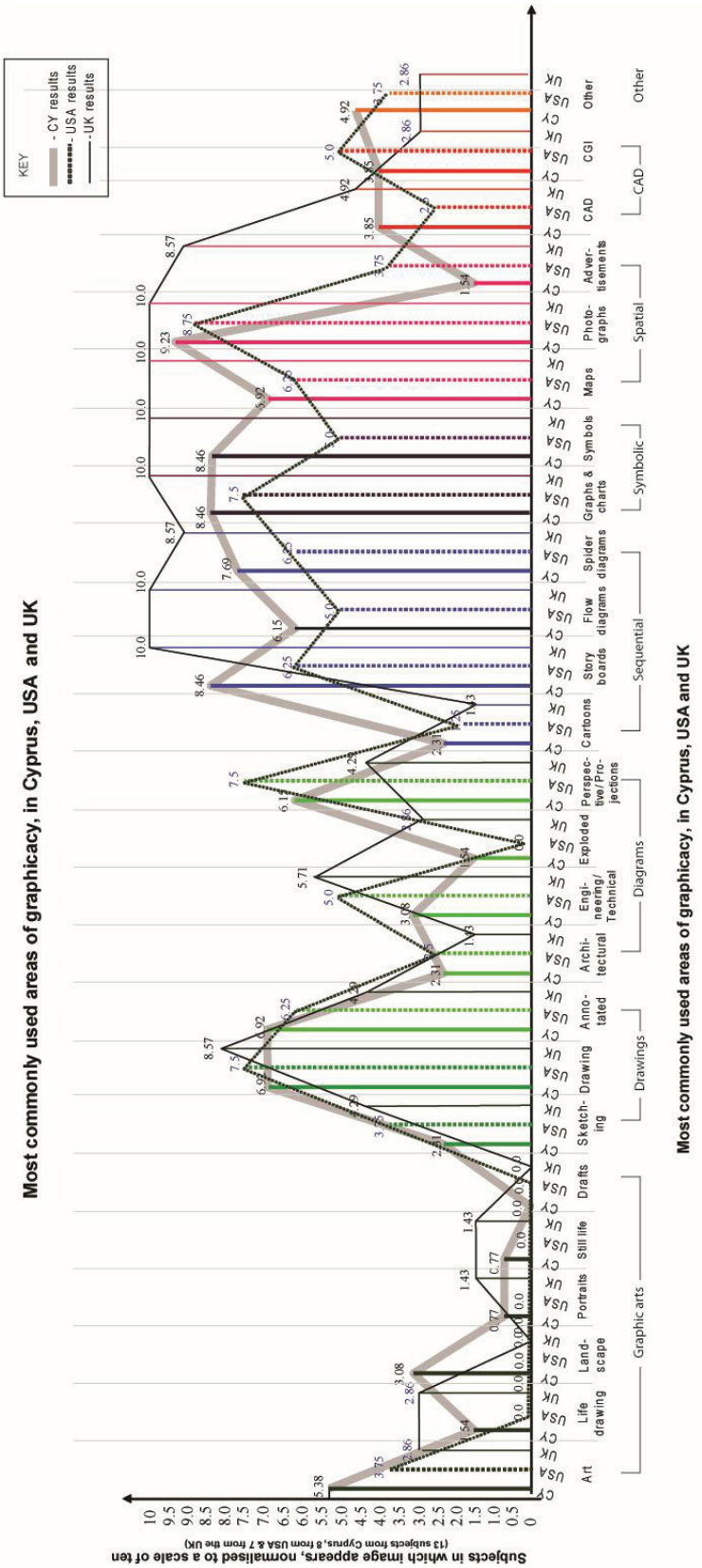

Figure 2. Comparison of patterns of graphicacy use in 3 schools.

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