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Parrot poo on the windscreen: Metaphor in academic skills learning

Clare Power and Erst Carmichael

Student Learning Unit, University of Western Sydney, NSW 1797, Australia

Email: c.power@uws.edu.au and e.carmichael@uws.edu.au

Rosalie Goldsmith

The Learning Centre, University of New South Wales, NSW 2052, Australia

Email: r.goldsmith@unsw.edu.au

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Metaphor can be a powerful tool in communicating the purposes and processes involved in learning as the use of metaphor enables new and complex ideas to be presented through more familiar forms. A considerable range of literature recognises the role of metaphor in learning and teaching both as an analytical tool and as a medium for conveying meaning. However, little has been written about the use of metaphor in the context of academic skills learning. This research was prompted by the authors' personal experience in using metaphor and students' positive feedback. It explores the use of metaphor both among academic skills advisers and in academic skills texts. It was found that it was not uncommon for academic skills practitioners to use metaphor in learning and teaching situations and the research revealed a rich assortment of metaphors. Similarly texts in this field use metaphors, albeit more tentatively and sparingly. Empirical research into student understanding and perceived benefits of the use of metaphors would further contribute to this initial discussion.

Key Words: metaphor, academic skills.

1. Introduction

Metaphor has generally come to be accepted as one means of moving from the known to the unknown, from the more familiar to the less familiar or from the concrete to the abstract. Metaphor generally refers to understanding "one domain in terms of another" (Feldman, 2006, p.194). It is also claimed that as a natural phenomenon that pervades our language at lexical and discourse levels, metaphor is fundamental both to our language and to our conceptual systems (Knowles & Moon, 2006). In their seminal analysis of metaphors, Lakoff and Johnson (1980) argued that metaphors are integral to thought and communication. When they put their case for the recognition of the ubiquitous conceptual metaphor in 1980, their thesis was based on only two areas of empirical research into metaphors. However, as they point out, a vast body of empirical research over the intervening decades has confirmed their theory that metaphor is essentially conceptual in nature, an innate phenomenon and an embedded component of abstract thought (Lakoff & Johnson, 2003). This study explores the use of conceptual metaphor used intentionally as an aid to teaching and learning, in contrast to the use of metaphor in a technical or creative literary context.

Metaphor theory is a complex and contested arena and this paper does not intend to engage in debate about the nature of metaphor. Instead it has a more empirical focus, and offers an initial exploration into the use of conceptual metaphors in academic skills learning through questionnaire data and an analysis of selected academic skills based texts. It is outside the scope of this paper to analyse these metaphors in linguistic terms or to focus on the ideology underpinning them; rather it begins a dialogue about the usefulness of metaphor in the context of teaching and learning academic skills. Academic skills learning in this context is taken to refer to the process of assisting students to develop the range of understanding and skills required to study and write effectively in higher education domains. It is acknowledged that as this is a relatively unexplored area in terms of research, any observations and conclusions are preliminary and tentative. A working definition of metaphor is provided below.

There seems to be no firm agreement on the distinction between metaphors, similes and analogies. Petrie and Oshlag (1993) distinguish the latter two as being explicit comparisons whereas other perspectives view analogy as an extended metaphor (Garner, 2005) and metaphor as an abbreviated or condensed simile (Miller, 1993; Sticht, 1993). In everyday parlance it would seem that these terms are somewhat conflated and as detailed discussion about the complexities of delineating metaphor is beyond the scope of this paper, their meanings may merge at times throughout our discussion. Knowles and Moon (2005) propose a useful working definition of metaphor as "the use of language to refer to something other than what it was originally applied to, or what it 'literally means' in order to suggest some resemblance or to make a connection between two things" (p.3). Metaphor then, can be seen to have the potential to mediate understanding; however, it needs to be noted that one of the critical aspects of metaphor is that for it "to work", at least one of the categories being used metaphorically must be part of the receiver's knowledge (Winner & Gardner, 1993).

This emphasis on shared understanding is also noted by Lakoff and Johnson (2003), who stress that metaphor is not a term that simply requires definition. Rather they suggest that it is about recognising the nature of cognition which includes the "systematic use of inference patterns from one conceptual domain to reason about another conceptual domain" and it is this phenomenon that they call conceptual metaphor (p. 246). Furthermore, they maintain that conceptual metaphorical mappings between domains that give meaning to metaphorically laden communication arise from our "embodied experience" (p. 247). As such, metaphors are not abstract and random but are interrelated with our lives. Deliberate or intentional metaphor can then be seen as a strategy of harnessing our apparent innate use of metaphor to convey meaning purposefully.

2. Metaphor and education

Given the focus on conceptualising and communicating in education, metaphor would seem an integral element of educational discourse (Cameron, 2003). Nevertheless, for some time metaphors in education tended to be either viewed as having an aesthetic purpose with some lesser value as a teaching aid or as poor substitutes for clear, explicit communication (Petrie & Oshlag, 1993). Regardless of being an appreciator or depreciator of metaphors (Black, 1993), it seems that both perspectives considered that metaphors lacked much cognitive significance. Further to this, there is concern from some philosophical quarters at the substitution of metaphor for analysis in argument (Barrow, 1997). Moreover, Green (1993) counters Petrie and Oshlag's (1993) claims for the importance of metaphor in bridging the familiar and the unfamiliar by suggesting that reason and inference are equally able to achieve this. However, since research into metaphor expanded into a range of disciplines such as linguistics, philosophy, psychology and education, there has come to be much greater acceptance of the role of metaphor in the acquisition of new knowledge (Garner, 2005; Cameron, 2003; Ortony, 1993).

In the context of education, identifying metaphors that underpin disciplinary approaches and discourse has provided a framework for developing awareness and critique. For instance, a debate on the metaphor of scaffolding was the focus of an edition of the *Journal of Learning Disabilities* (Addison Stone, 1998; Butler, 1998). In the area of educational research the use of

metaphors of learning such as the acquisition metaphor, participation metaphor and the knowledge creation metaphor have generated considerable discussion (see for example Sfard, 1997; Paavola, Lipponen & Hakkarainen, 2004). Leask (2006) draws on metaphor to critique the current discourse of plagiarism and to argue for plagiarism as a cultural construct, while McShane (2002) discusses the explicit use of metaphor to enable academics to describe their teaching beliefs, self-concepts and practices. Grandtner and Bilodeau (2007) employ metaphors to convey their collaborative approach to academic development, and in teacher training programs, students develop personal metaphors to critically reflect on their teaching philosophy and practice (Berman et al., 2002; Ritchie, Bellochi, Poltl, & Wearmouth, 2006).

Metaphors can be powerful learning and teaching tools. For example, Carew and Mitchell (2006) conducted research into the metaphors used in the discipline of engineering to conceptualise lecturers' attitudes to teaching about sustainability. Metaphoric language is used in the sciences as a way of fostering understanding (Mayer, 1993; Cameron, 2003); moreover Brooks and Etkina (2007) have utilised conceptual metaphor to theorise about the role of language in learning physics**.** Kamler and Thomson (2006) emphasise the power of metaphors in allowing doctoral students to change their perceptions about the difficulties ahead if the students are given the opportunity to create their own, more positive metaphors. In a study on the benefits of using metaphors in teaching psychology to nursing students, Williams (2005) found that metaphors enhanced student understanding as well as memory of concepts. Garner (2005) suggests that the appropriate use of metaphor and analogy can increase student attention, improve critical thinking and enhance conceptual learning.

Where concepts are unfamiliar or complex, metaphor can provide a space for shared meaning. MacCormac points out that "to describe the unknown, we must resort to concepts that we know and understand, and that is the essence of a metaphor – an unusual juxtaposition of the familiar with the unfamiliar" (1990, as cited in Henkel, 2006, p. 1). In MacCormac's view, the use of metaphor is an essential tool in describing the unknown**.** Metaphor can be particularly useful to explain new concepts by relating the familiar (such as a household item or an everyday activity) to the unfamiliar (such as writing an essay or using cohesive devices in academic discourse).

Petrie and Oshlag (1993) suggest that metaphor can also be useful when students are disengaged, as metaphor can provide an opportunity for connection that may not otherwise occur. The use of metaphors in concert with other strategies can assist a diverse range of students attending higher education to access the abstract concepts with which they are presented. In addition, the use of metaphor can provide a visual image to aid student comprehension, so that the analogy of an essay introduction being like a funnel can be supported by a graphic of a funnel which shows the movement from general to specific statements. Illustrations such as cartoons that convey visual metaphorical images can also facilitate engagement and understanding (Cameron, 2002 as cited in Ritchie et al., 2006).

3. Metaphor and cultural context

As metaphors rely on at least one aspect of the metaphor being part of the students' conceptual scheme (Petrie & Oshlag, 1993), their use can be problematic in a multicultural context. Due to students in higher education settings coming from increasingly diverse backgrounds, there is a danger that metaphors may be misleading or confusing. This can result in international students, for example, misreading a lecturer's take on a topic or focusing on the wrong elements of the metaphor (Williams, 2005). Additionally, Gibbs (2003) proposes that suppression of irrelevant attributes of the metaphor needs to occur to enable meaningful interpretation. He provides the example of the metaphor, *lawyers as sharks*, which requires suppressing shark attributes such as swimming in the ocean and laying eggs. Consequently, where the wrong attributes of a metaphor are suppressed, misunderstanding or confusion occurs. Garner (2005) claims that metaphor is beneficial in teaching and learning, but emphasises that the metaphors must be clear, relevant and based on concepts that are already familiar to the student. He stresses the need for metaphor

to have "fit, relevance and accuracy" (p.3). This further highlights the issue of cultural and linguistic differences, where metaphors may be open to varying interpretations.

In a study focusing predominantly on the misunderstandings created by lecturers when they used metaphors that were unfamiliar to international students, Littlemore (2001) argues that metaphors are exemplars of the assumption of shared knowledge that create difficulties for these students. The international students in the study were further defined as non-native speakers of English, so that there was a difference both in culture and in language background. The metaphors used by the lecturers in this study tended to be embedded in the language, rather than being used to create an analogy. Littlemore (2001) demonstrates clearly how the use of metaphor in a particular lecture given to Bangladeshi students not only prevented the students from understanding some of the information in the lecture, but also created misunderstandings. This and similar examples may explain some of the negative attitudes towards the use of metaphor in teaching. Her research also highlights the need to raise metaphoric awareness both among international students and their lecturers.

4. Approaches to the study

The authors of this paper are all practitioners in the field of academic literacy skills. As a consequence of a discussion about metaphors and how we use them to differing degrees, we became curious about our colleagues' practices in this regard. We then discovered that although metaphor is recognised as a useful learning and teaching tool, there seems to be little research in the context of academic skills learning. The aim of this research therefore, is to gauge the intentional use of metaphor among those engaged in the practice of teaching and learning of academic skills, and in selected academic skills textbooks for students.

The method for exploring the use of metaphors in academic skills teaching involved two phases. Firstly a questionnaire was distributed via the Unilearn email list and the AALL forum, both of which are online communication sites for staff in our field. The responses to the questionnaire are analysed below. Secondly, certain academic learning texts for students were analysed for the use of metaphors within those texts. One limitation of this study is that a definition of metaphor was not given in the questionnaire nor were respondents asked to define the term, although a clear example was provided in the cover letter accompanying the questionnaire. An assumption was made that there was a common understanding of the term; however one respondent replied that metaphors, similes and analogies were being treated as one in her/his questionnaire. When we refer to metaphor in our research it is with acknowledgement that the terms are somewhat conflated and that the type of metaphor we have focussed on is the intentional metaphor; for example, the *essay as journey* as opposed to the embedded metaphor "you are on the right track".

5. Results from questionnaires

Of the 26 responses to the questionnaire, the majority appeared to use metaphors intentionally when teaching academic skills. The others were not sure whether it was intentional, or did not answer this aspect of the question. The range of academic skills referred to across answers included: writing essays; understanding mathematical problems; reading; studying; researching; writing literature reviews and writing critical reviews. One response was from a Maths Learning Adviser and the remainder were from the Literacy and Language field.

The main reason given for using metaphors was to assist students to gain a greater understanding of concepts or processes. Concepts, which were often referred to as "difficult" concepts, included the product of writing, abstract ideas, "cohesion of text", the "metalanguage of writing" and Binary Maths. Processes that were specified were writing and development of an argument. One response mentioned that metaphors were used for summarising, both in the oral and written form, to help students make a link between the "distant world of academia" and

their "own reality". Another respondent referred to the use of metaphor to explain sentence structure:

> "what I think the metaphor does is enable students to build a new idea on top of an existing idea. Students can innately, I hope, understand that they don't have to think about, or know the names of all the muscles in their legs in order to walk. In the same way, they know what a sentence is, and are constantly making new and meaningful sentences without being conscious of the actions, processes, or rules involved."

Three respondents expressed doubt about the usefulness of metaphors in teaching and raised potential problems with using them. For example, in relation to students' reactions to metaphors, a respondent commented that: "some laugh, some groan…some indicate [the] analogy was confusing … but I am careful … to make sure that I explain in other ways." Cultural specificity of metaphors was seen to be a difficulty for international and local culturally and linguistically diverse (CALD) students. Metaphors were also considered to be only a "partial way of explaining something". Furthermore, the essence of metaphors and analogies was questioned in the statement: "if you look at them too closely most analogies fall apart". This person limited their use of metaphors in case they were perceived as "corny", "trivialising" or were confusing for students. Another respondent indicated that it was not necessarily the use of metaphors that may have improved student learning in their teaching situations:

> "if they manage to produce the textual feature we've been trying to explore, I take that to mean that the methods I have employed have been successful, but other techniques I use besides metaphors might equally lead to the intended learning outcomes."

Those who thought metaphors were useful provided a range of reasons and examples. Reasons included "indispensable" and that they are also used in the disciplines, such as the "web of communication". One colleague had actually researched the use of various metaphors for critical thinking used in different disciplines, such as "lateral movement" in Cultural Studies or "processes of manufacture" in History. It was implied by several respondents that metaphors are necessary in individual consultations, as a way of linking theory to the "real world" and of particular assistance to visual learners, especially engineering and architecture students.

Examples of the range of metaphors included: *the* essay *as a journey*, as *building a wall*, *as a road map* and as *a hamburger*. The *journey* metaphor was also used for the writing process. One response mentioned the grammatical concept of nominalisation as *pouring meaning into a noun form*. A representation of the types of metaphors given can be found in Table 1 below. A more detailed list of examples can be found in Appendix A.

Table 1: Examples of metaphors used by academic skills practitioners

Skill embedded in metaphor	Metaphor	Theme
Understanding of essay structure	*Hourglass*	household item
	Hamburger	food
	Building a wall (e.g. solid wall of logic)	building
	Outline of the essay as the skeleton	body
	Road map	journey
Understanding of term "nominalisation"	*Tip meaning out of verb into noun form*	everyday action
Coherence in essays	*Journey with signposts & building blocks for grammar*	journey

Table 1. cont'd

Skill embedded in metaphor	Metaphor	Theme
Octal (base 8) in binary maths	*Octopus*	animal
Cohesion in essays	*A writer driving a car, the reader is in the car behind. The writer needs to signal changes of thought, direction, new departures through the use of cohesive devices.*	journey
	Well cut clothing but it doesn't match (good ideas without cohesion).	household
	Sewing, stitching, following a thread	
Importance of study skills	*Sport rules, tools & skills*	games/rules
	Butterflying – flitting about finding information	animal
	Escher's 2 hands (self reinforcement for independent learning)	art
	Buying for a BBQ (importance of planning)	household
	Map making (planning)	making
Taking a position	*Jigsaw (putting pieces together)*	game
Literature review	*a) Dinner table discussion of theories/concepts*	food/eating
	*b) Jigsaw**	game
	Button collection (need to categorise)	household
Process of writing	*Journey*	journey
	Spiral	shape
Reading	*Bulldozer (from beginning to end)*	building/machinery
	Sieve (filtering)	
	Chopsticks (picking out important points)	household item
	Wearing different coloured glasses to distinguish different perspectives	household item
Critical thinking	*Interrogation of texts*	detection/discovery
	Buying a car	economics
Critical Review	*Movie review*	household
Argument presentation	*a) Deductive as closed sandwich*	food
	b) Inductive as open sandwich	food
	c) Barrister in the courtroom trying to convince the jury that the evidence supports the conclusion	profession/lawyer
	d) As war or a dance	war/game
Expectations of case studies	*Diagnosis of a complicated medical condition***	profession/doctor

* "Their job is not just to describe what's on each piece of the puzzle, but to put the pieces together and describe the picture they paint in totality … it helps to first sort the pieces into categories."

** "First it is important to distinguish between symptoms … and the underlying cause… then solve the problem."

When asked whether students have found metaphors to be a useful means of understanding concepts, just over half of the questionnaire responses were positive. Most of the justification supplied was reliant on student use of the metaphors in conversation and class discussion. Some referred to seeing evidence of the success of the metaphorical tool in the students' work. Visual images and in particular road maps were claimed to be most effective. One response stated: "You can see it in their body language and immediate reaction – and after a workshop when I run into students who mention the metaphors," while another stated, "I often hear them using the same metaphors themselves when discussing in small groups." Similarly, a respondent indicated that "they say it makes the idea of what has to be done clearer … seems to provide them with direction …" One enthusiast exclaimed, "Definitely! They are still talking about them months later."

Others admit they have no hard evidence but they acknowledge that it is possible that there are benefits for students, based on anecdotal evidence. For example, one response to this question stated: "I don't have any concrete evidence – only intuitive. I see the lights go on in their eyes …" Others referred to similar anecdotal evidence such as: "it is mainly their class discussion and work that provides evidence of this," and "I don't have any rigorous evidence – anecdotal and signs of engagement and enjoyment."

Two responses raised the benefits of students creating their own metaphors to enhance learning. For example, one stated that students do "not always explicitly [say metaphors improved their understanding] but often will repeat the metaphor in the explaining/clarifying process. Sometimes they initiate a metaphor and I develop it further in my teaching." Another stated that: "participants say they enjoy the freedom to contribute to understanding of their own learning via nominating and or exploring metaphors …" However, there was no empirical evidence provided to support the value of using metaphors in the teaching and learning of academic skills, as no one had formally researched this with students.

Practitioners appear to have favourite metaphors and took delight in describing them and how they are used. Some of the examples are similar to those in Table 1; however a few of the more unusual ones are listed below:

- *A train of thought* – I draw it. Engine is introduction, each carriage a paragraph with its topic sentence at the top, then explanation and evidence, and a link coupling each carriage.
- Structure of *thesis as patchwork* … with sense of main idea in the middle and all patches around it stitched both to it and to each other … relevance of all parts to the main idea. Also *thesis as a clock face*, each number a different chapter – movement, direction and that the end … returns to the ideas at the beginning.
- *Apprenticeship to a discipline.*
- *Trail of references* – how to follow up the references from one assigned reading to find others that have not been assigned, when they are expected to do their own research. References as *members of your audience*, whom you show to particular seats in the front rows.
- Errors as *parrot poo on a windscreen* – not as important as the traffic, but more riveting.
- *Building bridges* between reader and writer – also works for oral presentations.
- Introduction like *greeting someone* at your front door … "welcome them and lead them into your house". Introduction as "*a promise to be kept*".
- Use of evidence – *when buying a car* "would you go to an experienced mechanic or someone who doesn't know anything about cars?"

Most participants admitted that they had probably not created the metaphors they use when teaching; however, some were definite that they had created them. Others attributed their metaphors to texts they had read or to colleagues.

6. Use of metaphors in academic texts about academic discourse

As a comparative measure to the questionnaire, a sample of texts that are specifically designed to provide guidance for students engaged in tertiary academic study were surveyed to identify the authors' use of metaphor. Table 2 below lists examples of metaphors and the texts they are taken from. In contrast to the issues raised by Littlemore (2001), where the use of metaphor may create difficulties in understanding for students, the use of metaphor in these texts seems to be specifically intended to enhance students' understanding. The differences occur both in the intention and in the type of metaphor used, although there is currently no evaluation as to whether the use of metaphor in the latter circumstances is successful in bridging the understanding gap (pardon the metaphor). However, the intentional use of metaphor in the surveyed texts indicates that the writers use metaphor to enhance the accessibility of ideas or concepts, rather than unintentionally to obfuscate or mislead.

On considering a range of texts that are designed to provide support for student learners in the area of academic discourse, it is interesting to note the extent to which the metaphors used conform to Garner's specifications of "fit, relevance and accuracy" (2005, p. 3). Before reporting on this analysis, a few preliminary points need to be made. Firstly, the vast majority of metaphors exist around the actual writing process, as opposed to reading/note-making. The most prevalent set of metaphors was *brainstorming/mind mapping*, which occurred in almost all the texts. Secondly, as a very tentative observation, it appears that texts written with a CALD student in mind use significantly fewer metaphors than those written for a largely English native speaker audience. Thirdly, although several of the texts surveyed did not always use metaphors in writing, they did use cartoons or graphics to illustrate the concepts they were trying to communicate. For example, when warning about not mixing referencing systems, a cartoon shows someone about to put several different types of referencing systems, represented as ingredients in a recipe, into a blender, with a horrified observer shouting "STOP!" (Germov, 1996, p.110). Future research into this area of visual metaphor or visual imagery could also provide interesting insights into student learning; unfortunately time constraints prevented this exploration.

The most commonly occurring themes in the metaphors employed are as follows: *building/ building materials; journey/climbing; human body/physiology (sub-category of brainstorming/ mind mapping); household items/equipment; spatial terms (creating a space, establishing a niche)*. Less frequently occurring themes include: *food; economics; singing; treasure chest; detection; apprenticeship; a race (the tortoise and the hare); movement/energy; an art form.*

In considering the fit, relevance and accuracy of these themes, one needs also to consider the intended audience. It can be seen that the most commonly occurring themes are also those that would be familiar to the majority of tertiary students, although some of the specific metaphors might be alien to certain cultural/linguistic backgrounds. Metaphors that refer to building, for instance, would be generally familiar, although *bricks and mortar* or *clay* might be less familiar to cultures that use other building materials, such as bamboo or timber. Similarly, metaphors that refer to the human body such as *writing muscles* or *the skeleton of an essay* would be accessible to a very broad audience, although extending the metaphor to include *ligaments* that hold an essay together might reduce its effectiveness.

Of the less commonly occurring themes, several can still be considered to be familiar to the intended audience, although some may need additional explanation. The metaphor of the university student as an *academic detective*, for instance, gathering evidence and being suspicious of the validity of sources (Germov, 1996), is potentially a very effective image, assuming that the student knows what a detective does. Other metaphors, however, may be regarded as being less accessible. The use of *the tortoise and the hare* assumes the knowledge not only of Aesop's fables, but also of the point of the fable itself: a cultural constraint that could be experienced by many CALD students. The use of metaphor relating to Economics might not exclude CALD students, but may be inaccessible to students who have no knowledge of the subject.

The majority of the texts avoided using a large number of metaphors or extended metaphors; the main purpose of metaphor appeared to be to introduce a new concept, idea or approach to academic discourse. Once the metaphor/new idea was introduced, the remainder of the text explained the new idea in depth without further recourse to metaphor. The metaphors observed in these texts are very much of the everyday, with not much in the way of linguistic pyro-technics, unlike several of the metaphors reported in the responses to questionnaires. One possible reason for this is that the latter set of metaphors comes from face-to-face teaching, where the context and the contact with students are much more personal. This not only allows for a greater amount of freedom, but also means that misinterpretations can be picked up and clarified much more readily. There is also the opportunity for definitions and visual illustrations via the whiteboard, in order to consolidate the impact of the metaphor.

A final point is that the majority of the metaphors observed in these texts can also be rendered via visual imagery, thus providing additional support for the language. This is particularly the case for *brainstorming/mind mapping*, which is visually represented in several of the texts. In general, the texts surveyed use metaphor to introduce a new or unfamiliar concept or approach; the use is intentional and provides a link for the student from the known to the unknown in the context of academic skills learning.

Table 2. Examples of metaphors from selected published texts.

Skill embedded in metaphor	Metaphor	Theme
developing study skills/time management	*The tortoise and the hare* (Zerubavel, 1999)	a race
time management	*Productivity curve/marginal utility/net+gross amount of time spent writing* (Zerubavel, 1999)	economics
writing process	*Mental momentum/flow of writing* (Zerubavel, 1999)	movement/energy
organising ideas	*The mind is like a 4-burner stove/front + back burners* (Zerubavel, 1999)	stove
writing process	*Writers traverse a long road paved with doubts … break down* (Zerubavel, 1999)	journey
writing process (thesis)	*A mountain with stairs* (Zerubavel, 1999)	journey/climbing
writing process (thesis)	*Manuscripts in chunks: smaller, more chewable chunks* (Zerubavel, 1999)	food
planning writing	*Building blocks of an outline* (Zerubavel, 1999)	building/making
planning writing	*Thesis as a mental lump of clay* (Zerubavel, 1999)	making
writing an essay	*Singing a song with the backing of a choir of other voices (Boughey, 2000 in Hendricks & Quinn 2000)*	singing
written/spoken communication	*The communication skills toolkit (Grellier & Goerke, 2006)*	equipment
developing study skills	*Unlocking the secrets of tertiary success (Grellier & Goerke, 2006)*	hidden treasure chest

Table 2. cont'd

Skill embedded in metaphor	Metaphor	Theme
developing study skills	*Academic scholarship: a world like a highly complex building created from the bricks of people's research* (Grellier & Goerke, 2006)	building/making
planning/organising ideas	*Mind mapping* (Grellier & Goerke, 2006)	body/physiology
writing skills	*Writing muscles: writing is like a physical/artistic activity: need to develop muscles* (Grellier & Goerke, 2006)	body/physiology
planning	*Skeleton of a report* (Grellier & Goerke, 2006)	body
planning/organising ideas	*Brainstorming* (Craswell, 2005)	body/physiology
developing study skills	*Beginning researcher as apprentice* (Hart, 1998)	apprenticeship
writing skills (essay)	*Rules of the essay writing game* (Germov, 1996)	game/rules
developing study skills/critical thinking	*The academic detective* (Germov, 1996)	detection/discovery
planning	*Essay skeleton* (Germov, 1996)	body
planning/organising ideas	*Brainstorming* (Germov, 1996)	body/physiology
critical thinking	*Analysis as an art form* (Germov, 1996)	art
writing skills	*Pitfalls/traps of academic writing* (Germov, 1996)	traps/deception
developing study skills	*Academic club* (Germov, 1996)	membership
developing study skills	*Hit the ground running* (Bartlett, Holznecht & Cumming Thom, 1999)	exercise/speed
planning/organising ideas	*General/specific texts have the shape of a cup* (Swales & Feak, 1994)	shape/household item
critical thinking/planning	*Creating a research space* (Swales & Feak, 1994)	spatial
critical thinking/planning	*Establishing a niche* (Swales & Feak, 1994)	spatial
essay writing	*Taking the reader on a journey (UWS SLU, 2007)*	journey
planning/organising ideas	*The introduction of an essay as a funnel (UWS SLU, 2007)*	shape/household item
writing skills	*Cohesive devices as signpost words (UWS SLU, 2007)*	journey
planning/organising ideas	*Brainstorming/mind mapping (UWS SLU, 2007)*	body/physiology

7. Discussion

The questionnaire respondents and writers of the surveyed texts seem to be quite comfortable with using metaphors to communicate new and/or complex processes or concepts. They do not appear to feel the need to become involved in the labyrinthine debate around the benefits and risks of metaphor as an instructional tool, apart from two or three who raised the issue of cultural difficulties and theoretical critique. In terms of actual usage of metaphor, the following is a summary of tentative observations made during the course of this research.

Overall the use of metaphor to convey the relationship between abstract meaning and concrete form would seem to be acceptable and even popular in face-to-face academic skills teaching and learning situations. The majority of respondents used metaphors to assist student comprehension although the degree and circumstances of use varied. There was also an intuitive appreciation of the value of using metaphors, despite a lack of empirical evidence to support this. Some respondents expressed concern regarding the overuse or over-extension of metaphors, where such use could hinder rather than help student understanding. The benefits of encouraging students to create their own metaphors were emphasised, which is also supported by the literature (Berman et al., 2002; Kamler & Thomson, 2006; Ritchie et al., 2006).

Metaphor appears to be less frequently used in the published texts than in face-to-face teaching, which would seem to support Sticht's claim that the use of metaphor in written text is a "particularly hazardous venture" (1993, p. 624). A number of possible reasons for this can be posited.

- Metaphor is very context-dependent. Writers of self-access guides are unable to predict the background or potential metaphor familiarity of their audience; this relates not only to the mode of delivery (written) but also to the tenor of the writer/reader relationship (quite distant). They would therefore be less willing to risk confusion or misunderstanding for their readers.
- In the written mode, there is no possibility of backtracking or refining an explanation if the metaphor has no familiarity, in contrast to face-to-face teaching.
- The tone of the published texts is more formal than that of a classroom, with probably less use of humour. However, it is interesting to note the presence of humorous cartoons in these texts, especially those that seem to be written with a native speaker audience in mind.
- Following on from the previous point, many of the textbooks also adopt a more academic style of language, which may preclude the use of creative language such as metaphors.
- With several of the published texts, there seems to be an implicit assumption that at least some of the audience will have a CALD background.
- As previously discussed, metaphors in the published texts are more in the common range of experience; there are no bulldozers, barristers, movie reviews or interrogations (although there is the academic detective). It is assumed that the metaphors in the former circumstance are selected on the basis of greater potential accessibility and/or familiarity: cups and journeys have a higher frequency in the common lexis than bulldozers and barristers.
- Metaphors in published texts tend to focus more on the planning/writing process: perhaps the writers assume that this area would contain the greatest number of unfamiliar or new concepts.

8. Conclusion

Metaphors can provide a useful bridge from the real world to the conceptual realm for students encountering a range of new concepts in tertiary education. While not definitive, this research has provided support for the benefits of using metaphor, when teaching academic skills, to facilitate students' understanding of concepts and processes. This needs to done with cultural

sensitivity and awareness that the chosen metaphors may not resonate for all students and may need further explication. It would seem that many practitioners feel that the use of metaphor is not an additional element in their teaching practice, but an important strategy in helping students to comprehend concepts. Although there is no direct evidence from students of these benefits, the feedback from practitioners suggests anecdotally that many students demonstrate a greater understanding of the expectations in academic learning when exposed to metaphors, especially colourful or humorous ones.

This research has also raised a number of interesting questions and areas of further research such as:

- How to accommodate the diverse cultural and linguistic backgrounds of CALD students when using metaphors in our field;
- A need for further research into students' responses to various metaphors used;
- The value of student created metaphors as learning tools;
- An examination of the ideology conveyed through metaphors relating to the field of academic skills.

Appendix A. Elaborations of why metaphors are used

- In lectures and individual consultations – visual, memorable, economical.
- Makes metalanguage of writing easier to understand.
- Not consciously, come out of the process of teaching.
- Convey concepts or processes that may be unfamiliar.
- In individual consultations when [student] having difficulty grasping concept.
- In binary maths for difficult concepts.
- In the beginning to introduce the concept, or as summary aspect.
- Not consciously…they encourage many potential constructions of meaning.
- To unpack process and product of writing.
- They just come naturally.
- They add colour and life to abstract concepts.
- Metaphors are powerful, help students understand process (e.g. development of argument, cohesion of text).
- Some are conceptual, some are concrete – latter are very powerful.
- Illustrate writing process, one of several tools I employ.
- Help students make a link between the "distant world of academia" and students' "own reality".

Appendix B. Types of metaphors used

- "Hourglass" or "hamburger" to describe essay structure. Concern about culturally specific metaphors that "might not apply equally".
- Only a "partial way of explaining something". One example is with nominalisation – "tip the meaning out of the verbs and pour the meaning into the noun forms, so left with very full nouns".
- If you look at it too closely – most analogies fall apart. I limit my use of analogies and metaphors – bit worried about coming across as "corny", "trivialising" or "confusing students".
- Indispensable – part of disciplines too (e.g. "web of communication").
- I use the journey through the essay with signposts and building blocks for grammar.
- In individual consultations we need to use illustrative language.

- "Tangible way of linking [theory] into the real world".
- Essay is built like a wall – each paragraph is structured securely enough to sit on the one that comes before it and support the one that comes after it – build a solid wall of logic that the reader cannot knock down.
- In Maths – octopus for octal (base 8) … it really helps visual learners.
- Metaphors particularly support visual learners (engineers, architects).
- Pie chart really useful.
- Road map for reader, street directory, putting up street signs.
- Children's books/stories to "teach research methods and establish a community of practice" for "preservice" teachers.
- Image of burger with panini bread and lots of filling for an essay – top bread = Introduction; bottom = Conclusion, filling = Body. "If the Body doesn't provide all the important details the panini will be all bread and not good".
- For Literature Reviews – dinner table (attributed to Barbara Kamler) bets for humanities for different theories and concepts. Journey good for "unpacking process". Regarding relationship between doctoral students and supervisors uses "marriage" as example of how to sustain relationship, deal with breakdown ...
- Reading metaphors: Bulldozer for "reading a novel – starting with the first line and reading through to the end". Not common in academic study. Sieve for "reading something relatively quickly to get the main points". Chopsticks for "scanning to get the main points".
- Car engine – each component is described and then viewed re how it causes the car to move.
- Deductive versus inductive presentation of argument is like either a closed or open sandwich – deductive has bread on the top and bottom.
- The academic writing process is a spiral.
- Sport with rules, tools and skills used to explain the importance of study skills
- Analogies with the familiar help understanding of academic writing expectations and requirements.
- Taking a position – jigsaw – "if you only focus on a particular reading (just on little piece of the puzzle) you're not likely to develop an appreciation of the landscape of knowledge on the topic. You won't be able to 'see' beyond the piece at hand … and not make an original contribution" (extract from this author's booklet).
- Yes – metaphors take two levels. (1) Sustained – more of an allegory (e.g. rules of referencing being like rules of the road) and (2) maps, mazes, signposts for readings. Some NESB students question the meaning of specific metaphors.

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