Unpacking Creativity for Language Teaching

Tan Bee Tin

ROUTLEDGE

Unpacking Creativity for Language Teaching

Before unlocking creativity, we must first unpack what it means. In this book, creativity is unravelled from various perspectives and the relevance for language teaching and learning is explored.

Tin offers a coherent discussion of creativity, adopting an inclusive and integrated but, at the same time, focused approach to creativity. Divided into 12 chapters, the book covers:

- A critical review of the way the term 'creativity' is used, defined and written about in various disciplines
- Various models and theories of creativity, the product- and process-oriented views of creativity and their relevance for language teaching
- Three pillars on which creative language pedagogy should be based
- Over 60 practical tasks, applying theoretical arguments and principles of creativity to language teaching and learning.

Based on the author's own practice and research on creativity over the last two decades, the book provides exciting new ideas for scholars and practitioners interested in creativity and creative language pedagogy. The book serves as an important contribution for students, teachers and scholars in the field of applied linguistics, language teaching and education.

Tan Bee Tin is Associate Professor of Applied Linguistics and Language Teaching at the University of Auckland, New Zealand.

"*Unpacking Creativity for Language Teaching* delivers exactly what the title suggests, presenting a fascinating multidimensional and multidisciplinary perspective on creativity in which different theories and approaches to creativity are unpacked and applied to the practical issues involved in developing a creative pedagogy for both language teaching and language teacher education."

— **Jack C. Richards**, *University of Sydney*

"Although central to many disciplines, the term "creativity" is used in various, sometimes confusing ways. Tan Bee Tin's lucid, scholarly approach surveys the field, clarifies the issues and contributes exciting new ideas of her own. This book is a major contribution to the understanding of creativity in language use and language teaching."

— **Guy Cook**, *King's College London*

"Creativity in language teaching is an ill-defined and misunderstood word. This book establishes a better understanding of creativity through an examination of creativity in different disciplines in general and in language teaching in particular to define three pillars on which creative language teaching can be based. It will be a very valuable resource for researchers, materials writers and language teachers."

— **Jill Hadfield**, *Freelance Author; formerly Associate Professor in Language Teacher Education at Unitec, New Zealand*

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This book is dedicated to:

My Mum and Dad, family and friends, and all those brave souls, heroes and creative people in Burma (Myanmar) who have demonstrated how life still thrives despite being in a land full of unimaginably harsh constraints.

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Introduction

Unpacking creativity and aims of the book

Introduction

'Creativity' has received increased attention in recent years in various disciplines. With reference to the discipline of language teaching and learning, this increased attention is reflected in the appearance of several recently published books, mainly edited books, in which language teachers, practitioners and language teacher educators come together and reflect on their various pedagogic practices and disciplinary expertise through the creativity lens (e.g. see Bao (ed), 2018; Jones (ed), 2015; Jones and Richards (eds), 2016; Maley and Peachey (eds), 2015). This chapter discusses the increased popularity of this secondary use of the term creativity in recent years, both in the academic and non-academic domain, and how this leads to the fragmentation of the field, diluting the meaning of creativity. It describes the aims of the book and the need to revitalise the creativity terminological landscape and unpack creativity before it is applied to language teaching.

Turning back to the word 'creativity'

The uses of the term creativity in academia can be divided into two types: primary vs secondary uses. On the one hand, there are academics who have spent a large amount of their research and pedagogic life, primarily focusing on and researching creativity and its other associated terms. In the field of applied linguistics, an example of such primary use can be found in the work of scholars such as Carter (2004) and Cook (2000), who are well known for their focus on creativity or other associated terms such as language play. On the other hand, especially in recent years along with the popularity of creativity in the public and academic domain, secondary use of creativity has emerged among scholars through publications (especially edited books) where chapter authors are invited and encouraged to freely connect their various primary issues with an aspect of creativity. For example, in the

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opening chapter (Chapter 1) of their edited book titled 'Creativity in Language Teaching: Perspectives from Research and Practice', Jones and Richards (2016) wrote under a sub-heading titled 'What is Creativity?':

> When we were inviting contributions for this book, most of them replied to the invitation with the same question: "Yes, but what do you mean by creativity? Is there some definition or theory of creativity that you want me to follow?" Our response was always to hand the question back to them, to ask, "What does creativity mean to *you*? How do *you* define it?" We did this not just because it seemed to be in keeping with the spirit of creativity that motivated this project in the first place but also because of our awareness that creativity is a complex and multifaceted phenomenon, and constraining our discussion to just one aspect or theory of creativity seemed counterproductive. (Jones & Richards, 2016: 4–5).

The above quote reflects a popular assumption concerning creativity as having the freedom to choose. Such an assumption often results in a somewhat ill-understood secondary use of creativity. It contributes to a fragmentation of the field: researchers in one discipline are often unaware of advances in another discipline (Hennessey & Amabile, 2010). 'Each approach taken by a researcher concentrates on the issue of creativity differently; devising their own theories, methods, and investigative paradigms' (Batey & Furnham, 2006 cited in Dorniak-Wall, 2016: p. 33).

The increased popularity of the secondary use of creativity in the field of applied linguistics and language teaching in recent years makes one wonder: why have practitioners and applied linguists primarily renowned for other issues (e.g. second language acquisition, genre analysis, materials development, language teaching methodologies, curriculum development, English for academic and specific purposes) come together to celebrate creativity? One reason may be the increasing popularity and the ubiquitous presence of the word creativity not only in academic fields but also in public domains. Creativity has been used in various disciplines and domains ranging from business, technology, politics, economy, psychology, arts, science, education, linguistics, applied linguistics, language teaching and so on. Creativity has been written about not only in the form of academic genre (i.e. scholarly publications such as books, chapters, journal articles) but also in the form of popular social genres such as blogs, Facebook, YouTube, TED talk, promotional genres (e.g. creativity coaching workshops and ads for business and organisations) and popular non-fiction books usually published under the category of popular science, lifestyle, health and wellness. Accordingly, the current popularity of creativity in language teaching/learning and applied linguistics seems to be a natural consequence – an act born out of a natural human desire not to be left behind but to be in line with the current trend.

Another reason for such popular secondary use may be the increasing democratisation of the notion of creativity in academic, scholarly publications and

popular non-fiction publications. Creativity is nowadays viewed as a property of all human beings, scholars and lay people, ordinary and extraordinary people. In this view, creativity is inherent in all our practices either explicitly or implicitly. When this egalitarian view is applied to the field of language teaching and applied linguistics, it seems as if what we have been practising as researchers, teachers, curriculum developers can all now be labelled as part of the creativity terminological landscape. One can go as far as claiming that 'all teaching involves acts of creativity' (Richards & Cotterall, 2016: 97), all language use is creative (e.g. Swann & Maybin, 2007), we can all 'discover [our] 'AHA' moment right now!' as claimed in a popular non-fiction book on creativity by Christensen (2015).

In books published under the title of creativity, our current and past practices and disciplinary focus have been renamed, re-packaged and retold under the creativity label. Although this is a viable view, the word creativity runs a risk of becoming irrelevant. After all, if everything can be described as creative, is there a need to denote it as creative? If creativity is the norm or a property of the majority as claimed by many researchers, then we should be studying what is abnormal minority – non-creativity. This is an approach some writers have taken, talking about 'uncreativity' as opposed to 'creativity' (see Bilton, 2015).

Numerous books have been written over the last few decades which have used 'creativity' or 'creative' in the book title. For example, the amazon book search returns over 30,000 results for books which contain the word 'creativity' and over 50,000 results for books which contain the word 'creative' in the title (search date, 11 September 2020). The concept of creativity is becoming increasingly popular in both the non-academic and academic domains, in both scholarly and public communities. Along with this fast-growing interest in creativity in various disciplines and among second language teacher educators and ELT (English Language Teaching) professionals, there is a danger of the term 'creativity' becoming another buzz word. Its use continues without proper discussion and conceptualisation. The word creativity may have become a victim of its own success and popularity (e.g. Cropley, 2016). Many (including myself in my earlier publications and presentations) may have jumped on the creativity terminological bandwagon, hastily defining creativity within a few sentences and re-packaging their current and past practices under the creativity label. Such secondary uses often result in the fragmentation of the term creativity and contribute to its elusiveness.

Aims of the book: Revitalising the creativity terminological landscape

Paradoxically, despite the copious literature on creativity, there is a scarcity. What is often missing among this prolific array of publications on creativity is a coherent monographic book-length discussion of creativity, adopting an inclusive and integrated but, at the same time, focused approach to creativity – an approach which takes into account how creativity has been conceptualised in

various disciplines but which, at the same time, zooms into the usefulness of these various conceptualisations for a specific discipline (i.e. language teaching and learning).

This proposed book attempts to:

- do justice to the term creativity by turning back to the word creativity itself before applying it to language teaching and learning practices.
- take a critical look at the use of the term creativity and move from an elusive to a more inclusive and integrated use.
- revitalise the word creativity from its secondary use to a proper place where it deserves to be.

Before unlocking creativity, we must first unpack what it means. In this book, creativity is unravelled from various perspectives and the relevance for language teaching and learning is explored. Throughout this book, from time to time, I take a break and include tasks for the readers to give them a break too, to take them on a detour to discover and unlock their hidden creativity, helping them to transform creativity from potential to performance, from inherent ability to emergent reality.

The outline of the book

The book is divided into 12 chapters. Chapter 1 (the current chapter) introduces the aims of the book and the need to unpack creativity before it is applied to language teaching. It briefly discusses the increased popularity of the secondary use of the term creativity in recent years, both in the academic and non-academic domains, and how this leads to a fragmentation of the field, diluting the meaning of creativity. Chapters 2–6 examine the concept of creativity with reference to various disciplines. Chapter 2 proposes that instead of asking what creativity means, the question one should ask is: how has creativity been used? The chapter explores the creativity terminological landscape by examining various approaches, perspectives, models and frameworks which have been used to define and research creativity in the academic literature. Chapter 3 discusses the common core shared among various discussions of creativity and examines the semiotic makeup of the common definition of creativity. In doing so, it shows how the elusiveness of the word creativity and other words used to talk about creativity have a large semantic footprint, making the word elusive but paradoxically inclusive at the same time. It shows how relatively simple words can be expanded to accommodate various meanings and interpretations of creativity proposed in the literature. The next three chapters (Chapters 4, 5 and 6) discuss three associated terms widely used in the field of creativity literature: heuristics, constraints and algorithms. These terms highlight three cognitive thinking styles we can use to facilitate creativity. Implications for the domain of language teaching are also considered and illustrated throughout various chapters.

Chapters 7 and 8 take the reader to the field of applied linguistics and language teaching. It examines the creativity terminological landscape with reference to language and language teaching. Chapter 7 examines the discourse of creativity in language teaching publications in recent years (between 2012 and 2018). It looks at who has been writing about creativity in language teaching and what and how it has been written about in recent years.

Chapter 8 looks at creativity from the linguistic perspective and shifts the attention from the language of creativity to the creativity of language. It dissects linguistic creativity through question words, prepositions and lexical associations.

Chapters 9–11 make a proposal for creative language pedagogy and propose three main pillars on which creative language pedagogy should be based. The first pillar presented in Chapter 9 concerns the view of language as a tool for creativity. Based on the view of linguistic creativity discussed in Chapter 8 and the meaning of creativity proposed in Chapters 2–7, the chapter presents how to teach language for creativity. The goal of creative language pedagogy is to promote creativity (both domain-general and domain-specific) in our learners. The second pillar presented in Chapter 10 is concerned with the view of language learning. The goal of creative language pedagogy is not just to promote creativity but also to develop more advanced, complex language in our learners. The chapter examines how the view of language learning found in the usage-based model of language and language learning is vital for understanding the link between creativity and language learning. The third pillar presented in Chapter 11 deals with the view of language teaching as a creative act. Creative language pedagogy is not just about teaching language for creativity but also about teaching language creatively. While the former focuses on student creativity, the latter is concerned with teacher creativity through materials development, reflective teaching and teacher development.

Chapter 12 attempts to bring the various chapters together. It summarises various key issues and their implications for creative language teaching. Finally, Epilogue shares the creativity journey I embarked on over the last two decades (between 2000 and 2020) – a journey featured with both positive and negative emotions.

2

The language of creativity

Exploring the terminological landscape of creativity

Introduction

Many scholars who have written about creativity have often noted that creativity is an elusive term and it is hard to define it. Maybe we are asking the wrong question when we ask 'What does creativity mean?' Instead, the question we should perhaps be asking is 'How has creativity been used?' While the former denotes a static, dictionary-like meaning a word such as creativity can carry, the latter indicates the multiple, dynamic, situated, ongoing semiotic nature, life and ontology of a word in accordance with the context in which it has been and is used. Creativity is a topic that crosses over different genres and disciplines. Before we investigate 'creativity' with reference to the domain of language, language teaching/learning and applied linguistics, we first need to consider what we can learn from how creativity has been defined and written about in other domains. This chapter looks at the rhetoric and language of creativity in the general academic literature and examines various approaches, perspectives and frameworks that have been used to define creativity.

Creativity as a multi-faceted term: Defining the undefinable creativity

Researchers note that it is problematic to sufficiently capture features of creativity within a single statement. Many have argued that creativity is an undefinable concept, 'an overloaded and highly subjective word' (Colton et al., 2001: 1), a concept that resists an accurate definition and decisive description (Torrance, 1988). It is a term which we expect to 'convey a great deal' despite being an 'ill-defined', 'weak' term (Jordanous, 2012: 69). This problem of defining creativity may be caused by several factors. First, as Veale (2018: 21) notes, 'there exists no

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single creativity mechanism, and (…) all instances of creative behaviour are best corralled into a meaningful synthesis only by a system of family-resemblances'. Second, it may also be due to the popularity of the term and the high frequency of its use in various contexts, which leads to an ever-changing 'horizon of open possibilities' and meanings (Waismann, 1968: 44). Like other words, the meaning of creativity changes with time and context, and the more it is used, the more diverse and stretched its meaning becomes. Instead of single statements to define creativity, several alternatives have been offered: a metaphorical approach, a tacit, intuitive approach, a confluence-style, reductionist approach and a corpus-based approach. Each approach is discussed in the sections below.

A metaphorical approach to defining creativity

Researchers argue that the definitions that exist are metaphorical rather than pure definitions (pure in the sense of being metaphor-free) (e.g. see Veale et al., 2006) and that it is impossible to define creativity without using metaphors and words that allude to a whole baggage of other allusive words. Metaphorical expressions are commonly used to define creativity. For example, expressions such as an ability to 'think outside the box', to come up with 'fresh' and 'ground-breaking' solutions, to 'buy low and sell high' (Sternberg & Lubart, 1992) are highly metaphorical.

Task 2.1: Metaphorical definitions of creativity

1. Read the following description of the investment theory of creativity by Sternberg on http://www.robertjsternberg.com/investment-theory-of-creativity. What is the metaphor used here? Do you agree with the metaphor used to define creativity? What other metaphors can be used to talk about creativity?

   The investment theory of creativity, proposed in collaboration with Todd Lubart, holds that creativity is in large part a decision. In particular, it is a decision to buy low and sell high in the world of ideas. Creative people, like good investors, generate ideas that, at the time, are viewed as novel and perhaps slightly ridiculous. The creative individuals are metaphorically 'buying low'. Then, once their ideas have gained some acceptance, the creative individuals 'sell high', reaping the profits of their good idea and moving on to the next unpopular idea.

   (…)

   Creativity is a decision in the same way investing is. People are not born creative or uncreative. Rather, they develop a set of attitudes

(Continued)

towards life that characterise those who are willing to go their own way. Examples of such attitudes towards life are willingness to (a) redefine problems in novel ways, (b) take sensible risks, (c) 'sell' ideas that others might not initially accept, (d) persevere in the face of obstacles and (e) examine whether their own preconceptions are interfering with their creative process. Such attitudes are teachable and can be ingrained in students through instruction that encourages students to think for themselves.

2. With reference to the discipline of design such as engineering and artistic design, Stacey and Eckert (2010) give the definition of creativity as follows. What metaphor is used? How is it different from the above metaphor?

   Creativity in design is not about stepping out of the box, but finding the right box to step into. This depends on the designers' ability to frame the problem in appropriate terms. Problem framing fundamentally depends on two tightly coupled activities: constructing and finding appropriate constraints, and representing the requirements and constraints in the right form – this includes finding the right abstractions and finding the right analogies to other situations – so that they trigger useful memories and effective synthesis actions. To stick with the metaphor of the box: finding the right shape of box and finding the right materials to build the box (Stacey & Eckert, 2010: 252).

A tacit, intuitive approach to defining creativity

Many have used the term creativity as an intuitive, tacit term in their research work without explicitly defining what it means. Researchers adopting this approach often do not offer any formal, explicit definition of creativity but draw attention to various possibilities and examples of creativity. An example of this approach can be found in a book titled 'Wittgenstein and the Creativity of Language', edited by Grève and Mácha (eds) (2016). Even in chapters which use creativity in the heading, the term is not explicitly defined. The editors themselves (Grève & Mácha, 2016), in Chapter 1 of the edited book, acknowledge that the chapters that follow do not answer the question 'what is creativity?'

> The authors in this volume do not offer treatments of the question 'What is creativity?' (….) in any such general manner, but rather, like Wittgenstein, they point out various possibilities and examples (centres of variation, as it were) which truly bring the topic under investigation into view in the form of particular instances and objects of comparison, so that its distinctive richness

> may shine through: 'For if you look at them, you won't see something that is common to *all*, but similarities, affinities, and a whole series of them at that'.
> *(Grève & Mácha, 2016: 4)*

Another similar view widely advocated by computational creativity researchers is an evolutionary, emergent view (e.g. Veale et al., 2006). An explicit definition is not the starting point, although the study (its outcome and goal) may contribute towards reaching a more explicit understanding of what creativity means. Veale et al. (2006) argue that attempts to define creativity in precise, explicit terms are problematic because various words used to define creativity (e.g. 'novel', 'useful') allude to other words or 'a wealth of intuitions' (Veale et al., 2006: 204) that cannot be summarised in specific terms. Veale et al. (2006) propose that the goal of computational creativity researchers is to use the term creativity based on existing old intuitions and then to construct computational models to understand what creativity is. Veale et al. (2006: 207) encourage computational creativity researchers to 'shift the focus from defining creativity to achieving creativity', to build new systems based on old intuitions. Once the creative system is achieved, 'even in a meagre form, we will all be better positioned to answer the original question: what is creativity?' (Veale et al., 2006: 207).

However, our intuitive, tacit understanding of a phenomenon or 'old intuitions' is often influenced by our past and current experience and can thus vary and change in accordance with time and context. Although our implicit understanding of creativity may share some similar core features such as novelty and value, researchers may have other additional peripheral, discipline-specific, context-specific, idiosyncratic phenomena. Such context-specific phenomena have often led researchers to coin creativity as made up of 'novelty, value and "x"'(Jordanous, 2012: 71). Despite using the same term 'creativity', we may be talking about or researching completely different aspects or types of creativity.

An assumption underlying the intuitive approach is that even though the meaning of creativity cannot be described in precise terms, we recognise it when we see one. In other words, people have a shared understanding of what creativity is despite not being able to articulate what it is. In a study by Zhu et al. (2009), two sets of sentences were produced by participants. Set 1 was produced under the instruction to write not-so-creative sentences about key words provided. Set 2 was produced under the instruction to write creative sentences. The sentences were then given to four judges who were asked to assign each sentence a subjective creativity score between 0 (not creative at all) and 10 (the most creative). The judges were not informed of the conditions under which the sentences were produced. Neither formal definitions nor examples of what the researchers meant by creative sentences were given to both the writers and the judges. The study shows that although both groups were not given an implicit example or definition of what creativity meant, they shared some common understanding of the term creativity in that the mean average creativity score assigned by judges to sentences in Set 2 (creative sentences) was higher than the mean score of those in Set 1 (not-so-creative sentences).

We should however note that the term creativity in Zhu et al. (2009) is used with reference to language (i.e. creative sentences). As everyone of us has experienced language on a wide range of creativity continuum, it seems plausible that we, as members of the language community ('the field' to use the term by Csikszentmihalyi, 1988, 2014), share a tacit understand of what creativity (in this case, creative sentences) means. Different outcomes would have arisen if the participants had been given examples of creative products from other domains such as examples of scientific projects or paintings for which they had no prior experience or knowledge.

Other researchers such as Runco (2014: 132) have even gone to an extreme by saying that we stop using the term creativity completely as it is an elusive term. Instead, he argues that we should use an adjective 'creative' followed by a noun as it calls for more specificity (e.g. creative writing, creative person, creative computational system). This however seems to be merely shifting the problem of elusiveness from the noun 'creativity' to its adjective counterpart 'creative'. Words and language (regardless of whether it is a noun or an adjective), as philosophers such as Wittgenstein argue, is 'reality-soaked' and 'self-creative' (Wittgenstein cited in Moyal-Sharrock, 2016: 131). Its meaning changes through use in accordance with time and context. Hence, it is unrealistic to 'pin down' the word creativity (or its other cognates such as creative) to one stable, fixed meaning or usage. Moreover, if we could pin down the meaning of words precisely or if words mean only one precise thing, as Cook (2011: 292) argues, 'we should not only have badly depleted vocabularies, but also very impoverished lives'.

An explicit, confluence-style, reductionist approach to defining creativity

Another alternative view offered is a confluence-style, reductionist and family-resemblance approach. Reductionism is an approach used both in the field of arts and science in which a complex behaviour is broken down into its component parts and essential features (Hantula, 2018: 326). Instead of giving a sentence or a paragraph-level definition, this approach reduces the concept of creativity to its constituent components. In this approach, creativity is viewed as arising from multiple components which can interact with each other (e.g. Kerrigan, 2013). This confluence-style approach is reflected in many famous models of creativity such as the componential model (Amabile, 1983), the systems model (Csikszentmihalyi, 1999), the 4Ps model of creativity (Rhodes, 1961). Each of them is discussed briefly below.

The componential model of creativity

First articulated by Amabile in 1983, the componential model of creativity has gone through considerable revision (e.g. see Amabile, 1988, 2013). The model has been revised and used with reference to the organisational setting – how to

promote creativity and innovation in organisations. Creativity is seen as being composed of four main components: domain-relevant skills, creativity-relevant processes, intrinsic task motivation and the social environment. These four components facilitate the process of producing creative ideas and can be summarised as follows:

- *Domain-relevant skills* refer to 'knowledge, expertise, technical skills, intelligence, and talent' (Amabile, 2013: 135) in a specific domain in which the individual is working. These domain-relevant skills will be drawn upon by the individual throughout the creative process and will also serve as 'the expertise against which the individual will judge the viability of response possibilities' (Amabile, 2013: 135).
- *Creativity-relevant processes* (also called 'creativity-relevant skills') are divided into two categories: *cognitive styles* and *personality characteristics* that facilitate creativity. The cognitive processes include 'the ability to use wide, flexible categories for synthesizing information and the ability to break out of perceptual and performance "scripts". The personality processes include self-discipline and a tolerance for ambiguity' (Amabile, 2013: 135). Researchers have identified a wide range of complex personality characteristics demonstrated by creative people and various examples of cognitive styles and thinking skills.
- *Task motivation* refers to intrinsic motivation – the desire to engage in a specific task because of its personal relevance, level of interest and challenge rather than external rewards. 'People are most creative when they feel motivated primarily by the interest, enjoyment, satisfaction, and challenge of the work itself – and not by extrinsic motivators' (Amabile, 2013: 136).
- *The social environment* can contribute or inhibit creativity. Features of the social environment which promote creativity include promoting positive challenge in the work, collaboration with team members, freedom and risk taking, and recognition of creative work. Examples of features that inhibit creativity are harsh criticism of new ideas, an emphasis on the status quo and excessive time constraints.

The first three components are intra-personal ('within the individual') while the last one is 'outside the individual'. All these components, according to the model, are required to facilitate the process of creativity. Creativity is also viewed as a continuum and at the higher end of the creativity continuum, all these components will be present in the higher intensity.

> 'The theory specifies that creativity requires a confluence of all components; creativity should be highest when an intrinsically motivated person with high domain expertise and high skill in creative thinking works in an environment high in supports for creativity'.
>
> *(Amabile, 2013: 135)*

The systems model of creativity

While in the componential model above, there are more components related to the individual, the systems model proposed by Csikszentmihalyi (1999) puts emphasis on the society. Creativity is broken down into three interlocking components or systems that need to work together for a creative process to occur: the person, the domain and the field. The three components that facilitate a creative process can be summarised as follows:

- The *domain* refers to a cohesive knowledge system – 'a set of already existing objects, rules, representations or notations' (Csikszentmihalyi, 1999: 315) within which creative ideas are generated, stored and transmitted over time.
- The *field* refers to 'the social organization of the domain' (Csikszentmihalyi, 1999: 315) made up of people with varying degrees of the knowledge system. They evaluate and select creative ideas using the criteria held within the domain.
- The *person*, which forms the third component of the model, refers to the personal background, aptitude, personal traits and education and so on. It includes motivational and affective variables as well as cognitive ones and addresses the question 'How do some individuals get to produce a greater amount of variation in the domain than others?' (Csikszentmihalyi, 2014: 59). According to Csikszentmihalyi, most research has focused on this personal aspect of creativity.

The systems model attempts to shift the focus of creativity from the individual to the social environment. 'We cannot study creativity by isolating individuals and their works from the social and historical milieu in which their actions are carried out' (Csikszentmihalyi, 2014: 47). Creativity doesn't arise in a vacuum. Nor does it exist in the mind of the individual alone. All three components need to converge for a creative process to occur. It is at the intersection of all these components that creativity emerges:

> 'For creativity to occur, a set of rules and practices must be transmitted from the domain to the individual. The individual must then produce a novel variation in the content of the domain. The variation then must be selected by the field for inclusion in the domain' (Csikszentmihalyi, 1999: 315).

While acknowledging the social and cultural aspect of creative practices, Kerrigan (2013) warns that the role individuals play in the creative process shouldn't be undermined.

The 4Ps model of creativity

According to the 4Ps model originally proposed by Rhodes (1961), creativity can be investigated from 4 dimensions known as 4Ps (person, product, process and press/environment). A similar set of four themes has been independently

identified and adopted by various researchers (e.g. Odena & Welch, 2009; Stein, 1963). The 4Ps are explained below:

- The first aspect (*person creativity*) focuses on the individual's or the group's characteristics which contribute to creativity, highlighting creativity as a property of creative people (people with certain sets of personal attributes). Researchers have identified various personal traits which have a bearing on creativity (Cropley & Cropley, 2013) or which enable creativity. Cropley (2016: 161) presents three dimensions of personal traits which contribute to creativity: 'personal properties (e.g. optimism, openness, self-confidence), motivation (both intrinsic and extrinsic) and feelings (e.g. excitement, hope, fear)'. Openness to experience has been identified as one of the most important personal attributes that fosters creativity (e.g. McCrae, 1987). Earlier discussions of person creativity have focused on creativity at the individual level, assigning creativity as a property of the genius and the individual (e.g. Poincar´e, 1929). In later years, a greater number of researchers working within various disciplines have proposed creativity as a property of everyday, ordinary people (e.g. Odena & Welch, 2009) and have researched creativity not only at the individual but also at the group level (group/collaborative creativity) (e.g. Sgourev, 2016).
- The second aspect (*product creativity*) focuses on the characteristics of (often tangible, observable) creative products and behaviours (products evaluated to be creative). This aspect has taken a centre stage in creativity research and discussions in various disciplines. Numerous examples and forms of creative products (their features and functions) have been analysed and described to understand product creativity. In computational creativity research which widely adopts this view, the aim is to design and develop models or creative systems to automatically generate creative products or human-like creative behaviour (which if demonstrated by humans will be regarded as creative).
- The third aspect (*process creativity*), as the name indicates, focuses on the process that the individual or the group goes through in producing a creative product. Researchers, mainly working within the discipline of psychology, are interested in identifying what processes (mainly cognitive) are involved and how they contribute to the creative production. Various cognitive processes have been proposed, encompassing not only at the micro-level (micro cognitive processes) but also at the macro-level (the stages one goes through during a larger time frame). Whether such cognitive processes are universal, domain-independent or cultural and domain-specific is an area that needs examination in future work. Psychology has often been accused of being 'mono-cultural', assuming that there is only one universal way of thinking and behaving (e.g. Jing, 2000: 579).
- Finally, the fourth aspect (*press creativity* – also known as environment creativity or 'persuasion'; Simonton, 1990) refers to the social and psychological environment in which creativity prospers. The environment includes not just the physical but also the psychological atmosphere, both the external and the internal circumstances, the cognitive (knowledge-related factors) and

affective factors (emotion-related factors) that facilitate creativity. For example, nostalgia as an emotion is argued to facilitate creativity (Van Tilburg et al., 2015). Similarly, interest as a knowledge-intensive emotion can be regarded as an important feature of task motivation that facilitates creativity.

In addition to 4Ps above, other Ps have also been suggested: 'persuasion' (Simonton, 1990) (a similar term for the press/environment aspect of creativity), 'potential' (Runco, 2003), 'phases' (Cropley & Cropley, 2008) (a similar term for 'process'), 'purpose' and 'problem' (Sternberg & Karami, 2021).

Despite dividing creativity research into four categories, some have argued that a comprehensive, coherent definition and discussion of creativity should take all four Ps into consideration, although the focus may be on one aspect. For example, Plucker et al. (2004: 90) attempt to capture all four Ps when they define creativity as 'the interaction among *aptitude, process and environment* by which an individual or group produces a *perceptible product* that is both *novel and useful* as defined within a *social context*'. The complex interaction between the various aspects needs to be considered. Not all creative products may derive from the same process or the same creative personal attributes. Similarly, the same process may result in different types of creative products. Similar to the 4Ps model, another model of creativity is the 5As model (actor, action, artefact, audience, affordances) (Glăveanu, 2013). See Glăveanu, (2013: 71) for a comparison between the four Ps and the five As framework.

The various components of creativity discussed so far can, in fact, be reduced to two major components: product- and process-oriented features (see Table 2.1). For example, the famous 4Ps model (person, product, process, press) can be reduced to a 2Ps model (product and process). The process can be expanded to accommodate the personal traits (person creativity) and the environmental factors (press creativity). Mental, affective, personal and social characteristics which facilitate creativity can be examined as part of the process involved in creativity.

TABLE 2.1 The product and process-related features of creativity models

	Models and their components			
Focus of the model	*Componential model*	*Systems model*	*4Ps model*	*5As model*
Product-related features			1. Product	1. Artifact
Process-related features (pre-, while-, post-ideation stages)	1. Domain-relevant skills (intra-personal) 2. Creativity-relevant processes (intra-personal) 3. Intrinsic task motivation (intra-personal)	1. Domain 2. Person	2. Process 3. Person	2. Action 3. Actor
	4. The social environment (outside the person)	3. Field	4. Press	4. Audience 5. Affordance

The process can be divided into three stages: pre-, while- and post-production/ideation of creativity. Individuals' background knowledge, expertise and skills (cognition) as well as their existing personal attributes, aptitude, intention, and emotions they bring with them prior to a task serve as part of the pre-creative production/ideation stage. The various stages they go through while producing are part of the while-production/ideation stage, whereas the feedback and evaluation their creative product receive from the members of the field within a specific domain form part of the post-production/ideation stage. The componential model, often described as a person-centric model, as well as the systems model (a society-centric model) focuses on various process-related features individuals need to draw upon at various stages of creativity.

A corpus-based approach to defining creativity

Another approach similar to the confluence-style approach is a corpus-based approach to defining creativity (e.g. Jordanous, 2012; Jordanous & Keller, 2016). Using the corpus of creativity literature, some researchers have proposed a summary of the components that make up creativity. Based on a computational linguistic analysis of two corpora[1], Jordanous (2012) proposes 14 emergent components which have frequently appeared in discussions of the nature of creativity in various academic disciplines (see Figure 2.1).

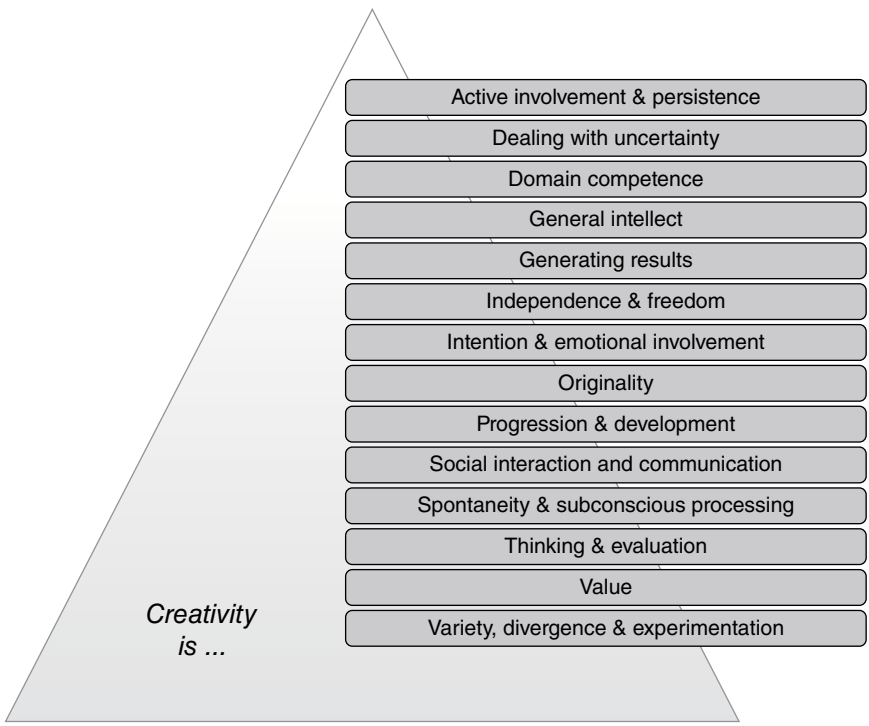


FIGURE 2.1 The 14 key components of creativity (Jordanous & Keller, 2016: 18)

A closer examination of the components listed in Jordanous (2012) and Jordanous and Keller (2016) shows that the various components can be grouped under two major categories: the product-related features (outcomes of a creative act) and the process-related features – the process one undergoes before, while and after ideation or producing (see Table 2.2).

The components of creativity proposed by Jordanous (2012) and Jordanous and Keller (2016) show that creative processes have taken a central role in the creativity rhetoric in the literature reviewed in their study. Many characteristics associated with processes have been identified (see Table 2.2). The process involves not just the cognitive factors (the mental processes) (e.g. see number 1, 9, 11, 12, 14) but also the affective factors (e.g. 7) and the social, environmental factors (e.g. 10). Creativity is not just product- but also process-oriented. Just achieving novel and valuable outcomes is not sufficient. Individuals' intention, desire and emotional involvement and social interaction and working within a favourable environment are also important for creativity as well as the acceptance of creative ideas by the field and the addition of those ideas to the domain.

TABLE 2.2 A corpus-based approach to creativity

	The 14 key components of creativity (Jordanous, 2012: 118–120)
Product-related features (What: the end result)	**Generating Results (2)** • Working towards some end target, goal or result. • Producing something (tangible or intangible) that previously did not exist. **Originality (8)** • Novelty and originality – a new product, doing something in a new way or seeing new links and relations between previously unassociated concepts. • Results that are unpredictable, unexpected, surprising, unusual, out of the ordinary. **Value (13)** • Making a useful contribution that is valued by others and recognised as an influential achievement; perceived as special; 'not just something anybody would have done'. • End product is relevant and appropriate to the domain being worked in.
Process-related features Before-ideation process: What prior knowledge and skills are required for the product?	**Domain Competence (4)** • Domain-specific intelligence, knowledge, talent, skills, experience and expertise. • Knowing a domain well enough to be equipped to recognise gaps, needs or problems that need solving and to generate, validate, develop and promote new ideas in that domain. **General Intellect (5)** • General intelligence and intellectual ability. • Flexible and adaptable mental capacity.

(Continued)

TABLE 2.2 A corpus-based approach to creativity *(Continued)*

	The 14 key components of creativity (Jordanous, 2012: 118–120)
Process-related features While-ideation process: How to get to the end result	**Active Involvement and Persistence (1)** • Being actively involved; reacting to and having a deliberate effect on a process. • The tenacity to persist with a process throughout, even at problematic points. **Dealing with Uncertainty (3)** • Coping with incomplete, missing, inconsistent, uncertain and/or ambiguous information. Element of risk and chance, with no guarantee that problems can or will be resolved. • Not relying on every step of the process to be specified in detail; perhaps even avoiding routine or pre-existing methods and solutions. **Independence and Freedom (6)** • Working independently with autonomy over actions and decisions. • Freedom to work without being bound to pre-existing solutions, processes or biases; perhaps challenging cultural or domain norms. **Intention and Emotional Involvement (7)** • Personal and emotional investment, immersion, self-expression, involvement in a process. • Intention and desire to perform a task, a positive process giving fulfilment and enjoyment. **Progression and Development (9)** • Movement, advancement, evolution and development during a process. • Whilst progress may or may not be linear, and an actual end goal may be only loosely specified (if at all), the entire process should represent some developmental progression in a particular domain or task. **Spontaneity/Subconscious Processing (11)** • No need to be in control of the whole process – thoughts and activities may inform a process subconsciously without being fully accessible for conscious analysis. • Being able to react quickly and spontaneously during a process when appropriate, without needing to spend time thinking about options too much. **Thinking and Evaluation (12)** • Consciously evaluating several options to recognise potential value in each and identify the best option, using reasoning and good judgment. • Proactively selecting a decided choice from possible options, without allowing the process to stagnate under indecision. **Variety, Divergence and Experimentation (14)** • Generating a variety of different ideas to compare and choose from, with the flexibility to be open to several perspectives and to experiment with different options without bias. • Multi-tasking during a process.
Process-related features Post-ideation process	**Social Interaction and Communication (10)** • Communicating and promoting work to others in a persuasive, positive manner. • Mutual influence, feedback, sharing and collaboration between society and individual.

N.B: The numbers in the table are the numbers used in Jordanous' (2012) list.

Task 2.2: Components of creativity and implications for language teaching

1. Look at the components of creativity listed in Table 2.2. Based on that list, suggest some recommendations for language teaching. An example is given below:

	Features of creativity	*Recommendations for language teaching*
Product-related features (What: the end result)	**2. Generating Results** • Working towards some end target, goal or result. • Producing something (tangible or intangible) that previously did not exist. **8. Originality** • Novelty and originality – a new product, doing something in a new way or seeing new links and relations between previously unassociated concepts. • Results that are unpredictable, unexpected, surprising, unusual, out of the ordinary. **13. Value** • Making a useful contribution that is valued by others and recognised as an influential achievement; perceived as special; 'not just something anybody would have done'. • End product is relevant and appropriate to the domain being worked in.	Creating conditions for students to produce new, valuable ideas and outcomes; raising awareness of the utility-value and novelty of various materials/contents/tasks learned. Such conditions can also increase students' interest – a motivational variable for language learning.

Lombardo and Kvålshaugen (2014: 591) note that 'most of the creativity literature considers an action as creative only when it produces a *novel and useful output'*, putting emphasis on the desirability of creative outputs while underscoring the importance of the process. For example, Ritchie (2007), in the discussion of evaluating (computational) creativity, emphasises the product, saying that the actual processes one goes through are unimportant for creativity. Such processes

are often unobservable and 'We should, in our pursuit of evidence that a program has behaved creatively, consider only empirically observable factors' (Ritchie, 2007: 70). In other words, as Jordanous (2012: 124) notes, 'humans normally judge the creativity of others by what they produce, because one cannot easily observe the underlying process of human creativity'.

However, the processes involved in creativity have been widely talked about in the literature. Although processes are not observable, studies show that when evaluating a product, people also make assumptions about the process involved (e.g. see Jordanous, 2012: 124). They are likely to change their creativity judgement of the product once they discover how it was produced. This is analogous to the way we react to a magician's trick or a creative text (a poem) produced by the computer. A magician's trick may appear less impressive once we discover how it was performed. Similarly, a poem produced by the computer may be evaluated as less creative once we know such texts are produced by the computer based on a set of pre-designed algorithms. In other words, as Jordanous (2016: 203) notes, 'our interpretation of how something was produced is important, even if the actual method is unknown'. Especially, in the domain of arts, the process is as important as the product.

> We believe that it is not just creativity that the art-lover is looking for in the process, but also effort and skill, and possibly many other aspects. Even if this is not the case in general, we can still conclude that the assessment of an artwork can include information about the artistic process behind it.
>
> *(Colton, 2008: 3)*

Task 2.3: Evaluating creativity based on our interpretation of how something was produced

In the chapter titled 'In Defence of Genius', Cook (2011) provides two examples of language play as follows:

> Text 1. I shall see some squeaking Cleopatra boy my greatness.
> Text 2. And you'd just roll, like circusing right the way down and get right up to the top.

1. Do you think both examples will be judged to be 'equal' in their creativity? Why/Why not?
2. Now how would it affect your evaluation if you know the source of those two texts. The first text comes from a play written by William Shakespeare. The second text is a line from an everyday conversation.

(Continued)

Comments:
The first example is a line from Shakespeare's Anthony and Cleopatra, Act V, Scene 2, whereas the second is a line from an everyday conversation (from CANCODE corpus collected by Carter and McCarthy (1995: 310) where the speaker is 'telling the story of a dangerous game he and his friends played as children, rolling down industrial spoil heaps inside old lorry tyres' (Cook, 2011: 299).

Although Cook (2011) acknowledges both as having the creative use of noun as verb (e.g. squeaking, circusing), he confesses that the example from literary texts will be regarded as more enriching and more creative – an example of extraordinary creativity. Cook explains that while example 1 is the outcome arising from 'sustained and meaningful uses of play which operate on a much larger and more extended scale' found in literary texts (such as Shakespeare), example 2 is the outcome of a 'one-off instance' requiring less effort (Cook 2011: 299). This reasoning echoes how our judgement of creativity (in this case linguistic creativity) is based not only on the quality of the final product but also on the process which we assume the producer must have undergone. People normally assume that literary texts are the outcomes of a sustained, meaningful play and this assumption contributes to their judgement of such texts as being more creative, important and enriching.

Other approaches to defining creativity

In addition to the tactic, intuitive or the reductionist approach, discussions on creativity can also be examined in terms of different perspectives taken by researchers. Creativity has been viewed as a binary, a continual, a dualistic, a multi-dimensional/compositional or an integrative/co-occurring, dynamic concept. Each perspective is discussed below.

Creativity as a binary concept

Creativity has been discussed in various binary terms such as creative genius vs non-creative ordinary, or exceptional creativity vs everyday creativity; domain-general vs domain-specific creativity. Many earlier studies focused on creativity at the genius level, also known as 'H-creativity' (Historical creativity) (Boden, 2004) or 'big-C creativity' (Gardner, 1993). In this view, for a behaviour or an outcome (product) to be creative, it must make a significant, ground-breaking contribution to the field. Researchers in later years shifted the attention away from Historical, genius creativity to ordinary creativity (known as 'P-creativity' (Psychological/personal creativity) (Boden, 2004) or little-c creativity (Gardner, 1993)), focusing on how creativity can be the property of an ordinary layperson. In recent years, everyday creativity has gained increased attention among

researchers as the outcome of such studies could be more inclusive and have a wider application for a larger population and contexts. However, researchers who write and research about 'everyday creativity' often make references to examples of H-creativity (citing the ground-breaking examples of well-known historical figures) to illustrate their ideas about 'everyday creativity' (e.g. Boden, 2004). An assumption reflected is that the similar creative processes are reflected in both H-creativity and P-creativity.

With reference to linguistic creativity, Cook (2011) argues that it is important to distinguish between extraordinary creativity and ordinary creativity and that to get rid of the binary approach to creativity and to move away from interest in the extraordinary creativity (creativity at the genius level) would not only be unjustified but would also deprive us of an important category. Cook (2011: 301) says:

> By all means let us continue to study everyday creativity. But there are no reasons that I can find in the current debate to undermine the validity of the claim that there is also extraordinary creativity, unequally distributed among a very few individuals, to the great benefit of the rest of us.

In another similar binary vein, researchers have also pondered whether creativity is domain-general or domain-specific. In the domain-general view, features of creativity demonstrated in one domain remain the same across other disciplines (e.g. Plucker, 1998) and creativity can be predicted. This view has led to the design and use of psychometric tests, to measure generic creativity in people as a way to predict their future creativity. One test most widely used is Torrance's test of creative thinking (TTCT)[2] (e.g. Torrance, 1974, 1998), measuring 'person creativity' using verbal and figural tests. The test has been used in various studies to find out whether creativity scores can predict students' performance in other activities and other domains.

Task 2.4: Predicting language performance based on Torrance test of creativity

1. Get a group of students to perform the following tasks (Creativity Test 1, 2, Language Test 1 – Writing Task). Collect their outputs and have them assessed by judges. See details below.
2. Compare students' performance for Creativity Tests and Language Test. Do students who score higher in creativity tests score higher in the language writing task? Can students' performance in the creativity tests predict their performance in the language task?

(Continued)

Creativity Test 1. Picture completion task (Figural test)

i. Continue the incomplete shape (Figure 2.2) given below to make a picture out of it. Give your picture a title.

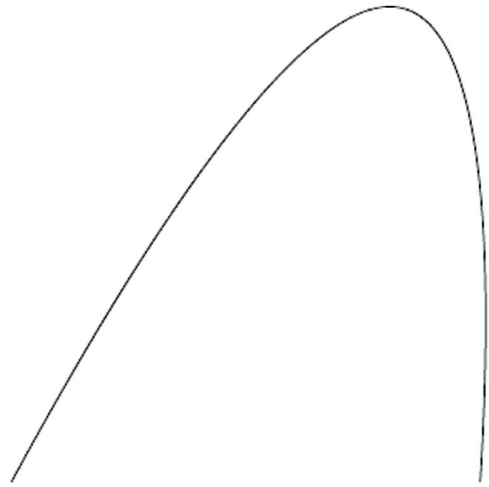


FIGURE 2.2 Incomplete starting shape

ii. Get several judges to evaluate the completed drawings in terms of creativity. Use the following criteria: originality (uncommon, original responses), elaboration (details), resistance to premature closer, abstractness of titles.

An example is given in Figure 2.3 (these pictures are from a research project I conducted in Indonesia).

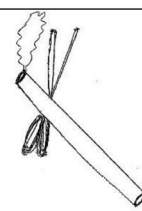
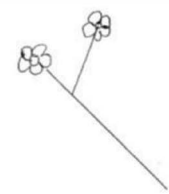
Starting shapes:	Completed drawing	
	More creative	Less creative
	 'Cut' your cigaratte	 Flower

FIGURE 2.3 An example of figural creativity test

Creativity Test 2: Verbal test

i. List as many uses as possible for the following objects. Get students to do the task in L1 (students' first language).
   - a newspaper (You have 2 minutes).
   - a paper clip (2 minutes).
   - a brick (2 minutes).

ii. Get the judges to evaluate the outcomes in terms of creativity. Use the following criteria: fluency (relevant responses), flexibility (different responses/shifts in thinking), originality (uncommon, original responses).

Language Test 1. Writing task

i. Write a story in English. The beginning of the story is given below. Please continue the story in English. You have about 15 minutes to write the story.

> 'It happened in the year of the great flood. ……'

ii. Get the teachers to evaluate the writing products in terms of language proficiency. Use the following criteria: accuracy (language used is accurate), fluency (the ideas are relevant and there are sufficient ideas), complexity (varied choice of vocabularies and sentence structures), organisation (the organisation is clear and coherent).

3. With reference to creativity tests such as the ones used by Torrance (1974, 1998), Sternberg and Karami (2021: 14) note that:

> In many tests of creativity (…), the products produced bear relatively little resemblance to these kinds of real-world creative products. (….) Completing an incomplete abstracted figure on a test page does not bear a lot of resemblance to most real-world creative work. Some work has tried to go beyond these somewhat trivialized products.

Can you think of other ways of measuring creativity?

On the other hand, researchers argue that some aspects of creativity are domain-specific (e.g. Baer, 2010; Csikszentmihalyi, 1988). One common definition of creativity as problem-solving or problem-finding may be more relevant to some domains than others. Amabile (1996), for example, makes a distinction between 'creativity-relevant skills' and 'domain-relevant skills'. While the former includes cognitive and exploration skills which are shared in creative performances across domains, the latter is a set of skills and knowledge specific to a given domain and is an important component of creativity. Researchers have nowadays reached a general consensus and adopted a hybrid view of creativity – that is, while some aspects of creativity are domain-specific,

others are domain-independent and are shared across contexts (e.g. Baer, 2010; Csikszentmihalyi, 1988; Kaufman, 2016).

Creativity as a continuum

'Creativity' has also been described as a continuum (or a cline) rather than as a dichotomy or a binary. Creative performance and behaviour can be put on a less-more creative continuum. The continual view of creativity is reflected in the four C model of creativity which describes the creativity cline in terms of four stages: mini-c, little-c, pro-c and big-c. To cover the wide gap between the big-little creativity dichotomy, Beghetto and Kaufman (2007) propose two additional categories: min-c and pro-c creativity. A summary of what each means is given below.

- *Mini-c creativity* refers to creativity with reference to self. It refers to 'new and personally meaningful interpretations, ideas, and insights' (Beghetto & Kaufman, 2007 cited in Helfand et al., 2016: 18) and such mini-c creativity 'need not even be shared or acknowledged by anyone but the creator' (Helfand et al., 2016: 18). Ideas produced are new and valuable to the creator (self) but may not be so for others. An example of mini-c creativity is learning to make a dress or writing a poem which is valued by the creator but which may not be acknowledged by others.
- *Little-c creativity* refers to 'the creativity exhibited in everyday life' (Helfand et al., 2016: 17) such as learning to upcycle old clothes into a beautiful garment, learning how to set up a vegetable garden in a limited space, learning to write a poem after studying about creative writing. Ideas produced are meaningful and relevant to self and will also be acknowledged and admired by a few others in their everyday social context.
- *Pro-c creativity* refers to creativity of 'most individuals working with a professional level of knowledge of their field' (Helfand et al., 2016: 20). Although the ideas they have produced have not reached or may never reach the eminent status of big-c creativity, their works 'have far surpassed little-c' (Helfand et al., 2016: 20) and are acknowledged as valuable and new by others in their profession. For example, a successful fashion designer puts together new fashion design ideas using her knowledge of fashion design which has been acquired over many years and publishes a book which is read and valued by other professional fashion designers.
- *Big-c creativity* refers to 'eminent creativity' (Helfand et al., 2016: 16) demonstrated in ground-breaking works by geniuses, famous artists, scientists, world leaders and so on. Ideas produced are new and valuable to society as a whole and have reached 'a level of prominence that would lead to immortality' (Helfand et al., 2016: 20).

Other similar terms have been used to describe creativity as a continuum. For example, Nake (2009: 102) describes the creativity cline in terms of three stages:

trivial, personal and historic creativity. Embedded in such a continual view is a binary perspective as the two ends of the continuum still imply the existence of binary opposites such as the extraordinary and ordinary creativity – which, in fact, reflect a binary perspective. As Cook (2011: 300) says, 'clines still have extremes, which can function in effect as binary opposites'.

Creativity as a dualistic concept

In a dual pathway to creativity model, creativity is often described as being made up of two major complementary processes: idea generation (generating ideas for a problem) and idea exploration (exploration of previously generated ideas to solve the problem) (Finke et al., 1992), chaotic and ordered thinking (Finke, 1996), divergent and convergent thinking (Guilford, 1959). A brief explanation of these processes is given below:

- Finke et al. (1992) propose two phases to facilitate creativity: idea generation and idea exploration. The *idea generation* phase involves generating ideas or 'pre-inventive forms' without knowing what they will be used for whereas the *idea exploration* phase involves re-interrupting those *previously generated* pre-inventive forms, constructing new meaning and functions in retrospect (see Tin, 2013). The final outcome produced in the exploration phase couldn't have taken place without the ideas generated in the previous phase but couldn't be predicted either at the idea generation phase.
- Finke (1996) proposes two types of thinking involved in creativity: chaotic and ordered thinking. Chaotic thinking is generally impulsive, spontaneous, reactive and divergent, focusing mainly on momentary occurrences. It explores novel alternatives without specific plans or goals and involves the natural emergence of structure from complexities. Ordered thinking, on the other hand, involves generating new ideas through purposefully analysing and extending existing ideas. It is often highly structured and directly connected to previous ideas and concepts. The structure is imposed and complexity is reduced (also see Tin, 2011). These thinking types are somewhat similar to 'divergent' and 'convergent' thinking proposed by Guilford (1959).

Such dualistic views, although similar to binary in that two opposite entities are involved, differ from the binary perspective. The two opposite entities do not stand as irreconcilable opposites where one's presence means the absence of the other. Instead, they serve as the complementary duo/duet despite being opposites and the two entities complement each other. One entity needs to be fulfilled for the other to occur and together they contribute to achieving creativity. The order in which these two entities occur is often important. For example, in most discussions of creativity as process, idea-generation needs to occur before idea exploration to happen (e.g. see Tin, 2011, 2015). The procedure

can be repeated (e.g. idea-generation → idea-exploration → idea-generation → idea-exploration.). Tin's (2015) study shows how students alternated between chaotic and ordered thinking in creative writing tasks.

This dual view of creativity has been applied not only to the description of creative processes (process creativity) but also to creative individuals (person creativity). Creative individuals are viewed as possessing an ability to fluctuate between contradictory extremes. They shift between opposite personalities such as self-centredness vs altruism, self-doubt vs self-confidence, tension vs relaxedness (McMullan, 1978), toughness vs sensitivity (Csikszentmihalyi, 1996), extroversion vs introversion, fantasy vs realism (Haller & Courvoisier, 2010), seriousness vs playfulness (e.g. Cook, 2000). They move between contradictory thinking styles such as heuristic and algorithmic thinking (Haller & Courvoisier, 2010), divergent and convergent thinking (Guilford, 1959). Creative individuals 'contain contradictory extremes – instead of being "an individual", each of them is a "multitude"'(Csikszentmihalyi, 1996: 47).

Creativity as a dynamic and emergent concept

Another perspective which features in the creativity discussion is that of co-occurring dynamism. Creativity, in that perspective, is a complex, dynamic system: there is no linear or cause-effect relationship between various components that constitute or contribute towards creativity. While all the previous views involve a linear concept (bi-, dual-, continuum/cline), a dynamic perspective of creativity is more like a spider-web. The various elements co-occur and interact with one another in a non-linear manner, giving rise to creativity. This view is reflected to some extent in the systems model of creativity by Csikszentmihalyi (2014) where creativity is argued to emerge when the three major components (person, field, domain) interact:

> what we call creative is never the result of individual action alone; it is the product of three main shaping forces: a set of social institutions, or field, that selects from the variations produced by individuals those that are worth preserving; a stable cultural domain that will preserve and transmit the selected new ideas or forms to the following generations; and finally the individual, who brings about some change in the domain, a change that the field, will consider to be creative.
>
> *(Csikszentmihalyi, 2014: 47)*

Similar to the systems model, the distributed view of creativity proposed by Glăveanu (2016) regards creativity as a dynamic, emergent phenomenon which arises as a result of the interaction between the individual, the society (culture) and the object (materials resources). Creativity is not the static property of the mind. Even when the creative act is conducted in solitude, society plays an important role in attributing to the creative act and the value. Glăveanu (2016)

proposes a process-oriented research method to investigate the distributed nature of creativity: use of comparative and longitudinal studies and investigation of 'creativity' as becoming rather than being. Instead of measuring creativity as a static property of individuals and products, what is more important is to investigate 'creativity' in making as it emerges during a specific context as a result of the interaction between the individual, society (others) and the materials (e.g. tasks) (e.g. see Tin, 2011, 2015). It is important to investigate not just the making of creative acts but the perception and use of creative acts. Creativity continues well after a particular moment of production. It is the continued re-creation of the society that makes a product such as a famous painting 'become' creative.

Conclusion

This chapter has examined the rhetoric of creativity by examining how creativity has been used, defined, researched and perceived in the academic literature. Various metaphors have been used to define creativity. Some researchers adopt a tacit, intuition-based approach and avoid giving a formal explicit definition of creativity, believing that people recognise creativity once they encounter it even though they may be unable to articulate its definition. Such an approach focuses on the product-oriented aspect of creativity. Most discussions on creativity have adopted a confluence-style approach in which creativity is broken down into various components. All those components contribute to a creative process. While the componential model proposes four major components (three within individual factors and one outside the individual), the systems model proposes three components (domain, field and person). Other researchers such as Jordanous (2012) have adopted a corpus-based approach to defining creativity and compiled the various components that have appeared in discussions of creativity in the academic literature. Jordanous' (2012) list shows that 'processes' (what the individual needs to do to produce the creative product) have occupied an important place in academic discussions.

Creativity has also been discussed as a binary, continual, dual or dynamic concept. While the binary perspective focuses on two extremes of creativity such as exceptional vs ordinary creativity, domain-general vs domain-specific creativity, additional categories are proposed by researchers adopting the creativity as a cline perspective. For example, the four C model of creativity is proposed to address the gap that exist between the two extremes proposed in the binary approach. Some confluence-style models of creativity such as the systems model seem to focus on the higher end of the creativity continuum: the pro-c creativity where the acceptance of something as creative extends beyond the creator him or herself to the wider society (the field). The dual perspective views creativity as a process alternating between two opposite thinking types. It sees creative individuals as demonstrating an ability to move between contradictory thinking styles and personalities. Finally, the dynamic approach views creativity not as a static but as a dynamic process. Creativity arises from the interaction of

various components and there is no linear relationship. Understanding creativity in making rather than as a finished product is important.

The various components and views of creativity discussed in this chapter can in fact be reduced to two major components: product- and process-oriented features. For example, the famous 4Ps model (person, product, process, press) can be reformulated as a 2Ps model (product and process). The process can be expanded to accommodate the personal traits (person creativity) and the environmental factors (press creativity). The process can be divided into three stages: pre-, while- and post-production of creativity. Viewing process creativity in terms of three major stages also aligns with the major steps outlined by creativity researchers such as Corazza & Agnoli (2016) who propose the three key stages (1. Information gathering and structuring stage, 2. Ideation stage, 3. Verification stage) (see Chapter 3 for further details). This classification of creativity in terms of two major categories (product and process) is also relevant when talking about the various perspectives of creativity. The various views presented in this chapter can be summarised in Table 2.3.

TABLE 2.3 A summary of the various models and perspectives of creativity

Perspectives	*Description*	*Examples*	*Focus*
Metaphorical approach	Use of metaphor	The investment model (buying low and selling high)	Process-oriented and product-oriented view
Tacit, intuition	We recognise creativity once we see it. Achieving creativity is more important than defining it.	Computational creativity	Product-oriented view
Reductionism/ confluence	Creativity is made up of multiple components	The componential model (domain-relevant skills, creativity-relevant processes, intrinsic task motivation, social environment) The systems model (the person, the field, the domain) The 4Ps model (product, process, person, press) The 5As model (artefact, action, actor, audience, affordance)	Process- and product-based view
Corpus-based approach	Creativity is made up of multiple components. Process-oriented features have received increased attention.	14 emergent components reflected in the creativity corpus	Product-oriented and process-oriented features

(Continued)

TABLE 2.3 A summary of the various models and perspectives of creativity *(Continued)*

Perspectives	*Description*	*Examples*	*Focus*
Binary	Opposites (either-or) (one's presence excludes the other)	Extraordinary creativity vs ordinary creativity Domain-general vs domain-specific creativity	Product-based view
Continuum	Less – more (continual, gradable)	Mini – little – pro – big creativity Trivial – personal – historic creativity	Product-based view
Dualism	Complementary pathway (one precedes or contributes to the other, two opposite entities alternate in a creative process and a person)	Shifting between extreme poles (personality traits and thinking styles) Shifting between: • idea-generation vs idea-exploration • convergent vs. divergent thinking • chaotic thinking vs ordered thinking • heuristic vs algorithmic thinking, etc.	Process-based view
Co-occurring dynamism	Interactive, co-occurring, non-linear	The distributed model The systems model	Process-based view

The processes involved in various stages of a creative act play a central role in our understanding of creativity. These processes are further examined in the following chapters. Chapter 3 gives an account of micro- and macro-stages involved in creative production. Chapters 4–6 examine three process-oriented features or thinking styles important for creative production: use of heuristics, constraints and algorithms in creative practices.

Notes

1 The two corpora used in Jordanous (2012) are: (1) creativity corpus data made up of 30 academic papers from various disciplines which explicitly discuss the topic of creativity, and (2) non-creativity corpus data which consist of 60 academic articles on topics unrelated to creativity from the same range of publication years and disciplines as the creativity corpus data.

2 See examples on https://innovators-guide.ch/wp-content/uploads/2012/12/torrance-creativity-test.pdf (accessed 3 August 2021).

3

Creativity as an inclusive term

Locating its common core

Introduction

Although creativity has been accused of being an elusive term with a fuzzy boundary, a common core can be located amidst its messiness. Despite the chaos and elusiveness of the term 'creativity', there is a possibility and hope for inclusiveness. Chapter 2 has examined how creativity has been written about and defined in the academic literature. The discussion shows that creativity is a multi-faceted concept and has been viewed in various ways. This chapter looks inside the semiotic make-up of a popular, core phrase which has been widely used to define creativity as 'an ability to produce new, valuable ideas' (a core meaning of creativity embedded in various approaches and perspectives to creativity). The chapter demonstrates how each word in that phrase has a large semantic footprint, paradoxically making creativity both an elusive and an inclusive term. It shows how relatively simple words can be expanded to accommodate various meanings and interpretations of creativity proposed in the literature.

Creativity as an ability to produce new valuable ideas

A central meaning embedded in various uses and models of creativity is that creativity is 'an ability to produce new valuable ideas'.[1] On the surface, this phrase looks simple but it is its simplicity that makes the term creativity complex and elusive with a potential to be inclusive. A closer look reveals the complex meaning potential embedded in each of those seemingly simple words, evoking a whole baggage of other allusive words (see also Veale et al., 2006). Any word calls upon other words: synonyms, antonyms, hyponyms and so on. A word can also be elaborated paradigmatically and syntagmatically and its meaning gets

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expanded. A word doesn't just mean what it means but can evoke a thousand other things which it has been used to talk about.

Creativity as an ability: Unpacking 'ability' (noun)

The word 'ability' alludes to the notion of agency – human agency. The term 'person creativity' has often been used by researchers as part of the 4Ps framework of creativity to highlight this personal aspect of creativity (e.g. Rhodes, 1961). There is a whole range of people *whose ability* to create have been talked about: ranging from eminent, genius people that history has seen to ordinary, normal people whom we come across every day. Creativity has been used with reference to the ability of people from diverse disciplines such as artists, scientists, engineers, designers, writers, businessmen, CEOs, employees, employers, students, teachers, policy makers, educators, internet users, language users, language learners, children, adults and so on. Although creativity as the ability has been mostly discussed at the level of individuals, researchers have begun to analyse creativity at the societal, group level (e.g. see Sgourev, 2016). In recent years, with the advancement of artificial intelligence, the term 'computational creativity' or mechanical creativity has been used (e.g. Veale, 2013). However, such models are designed and based on the level of human creativity. That is, they are designed to produce human-like creative behaviour or generate works which would be evaluated as creative if they were produced by humans.

In addition to the notion of agency (whose ability), the word 'ability' as a noun can also take upon adjectives addressing the question of *which ability*. A whole range of adjectives often used to talk about creativity are 'inherent', 'inherited', 'divine', 'learned', 'emergent', 'emergenic' and so on. On one hand, the ability to create or be creative has been viewed as an *inherent* ability that all human beings have, which exists in the form of what researchers call mini-c creativity or trivial creativity. In this view, by nature, we are all wired to be creative. On the other hand, the ability to create has also been viewed as *inherited*: that is, it has to do with our genetics (Eysenck, 1995). In the past, creativity has been thought of as a trait that people are born with (i.e. it is 'not something that can be developed by training'; Olken, 1964: 149), as a personality trait or an aptitude which remains stable for most people (Feist, 1998). Studies using twins have shown that 'a large amount of creativity may be explained by genetics' (Lopata, 2014: 27). In contrast, some researchers view creativity not as a property of the mind but as an *emergent* ability (e.g. Csikszentmihalyi, 2014). Creativity can be learned and taught.

On the other hand, other researchers view creativity both as an emergent and genetic ability. Researchers propose creativity as an *emergenic* phenomenon (e.g. Simonton, 1999), a complex higher order trait 'determined by an interaction of multiple, fundamental, partly heritable and partly environmentally attributable traits' (Lopata, 2014: 24). A study conducted by Lopata (2014) suggests that although formal institutional training on creativity (e.g. improvisation) makes 'a difference in the nurturing and development of creativity', 'the

aptitude to be creative is a necessary trait that must be present in the first place' (Lopata, 2014: 101). Participants in his study scored higher in an improvisation performance test when prior training on improvisation was present. However, this applied only to those with high aptitudes for creativity. This suggests that creativity is both a genetic and a learned phenomenon. It should however be noted that creativity in Lopata's (2014) study was investigated using 'improvisation' tasks, which did not fully cover the multi-dimensional components of creativity.

The word 'ability' also calls upon other *near-synonymous words* such as 'potential', 'quality', 'capability', 'aptitude' as well as *near-antonymous words* such as 'reality' and 'performance'. Having an ability or a potential to be creative doesn't guarantee that the ability will be acted upon and transformed into reality or performance. Several scholars have written about creativity with regards to the applied aspect: how to transform human's ability to create (whether inherent, inherited, innate, nurtured or natured) into reality and performance through informal and formal training and practice (e.g. Sternberg, 2007). Various books have been written about, adopting this *applied creativity rhetoric* (e.g. Christensen, 2015; Maley, 2018). In her book, Christensen (2015) describes five types of creative processes (creative thinking) such as convergent, divergent, lateral, aesthetic, and emergent and proposes 150 activities (creativity challenges) which according to the author demonstrate those thinking types. In the field of language teaching, scholars such as Maley have relentlessly fought for creative practices instead of indulging in a theoretical muse. In his recent book (Maley, 2018), he shared 50 creative practical ideas for language teachers to develop creative habits in their students.

Creativity as an intention and direction: Unpacking 'to' (preposition)

The word 'to' in English is used to talk about an intention, an outcome, a goal, a destination that one is moving to or aims to achieve. In this sense, creativity as an ability has a goal or an outcome to achieve. Many scholars have focused on that directionality or functionality associated with creativity (*what is the ability for?*). The intention and purpose of creativity have received the attention of several researchers in recent years (e.g. see Sternberg & Karami, 2021). This functional aspect of creativity is discussed in detail with reference to linguistic creativity in Chapter 8.

The word 'to' also calls upon its *opposite counterpart* 'from' along with many *other prepositions* such as 'under, through, in, of, into' and so on. Many discussions on creativity have used various forms of prepositions to highlight its meaning (e.g. Cook, 2011; Sternberg et al. (eds), 2004). Some have focused on the sources of creativity: where does creativity come *from*? The various conditions *under/in* which creativity prospers and emerges have also been talked about as we have seen in the componential and the systems model of creativity in Chapter 2.

The transformation of relatively insignificant things *into* something new and valuable has also been a popular language used to talk about creativity as seen in the investment model of creativity (Sternberg & Lubart, 1992) which describes creativity as the ability to turn relatively low-value raw ideas *into* high-value, creative ideas. In Chapter 8, I use prepositions (*through, of, with*) to segment linguistic creativity.

Creativity as an action and a trajectory: Unpacking 'produce' (verb)

The word 'produce' denotes the act of creating as outcome-oriented: there is something to be produced or a product to be achieved as part of a creative act. It also alludes to a wealth of other notions. The verb '*produce*' and its noun form 'product' indicate the notion of stages involved in the act and allude to the '*process*' (a frequent counterpart of the word 'product') that people need to go through when engaging in a creative act. We may not achieve a complete understanding of creativity just by focusing on the final product one produces. Neither can we trace the process one has gone through just by looking at the product. The product may have been crystalised in such a way that it doesn't reveal the full picture of the trajectory one has gone through (Tin, 2015). It is also possible that only after the process is over, a full understanding of the nature or the requirements of the product can be achieved (Seidel, 2009).

The *temporal aspect* that verbs can carry plays an important role when we talk about creativity as product and producing: there are *stages* involved. Researchers have proposed various stages involved in creative production. To understand what creativity means, the *trajectory* is as important as the final *destination* that it leads to. Although the product generated may not be evaluated as creative, the process one goes through may reveal something about one's creative ability. Creativity in this sense can be interpreted as an ability to engage in, employ or undergo various stages and processes required to produce new, valuable ideas relevant to a particular domain within which one works. As discussed in Chapter 2, people's judgement of something as creative is based not only on the observable features of the product but also on their assumptions about the process involved in producing it even though that process is unknown. Various theoretical models outlining the stages involved in creativity are summarised in Table 3.1. Corazza and Agnoli (2016) propose how the various models can be explained using the three key stages (1. information gathering and structuring stage, 2. ideation stage, 3. verification stage). These stages are similar to the three major processes proposed in Chapter 2: pre-ideation, while-ideation, post-ideation of creativity.

Corazza and Agnoli (2016) propose three key stages involved in creativity: 1. information gathering and organisation, 2. ideation, 3. verification or evaluation of the effects of ideas produced. While the most essential stage is 'ideation', the other stages are important for the existence of the creative thinking process. The verification stage indicates that 'the process is always incomplete without

TABLE 3.1 Stages involved in producing new valuable ideas

	1	*2*	*3*	*4*	*5*	*6*	*7*
	Corazza and Agnoli (2016)	*Wallas (1926)*	*Guilford (1959)*	*Corazza and Agnoli (2013)*	*Cropley (2016)*	*Mumford et al. (2012)*	*Finke et al. (1992)*
Three major stages proposed in Chapter 2	**A three-key-stage model**	**A four-phase model**	**A four-stage model**	**A five-state model (DIMAI)**	**An extended phase model (seven consecutive phases)**	**An eight-stage model**	**A two-phase geneplore model**
Pre-ideation	1. Gathering and structuring of information elements	1. Preparation 2. Incubation	1. Problem recognition	1. Drive 2. Information	1. Preparation 2. Activation	1. Problem finding 2. Information gathering 3. Information organisation	
While-ideation	2. Ideation	3. Illumination	2. Idea generation	3. Movement	3. Generation 4. Illumination	4. Conceptual combination 5. Idea generation	1. Idea generation 2. Idea exploration
Post-ideation	3. Verification of the effects	4. Verification	3. Idea evaluation 4. Solution validation	4. Assessment 5. Implementation	5. Verification 6. Communication 7. Validation	6. Idea evaluation 7. Implementation planning 8. Solution monitoring	

a projection of the idea onto the real world' (Corazza & Agnoli, 2016: 5). The information-gathering stage indicates the importance of existing knowledge in the production of new knowledge. Although creativity is interpreted as 'a process of transformation of existing knowledge through the possible introduction of new information elements, recombination, association, etc. (…) without existing knowledge in a domain, ideation is virtually impossible in that very domain.' (Corazza & Agnoli, 2016: 5–6).

The famous model by Wallas (1926) describes the creative process as being made up of four stages: preparation, incubation, illumination and verification. In the preparation phase, a person tries to gain a thorough understanding of a content area (i.e. acquiring the domain-relevant skills). In the incubation phase, the information gathered in the previous phase is churned or stewed over. The person takes a break from working on the idea and engages in other activities instead, allowing the unconscious mind to 'stew over' the information gathered in the previous phase (Cropley, 2016: 159). In the illumination phase, a solution or a creative idea emerges and this emergence often feels like 'a bolt from the blue' (Cropley, 2016: 159–160). Finally, in the verification phase, the idea or the solution is tested and evaluated. Although the first two stages (preparation and incubation) are concerned with gathering and restructuring information to solve a problem (part of the first phase in Corazza and Agnoli's 2016 three-phase mode), there is a difference in terms of the level of awareness. 'While the preparation is performed at conscious level, incubation happens without any conscious control' (Corazza & Agnoli, 2016: 6).

Guilford (1959) conceptualised creativity as problem solving and proposed four stages: *recognising* the existence of a problem, *producing* various relevant ideas, *evaluating* the ideas produced and *solving* the problem based on appropriate conclusions drawn from various stages. Cropley (2016: 159) notes that Guilford's model, although similar to the Wallas model, is important in that Guilford's stages are also 'characterised very clearly in terms of contrasting phases of convergent and divergent thinking' as illustrated in Table 3.2.

Various other models have been proposed. For example, a five-state model (DIMAI) by Corazza and Agnoli (2013) describes five stages: 1. drive, 2. information, 3. movement, 4. assessment, 5. implementation. By including

TABLE 3.2 Stages of creative problem solving (adapted from Guilford, 1959 cited in Cropley, 2016: 159)

Stage	*1*	*2*	*3*	*4*
Description	Problem recognition: recognising that a problem exists	Idea generation: producing a variety of relevant ideas	Idea evaluation: evaluating the various possibilities produced	Solution validation: drawing appropriate conclusions that lead to the solution of the problem
Characteristic	Convergent	Divergent	Convergent	Convergent

the drive state as a distinct category as part of the information-gathering stage, the model highlights the 'emotional-motivational-cognitive spark that must be present in the thinker in order for the process to have good chances for success' (Corazza & Agnoli, 2016: 7). The DIMAI model thus recognises 'the influence of personality traits, emotional states, as well as intelligence' (Corazza & Agnoli, 2016: 7). Similarly, the distinction between the assessment state and the implementation state is useful in that it separates intra-personal processes (assessment) from inter-personal relationships (implementation).

> in the *assessment* state we collect everything that happens within the individual, to convince him-/herself of the validity of the idea and to make the decision to take the risk and let the idea be exposed to the outside world; in the *implementation* state we account for all interactions that subsequently have to occur with other persons, be them from a small environment (e.g., academia or work), or intended as society at large, representing a complex cultural environment.
>
> *(Corazza & Agnoli, 2016: 8)*

Cropley (2016: 160) added three new phases to the Wallas model and proposed an extended seven-phase model with reference to engineering: 1. preparation, 2. activation, 3. generation, 4. illumination, 5. verification, 6. communication, 7. validation. On the other hand, Mumford et al. (2012) propose a more refined eight-stage model for the creative process: 1. problem finding, 2. information gathering, 3. information organisation, 4. conceptual combination, 5. idea generation, 6. idea evaluation, 7. implementation planning, and 8. solution monitoring. Corazza and Agnoli (2016: 7) note that although this refined model is useful for detailed monitoring and training purposes and 'can be well fit for instances of creative thinking in domains where the process entails a rather long interval of time (from days to several months or years)', 'it hardly fits the necessities of rapid response situations'.

Other researchers have proposed a simpler model. For example, Finke et al. (1992) propose a two-stage model, known as the geneplore model. According to this, creativity as a process is an iteration between two stages: 'the generation of pre-inventive structures and the exploration of interpretation of these very structures.' (Corazza & Agnoli, 2016: 7). This model, unlike the more elaborate models which involve multiple stages, is more suitable for artistic production such as musical improvisation, creative writing, painting. Corazza and Agnoli (2016) point out that this model, although it fits well with artistic production, ignores an important role of previous knowledge in creativity. For scientific exploration, the geneplore model is thus 'incomplete' as it 'understates a phase of acquisition of expertise' and 'a competence in a domain' (Corazza & Agnoli, 2016: 7). Corazza and Agnoli (2016: 7) suggest that the fundamental state of information gathering which 'could take a lifetime of study and practice' is still an important part that underlines the geneplore model, while 'the geneplore

model represents in a very effective way the real-time performance of a creative artist', in other words, the while-ideation stage of creativity.

Some researchers have zoomed into the creative process not in terms of stages but in terms of cognitive processes or thinking types involved in the various stages of the creative act. Examples are chaotic thinking vs ordered thinking (Finke, 1996; also see Chapter 2), exploratory thinking, combinational thinking, transformational thinking (Boden, 2001), convergent and divergent thinking (Guilford, 1959).

Task 3.1: Thinking types involved in producing new, valuable ideas

Boden (2001) proposes three thinking types involved in creativity as follows:

- Exploratory thinking: producing new ideas by exploring all possibilities inherent in a current conceptual space using existing rules.
- Combinational thinking: producing new ideas by associating old, familiar ideas in unfamiliar yet intelligible and valuable ways.
- Transformational thinking: producing new ideas by significantly altering one or more rules of the current conceptual space.

1. How can these thinking types be promoted in language learning tasks? (also see Task 10.1 in Chapter 10)

These cognitive processes are used by social actors in the various stages of the creative process. Cropley (2016), for example, describes how convergent and divergent thinking processes are used in the four-stage model proposed by Guilford (1959) (see Table 3.2). Each thinking type can also be further broken down into sub-categories. For example, Cropley (2016) further divides the convergent and divergent thinking types into sub-categories (see Table 3.3).

Concerning these various theoretical models, several questions remain to be addressed. One question concerns the domain-specific vs domain-general nature of creativity. It is possible that the stages involved in creativity may differ in accordance with domains or the social context. While some stages may apply to all domains, others may be domain-specific. Stages described in many models above involve various kinds of social interactions. The lifelong gathering of information involves interacting with various social communities. Similarly, society plays an important role in the evaluation of ideas produced. As Glăveanu (2016: 74) notes, 'the creativity of an action or outcome produced by an individual is never 'complete' in the absence of social relations'.

TABLE 3.3 Characteristics of divergent and convergent thinking (adapted from Cropley, 2016: 164–165)

Characteristics of divergent thinking	
Typical processes	*Typical results*
Thinking unconventionally Seeing the known in a new light Combining the disparate Producing multiple answers Shifting perspective Transforming the known Seeing new possibilities	Alternative or multiple solutions Deviation from the usual A surprising answer New lines of attack or ways of doing things Opening up exciting or risky possibilities
Characteristics of convergent thinking	
Typical processes	*Typical results*
Thinking logically Recognising the familiar Combining what 'belongs together' Homing in on the single best answer Reapplying set techniques Preserving the already known Seeing accuracy and correctness	Generating familiarity with what already exists Better grasp of the facts A quick, 'correct' answer Improvement of existing skills Closure on an issue

Task 3.2: Applying creative processes in the design of creative tasks for language teaching

1. I have elsewhere proposed creative tasks for language teaching based on Finke et al.'s (1992) two-stage model of creativity. See the example below taken from Tin (2013: 391).

Idea-generation phase

1. On a piece of paper, write: 'Names of objects' (e.g. mobile phone, watch, etc.); 'Natural elements' (e.g. storm, sun, flower, etc.); 'Names of animals' (e.g. kangaroo). (The words students generate in this idea-generation phase here are regarded as pre-inventive forms that are produced without knowing what meaning and function they will serve or what they will be used for.)

Idea-exploration phase

1. After words have been generated, new constraints are revealed:
   a. Formal constraint: students need to write sentences using the structure given below and using words generated above. They are

required to use the words generated in the previous phase (input requirement):
'If I were a (insert the word generated above), I would … '

b. Semantic constraint: students need to fulfil the semantic constraint, i.e. to produce sentences/lines following the formal constraints above to express their emotions to someone they love (e.g. 'If I were a kangaroo, I would put you in my pocket, keep you close to my heart, and would hop around the town'; 'If I were a candle, I would burn bright for you all the time'; 'If I were a window, I would find every crack to get inside your heart'.).

Tin, T. B. (2013) 'Towards creativity in ELT: The need to say something new', *ELT Journal,* 67(4): 385–397, by permission of Oxford University Press.

2. Now, design examples of creative tasks for language teaching based on other more elaborated models of creativity proposed in this section.

Creativity as a quality: Unpacking 'new' and 'valuable' (adjectives)

The two adjectives 'new' and 'valuable' used to represent the two essential features of creativity as a product lend themselves to be looked at from multiple aspects, contributing to the elusiveness and multidimensionality of the term creativity. These multiple dimensions and a brief explanation of each are given below:

- gradable qualities (What *degree* of novelty and value is desirable?)
- synchronous and asynchronous occurrence of the qualities (What is the timing of novelty and value? For an idea to be creative, does it have to be new and valuable simultaneously?)
- benchmark (*For whom and against which benchmark* is an idea produced new and valuable?)
- binary concepts (What are the various combinations of *known-unknown* ideas when layered with other concepts such as *self-other* and *recursivity*?)
- allusion to other associated words (What are the other near-synonymous, antonymous and associated words used?)
- cultural and ethical dimensions (What are the cultural and ethical dimensions of novelty and value?)

First, like other evaluative adjectives, 'new' and 'valuable' are *gradable* on a continuum from very to less new/valuable. A frequent debate concerns the *degree of novelty and value* desirable when we talk about creativity (e.g. see Schubert, 2021).

Second, the *timing* of these two qualitative adjectives can also vary from *simultaneous/synchronous* to *delayed/asynchronous* occurrence. An idea may be simultaneously new and valuable. Alternatively, the new idea may gain its value not immediately at its production but at a later stage. By then, the novelty may have worn off but the value of it may have just begun.[2] Hence, one may ask: for an idea to be regarded as creative, does it have to be new and valuable simultaneously? Or should the value component of an idea play a more significant role than its newness? These issues have been debated in the creativity literature. Simonton (2004: 93), for example, highlights 'an inescapable dilemma' that confronts individuals in their production of creative works – works which satisfy both criteria (novelty and value). A creator cannot keep producing works that meet both criteria. The next work produced by a creator cannot be 'a mere replication, remake, or revision' (Simonton, 2004: 93) of the creative work produced earlier and must be somewhat different from his/her earlier work. This creates a dilemma:

> the more original that next product, the less the creator can be assured that it will meet the second criterion [value]. The new idea might be original, but it also might be invalid, ugly, or unworkable (…). Hence, the creator is fated to generate a mishmash of products, some satisfying the first criterion but not the second, some the second but not the first, and some, more rarely, satisfying both criteria. The odds of maximally satisfying both standards simultaneously are extremely small.
>
> *(Simonton, 2004: 93)*

Third, apart from temporality, these qualitative adjectives also lend themselves to multiple interpretations in terms of agency, terms of reference or *benchmark*. A question that can be raised is: *For whom and against which benchmark* is an idea produced new and valuable? The novelty and value of an idea are subjective and vary from one context to another, from one culture to another, from one moment to another. New meaning and value may be assigned by the society (the field) to the same idea or product. For example, Glăveanu (2016) notes that a creative artifact such as the Mona Lisa painting is creative not because its painter (Leonardo da Vinci) skilfully painted it but because 'generations after generations of viewers continue to be inspired by it and (re)interpret its meaning and value' (Glăveanu, 2016: 77). The importance of society (or 'field') in the assessment of novelty and value has been emphasised in the creativity literature (e.g. see Csikszentmihalyi's (1999) systems model of creativity). Many researchers have also noted that creativity is culture-specific. For example, Asian societies put more emphasis on the value component of creative products than the novelty (e.g. Xie & Paik, 2019).

Fourth, the word 'new' can also be defined in *binary* terms – in terms of yes or no (whether something is old/familiar (known) or new (unknown)). When this is combined with the notion of agency (for whom), we have an interesting array of possibilities. This can be explained, borrowing a Johari Window concept (see Table 3.4).

TABLE 3.4 Four combinations of known-unknown and self-other

Open meaning	*Secret meaning*
(known knowns) (known to self and known to others)	(unknown knowns) (known to self but unknown to others)
Blind meaning	*Hidden meaning*
(known unknowns) (unknown to self but known to others)	(unknown unknowns) (unknown to self and unknown to others)

Most discussions on newness in the creativity literature have often treated 'self' (person/individual) vs 'others' (society) as a binary concept (either-or) (i.e. whether an idea is either new to self or new to others). This is reflected in the binary view of creativity and the distinction between P-creativity (psychological creativity) and H-creativity (historical creativity) (Boden, 2004), little-c creativity and big-c creativity (Craft, 2001). While psychological creativity or little-c creativity refers to novelty at a personal level, historical or big-c creativity refers to ideas new to the society in general.

However, Table 3.4 shows that there are other possibilities of looking at newness: open, blind, secret and hidden meaning. A hidden idea is an idea that is unknown to self and the other. An open idea is something known to both self and the other. A blind idea is an idea that is known to the other but unknown to self, whereas a secret idea is something known to self but unknown to other. The ability to discover hidden ideas (ideas new to both self and others) seems to belong to a higher end of the creativity continuum.

The term 'known-unknown' (a semantic component of new) can also be multiplied and manipulated at another level. *Recursivity* – a feature of human thinking and language – enables other possibilities of looking at 'known-unknown' as shown in Table 3.5.

The first two types (known unknowns and known knowns) are concerned with conscious knowledge (either in the form of what we know or don't know), whereas the last two types (unknown unknowns and unknown knowns) refer to knowledge at the unconscious level. Known knowns refer to knowledge which we are aware of. In known unknowns, we know what we don't know and have a certain picture of what the final outcome should be. For example, the problem to be solved is known (e.g. to find a vaccine for Covid-19), although the solution

TABLE 3.5 Recursivity of known and unknown ideas (to self)

Known knowns	*Unknown knowns*
(Things we know that we know)	(Things we don't know that we know)
Known unknowns	*Unknown unknowns*
(Things we know that we don't know)	(Things we don't know that we don't know)

is not available/known yet. In unknown unknowns, we don't even know what we don't know and new ideas are chanced upon accidentally or serendipitously. For example, a scientist while looking for the new vaccine for the Covid-19 virus may accidentally chance upon other new ideas. The serendipity and randomness of new ideas have been discussed with reference to creativity in the literature (e.g. Boden, 2004; Simonton, 2004). Creating chance occurrences and randomness thus play an important role as they can lead to a serendipitous discovery of new valuable ideas (unknown unknowns). This unknown unknown situation is akin to a case where both the problem and the solution are unknown and the social actor is engaged in problem finding. Unconscious knowledge also exists in the form of unknown knowns: things we don't know we know. As Einstein says, 'we only use 10% of our mental potential'. We use only a small percentage of our brain and a large percentage of our brain is untapped and remains at the unconscious level. We know more than what we are consciously aware of. Many writers of creativity have acknowledged this unconscious level of creativity and novelty and have proposed various processes accordingly. For example, stages such as incubation in Wallas' (1926) model of creativity and cognitive processes such as chaotic thinking, transformational thinking are concerned with tapping into the unconscious level of human creativity.

Just following all the various steps and creative processes proposed by researchers (as discussed in the previous section) does not guarantee that we will end up with a creative product. Just being in a place by chance, coupled with perspiration and knowledge, can lead to the discovery of new ideas. Randomness and chance occurrences as opposed to systematic stages and logical reasoning can be created by using various heuristics that promote randomness (see Chapter 4 for further details). Creativity is not so much about a person making connections or looking deliberately to find things to connect with (i.e. looking for known unknowns) but making sense of accidental connections that are made randomly for us. As Sgourev (2016: 114) says, people do not always make new combinations, 'these are sometimes made *for* them' by unexpected events which introduce contradictions, force improvisation and 'promote emotional ambivalence – factors associated with the capacity to discover and forge new connections and recognize hidden patterns' (Sgourev, 2016: 114).

Task 3.3: Types of known-unknown ideas in language learning tasks

1. Following the communicative approach to language teaching, information gap activities are frequently found in language teaching materials. In such activities, language learners are required to use language to bridge the information gap (a kind of unknown knowledge). They are provided with partial information and use language to communicate it

to their partner. What type of known-unknown ideas is promoted in the example given below?

2. How can you modify such activities to give students an opportunity to use language to discover hidden meaning (ideas unknown to both self and others) or to construct unknown unknowns (ideas they don't know they don't know)?

Example of an information gap activity

'Friends' is a television serial programme about a group of friends who live in the same building. They often meet and talk to each other in a café nearby. Episode 16 is on TV currently. You have watched it from the beginning and seen it.

(Notes: A series of images from the episode are presented).

Your partner has missed half the episode and she's going to ask you what has happened.

Comments:
Such activities promote the use of language for constructing blind knowledge (ideas known to others but unknown to self) or secret knowledge (ideas known to self but unknown to others). Moreover, the instructions given fully in advance inform students of the problem to be solved, telling them what they don't know and what they need to find out. Thus, language is used to talk about known unknowns. That is, students know what they don't know.

Sixth, the words 'new and valuable', like other words, also invite other words – *synonyms* and *antonyms*. To judge something as 'new', we need to know what is 'old'. The meaning of newness incorporates old/known ideas, i.e. a new idea must have a connection with the known/old/the past – or what Csikszentmihalyi (1999) calls the existing knowledge system of a specific domain. Some creativity researchers have claimed that creativity is an act of re-creation – using old ideas in a new way (Glăveanu, 2016: 77). With reference to the word 'valuable', other synonymous terms have been used: 'practical, useful, appropriate, adapted' just to name a few. For example, Lubart et al. (2003, cited in Ghedini et al., 2016: 326) define creativity as 'the ability to realise a production at the same time new and adapted to the context to which it is applied'. In addition to new and valuable, various *other words* have been used to describe the characteristics of creative products. For example,

Cropley (2016: 162) describes creative products as being made up of four qualities: relevant and effective, novel, elegant and 'genesis' (original):

> Four criteria define the creativity of a product (…): relevance and effectiveness; novelty; elegance and genesis. Products can be classified using these four dimensions arranged in a hierarchy ranging from "routine" products (characterised by effectiveness alone) to "innovative" products (characterised by effectiveness, novelty, elegance and genesis), with "original" and "elegant" products between these poles.
>
> *(Cropley, 2016: 162)*

Seventh, the significance of novelty and value has also been questioned in the creativity literature. The cultural and ethical dimensions of these terms have been widely discussed (e.g. Kampylis & Valtanen, 2010). Concerning the *cultural dimension*, researchers have raised the different worldviews associated with the meaning of creativity. While innovation and novelty may be a desirable feature of creativity in the Western context, the Asian view of creativity puts emphasis on other features such as usefulness and traditions (Xie & Paik, 2019). Concerning the *ethical dimension*, some researchers have highlighted the 'dark side' of creativity (e.g. Cropley et al. (eds), 2010). Modern society's obsession with novelty (encouraged by the global economy) can lead to the continuous production of new ideas and objects: this may be unsustainable and uneconomical. Moreover, new ideas may threaten traditional practices and may have a negative effect on society. For example, the development of new technology (e.g. smartphones) has made other products redundant and obsolete (e.g. cameras) along with many other employers and companies who produce them. Similarly, in the field of language teaching, with the emergence of information technology and the promotion of its use by policy makers, many teaching practices (chalk and talk) have been de-valued and many teachers' lives (in particular those who do not want to embrace technology) have been affected. Kampylis and Valtanen (2010: 191) note that 'creativity might not only be a desirable resource but also be a potential threat'. The authors 'highlight the need to move to a new era of *conscientious creativity*, in which all humans are considered able and wise enough to *create something ethical and constructive* for everyone in society'.

Creativity as an idea: Unpacking 'idea' (noun)

The word 'idea(s)' is another elusive, vague term: what counts as an idea? The word 'idea' can be expanded in a syntagmatic manner to include various things such as 'an idea about …'. In terms of paradigmatic expansion, it can be used to refer to many other words such as knowledge, objects, ways of doing, activities, ways of thinking, behaviour, decision-making, problem-solving and so on.

The word 'ideas' can include many different things in accordance with various disciplines. While in the discipline of science, creativity may have been used more in association with producing new, valuable ways of problem-solving or problem-finding, in other disciplines such as arts, it may have been used more in association with new, valuable ways of looking at the world, representing nature, art works. A glance at the way creativity has been used in discussions from various disciplines shows that various types of ideas have been talked about. For example, in their proposal of the investment theory of creativity which is loosely grounded in economic theories, Sternberg (2017: 977) describes creativity as decision making – '"a decision to buy low and sell high" in the world of ideas'.

On the other hand, Cropley (2016), in his discussion of creativity with reference to engineering, describes creative ideas as 'effective and novel solutions to problems' (p.156):

> Creativity is concerned with the generation of effective and novel solutions to problems. Engineering is concerned more specifically with generating *technological* solutions to problems. (…) Engineering, in short, is fundamentally a process of creative problem solving.
>
> *(Cropley, 2016: 156)*

Creativity is also frequently viewed as a form of thinking. For example, Corazza and Agnoli (2016: 4) define creativity as 'the use of creative thinking'. Cropley (2016: 157) notes that 'creativity is also regarded frequently as simply a matter of *thinking* and especially *free and unconstrained* thinking'. On the other hand, as Benson (2004) notes, with reference to the primary school context, creativity may be viewed by teachers as simply allowing children to 'do their own thing' (Benson, 2004: 138) or to practise autonomy.

Cropley (2016: 162) proposes that the product of creativity can be seen in terms of four types:

- an artefact (a manufactured object).
- a process (a method for doing or producing something).
- a system (a combination of interacting elements forming a complex, unitary whole).
- a service (an organised system of labour and material aids used to satisfy defined needs).

Boden (2015: 354) uses 'ideas' to refer to two new forms – psychological or biological: 'In its broadest sense, creativity is the ability to generate new forms. Those forms include psychological or biological phenomena'. While psychological creativity is 'the ability to generate ideas and/or artefacts that are new, surprising, and valuable', biological creativity is 'the ability to generate new cells, organs, organisms, or species' (Boden, 2015: 354).

Task 3.4: Types of creative ideas in language teaching

Applying the four types of creative products proposed by Cropley (2016) to the discipline of language teaching, creative ideas can be described as follows:

- an artefact (a manufactured object)
  e.g. creative teaching materials, activities designed by language teachers and materials developers for language teaching, creative outputs produced by students
- a process (a method for doing or producing something)
  e.g. procedures that can be adopted to produce or implement creative language teaching materials, procedure used to produce creative texts
- a system (a combination of interacting elements forming a complex, unitary whole)
  e.g. the interaction between various elements (teachers, students, materials developers, stakeholders, parents, materials produced, procedures to be implemented).
- a service (an organised system of labour and material aids used to satisfy defined needs).
  e.g. an organised system of resources, aids, training and teacher development programmes to help satisfy the needs of teachers and students

1. Think of a language teaching context you are familiar with. Can you think of some examples for each category above where creativity is demonstrated? For example, describe an example of a creative language teaching material/activity you have encountered.
2. Read how creativity has been written about in the literature of language teaching. What other words have been used to represent 'ideas'?
3. Read Chapter 8 (Segmentation of linguistic creativity). How is linguistic creativity defined? What sorts of ideas are being discussed? Find out as many phrases as possible from Chapter 8 and continue the following pattern:

   'Linguistic creativity is the ability of language users to ……. (what types of ideas?)'

(An example: linguistic creativity is the ability of language users to *use the fixed linguistic utterances and rules to produce an infinite number of sentences*). This definition involves both an artefact (an infinite number of sentences produced) as well as a system (using the fixed linguistic utterances).

Conclusion

This chapter has examined the popular phrase used to define creativity as 'an ability to produce new, valuable ideas'. It demonstrates how each word in that phrase has a large semantic footprint, paradoxically making creativity both an elusive and an inclusive term. The semantic potential of words allows creativity to accommodate and allude to a wealth of various views and meanings.

Creativity as an 'ability' denotes the person at the centre stage of creativity discussion. Various personal traits and abilities have been proposed. While some views have now been widely challenged (such as the view of creativity as a divine ability), other views are still accepted widely such as the genetic view of creativity. A more balanced view has become a popular approach, viewing creativity as including both the genetic, inherent and learned ability. Both the personal traits and the social environment play an important role. Creativity as an intention ('to') highlights the various functions of a creative act. Creativity is to bring about an outcome, to transform ordinary ideas into extraordinary ones.

Creativity as a production and a trajectory ('produce') draws our attention to the importance of goal-oriented and process-oriented nature of creativity. Various stages involved in creativity have been proposed and various theoretical models have been offered. It has also been proposed that the stages involved can vary from one discipline to another. For example, a more refined elaborated phase model is more appropriate for creativity in engineering and science while a simpler model fits well with the artistic creativity. Various thinking types feature the various stages of creativity. Numerous components (person- and context-centred) have been proposed as requirements to propel a creative process into action. The processes and stages can be seen in terms of three major stages (1. pre-ideation: information gathering and structuring – drawing upon the existing domain and cultural knowledge as well as the personal characteristics and traits, 2. while-ideation: activating various cognitive, affective and social processes to produce ideas, 3. post-ideation: having the idea assessed, evaluated and implemented by self and the society).

With reference to the discipline of language teaching and learning, a diverse range of stages and processes can be explored. Language is at the heart of our daily life and work – both science and arts. We need to prepare language learners' ability to use language to be creative in diverse domains and situations in which the stages involve both a refined elaborated procedure as well as a simpler model. While some language learning tasks (project-based activities) will involve students in the refined, elaborate model of creative tasks with a longer time span, others (e.g. improvisation tasks) will encourage them to use language for creativity in rapid response situations.

Creativity as the quality ('new and valuable') signifies the two frequently cited qualities of creativity. The qualities of novelty and value widely used as central features of creativity lend themselves to multiple interpretations and can take on layers of interpretations. These layers uncovered in the chapter are the degree of

novelty and value, the timing of novelty and value, the agency and benchmark against which something is judged to be new and valuable, the various possible combinations of known-unknown ideas, the other synonymous, antonymous and associated terms the words 'newness' and 'value' evoke, and the ethical and cultural dimensions of novelty and value. Designing activities targeting at various degrees and types of novelty and value is important to develop the creativity of students and teachers.

Finally, what counts as creative products or 'ideas' also varies. Creative ideas can refer to a whole range of entities: objects, processes, systems, or services, psychological or biological phenomena. While some have used creativity simply as a matter of exercising a certain type of thinking (free, unconstrained thinking), making a decision or simply letting people do 'what they want', others have used it to refer to creative problem solving involving a set of carefully planned and complex stages.

With reference to language teaching, creative ideas can take many shapes and forms. Creativity at the higher end of the continuum will demonstrate the various types of creative products working together coherently. Creative language teaching then is not just producing creative artefacts (e.g. creative language teaching materials and activities). But it also suggests that there is a system in place which facilitates the interaction between various elements such as the teachers, the organisation, the students, and the materials. A suitable service is also set up to fulfil the needs of teachers and students. Finally, the procedure to be adopted needs to be considered. Many new ideas and artefacts (e.g. seemingly creative language teaching materials and activities) can fall flat when an inappropriate procedure is used or when other elements such as a conducive service and system are missing.

Notes

1 For example, the componential theory of creativity proposed by Amabile (2013: 134) is 'grounded in a definition of creativity as the production of ideas or outcomes that are both novel and appropriate to some goal.'
2 In language learning task, this can be seen. An idea produced during a group discussion is new (with reference to what has gone before/mentioned in that task). But the value of that idea may appear only later (how that idea is used in the later part of the writing task).

4

Heuristics and creativity

Introduction

The core meaning of being creative involves searching for new information and ideas. One of the creative thinking processes involved in such a search is 'exploratory thinking' – exploring *all the possibilities* in the search space (Boden, 2001). However, in reality, we are all limited in our capacity, time and effort required to engage in that kind of extensive search. In fact, in many cases, it is impossible to search all the possibilities especially when the search space is large and has many possible alternatives. Such complex conditions, known as large world conditions (Gigerenzer & Gaissmaier, 2011), necessitate the employment of simple cognitive shortcuts (heuristics) by social actors. This is to help with the exploratory search for new valuable ideas without necessarily spending an unlimited amount of effort and time. Although heuristics will not lead to the best product or the most creative idea, they arguably lead to 'good enough' or 'creative enough' outcomes, in some cases even better than a rational analytical approach. In the context of language teaching, heuristics are used by teachers as well as students. Students employ a variety of heuristics when solving language-related problems. Similarly, teachers use heuristics when looking for ideas and making decisions in their language classes.

Heuristics can be divided along the general-specific continuum. On the one hand, we have general heuristics used in our daily practices and decision making. They are used to solve routine problems in different disciplines and situations. On the other hand, there are discipline- or task-specific heuristics which have been developed to solve specific types of problems (e.g. heuristics used by experts in engineering, politics). Falling in the middle of the general-specific heuristics is a set of heuristics called creativity heuristics – a set of somewhat general strategies that can be applied to many disciplines to help produce new ideas. This chapter

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will examine both general heuristics and creativity heuristics and will also consider their relevance for language teaching.

Heuristics in a broad sense: General features and functions

Heuristics, in a general sense, are simple cognitive processes, strategies or shortcuts used either consciously or unconsciously to make decisions in a fast, frugal and accurate manner, ignoring part of the information (e.g. see Gigerenzer & Gaissmaier, 2011). There are several conditions that necessitate the use of heuristics: the search space is large and the problem is ill-defined with some unknown information and uncertain solutions (Todd et al., 2012), there is time pressure (e.g. Rieskamp & Hoffrage, 2008) and the cost of search overweighs the benefit of search (e.g. Hertwig & Hoffrage, 2013).

Heuristics are appropriate to solve ill-defined problems with unknown solutions in the large world. Gigerenzer & Gaissmaier (2011) make a distinction between small and large worlds. 'Large world' refers to a situation where some relevant information is unknown and the future is uncertain, preventing the use of rational analysis whereas 'small world' refers to a situation where 'all relevant alternatives, their consequences, and probabilities are known, and where the future is certain' (Gigerenzer & Gaissmaier, 2011: 453). While small world situations enable the use of rationale analysis and statistical models, solving ill-defined or large world problems requires the use of heuristics as there are no known rational tools readily available yet. We must use strategies to limit large search spaces, ignoring part of the information with the goal of discovering good enough outcomes quickly and frugally. In the large, complex social world we live in, we make numerous decisions. While many are routine decision making which we don't even notice (e.g. what to cook, what to wear, which item/brand to buy), others may be more unusual and difficult decisions which require conscious effort.

Cognitive simplicity is a key feature of heuristics. As heuristics emerge in response to our need to deal with complex social worlds and ill-defined problems, they should be cognitively simple enough to be learned, imitated and employed without demanding extra cognitive load. The process or the route to the problem should not add more burden to the problem. This simplicity is what makes heuristics popular among practitioners. Researchers supporting the use of heuristics (often known as 'fast-and-frugal heuristics'; Gigerenzer & Todd, 1999: 3) claim that the complex social world doesn't necessarily require cognitive complexity. Hertwig and Hoffrage (2013: 17) note 'complexity makes simple heuristics indispensable'.

Using heuristics involves avoiding searches in some parts of the problem space while focusing on another. This raises some questions: which information do we avoid and which do we focus on? This has led to some arguing against the use of heuristics as they will lead to biased outcomes or inaccurate solutions (e.g. Elstein, 1999). However, when dealing with large world,

complex problems where there is no best solution or no most creative idea, just incorporating more information in one's search space or just searching for more will not necessarily lead to accurate or best outcomes. In many cases, even with the use of technology and advanced computer, the information to be included is so large with so many possibilities that it is computationally impossible to come up with a solution based on all possible information and probabilities. Even if it is possible, it will take years for the computer to solve even a simple problem such as playing chess (e.g. working out all possible moves that can be taken in a game of chess). In such situations, heuristics advocates have proposed that less can be more. Heuristic search using less information can be more effective than analytical search using more information (e.g. see Gigerenzer & Gaissmaier, 2011).

Researchers have classified heuristics into four broad categories (e.g. Gigerenzer & Gaissmaier 2011): recognition-based heuristics, one-good-reason heuristics, trade-off heuristics and social heuristics. These four categories are proposed as forming the mind's adaptive toolbox (Gigerenzer & Todd, 1999) which individuals could use to facilitate decision making in a fast and frugal manner:

- **Recognition-based heuristics** refer to a class of heuristics that bases judgements on *familiarity, recognition and ease of access* while ignoring other cues (Gigerenzer & Gaissmaier, 2011: 460). Some examples are the recognition heuristic, the fluency heuristic, the take-the-first heuristic. The recognition heuristic refers to a situation where an option is selected based on recognition and familiarity. The fluency heuristic is formulated for situations when more than one option is recognised and an option that is recognised or retrieved faster is selected, concluding that this alternative is more valuable to solve the problem. The term 'take-the-first heuristic' is also used. The cognitive shortcut used here is 'choose the first alternative that comes to mind' (Gigerenzer & Gaissmaier, 2011: 462).

In a study by Johnson and Raab (2003), experienced handball players were shown video sequences from a professional game and were asked what they would have done (e.g. whether they would pass the ball to the player at the left or take a shot). The study showed better outcomes were achieved when the players gave the first option that came to their mind than when they were given more time to analyse the situation. A similar result was discovered in Hepler's (2008) study with basketball players:

- **One-good-reason heuristics** refers to 'a class of heuristics that bases judgments on *one good reason only*, ignoring other cues' (Gigerenzer & Gaissmaier, 2011: 463). Examples are *the take-the-best and hiatus heuristic*, the *one-clever-cue heuristic*. It refers to a situation where one looks for one 'clever' cue and

bases its decision on that cue alone. Such heuristics are appropriate when the cue or criterion is clear. For example, customers going shopping with a criterion to save money make decisions what to buy based on one cue only (the percentage of discount), choosing to buy items which are hugely discounted. Research on animal species also shows that many species use a single 'clever' cue to find food, mates or nest sites (e.g. Gigerenzer, 2007). An example of such a heuristic is used in my search for readings on google scholar. I frequently use one clever cue to direct my literature search: in Google Scholar, typing the names of an article – usually an influential article or an article I find useful and then clicking on 'cited by'. This leads me to other articles and publications which have cited that article. This heuristic has led me to discover many interesting readings which were not part of the original purpose of my search.

- **Trade-off heuristics** weigh 'cues or alternatives equally and thus make trade-offs (compensatory strategies)' (Gigerenzer & Gaissmaier, 2011: 469). An example is the 1/N rule or the equality heuristic (e.g. Hertwig et al., 2002) which allocates resources (e.g. time and money) equally to *N* alternatives. For example, during the Covid-19 lockdown, the New Zealand government set up a wage subsidy scheme to prevent people from being made redundant. The scheme invested its resources (money) equally, allocating the same amount of money (minimum wage) to all employees in their list regardless of their position or salary scale. With reference to a language classroom, a teacher equally distributes the elicitation of information from students.
- **Social heuristics** involve using only social information while the previous three categories 'can be fed with both social and non-social information' (Gigerenzer & Gaissmaier, 2011: 472). Examples are the wisdom of crowds heuristic (making decisions by averaging the judgement of others) (Hertwig & Herzog, 2009), the imitate-the-majority heuristic (Richerson & Boyd, 2005), the imitate-the-successful heuristic (Henrich & Gil-White, 2001), the default heuristic (e.g. McKenzie et al., 2006).

While the imitate-the-majority heuristic (a conformist strategy) is a decision making one by imitating the behaviour followed by the majority of people in one's peer group, the imitate-the-successful heuristic involves identifying the most successful agent in one's peer group and imitating his/her behaviour. This strategy 'does not necessarily require observing the model's behaviour; it may be sufficient merely to ask oneself what the model would have done' and following that behaviour (Hertwig & Hoffrage, 2013: 8).

Social heuristics are useful especially when the social actor lacks experience and knowledge. The use of social heuristics was observed during the Covid-19 pandemic crisis where various countries used the imitate-the-successful heuristics and followed or recommended the use of strategies and actions taken by

countries around the world who had more efficiently dealt with the unknown problem (Covid-19 pandemic). This was possible because countries were in different cycles of the pandemic and this created an opportunity for countries in the later cycle (e.g. those hit with the virus two weeks later) to imitate others who were ahead of the cycle and the results of actions they had taken.

A variant of the imitation heuristic is the 'avoiding-the-unsuccessful' heuristic. With reference to the Covid-19 pandemic, an example is a situation where the negative consequences of delayed reaction to the virus in Italy were used by many countries (e.g. New Zealand) in their decision making. For example, New Zealand fast tracked its levels from level 2 to level 4 within a short amount of time (three days) so as to avoid what happened in countries such as Italy where the reaction from the government was slow, resulting in many casualties.

Another example of social heuristics known as the default heuristic is also commonly used in decision making. The default heuristic is an avoidance of making an active decision by simply accepting the default. The default heuristic is popular as it requires no special effort on the part of the decision maker who assumes that defaults set by others must represent 'recommended course of action' which is already decided by others. It is a way of not making decision by simply letting others decide for oneself. 'If there is a default, do nothing about it' (Johnson & Goldstein, 2003). People tend not to opt out of the default option even when they may approve of the non-default option. For example, when the default is set for everyone to receive hard copy mails unless they opt out of that option for an electronic mail, people tend not to opt out of the default or change it to the electronic mail option even though they approve of using less paper.

Task 4.1: Judging a book not by its cover but by its reference list

As I wandered through the maze of creativity literature with frequent loss to write this book, I discovered a heuristic which helped me to find my way through the creativity publication maze. The heuristic I used was: starting with the References section at the end of a book or a chapter in an edited book and also reading the biographic details of the author if it was given at the end or beginning of the book. This was done to get a quick check concerning the creativity rhetoric the book was likely to adopt (e.g. whether it would be a popular vs academic style, what disciplinary areas it would mostly focus on) as well as the quality of the book. This heuristic belongs to 'one-good-reason heuristic' as I used one 'clever cue' (using References) to make my judgement.

(Continued)

Before you read a book related to creativity, do the following:

1. Look at the reference list to see what aspect of creativity is likely to be covered. Make a quick analysis of the reference list. What other words appear together with 'creativity' or 'creative' in the references? What types of readings are they? (e.g. sole-authored books, edited books, journal articles, blogs, YouTube, etc.).
2. Find out about the author. Biographic background of the author can give an important insight into the author's take on creativity. Is the author a founder or a contributor on any popular blog, Facebook, YOUTUBE? What institution and previous experiences are reported?
3. Conduct a research project to find out more about how creativity has been used and written about. Using a corpus analysis software, analyse Bibliographies (lists of references) from various books to find out: What is the most frequently cited reference (the core references)? What words does the word 'creativity' (or its other associated forms 'creative') collocate with?

Although heuristics process less information compared to more complex statistical models, they can be more effective and accurate in situations where there is a moderate to high uncertainty and large search spaces. Heuristics can be used with ease as they exploit core mental capacities which are already in place such as our ability to imitate, recognise, retrieve information and monitor frequency and so on (Gigerenzer et al., 1999). *Experience* seems to play an important part when selecting what heuristics to use in a specific situation from a range of heuristics individuals have at their disposal. Individuals can use the same heuristic both *consciously* and *unconsciously* and both *social and non-social information* can be exploited when constructing heuristics.

Task 4.2: Four broad categories of heuristics in language classrooms

1. Language teachers make many decisions in their daily classrooms to solve various large world problems. Can you find examples of the four broad categories of heuristics described above?
   a. recognition-based heuristics
   b. One-good-reason heuristics
   c. trade-off-heuristics
   d. Social heuristics

For example, when deciding who to nominate, an example of recognition-based heuristics happens when the teacher nominates students based on recognition and familiarity – i.e. students who the teacher can see, students who normally contribute, students whose names first come to the teacher's mind. The teacher may also use one-clever cue such as using the alphabet of the initials of students' names. For example, inviting students whose names start with the letter 'a' to contribute and then continuing to the next letter 'b'. The teacher may also use a trade-off-heuristic such as equally distributing the nomination to all students, ensuring that everyone is nominated at least once. Other examples of social heuristics may also be found when a teacher imitates the nomination strategies used by other colleagues who have successfully used those strategies in their class.

2. Can you think of other situations and problems where those broad categories of heuristics can be found in language classrooms?

Heuristics in a specific sense and creativity heuristics

Heuristics are used not just to come up with *fast and frugal decisions, solutions and outcomes* (as defined in a broad sense) but also to help us *produce new ideas and products*. The term 'creativity heuristics' (e.g. Amabile, 1988; Spector, 1995) has long been used by researchers to reflect this function of heuristics. For example, in her componential model of creativity, Amabile (1988) outlines four major components necessary for creativity in any domain: domain-relevant skills, creativity-relevant skills, intrinsic task motivation and social environments. An integral part of creativity-relevant skills is using a specific set of heuristics known as creativity heuristics. According to Amabile (1988),

> creativity heuristics are best considered as methods of approaching a problem that are most likely to lead to set-breaking and novel ideas, rather than as strict rules applied by rote. Although these heuristics may be stated explicitly by the person using them, they may also be known at a more implicit level and used without direct awareness.
>
> *(Amabile, 1988:132)*

The role heuristics play in creativity has been discussed in various disciplines. For example, in the discipline of creative design (e.g. engineering design) the

term 'design heuristics' is used to refer to a specific set of heuristics used by designers to help produce creative designs.

> We define design heuristics as cognitive strategies applied to a design problem that take the designer to a different part of this space of potential design solutions. Design heuristics are transformational strategies that take a concept, such as a form, and introduce systematic variation. (…) there is no determinate heuristic that will lead to a definitive solution. A single heuristic can produce alternative versions depending on how it is applied, so that the same heuristic can be applied repeatedly to produce variant designs.
>
> *(Yilmaz et al., 2010: 337)*

Key functions of creativity heuristics are '*set-breaking*', '*transformation*' and '*systematic variation*'. The use of a specific set of heuristics can direct us to a different part of the problem space to search, which we would not have normally searched without such specific heuristics. They help us to '"jump" to a new problem space' (Yilmaz et al., 2010: 335), resulting in more varied ideas and creative solutions. They could help us to discover unknown unknowns (ideas which we don't know we don't know) and hidden ideas (ideas unknown to self and others) (see Chapter 3).

Heuristics, in this sense, are not just for routine problem solving but also for creative problem solving. Anderson (1982) makes a distinction between routine problem solving and creative problem solving. *Routine problem solving* involves the use of existing procedures and heuristics to solve routine problems in a fast and frugal manner. In contrast, *creative problem solving* involves learning or acquisition of new procedures and cognitive strategies rather than using existing procedures which have been commonly used to solve a specific problem. Creative problem solving involves using strategies that assist the social actor in exploring new parts of the potential solution space, leading to outcomes which are judged by society as new and valuable. Creative problem solving is not just about manufacturing new tangible outcomes but also discovering new procedures or heuristics which can be used to generate new outcomes. Processes are as important as tangible products. This does not however mean that cognitively complex processes are required. It is important to discover, learn and use simple (fast and frugal) processes and strategies which have not been used to solve a particular class of problems, and which could help us to jump to a new conceptual space to explore.

Several creativity heuristics have been proposed by scholars to help generate new ideas. Some examples are: 'when all else fails, try something counterintuitive' (Newell et al., 1962), 'make the familiar strange' (Gordon, 1961), 'investigate paradoxes' (McGuire, 1973), use constraints (Boden, 2001), do the opposite and break the rule (e.g. Fanselow, 1987), use randomness and chance occurrences. Among various creativity heuristics, the use of constraints to enable creativity has received increased attention among creativity researchers and this will be discussed in Chapter 5.

Task 4.3: Creativity heuristics for a novel design (a flipped technique)

1. Imagine that you are a designer and that you need to create a novel design for a building. How would you approach this problem? Think of a new heuristic you can construct to help generate a new concept for designing buildings (adapted from Yilmaz et al., 2010).
2. Look at the two pictures of buildings (a and b) in Figure 4.1. Which do you think look like a traditional form (building design) and which looks like a new design? What is the heuristic used in that new design?
3. How can you apply that heuristic to the context of language teaching?

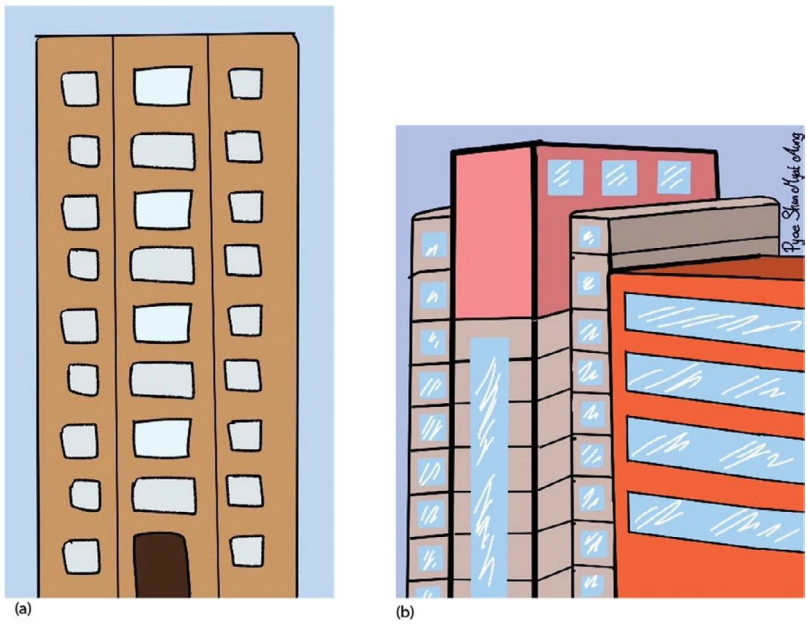


FIGURE 4.1 Two buildings: Traditional vs new design

With reference to the discipline of creative design and engineering, Yilmaz et al. (2010) reported a heuristic used by a designer who transformed the shape by '"flipping" the object across an axis, either top to bottom or left to right' (Yilmaz et al., 2010: 337) (see Task 4.3). This flipping heuristic is a cognitive strategy used to create 'new forms by introducing variation in familiar forms'. It is an example

of the 'make-the-familiar-strange heuristic'. It transforms a familiar traditional concept or form (i.e. stacking up various objects/floors in a similar direction) into a new concept (flipping the object across an axis) which can further be developed and refined. This heuristic can also be applied to many design problems and can be repeated multiple times. This flipping heuristic adds variation to the existing toolbox of design ideas.

In the context of language teaching, 'flipped classroom' (e.g. see Turan & Akdag-Cimen, 2020) is a similar heuristic used to generate new, valuable ways of teaching language. In that technique, the procedure is flipped: what is usually done in class is assigned as an out-of-class activity to give students an opportunity to have more time for interaction in class. For example, the materials to be shown in class such as video clips, or handouts are given to students so that they can view them in advance outside the class. The actual class hour is spent on students presenting the works and interacting with other students and the teacher.

With reference to the domain of arts (e.g. creative writing), various creativity heuristics have been used. An example used by creative writers is a 'cut up' technique developed by William S. Burroughs.

Task 4.4: Creativity heuristics for creative writing (A 'cut up' technique)

1. Look at the examples of cut-up techniques used for writing (see below). Can you think of other similar cut-up techniques for creative writing?

   Examples:

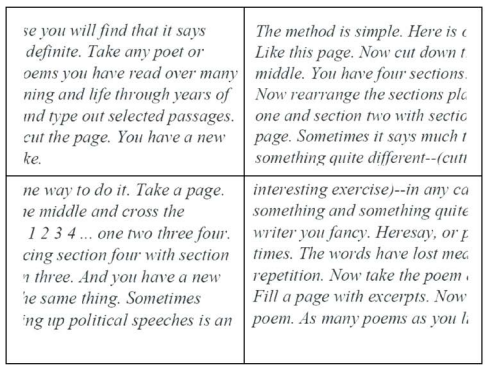
   i. Cut up words and phrases from various texts. Then rearrange them randomly to produce an interesting text.
   ii. Cut up a text into pieces. Rearrange it to produce a new text.
   iii. Cut up a page which contains a text into four equal sizes (Section 1, 2, 3, 4). Then, rearrange the sections in various ways (e.g. placing Section 1 with Section 4, Section 2 with Section 3). Edit, rearrange or delete words as appropriate to produce a new interesting text.

2. Figure 4.2 is an example of a text cut up into four sections and rearranged in various ways using the cut-up technique (iii) above (also see Figures 4.3, 4.4 and 4.5). Please edit the rearranged texts to produce an interesting text.

The method is simple. Here is one way to do it. Take a page. Like this page. Now cut down the middle and cross the middle. You have four sections: 1 2 3 4 ... one two three four. Now rearrange the sections placing section four with section one and section two with section three. And you have a new page. Sometimes it says much the same thing. Sometimes something quite different--(cutting up political speeches is an interesting exercise)--in any case you will find that it says something and something quite definite. Take any poet or writer you fancy. Heresay, or poems you have read over many times. The words have lost meaning and life through years of repetition. Now take the poem and type out selected passages. Fill a page with excerpts. Now cut the page. You have a new poem. As many poems as you like.

FIGURE 4.2 Original text (the text is a passage taken from Burroughs, 1963: 346)

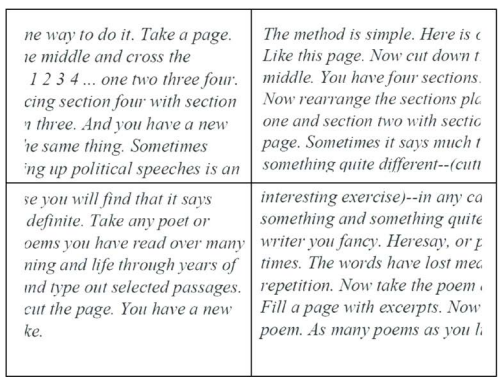
See Figures 4.3, 4.4 and 4.5 for an example of my own attempt.



Rearranged text 1 & Some interesting phrases and sentences produced:

'You will find that it says 'the method is simple'.
'And you have a new repetition'.
'A political speech is a poem'
'You have a new page.'
'Sometimes it says much, something quite different.'
'You have a new 'kene' way to do it'.
'The words have lost me.'
'You have a new same thing.'

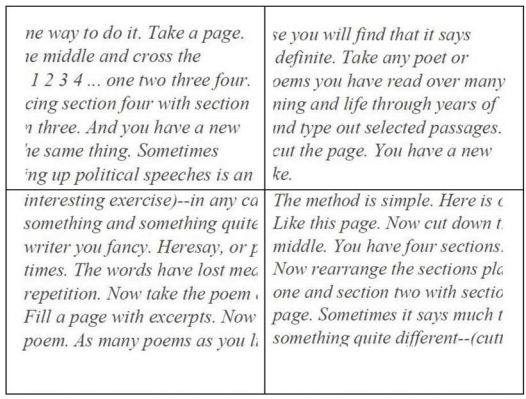
FIGURE 4.3 Applying the cut-up technique: An example (rearranged text 1)



Rearranged text 2 & Some interesting phrases and sentences produced:

'You will find that it says 'it's an interesting exercise'.
'Life through years of times.'
'Life through years of repetition.'
'Political speech is something quite different.'
'You have a new poem.'

FIGURE 4.4 Applying the cut-up technique: An example (rearranged text 2)



Rearranged text 3 & Some interesting phrases and sentences produced:

'Take a page. You will find that it says 'cross the definite'.'

'Take any poet or 1, 2, 3, 4 poems you have read over many.'

'Sometimes cut the page. You have a new political speech. Interesting exercise. The method is simple.'

'Now cut down the writer you fancy.'

FIGURE 4.5 Applying the cut-up technique: An example (rearranged text 3)

Using various sentences generated in Figures 4.3, 4.4 and 4.5, I produced the following texts:

Text 1: A political speech is a poem

Sometimes it says much.
Sometimes it is a new same thing.
Through years of repetition
You have a new repetition
You have a new political speech.
A political speech is something quite different.

Text 2: An interesting exercise

When the words have lost me, the method is simple. Take a page. Take any poem you have read over many years of times. Cut the page? Or cut down the writer you fancy? Find a new 'kene' way to do it. Cross the definite.
The method is simple.

Task 4.5: Variants of the cut-up heuristic

The following is a variant of the cut-up heuristic described in Task 4.4:

1. Take a blank sheet of paper and draw a number of small squares on various parts of the sheet. Then cut them, leaving various holes of square shapes on the sheet.
2. Then put the sheet on top of a text and take the words that appear in each of the squares.
3. Then produce an interesting text using those words.

The following is an example of texts I produced when the sheet with holes was put on a page from an academic text from Tomlinson (2013). Using the random words from the page (expression, subordinate clause, ellipsis, comprehension, almost inevitable, enormously, occasionally), I wrote the following text:

She looks at me
with an expression
that seems like a subordinate clause
and speaks to me with an ellipsis.
Comprehension almost inevitable
enormously and occasionally in my math teacher's class.
(Tan Bee Tin, 4 February 2016)

4. Can you make your own sheet with holes and apply this to various texts. Then produce some interesting sentences and produce a paragraph. Give a title to your text.

These techniques above can enable the discovery of new, surprising texts via chance and randomness. Familiar texts are made strange. As discussed in Chapter 3, chance and randomness play an important role in generating creative ideas, in particular hidden ideas (ideas new to self and others), unknown unknowns (things we don't know we don't know) and unknown knowns (things we don't know we know).

Heuristics and language teaching

Heuristics is widely discussed in the discipline of business, economics (decision making), engineering and creative design. With reference to the discipline of language teaching, although the term heuristics hasn't received much attention yet among researchers, its presence (often disguised under different labels) is already ubiquitous in the practices of language teachers, materials writers and students. The notion of heuristics has appeared under different labels such as 'techniques', 'macro procedures', 'strategies' and so on. Many materials writers and teacher trainers have written about a number of heuristics (under other labels such as techniques, macro procedures) to help solve various problems language teachers encounter: how to motivate students, how to help students to become creative, how to teach language creatively, how to add variation and novelty to the way we teach and use materials, how to promote language teachers' creativity, how to solve various routine problems such as nominating students and so on.

Such heuristics, rules of thumbs or simple practical techniques do not usually originate from empirical research or a set of well-established language learning theories.

Rather, heuristics seem to evolve gradually over time from practice and the experience of practitioners. They can also emerge by chance. Heuristics are cognitively simple to use and learn. Instead of rejecting heuristics as atheoretical or illegitimate practices just because they do not originate from theories and complex research projects, we should take a serious look at them and explore more about their effect. Which heuristics are used most frequently in language teaching? In which contexts are they used most frequently and likely to succeed in? Where do new heuristics come from? What are the various building blocks, mental capacities and adaptive toolboxes experienced teachers rely on when constructing heuristics and solving various language teaching problems? Studies can be designed to investigate the effect of heuristics in language teaching. Heuristics used by students to cope with language-related problems can also be investigated. Those heuristics have been investigated under other labels such as learning strategies or classroom underlife – i.e. covert strategies and activities students use, making secondary adjustments to the roles expected of them by teachers and the institution (e.g. school) (e.g. see Canagarajah, 1997; Nguyen, 2018; Tin, 2021).

The various conditions under which language teaching takes place necessitate the use of heuristics. The problems encountered in language teaching are large world problems. They are featured with uncertainty and large search space. There are many complex problems concerning the nature of language learning. It is largely acknowledged that second language acquisition is a complex process and we still have incomplete understanding of how learners learn language. The acquisition of even a small language item such as the article 'the' is not yet fully understood. Teachers and practitioners in the meantime have to find ways of helping students learn language.

Task 4.6: Heuristics for question time

One of the routine problems teachers have to solve is concerned with nomination of students to answer questions in class. The teacher needs to make a decision on who to nominate and how to nominate. Experienced teachers use various techniques and heuristics to solve the problem:

1. Think of various heuristics used by language teachers when asking students questions? What are the commonly used heuristics? What are new questioning techniques that could lead to interesting outcomes (e.g. giving students a choice, making them feel more involved in making the decision)?

   Examples:

   i. Zip zap questioning was observed in language classrooms in Myanmar during one of my research projects. The teacher nominated

Student A from the left side of the class and asked a question. Then the student nominated another student from the right side to answer the second question. The procedure continued.

ii. Since my observation of the above technique, I have modified and used it to solve problems in my lectures. When asking a class to answer a question, there is often an awkward silence. Instead of calling out a student to answer the question, I call out a student and ask him or her 'who would you like to nominate to answer the question?'. Through this technique, the teacher can share the responsibility of nomination with students.

iii. Another variation is using the initial letters of students' names. The teacher can call out 'anyone whose first name starts with the letter 'J' to answer'. Using initials where there is more than one student who meets the criterion, the teacher can minimise the risk of embarrassment associated with calling out a specific student who may not know the answer.

iv. Another technique was discovered accidentally during an introduction activity (where students introduce themselves and say something they would like the class to know about them on the first day of the course). I invited another student to introduce him/herself not in the sequential order (e.g. clockwise or anticlockwise direction) but based on what the previous student had said. I came up with that technique half-way through the introduction activity after using the sequential order for a while. The exchange below is an example:

(T = Teacher; S = Student)

S1: My name is Mary. I have two dogs.

T: Anyone who has two things, can you continue and introduce yourself?

S2: My name is Tim. I have twin brothers.

T: Wow. Anyone who has twins in their family, can you continue?

S3: My name is Su. I have twin sisters and twin brothers in my family.

T: Wow. Amazing. Now anyone who can beat that, can you continue?

S4: My name is Zuzu. I have triplets in my family.

Conclusion

Heuristics are conscious or unconscious mental/cognitive shortcuts used by social actors when faced with an ill-defined problem. Those heuristics emerge and evolve through practice and experience. They can be learned and taught too. Although the use of heuristics has been frowned upon in the past especially in

the discipline of traditional psychology (e.g. Elstein, 1999), in recent years many scholars mainly from the discipline of business, economy and creative design have advocated the role heuristics play in both routine and creative problem solving. Researchers have identified conditions under which the use of heuristics is the only available option. One such condition is ill-defined problems with large search spaces. Solving such problems requires the use of heuristics as there are no known rational tools or algorithms such as statistically proven models, computationally designed models and algorithms readily available yet. Other conditions that necessitate the use of heuristics are time pressure, uncertainty and the cost of search overwriting the benefit.

Heuristics are different from algorithms in terms of two criteria: *large world* vs *small world* problems and *flexibility-rigidness* criterion. While algorithms are used to deal with small world situations with known alternatives and certainty, heuristics are used to solve large world problems where some relevant information is unknown and where there is uncertainty. The use of heuristics is flexible in that there is no definitive set of heuristics to be used for a particular problem. That is, people can choose which heuristics to use in accordance with contexts. The same heuristics can be used to solve different kinds of problems. In contrast, algorithms by nature are a fixed set of specific rules developed for solving a particular class of problems and they cannot usually be transferred to solve other classes of problems without making significant modification to the rules. Chapter 6 will discuss algorithms in detail.

Although heuristics will not lead to the best product or the optimal outcome/solutions or the most creative ideas, they arguably lead to 'good enough' or 'creative enough' outcomes, in some cases even better than a rational analytical approach. Discovering new heuristics and procedures to facilitate the generation of new ideas is an important aspect of creativity and creative problem solving. There are however many questions yet to be addressed about (creativity) heuristics. What are the various kinds of heuristics used by experts to solve problems and to produce new ideas? Which heuristics are used more frequently and what effect do they have? How do we learn to use heuristics and where do new heuristics come from? To address those issues, Chapter 5 examines one specific type of creativity heuristics, namely constraints which have received increased attention in the creativity literature in the field of psychology.

5

Constraints and creativity

Introduction

Real-life problems are usually ill-defined without known solutions and known pathways to the solution. Chapter 4 has proposed heuristics as an important concept to understand creativity – to solve large world problems with unknown solutions and pathways available. Another feature of real-life problems is limited resources available to cope with unlimited demand. In other words, constraints (often known as limitations, restrictions) are a feature of large world problems and reality. Fulfilling the unlimited demand for new products using limited resources available (e.g. time, social, material resources) and working within restrictions requires creativity. This chapter explores creativity with reference to constraints. Several questions are addressed: What is a constraint? What does a constraint do? What can we do to constraints? What are the various types of constraints? The implications for language teaching and learning are also considered.

What is a constraint? Constraints as limitations and rules

At the core of creative activities or creativity lies the manipulation and imposition of constraints. Onarheim and Biskjaer (2017: 3) argue that 'creativity cannot be conceptualized, studied or understood without considering the complex nature of constraints'. The notion of constraints is usually articulated via various associated terms such as 'requirements', 'rules', 'guidelines' (Onarheim & Biskjær, 2013: 2), 'structure', 'generalizable procedures', 'routines' (Giddens, 1984: 21), 'limitations or restrictions' (Onarheim, 2012: 324). Disciplines have their own preferred associated terms to talk about constraints. For example, while engineers may prefer to use the term 'requirements' to talk about constraints, creative writers such as poets would tend to refer to constraints as 'styles', 'genre conventions' (Onarheim & Biskjær, 2013: 2). These various associated terms used differ in meaning. In this section, I will explore

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the meaning of constraints using two of its associated terms ('limitations' and 'rules' – frequently used to refer to constraints). In Chapter 2, we have seen that one approach to defining creativity involves using metaphors. In this section, I will indulge in the use of economic and accounting metaphors to talk about constraints and creativity with reference to the discipline of language teaching.

If constraints = limitations, what does creativity mean?

With reference to the field of language teaching, all language users, learners and teachers have various kinds of limitations. Applying the componential model (Amabile, 1983, 1988) and the systems model (Csikszentmihalyi, 1999) of creativity discussed in Chapter 2, these limitations can be classified as two major limitations: limited domain-relevant, intrapersonal knowledge and skills (linguistic knowledge and non-linguistic knowledge) and limited social environment or field. The first is a limitation in terms of language we use (linguistic limitations). We all have limited language knowledge which we use to deal with new and known problems, to talk about the familiar and to construct new knowledge. Language learners have limited knowledge of vocabulary, grammar and so on. Second, limitations can also come in the form of non-linguistic knowledge – i.e. background knowledge about various general and specific subjects which we use language to talk about. In addition to these intra-personal constraints, limitations can also be outside the person. They can be external, social, environmental limitations: limited financial, physical, human resources such as lack of language teaching/learning materials, time, equipment, space, capable peers, role models.

Instead of seeing such limitations (both intrapersonal and social) as restraining, we could view them as enabling. Thinking like an economist, we need to accept the fact that the world's resources are limited and we have to find ways of using them to meet unlimited demands. In terms of language teaching, opportunities need to be created to enable language learners and teachers to find ways of using limited linguistic and non-linguistic resources to satisfy the unlimited demands of various communicative situations and language learning/teaching needs. Language learning tasks could be designed to promote the use of limited language for transformative purposes – to transform known meaning and known language, to produce new, valuable ideas and meaning.

The various models of creativity discussed in Chapter 2 show that the domain-relevant knowledge is one of the essential components of creativity (Amabile, 1983). However, more knowledge doesn't necessarily translate into more creativity. Possessing limited domain-specific knowledge or deliberately limiting the domain-specific knowledge one can access, in some instances, can lead to creativity. Such constrained situations can force us to retrieve other discipline knowledge which we know, exercising combinational creativity. Constraints can also help us to explore and retrieve knowledge which we are not aware that we know (unknown knowns). They can make us use the limited knowledge in a creative way to solve a new discipline-specific task. Research shows that people on

the periphery often come up with fresh ideas as they are more likely to engage in analogical reasoning (finding unfamiliar/unusual connections) due to their limited access to the domain-specific knowledge. A study conducted by Simonton (1991 cited in Simonton, 2004: 91) examined 120 classical composers and discovered that the most famous composers were from the periphery and 'actually spent *less* time in domain mastery prior to producing their first masterworks'. Simonton (2004: 91) notes that 'excessive domain mastery can greatly restrict the originality and flexibility of thought'.

Task 5.1: Limiting linguistic and non-linguistic inventory for creativity

1. You are given a task to produce a written description of a product to promote its sale. Choose a product you are familiar with and write a description of 200 words.

Limited inventory (non-linguistic limitations)

2. Previously you were allocated a larger space where your linguistic text describing a product (e.g. advertisement) would appear (200 words). But now, this non-linguistic, environmental resource (space) allocated is reduced from a space of 200 words to a smaller space of 100 words. Rewrite your original text to fit the new limited space.
3. Now, you have been allocated a space around the corner of a building where your text promoting the product will be displayed (see Figure 5.1). Rewrite the text, utilising the constrained space.

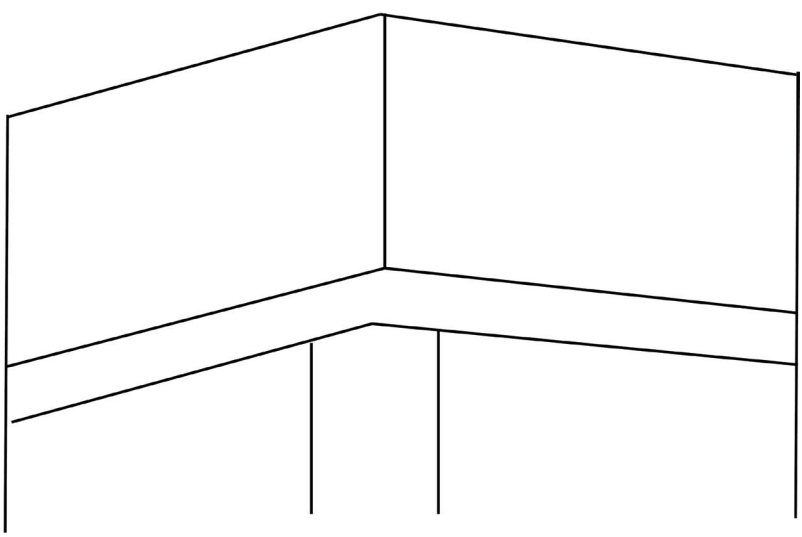

FIGURE 5.1 A corner building

(Continued)

The following are examples of advertisements which utilised the constrained space to maximise creativity (see Figures 5.2 and 5.3).

Example 1: View from both sides[1] (see Figure 5.2)

The advertisement in Figure 5.2 utilises the constrained shape of a corner building to foreground the message of the advertisement (i.e. things need to be viewed from both sides.)

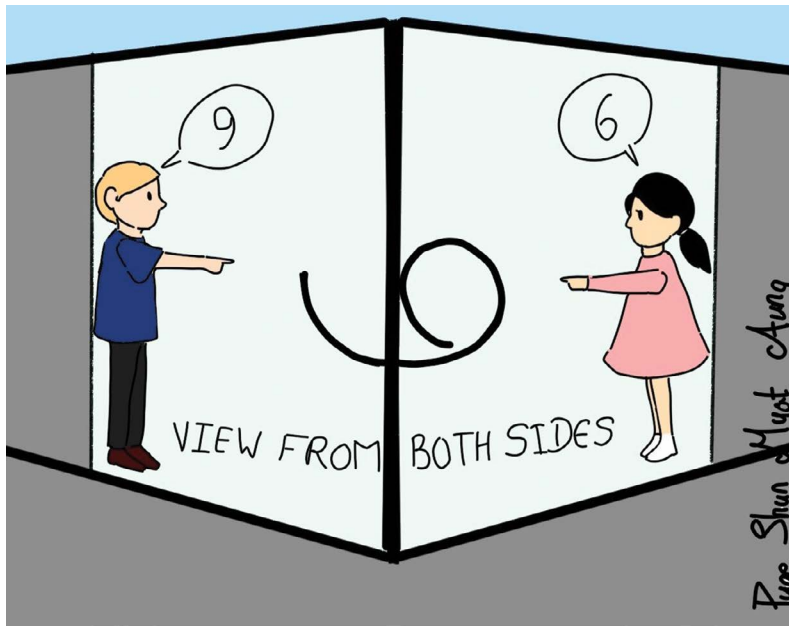

FIGURE 5.2 An advertisement placed around the corner building billboard

Example 2: Nose hair trimmer[2] (see Figure 5.3)

Figure 5.3 is another example which integrates the physical constraints (electrical wires) into the advertisement which promotes a product (nose hair trimmer).

Limited inventory (linguistic limitation)

4. The inventory check of your linguistic resources shows that your stock is running low in adjectives but you are overstocked in other categories such as verbs and nouns. So, in the 100-words text you have written above, you now need to trim it in terms of adjectives and use more nouns and verbs. Without necessarily impacting the quality of the product (the text), please rewrite the text.
5. Further inventory check shows that your inventory is also running low on the vowel 'e'. Go back to your text and rewrite it by reducing the use

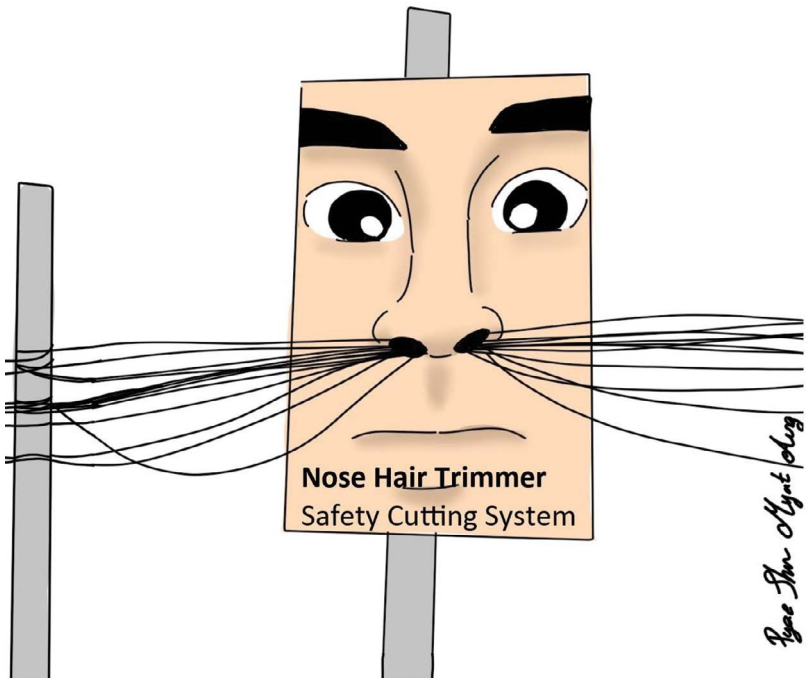

FIGURE 5.3 An advertisement using electrical wires

of the vowel 'e' (You need to cut the amount of 'e' in your previous text to half). Some words would need to be replaced so that your text still achieves the original purpose.

If constraints = rules, what does creativity mean?

Another frequent term used to identify constraints is 'rules'. Rules are often *intangible/abstract structures* which are 'continuously being created through the flow of everyday social practice' (Giddens, 1991 cited in Jones & Karsten, 2008: 131). Structure have 'no physical existence and is only given substance through what people do' and 'Giddens maintains that the rules and resources constituting structure are only in agents' heads' (cited in Jones & Karsten, 2008: 132). Rules and social structures do not pre-exist the individuals but are 'transformed or reproduced through their actions'. Human agents (social actors) always 'have *the possibility of doing otherwise*' (Giddens, 1989: 258) and can flout the rules. Moreover, rules, by nature, are supposed to be repeated and recur. Repeated use of rules to produce new valuable ideas is a form of exploratory creativity. Social actors can see how far they can go by using the existing rules. Such repeated use and

exploratory thinking can naturally lead to the emergence of new rules, resulting in the transformation of the existing rules (i.e. transformational creativity). The emergence of new patterns, through repeated use of the rules, is a natural feature of what (Boden, 2015) calls biological creativity – a phenomenon often known as mutation.

Constraints as rules are *product-oriented* or *procedural* in nature. They may refer to what the final product should/could or shouldn't/couldn't be (product-oriented rules) or how one should/could or shouldn't/couldn't do during the process (procedural rules). In his study on the role of constraints in teams' creativity in organisational settings, Rosso (2014) proposes two types of constraints: product constraints and process constraints. Process constraints are concerned with procedural limitations and limit possible approaches to a creative task. They limit how the work is to be done. Product constraints limit possible outcomes and solutions. They constrain what the expected outcome of the work should be. Product constraints are similar to what Stokes and Fisher (2005) call goal constraints: they constrain what the end stage of a creative process should be, what product one should come up with *after* ideation stages. Process constraints include source, subject and task constraints proposed by Stokes and Fisher (2005) and are concerned with *before*- and *while*-ideation stages (what materials are provided as inputs before the problem solving and how the problem is to be solved during the task).

Task 5.2: Product constraints (product-oriented rules)

1. Write an acrostic on TIME. Write the word vertically. Each line must start with the letter of the key word and the whole poem must be related to the meaning of the key word (TIME). An example for another key word (JOY) is given below.
   Jump
   Out of
   Your sorrow

   T
   I
   M
   E

Very often, we confuse product-related rules with the process. In the example of an acrostic task given in Task 5.2, a key word provided is written in the vertical manner and two explicitly stated product-oriented rules are imposed: 1. Every line must start with the letter (formal rule), 2. The poem must be related to the key word (semantic rule). These are product constraints, referring to what the final products should be like. However, this doesn't necessarily mean that

it is the process learners will go through. They have 'the possibility of doing otherwise' and those rules come into existence only through their actions. In a study reported in Tin (2015), a pair of students (M and N) were asked to write an acrostic on TIME. The student (M) didn't start with generating words following the product rules (i.e. generating words that begin with the letters of the key word). Instead, she generated words based on another found rule: generating words which were immediately related to the previous words.

Very often, process constraints, rules or procedures one goes through are not available for recollection once the task is over. They remain hidden from conscious awareness. Understanding such processes can contribute to how we perform creative problem-solving tasks. Creative problem-solving as discussed in Chapter 4 involves learning or acquisition of new procedures and cognitive strategies (known as creativity heuristics) rather than using existing procedures which have been commonly used to solve a specific problem. Creative problem solving is not just about manufacturing new tangible outcomes but also about discovering new procedures, processes or heuristics which can be used to generate new outcomes (also see Chapter 3).

Task 5.3: Process-oriented constraints (procedural rules)

1. Write an acrostic on a word in pairs. Think aloud. Record the conversation. Examine the process that the pairs went through. Were there other process-oriented constraints the pairs came up with during the task? Compare the processes different pairs went through in dealing with the same task.
2. Experiment two tasks. In one task, students are provided with only the product-oriented constraints (what the final product should look like) for an acrostic. In the other task, students are provided with both product- and process-oriented constraints (how they should/could and shouldn't/couldn't do while producing the text). Compare the two texts they produce. Which one can be evaluated as more creative? Compare the procedure they actually went through under the two conditions. Were there any new heuristics and procedures that the pair constructed and used? If so, what were they? Were they effective, that is, did they lead to the production of 'creative enough' or 'good enough' outcomes?

What does a constraint do? Constraints as prohibitors and enablers of creativity

The traditional view of constraints is that constraints – in particular external, hard constraints such as limited time, financial resources and material resources – affect creativity negatively as they reduce intrinsic motivation.

This view is reflected in Amabile's (1988) componential model of creativity which features 'intrinsic motivation' as an important component of creativity. According to this model, intrinsic motivation which is vital for creative performance is 'maximized by freedom, and inhibited by constraints' (Rosso, 2014: 553). Proponents of this intrinsic motivational view contend that 'when external constraints are placed on the creative process, creators lose intrinsic motivation and fall back on routines and surface-level thinking, which kill creativity' (Rosso, 2014: 553).

Some studies have examined the negative effects of procedural constraints such as routines and standardised procedures. For example, Choi, Anderson, and Veillette (2009) found the negative impact of task standardisation on the creativity of employees who had high levels of creative ability. Rosso's (2014) study suggested that team creativity was more negatively impacted by process constraints (constraints on how the work is to be conducted) than by product constraints (what the outcomes of the work should be). Product constraints were claimed to have greater potential for positive impact on team creativity than process constraints did.

In contrast to the negative view, a growing array of research evidence supports a positive view of constraints as promotors and enablers of creativity. First, several studies have shown that a certain amount of time pressure has a positive impact on an individual's creative performance (e.g. Ohly et al., 2006). Hennessey and Amabile (2010 cited in Rosso, 2014: 554) argue that 'while the effects of time pressure on creativity are generally negative, creativity might be enhanced by time pressure if creators are protected from distractions, and if they feel as if they are on a mission. They contend, however, that these occasions are rare'.

Second, similar findings were discovered concerning the positive impact of resource constraints on creativity. Research shows that individuals as well as teams produce more innovative and creative outcomes when they are given fewer resources to work with (e.g. Weiss et al., 2012). Not having everything we need may stretch us to discover more innovative ideas and approaches. An abundance of materials can make creators too comfortable and can thus dampen their creativity (Csikszentmihalyi, 1996).

The various studies cited above have perceived the notion of constraints as limitations, restrictions or scarcity (the opposite of abundance/plentifulness). Research which equates constraints as rules, standardised processes or routines (the opposite of flexibility), often known as procedural constraints, has also shown similar results – the positive impact. As we have seen in Chapters 2 and 3, there are various stages involved in a creative process. The effect of constraints can vary depending on the stage of the creative process in which constraints occur. Constraints – in particular standardised processes, routines and rules – can contribute to group creativity especially at the earlier stages such as idea generation and information gathering stages. Studies (e.g. Stokes, 2006) have shown that creative teams often actively impose constraints on themselves 'as a way

of structuring or bounding their work in ways that enhance their creativity' (Rosso, 2014: 555). Rules and standardisation are argued to have positive impact on team creativity especially at the early idea-generation and selection stages of the creative process because 'they provide common structures, expectations, and norms for the team creative process' (Rosso, 2014: 555).

How constraints facilitate creativity can be explained with reference to Stoke's proposal of constraints. Originally developed with reference to artistic creativity (e.g. painting), Stokes (2006) views constraints as being made up of 'oppositional pairs' (or also known as 'preclude-promote constraint pairs' (see Biskjaer & Halskov, 2014: 43) or 'paired task constraints' (Stokes & Fisher, 2005: 284). During a creative problem-solving task, while one pair of the constraint limits search in a particular conceptual space, the other pair enables search in another conceptual space. For constraints to promote creativity, they need to promote search in the unfamiliar space while limiting search in the familiar space.

In short, constraints have a paradoxical relation with creativity and have dual functions: they can minimise as well as maximise creativity. This duality has led some researchers (e.g. Onarheim, 2012) to consider how best to handle constraints to maximise the potential benefits of constraints while minimising the negative impact. It is important to understand not just what constraints can do to creativity but more importantly what we as social actors can do to constraints to maximise the positive impact.

What can we do to constraints? Constraint handling practices and strategies

Constraints are not fixed but dynamic social structures and constructs which can be manipulated and handled in various ways. If one considers constraints as rules (intangible, abstract structures), their existence gains substance only through human actions. We can manipulate, impose, handle, shatter, violate and adjust constraints – whether they are hard, physical, external constraints (such as limited resources and time), or soft, procedural constraints (such as rules). Constraint handling has been proposed as an inherent feature of creative actions and creative problem solving (Sternberg & Kaufman, 2010). In their study, Lombardo and Kvålshaugen (2014) propose the term 'constraint-shattering practices' as one form of constraint-handling practices, as a way of disrupting the status quo – i.e. existing routines, rules and structures. Shattering practices involve two major practices: constraint elimination and constraint introduction or replacement.

Constraint elimination: blackboxing, removing and revising constraints

Constraint elimination can occur via three strategies: blackboxing, removing and revising constraints. First, blackboxing constraints mean the team or the individual decide to 'treat specific constraints as unchangeable' so that they can

focus on other constraints considered to be more crucial (Onarheim, 2012: 331). For example, an agent or a team may treat time pressure as an unchangeable constraint and may focus on other crucial constraints that can be manipulated. Second, constraints can also be temporarily removed to enable individuals or teams to search for potentially overlooked solutions. In situations where the teams are trapped (e.g. the need to create a product under a certain budget), they could ask themselves 'what would we do if we didn't have to fulfil a particular highly fixed constraint?' to generate solutions which could have been overlooked. Afterwards, the team could evaluate those solutions by asking: how can we still do this if the highly specific constraint (which was previously removed) is inevitable? (Onarheim, 2012: 331). The third strategy is revising constraints. This occurs when the team 'would solve creative hindrances by going back in the process to review problematic constraints' and revise them (Onarheim, 2012: 331).

Constraint introduction: self-imposition, translating and chance

With reference to constraint introduction, three strategies have been identified: self-imposition, translating and chance (Lombardo & Kvålshaugen, 2014). First, new constraints can be self-imposed by the social actor to help kickstart creativity especially when the problem to be solved is too rigid or too open. For example, when being lost, a designer may impose a new constraint to his/her design (e.g. I want the outcome to be environmentally friendly) 'to help defining the problem and give directions for the creative process' (Onarheim, 2012: 331). Second, new constraints are introduced when a designer translates old constraints into various forms and explores their implications (Stacey & Eckert, 2010). On the other hand, new constraints can be discovered simply by chance (e.g. Simonton, 2004).

Task 5.4: Strategies for constraint introduction

1. Look at Task 5.2: Product constraints (Product-oriented rules) above. What new constraints can be introduced to the acrostic task? Examples are given below.

Self-imposed constraints and chance discoveries:

- A pair of students introduce a new constraint to the form and write the acrostic in the form of a dialogue between two people (Wife (A) and Husband (B)). As they write it in the form of a dialogue, another constraint emerges by chance (i.e. using the key word 'time' in every line (input requirement)).

  A: **T**ime and tide wait for no men.
  B: **I**sn't it what you said all the time?

A: **M**en like you never do things on time.
B: **E**very time you say that, you're just wasting my time.

Instead of input requirement, the pair can self-impose a new constraint (i.e. input limitation by banning the word 'time' in the acrostic). How will you rewrite the dialogue above without the word time? The whole dialogue must however be related to the notion of TIME. An example of a possible dialogue is given below:

A: **T**hat happened again.
B: **I** can't believe it.
A: **M**issed the train, again.
B: **E**ven though you set the alarm clock, you didn't wake up!

Translating constraints into various forms:

- A pair of students or the teacher can translate the formal constraint (the need to start every line with a word that has the letter of the word) into various forms: every word must be an adjective, noun, verb, any word). They can also add images next to each line (see Figure 5.4).

FIGURE 5.4 SMART marketing objectives

(Continued)

- The pair or the teacher can also translate the semantic constraint into various forms: writing about the meaning of the word in a general sense or a specific situation (e.g. for marketing objectives), writing about the word for a different context. An example is given in Figure 5.4.

Chance discovery of new constraints:

- A pair of students accidentally discover the use of different colour pens as they write the acrostic together, using two different pens, and introduce that constraint to the task.

Comments:
Although I have used acrostic tasks as examples to illustrate the meaning of constraint, the concept can also be applied to other language learning and teaching tasks used in language classroom and language teacher education. For example, in an undergraduate second language teacher education course I taught, one of the assignments asked students to write an essay, articulating their beliefs about language teaching using data collected during the course. Students could find a way of translating the product constraints (instructions and requirements for assignments) into various forms. Instead of writing about what one believes in, a student self-imposed a new constraint by writing about what she did not believe in and how that was reflected in her data. She talked about her disbeliefs as a way of articulating her beliefs about language teaching and learning.

Balancing constraints

Onarheim and Biskjaer (2017) highlight the importance of balancing constraints as a way of constraint handling to maximise creativity. As the presence of constraints change over time during a creative task, the notion of 'constrainedness' is proposed. Constrainedness refers to 'the total intensity of constraints' present/experienced by the social actor at a specific given time during a creative process/task (Onarheim & Biskjaer, 2017). Onarheim and Biskjaer (2017) propose a U-shaped relationship between constrainedness and perceived potential for creativity. The degree of constrainedness at a specific stage of a creative problem-solving task needs to be balanced for optimal creative performance. Neither too high nor too low constrainedness is desirable. The authors propose that finding a sweet spot where the right amount of constrainedness is present is a key to successful creative performance.

To find the right balance, constraints can be manipulated using various strategies identified above. Constraints can change over time in a creative process. As new constraints can be imposed (either by others or by self) and current constraints can be temporarily removed, the total constraint intensity (or constrainedness) may fluctuate along the constrainedness continuum. Researchers point out that

some disciplines such as engineering are required to solve overconstrained creative problems whereas others such as arts are used to solving 'under-constrained' tasks (e.g. Stacey & Eckert, 2010). Balancing the intensity of constrainedness, desirable for maximising creativity potential, is context-dependent. That is, what is regarded as the optimal constrainedness may differ from one person to another, from one domain to another. With reference to language teaching, language learning tasks can be designed taking various features of constraints into account. Despite participating in the same task, it is likely that the degree of constrainedness differs for students as individuals' 'sweet spot' where the level of constrainedness seems just 'right'' is subjective and may differ from one person to another.

Dimensions of constraints

Onarheim and Biskjaer (2017: 4) propose an alternative view of constraints as 'operating within a multidimensional space of continua'. Each constraint in a creative process has multiple dimensions: it is 'embedded in and potentially affects several continua within each dimension simultaneously' (Onarheim & Biskjaer, 2017: 4). Onarheim and Biskjaer (2017) proposed seven dimensions of constraints. Each dimension has a continuum along which constraints can be identified. Those dimensions and continua are summarised in Table 5.1.

1. Articulation (formalisation): This dimension focuses on the way in which a particular constraint is articulated: whether it is articulated explicitly or implicitly, formally or informally, or in written mode (e.g. given in the form

TABLE 5.1 Dimensions and continua of constraints (adapted from Onarheim & Biskjaer, 2017)

Dimension	*Continua*
Articulation (or formalisation): The extent to which the constraint is articulated.	Formal vs. tacit Explicit vs. implicit Written vs. verbal Essential vs incidental
Abstraction (or hardness): The level of details given in the description of the constraint.	Soft/fuzzy vs. hard Ill-defined vs. well-defined Abstract vs. concrete
Complexity: The level of difficulty in adding the constraint to existing solutions	Complex vs. simple
Importance: The importance of taking the constraint into account	Nice-to-have vs. must have Desire vs. demand
Origin: From within the agent or externally imposed	Internal vs. external
Timing: The point in a process where the constraint appears	Initial vs. late
Flexibility: The extent to which the constraint is fixed in its current form	Non-negotiable vs. negotiable Fixed/strong vs. flexible/weak Closed vs. open constraints

of written instructions) or orally (e.g. the instruction concerning constraints is given orally). It can also be extended to include the articulation in terms of the benefits of constraints: whether benefits are articulated explicitly (expected) or emerge unexpectedly or incidentally. With reference to the domain of arts, Elster (2000) makes a distinction between essential and incidental constraints. Essential constraints refer to those constraints which an agent deliberately imposes on him/herself for the sake of some expected benefits to him/herself. Incidental constraints refer to externally imposed constraints which turn out to have benefits for the constrained agent even though those constraints are not chosen by the agent for those benefits. For example, political censorship imposed on artists by a government may turn out to be beneficial for artists as censorship may force artists to 'become more oblique, more allusive, and indirect in their means of expression, and therefore more subtle and profound' (Elsaesser, 2016: 31). What started as an incidental constraint (e.g. censorship) may turn into an essential constraint if 'the artist chooses to abide by the constraint even when it is no longer mandatory' (Elster, 2000: 176).

2. Abstraction (hardness): Based on Elster's (2000) work on 'hard' and 'soft' constraints, Onarheim and Biskjaer (2017) propose the second dimension namely 'abstraction (hardness)'. This dimension is concerned with the level of details given in the description of the constraints as well as the possibilities for the measurement of the constraints: the extent to which the constraints are described in concrete details (e.g. with examples) or in abstract terms; in a well-defined manner (e.g. all possible stages and details are given) or in a fuzzy, ill-defined manner. Various terms have been used such as 'soft' (abstract/ill-defined) vs. 'hard' (concrete/well-defined) constraints. Materials, physical constraints such as time and resource constraints are examples of hard constraints as they can be measured and described in concrete details.
3. Complexity: The complexity dimension indicates the level of difficulty in adding the constraint to existing solutions. While some constraints are simple to implement, others may be more complex/difficult. It is also possible that when taken together, some specific constraints become more complex or difficult to implement. For example, the need to start every line with the letter in an acrostic seems simple enough to implement on its own but when it is combined with the semantic constraint (the need to be about the key word), it becomes more complex and demanding.
4. Importance: Constraints can also differ in terms of the importance dimension: to what extent it is important to take the constraint into consideration. While some constraints may be set up as a 'must have' (compulsory), others may be imposed as 'nice-to-have' (optional/desirable).
5. Origin (source): What is the origin or source of the constraint: whether it is internally imposed by the agent, embedded in the task or externally imposed by an external source (e.g. the teacher). Also developed with reference to the domain of arts, Elster (2000) divides constraints into three types based on the source of constraints (where do constraints come from?).

The three types proposed in his framework (often known as 'tripartition of constraints'; Biskjaer & Halskov, 2014: 34) are intrinsic constraints (constraints inherently embedded in the context, the task, the material), imposed constraints (constraints imposed by external agents) and self-imposed constraints (constraints set by the creative agent him/herself) (e.g. Elster, 2000).

6. Timing: The point in a creative process where the constraint appears is regarded as another important dimension to consider: whether the constraint is introduced at the initial stage or a later stage of the process.
7. Flexibility: The flexibility dimension indicates to what extent a particular constraint is fixed in its current form or can be adjusted, whether it is negotiable or non-negotiable, whether it is fixed (strong) or flexible (weak), whether the parameters of constraints are open or closed for adjustment. Reitman (1964), whose work on the structure of problems is seen as 'one of the first key contributions' to constraint research (Biskjaer & Halskov, 2014: 30–31), makes a distinction between open and closed constraints with reference to two different problem types (ill-structured and well-structured problems). Ill-structured problems (also known as ill-defined) are based on open constraints. Open constraints have 'one or more parameters the values of which are left unspecified' (Reitman, 1964: 292–293). This openness allows the problem solver to 'take a new tack' on the problem 'by adjusting those parameters of the constraint that are open' to the problem solver (Reitman, 1964: 292–293). In contrast, well-structured problems (also known as well-defined problems) are based on closed constraints. Closed constraints have parameters which are well specified, leaving little room and opportunity for adjustment by the problem solver.

Task 5.5: Ill-structured and well-structured problems (open and closed constraints)

1. Compare the three activities below in terms of open-closed constraints and well-structured vs. ill-structured problems.

   Activity 1.
   Write an acrostic for TIME.
   Rule 1: start every line with the letter of the key word.
   Rule 2: the whole poem must be related to the meaning of the word.

   Activity 2.
   Write an acrostic for TIME.
   Rule 1: start every line with the letter of the key word. The word you choose must be a content word such as a verb, a noun, an adjective or an adverb. It must not be a function word, a cohesive device or a pronoun.
   Rule 2: the whole poem must be related to the meaning of the word.

(Continued)

Activity 3.
Complete the following acrostic for TIME. The whole poem must be related to the meaning of the word.

The one thing that
I…….
Marriage from
E…….

Comments:
The formal constraint in Activity 1 can be seen as an example of open constraints with some parameters left unspecified. Although the formal rule requires every line to start with the letter of the key word, it doesn't specify what word class they should be. This openness allows the user to 'take a new tack' on the problem and gives freedom to choose words as long as they begin with the letter of the key word. In comparison, the formal constraint in Activity 2 is a closed constraint. It specifies what word classes the word should belong to. Still there is a degree of openness as users can still have many words to choose from. The formal constraint in Activity 3 has more well-structured parameters, leaving little room and opportunity for adjustment. The user needs to find words that fit the syntactic structure and that make sense. There are fewer choices available.

To sum up, any constraint can be examined from different dimensions and can differ along various levels, dichotomies or continua: explicitness (whether it is explicitly or implicitly stated), concreteness (whether concrete details are given), complexity (how difficult/simple it is), flexibility (whether it is fixed or can be negotiated), importance (whether it is compulsory or optional), origin/source (internal or externally imposed) and timing (whether it appears at the initial or the later stage of the process). Constraints can be handled along those various levels and dimensions. These dimensions are proposed as theoretical constructs based on various constraint typologies studies. Experimental studies are required to further investigate how these dimensions are implemented and how they affect creativity.

Constraints in language learning tasks

While the issue of creativity has received much attention in the field of applied linguistics and language teaching, the notion of constraints is a neglected concept in language teaching. With reference to the discipline of language teaching, in a series of articles (Tin, 2011, 2012, 2013, 2015), I proposed constraint as an

important concept to be considered when setting up language learning tasks not just to promote students' creativity but also to increase complexity in learner language. I have proposed how the disciplined and imaginative use of constraints in language learning tasks can help language learners to expand and transform their language and ideas.

For example, in Tin (2011), I demonstrated how the use of constraints in language learning tasks provided opportunities for creative language use and the emergence of complex language in our language learners. Two types of creative writing tasks (an acrostic task and a simile task) were conducted with students (see Appendix 5.1 for detail). The tasks were different in terms of the degree of constrainedness. While the acrostic had a higher degree of constraint, the simile task had a lower level of constraint and students were given more freedom. Students performed both tasks in pairs. Their written texts and discussions during the task were recorded. The texts produced and the processes the same pairs of students went through in these two different tasks were compared. The findings showed that the use of higher formal constraints found in the acrostic task led not only to more complex language used in the final outputs (poems produced) but also in the use of various creative thinking styles such as exploratory, combinational, transformational, chaotic and ordered thinking. In the acrostic task with a higher level of constraints, students engaged more actively in the negotiation of language and ideas and attempted to expand and transform not only their language but also their ideas. In the study, the source or the origin of the constraints were externally imposed and inherent in the task design. Students were given the constraints both in the written and the oral formats along with examples. In terms of timing, all constraints were revealed at the beginning of the tasks.

The study was replicated in another study (Tin, 2015) in which I reported the findings arising from a study which used a pair of tasks (acrostic and simile), similar to those in Tin (2011). Similar findings were discovered: the use of higher constraints in the acrostic task led to learners' transformation of ideas and language. However, the findings also showed another dimension of constraint: self-imposed constraints in addition to externally imposed, task constraints. Evidence of constraint handling strategies was found in the way the pair (M and N) approached the task. For example, one of the students (M) unconsciously removed the task constraint (the need to start every line with the letter of the alphabet) and used another rule to generate ideas and words (generating words related to the previous words even though they didn't begin with the letters in the key word). The formal constraint (the need to start every line with the letter of the word) was only reintroduced by the pair towards the end of the task where they tried to think more explicitly about how they could use various words that had been generated to meet the requirement of the task. To maximise their creative potential, the pair balanced the degree of constrainedness by temporarily removing the formal constraint imposed by the task.

Task 5.6: Increasing the degree of constrainedness

1. Both in Tin (2011, 2015), simile tasks are compared with acrostic tasks (see Appendix 5.1). The findings show that simile tasks, which have weaker internal constraints than acrostic tasks, hinder creative language use and creative thinking. How can you redesign simile tasks used in those studies to increase the degree of constrainedness?
2. Look at examples of language learning tasks that appear in language teaching materials. Compare them in terms of constraint dimensions. How can you increase or decrease the degree of constrainedness and adjust various dimensions?
3. Perform those tasks with students. Record the dialogue and observe their behaviour. Describe their performance in terms of constraint handling strategies. How do various constraints (set up by the task and the teacher) and constraint handling strategies (used by students unconsciously) affect their language performance and creativity?

Language learning tasks are often described along the continuum of control-freedom. Constraints desirable for creativity differ from the notion of 'control' used in language learning tasks (Tin, 2012). Controlled activities require students to practise pre-specified language items (forms) to express pre-specified meaning. In Example 1, both forms and meaning are pre-determined and limited. Such over-constrained limitations (or extremely closed constraints) have well-specified parameters, leaving little opportunity for adjustment by the problem solver. They promote search among the known, pre-specified language forms to express known, pre-specified meaning while limiting search for the riskier, unknown areas such as unusual combinations of known, pre-specified language forms. Such activities limit the use of exploratory, combinational and transformational thinking.

Example 1: A controlled activity

1. Read the sentence below and circle the right word.
   a. If I won the lottery, I will/would buy a house.

On the other hand, free activities found in language teaching materials are usually under-constrained. In Example 2, students are required to use the form (if clause) to express meaning freely. Students can write about many things and there are too many semantic parameters left open for adjustment. Although open

constraints allow the problem solver to 'take a new tack' on the problem 'by adjusting those parameters of the constraint that are open' to the problem solver, too much freedom, or openness, as creativity researchers note, can disable rather than enable creativity. When given too much freedom, people tend to retrieve known, familiar ideas to solve the problem due to cognitive fixation tendency (Tin, 2011). Although the meaning to be conveyed is uncontrolled, students are more likely to come up with known familiar ideas such as buying, travelling, doing charity works in Example 2.

Example 2: A free activity

1. Write sentences saying what you would do if you won the lottery?

Balancing constraints is an important constraint handling strategy to maximise creativity (Onarheim & Biskjaer 2017). Finding a sweet spot where the right amount of constrainedness is present is a key to successful creative performance. To find the right balance, constraints can be manipulated using various strategies. One strategy is 'constraint introduction' (i.e. introducing new constraints or translating old constraints into various forms and exploring their impact). Constraints desirable for creativity and creative language teaching need to be designed to promote search among the unknown to construct new meaning while limiting search among the known.

Task 5.7: Finding new constraints desirable for creativity and language learning (part 1)

1. How would you transform the constraints found in Examples 1, 2 to encourage creativity? What sorts of new constraints can be introduced? Both Examples 1 and 2 involve the language of conditional clause (If-clause). What constraints can be set up concerning 'If-clause', encouraging students to use it to construct new, valuable ideas, and to search among the less familiar language and ideas while limiting search among the known?
2. Both activities (Examples 1 and 2) are well-defined problems as students know in advance what the final outcome (meaning) would be. The topic to be written about is pre-specified. This encourages the use of language to talk about known, familiar ideas (ideas known to self, or known knowns) (also see Chapter 3). How can you redesign the task using constraints to encourage the use of language to explore unknown ideas (ideas unknown to self)?

Combining the notion of constraint with the geneplore model of creativity proposed by Finke et al. (1992), the following procedure was proposed in Tin (2013) for using constraints in creative tasks for language learning:

1. Idea-generation phase: In this phase, the student is presented with an ill-defined problem and is required to generate ideas or 'pre-inventive forms' without knowing the final outcome, the goal of the task or the meaning those forms will take. The task is only partially defined.
2. Idea-exploration phase: In this phase, a new constraint is revealed and the student is required to interpret the previously generated 'pre-inventive forms' in accordance with the new constraint to fulfil the goal of the task.

An example of tasks implementing that procedure is as follows:

Example 3: If I were a ...., I would ....

I. Idea generation phase:
   1. On a piece of paper, write names of objects (e.g. candle, window).

II. Idea exploration phase:
   2. Now look at the list of words written in step 1. Use them to produce a text. Rules to be followed are:
      Formal constraints: Use the words generated in the sentence structure 'If I were (insert the word generated in step 2), I would …'.
      Semantic constraints: Produce sentences/lines to express your emotions (e.g. to someone you love, hate, etc.) (e.g. 'If I were a microwave, I would melt your frozen heart'.) (adapted from Tin, 2013: 391)

Task 5.8: Finding new constraints desirable for creativity and language learning (part 2)

1. Look at Example 3 (If I were …, I would …). What dimensions of constraints are being applied? What other features of creativity discussed in Chapters 2 and 3 are also reflected in Example 3?
2. Like Examples 1 and 2, Example 3 involves the language of 'if-clause'. Which example do you think encourages students to use 'if-clause' to explore less familiar ideas and language? Why?

Comments:
The timing of the constraint (at what stage of the creative process we reveal the constraint) is an important aspect of designing creative tasks to promote creative language use. Not all constraints need to be revealed at the beginning of a task as 'a clearly defined goal at this stage can backfire and is likely to activate known past experiences instead of broadening learners' language' (Tin, 2013: 391). In Example 2, students are told what they would be writing about (what they would do if they won the lottery) and what language they would be using (if-clause) right from the very beginning. In Example 3, students are encouraged to produce pre-inventive forms (generating words without knowing what they would be used for). The product-oriented constraints (what their final outcomes should be like both in terms of form and meaning) were revealed only at a later stage of the task, requiring them to use the pre-invention forms randomly generated in phase 1 in a specific construction (syntax) (If I were …, I would …) to express a specific meaning (to express emotions). As discussed in Chapter 3, chance and randomness play an important role in helping us to find new, valuable ideas (e.g. Boden, 2004; Simonton, 2004).

With reference to musical creativity, Johnson-Laird (2002, cited in Haught-Tromp, 2016: 213) proposes that for a product to be considered creative, it must be novel, valuable and 'must stem from a creative process that is nondeterministic, constrained by criteria, and based on existing elements'. In other words, the outcome is not pre-determined in advance but doesn't arise from a free process without constraints either. The constraints must be set up in such a way to enable the existing elements (e.g. current knowledge, current rules, same task instructions and inputs) to contribute to non-deterministic outcomes. In Example 3, despite giving the pre-specified language (If I were …., I would …) to be used in Phase 2, the constraints can lead to the emergence of unpredictable and diverse outcomes. No two students are likely to come up with the same concept.

Constraints can be manipulated in terms of both product and process when setting up language learning tasks to promote creativity. They can be manipulated using various constraint shattering practices and adjusted along the various dimensions. Looking for new constraints to work with is an important feature of many creative works. We can experiment with various dimensions of constraints to discover what effect they have on students' language use, creativity and language learning. Table 5.2 provides a summary of manipulating constraints for creativity in language learning tasks.

TABLE 5.2 Manipulating constraints in language learning tasks to enable creativity

	Types of constraints	*Details of tasks and examples*	*Dimensions (Onarheim & Biskjaer, 2017)*	*Constraint-handling practices*
Constraints as rules	Product constraints (Goals of a creative task)	The formal and semantic constraints concerning the nature of the product to be achieved (what the final outcome should or shouldn't be). e.g. Use concrete objects (e.g. a window, a car, a microwave) in the 'If clause' to express your emotions to someone you love (e.g. I were a microwave, I would melt your heart). Write at least 10 lines.	Constraints can differ along various dimensions and continua: 1. articulation explicit – implicit written – verbal essential – incidental 2. abstraction abstract – concrete ill-defined – well-defined 3. complexity complex – simple 4. flexibility non-negotiable – negotiable fixed/closed – flexible/open 5. importance nice-to-have – must-have desire – demand 6. origin internal – external self-imposed – other-imposed 7. timing initial – late	Social actors (students and teachers) may either consciously or unconsciously adopt constraint-handling practices and strategies when performing/giving instructions about the task. Some strategies are: constraint elimination: blackboxing, removal, revision constraint introduction: self-imposition, translating, chance constraint balancing: balancing the degree of constrainedness
	Process constraints (possible approach to a creative task)	'Procedural rules': processes and steps students should or shouldn't follow to achieve the outcome. e.g. Students are asked to first produce a series of concrete nouns without knowing what they would be used for. Later, the teacher tells them that they would use those words to write a love letter.		
Constraints as limitations		Other constraints: External, social, physical, environmental constraints such as time limit, resources (e.g. pair or individual work, access to dictionary). Intrapersonal, domain-relevant constraints (linguistic and non-linguistic limitations) such as prior domain-relevant skills (e.g. students' existing knowledge of language and knowledge about the topic, their prior knowledge about the language of 'if-clause' and vocabularies related to the topic).		

Conclusion

Constraints have a paradoxical relation with creativity: they can have both a positive and a negative impact. Recent literature has paid increased attention to the role of constraints in creativity. Various constraint handling practices and strategies have been proposed. The meaning of constraint has been articulated using a whole range of terms. This chapter has considered what creativity means if we take two terms for example to talk about constraints: limitations and rules. The notion of constraints as limitations indicates the input-related and social, external constraints: tangible limitations such as limited resources, time and materials within which social actors perform a creative task. Such constraints are often highly fixed, are less flexible, can be described in concrete terms. They are often known as hard constraints. The notion of constraints as rules on the other denotes the notion of abstract procedures, structures that are given substance only through our practices and actions. In other words, rules don't pre-exist. The individuals can always do the otherwise, flouting rules, procedures and standardisation. Rules and structures can be outcome/product-oriented or process-oriented: rules concerning what the final product should/shouldn't be or what one should/shouldn't do in the process.

This chapter has also examined various types of constraints, constraint dimensions, constraint handling practices and strategies available to social actors. Constraints can be manipulated, removed, reshaped and invented to help us to deal with creative hindrances, to kickstart creativity, to jump to new conceptual spaces which would otherwise be overlooked. Those strategies can be divided into two categories: constraint elimination strategies and constraint introduction strategies. The former includes various practices such as blackboxing (focusing on crucial constraints while accepting others as unchangeable), temporarily removing constraints (thinking what could be achieved if we didn't have specific highly fixed constraints to open up solution spaces and then asking what we could still achieve if the constraint (temporarily removed) is inevitable), revising constraints (changing the parameters of constraints). Constraint introduction uses several strategies: inventing new constraints (especially when the problem is too rigid or too open) to kickstart creativity, translating constraints into various forms and making interpretations, chance discovery of new constraints. Constraints are dynamic concepts and are not fixed. They can vary along various continua and dimensions such as the level of articulation, abstraction, complexity, flexibility, origin, timing, importance and so on.

With reference to the discipline of language teaching, many language learning tasks are either overly constrained or under-constrained. Teachers tend to give either too much freedom or too much guidance. The guidance given tends to push students towards achieving a pre-determined, predictable outcome (known to the field) rather than acting as elements to push boundaries and transformation of the current conceptual space, or to promote search in the less familiar space. Moreover, only some dimensions and continua of constraints are utilised when

setting up tasks. For example, constraints (rules, guidance, procedures, resources) in language learning tasks are often imposed at the initial stage of the task and often explained in concrete terms, leaving very little room for interpretation and manipulation. Various constraint handling practices and dimensions could be applied to language learning tasks. Research concerning the role of constraints in language learning and creative language use could be conducted. The various theoretical discussions in this chapter can be implemented in language learning tasks and the effect of constraints on language used by learners can be investigated.

Notes

1 This image is inspired by an advertisement used by BBC World ('See from both sides of the story'). See https://www.kwikkopy.com.au/blog/creative-billboard-advertising for further details.
2 This image is inspired by an advertisement used by Panasonic to promote the product (Nose Hair Trimmer, Safety Cutting System). See https://www.adsoftheworld.com/media/outdoor/panasonic_fatty.

6

Algorithms and creativity

Introduction

The word 'ideas' in the core meaning of creativity as the ability to produce new, valuable ideas refers to a wide range of entities in various domains (see Chapter 3). In some domains, creativity is the ability to produce new valuable solution pathways to problems while in others it is the ability to find new problems. If the definition of creativity is extended to include the ability to produce new, valuable ways of solving a known, well-defined problem, it is vital to examine the notion of algorithm and algorithmic thinking. In Chapter 4, we have briefly discussed how algorithms are different from heuristics. This chapter takes a closer look at the term 'algorithm' and its associated terms 'algorithmic creation' and 'algorithmic thinking' to address what role algorithmic thinking has in our pursuit of creativity and creative language teaching. An important characteristic of the algorithm is its attention to detail: the programmer must have identified and articulated every minute step which needs to be followed in the correct order. Variation in those steps will result in different outcomes being produced. It is important for us to be aware of the minute steps (or algorithms) used in our language lessons and to reiterate and make changes to the algorithm to see what variable outcomes and alternatives can be produced.

Algorithms, algorithmic creation, algorithmic thinking and creativity

The term 'algorithm' refers to a set of procedural rules or a sequence of logical steps which are aimed at performing a class of well-defined problem-solving tasks and which guarantee desired outcomes or solutions (Katai, 2014). When this sequence of carefully defined steps is applied to a particular set of parameter

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inputs, it is expected to yield the specified outcome regardless of what the external circumstances may be. The algorithm should cater to 'all possible special and normal cases' of the problem circumstances (Futschek & Moschitz, 2010: 9).

Algorithmic creation (creating an algorithm) consists of a formal procedure, also known as a formal generative process (i.e. a set of instructions to be carried out in a fixed sequence), and a structural component (i.e. the parameters to serve as inputs to the procedure to generate some sort of output) (Ekéus, 2016). Such an algorithm, known as a genetic algorithm, involves an iteration process where the same set of rules or steps are repeatedly applied to inputs to produce a desired output. Each step in an algorithm must clearly describe the intention of the step. The step can be a basic operation, a high-level operation (to which all basic operations must correspond to), a conditional statement or an iterative statement (Kusuma et al., 2018: 3). According to researchers (e.g. Amorim, 2005: 2–3), algorithmic creation demonstrates several features.

First, in terms of the structural component, the parameter input that needs to be transformed to produce the output should be specified in *precise* terms (e.g. what kind of input it is, how much and what form it should be). The output resulting from an algorithm also requires precise specification: what form or class the output should be. The implementation of an algorithm guarantees an output. In some problem-solving tasks, even though we don't really know in advance what the output will look like, we know that the process will result in a state. The range of possible resultant outputs to be achieved is constrained or limited by the algorithm and this process is often known as a *deterministic* process.

Second, in terms of the formal procedural component, algorithms must clearly and precisely specify every step and the sequence of the steps to be taken to turn input into output. Clear, unambiguous rules and instructions are required (*definiteness*). An algorithm stops when a desired output is attained or when it renders a response that no solution is possible. In other words, there must be an end result even if the result means no solution (*finiteness*). Algorithms are *effective* in that the desired solution or output is rendered every time the algorithm is run and that the set of steps (algorithm) developed can be repeated and used to solve a class of similar problems.

Algorithmic thinking, which derives from the concept of algorithm, refers to solving well-defined problems by developing and using an ordered and precise sequence of steps to attain the desired outcome and, when appropriate, automating that process by using a computer (Futschek, 2006; Katai, 2014). Algorithmic thinking is regarded as a detailed-oriented thought process. It is a special problem-solving competence made up of various abilities such as comprehending and analysing problems, breaking them down in smaller sections, formulating a sequence of steps to attain desired solutions, streamlining the sequence of steps and seeking substitute steps which allow alternate approaches to solutions, and using abstractions to generalise those solutions to similar problems (Ekéus, 2016; Futschek, 2006). Algorithmic thinking is a complex thinking skill and is influenced by many other human cognitive factors such as 'abstract and logical

thinking, thinking in structures, creativity and problem-solving competence' (Futschek & Moschitz, 2010: 2). An example of what an algorithm looks like with reference to robots is given in Task 6.1.

Task 6.1: An example of what an algorithm looks like with reference to robots

1. Read the following example of an algorithm and the comments given below. Can you write another example of an algorithm to produce a desired outcome for a well-defined problem?
2. How can you use the example (Obstacle detection) given below in a language classroom? (e.g. you can take out some steps or some words in Step 3.3.3 and can get students to fill in the blanks.)

Example: Obstacle Detection (adapted from Kusuma et al., 2018: 4)

Specification of the solution (output and input)

This program is to control the mBot robot to avoid an obstacle. The robot is traveling on a straight line and detects the distance of the obstacle and avoids it to continue the travel. The robot detects the distance of the obstacle by using the ultrasonic sensor. We assume that the size of the obstacle is at most 5 cm in diameter.

Algorithm description (specification of steps and parameters)

1. Wait until the green flag is clicked.
2. Initialise constants.
3. Repeat the following steps forever:
   - 3.1. Read ultrasonic sensor value to identify the distance to an obstacle.
   - 3.2. Run forward.
   - 3.3. If the detected distance is less than 10 cm, then do the following steps:
     - 3.3.1. Turn right at 90 degrees.
     - 3.3.2. Move forward to 10 cm.
     - 3.3.3. Repeat the following steps two times.
       - 3.3.3.1. Turn left at 90 degrees.
       - 3.3.3.2. Move forward to 10 cm.
     - 3.3.4. Turn right at 90 degrees.

Comments:
The algorithm above describes the sequence of steps to be taken by the robot to perform a well-defined problem-solving task (how the robot travels on a

(Continued)

straight line, avoiding obstacles on its way). The problem is broken down into smaller sections or basic actions (moving forward, detecting obstacles, avoiding them, turning left, turning right) and a sequence of steps are formulated. The steps are to be taken in the precise order. While some steps are basic operation statements (e.g. Run forward), other statements are higher-level operations (e.g. Wait until the green flag is clicked) to which all basic operations must correspond. Some are conditional statements, describing the conditions under which the action is to be performed (e.g. If the detected distance is less than 10 cm, then do the following steps). Other steps are iterative statements (e.g. Repeat the following steps forever. Repeat the following steps two times). The algorithm is to be applied to a set of well-specified inputs (i.e. the size of the obstacle is at most 5 cm in diameter). This is reflected in the well-specified parameterisation of the algorithm (the amount of translation is 90 degrees and the distance to move forward is 10 cm). This algorithm won't work with bigger obstacle objects (inputs) (e.g. 10 cm in diameter).

In the example given in Task 6.1, although the procedure is automated through the computer (the Robot), it is the human (the programmer) who develops the algorithm or the sequence of steps. Although it may be the machine that performs the sequence of steps, 'the creation of algorithms is mainly a human activity' (Katai, 2014: 287).

'Algorithmic thinking can be developed independently from any technologies, implementation, or specific programming languages' (Douadi et al., 2012: 455). Algorithmic thinking is part of our modern society, although most of us are unaware of it. It is inherent in humans' capacity for abstract and logical thinking. Algorithms are reflected in everyday human activities such as following a cooking recipe, driving a car, or delivering a language lesson. They all involve using a sequence of steps towards a well-defined goal. Our modern society is driven by all sorts of hidden algorithms. There are algorithms behind automated machineries, medical protocols, cooking recipes, manuals, business procedures, entertainment, mobile apps and so on.

Proponents of algorithmic thinking argue that formulating solutions involves a certain level of creative thinking (e.g. Futschek, 2006). Developing algorithms to solve problems requires creativity especially when there is no known pathway (known to the problem-solver) to the solution. Katai (2014) proposes that algorithmic thinking is an important ability we should all possess in the modern information-based society and should be developed in all educational programmes. Negative views of algorithmic thinking have also been noted. For example, Amabile (1996) notes that a creative task cannot be algorithmic. Amabile makes a distinction between an algorithmic task and a creative task. An algorithmic task has a well-defined and straightforward solution whereas a

creative task does not have 'a clear and readily identifiable path to the solution' (Amabile, 1996: 35).

However, such oppositions are ignorant of the fact that algorithmic thinking has two possible interpretations. Algorithmic thinking refers not only to 'the capacity to perform a given task by means of a known algorithm' but also to 'the capacity to create algorithms' (Amorim, 2005: 2–3). Creating new algorithms – i.e. 'the creation of task solutions (or the re-creation of forgotten ones) that are original to the individual who creates them', is regarded as everyday (mathematical) creativity (Norqvist et al., 2019: 3). There is a strong aspect of creativity in formulating a new algorithm to solve a new or a familiar problem which doesn't yet have a readily identifiable path (known to the problem solver) to its solution. Revising an existing algorithm to improve the solution can also be regarded as creative. While ill-defined problems and large world problems with large conceptual space necessitate the use of heuristics and heuristic thinking, well-defined problems require the use of algorithmic thinking. With the advancement in technology and computer science, the gap between large-world problems and small-world problems is getting smaller. Many problems previously considered to have a large conceptual space may now be able to be broken down into smaller well-defined sets and may be charted by algorithms and algorithmic thinking. Both heuristic and algorithmic thinking are required for creativity although the proportion may vary in accordance with contexts and domains.

Adding unpredictability to algorithms

Algorithms are described to be a *deterministic* system. That is, the output to be produced is pre-determined in advance and is influenced by the sequence of steps to be taken. In the example given in Task 6.1, the resultant outcome is that the robot moves in a straight line, avoiding objects on its way. However, even deterministic systems can be manipulated to behave in an unpredictable way, producing results with a certain element of surprise – one of the key features of creative products. There are two ways unpredictability can enter algorithms: parameterisation and stochasticity. Three types of algorithms can be identified along the continuum of determinism and non-determinism (see Table 6.1).

Table 6.2 describes each type of algorithms with examples with reference to the discipline of visual art.

TABLE 6.1 Three types of algorithms along the determinism and non-determinism continuum

1. Fully specified genetic algorithms (fixed steps and fixed input parameters) 2. Partially underspecified algorithms through parameterisation (fixed steps, underspecifying some aspects of the parameters) 3. Stochastic algorithms (introducing randomness to the steps)	Determinism  Non-determinism

TABLE 6.2 Examples of the three types of algorithms (adapted from Ekéus, 2016)

Algorithms	*Generative processes (examples)*	*Examples of outputs*	*Deterministic ← → non-deterministic outputs*
Fully specified genetic algorithms (fixed steps, fixed parameters)	***G1*** 1. Draw a square, with edges of unit length. 2. Shift the canvas one unit length to the left. 3. Rotate the canvas 45 degrees to the left. 4. Go to 1.	See Figures 6.1 and 6.2	The possible outputs are certain (determinism)
Partially specified genetic algorithms (fixed steps, underspecifying some aspects of the parameters)	***G2*** 1. Draw a square, with edges of unit length. 2. Shift the canvas *x* amount to the left 3. Rotate the canvas by *y* degrees. 4. Go to 1	See Figures 6.3 (a, b, c, d) and 6.4	The possible outputs are uncertain (non-determinism)
Stochastic algorithms (introducing randomness to the steps)	***G3a*** 1. Draw a square, with edges of unit length. 2. Shift the canvas one unit length to the left. 3. Rotate the canvas 45 degrees to the left 4. Go to step 1 with probability 0.5. Go to step 3 with probability 0.5.	See Figure 6.5	
	G3b 1. Draw a square, with edges of unit length. 2. Shift the canvas one unit length to the left. 3. Rotate the canvas 45 degrees to the left 4. Go to step 1 with probability 0.95 and go to step 3 with probability 0.05.	See Figure 6.6	

Examples of outputs from various algorithms in Table 6.2 are given in Figures 6.1–6.6.

First, in *a fully specified genetic algorithm*, both the formal procedure and the structural components are fully specified and the algorithm acts as a fully deterministic system. The generative process will render the same outcome every time it is run. For example, in the genetic algorithm (*G1*) in Table 6.2, the

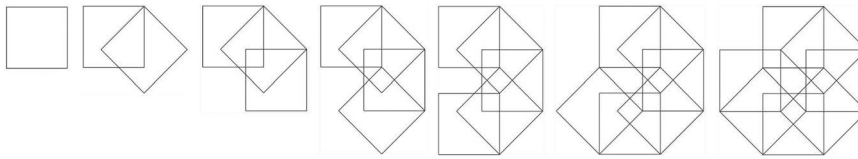

FIGURE 6.1 Outputs of *G1* (rotated 45 degrees): First seven iterations of *G1*

(Source: Ekéus 2016: 52)

generative process (the formal procedure) has a set of three steps (draw a square, translate, rotate) and is iterated. The unit length of the translation and the angle of rotation act as input parameters (the structural components). The parameters of the structural components are fully specified (the length of the translation = one unit length and the angle of rotation = 45 degrees). This generative process is iterated to produce some sort of output. The space of possible outputs that can be generated is restricted by the process and the same outcome is rendered every time the generative process (*G1*) is run. Figures 6.1 and 6.2 show the outputs generated at various iterations of the generative process (*G1)* specified above.

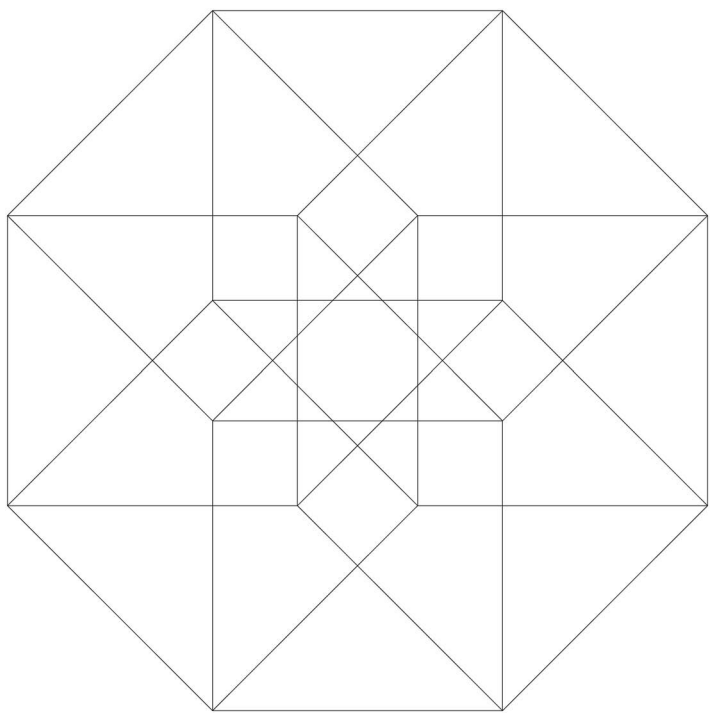

FIGURE 6.2 Output of *G1* (rotated 45 degrees) at eight iterations

(Source: Ekéus 2016: 52)

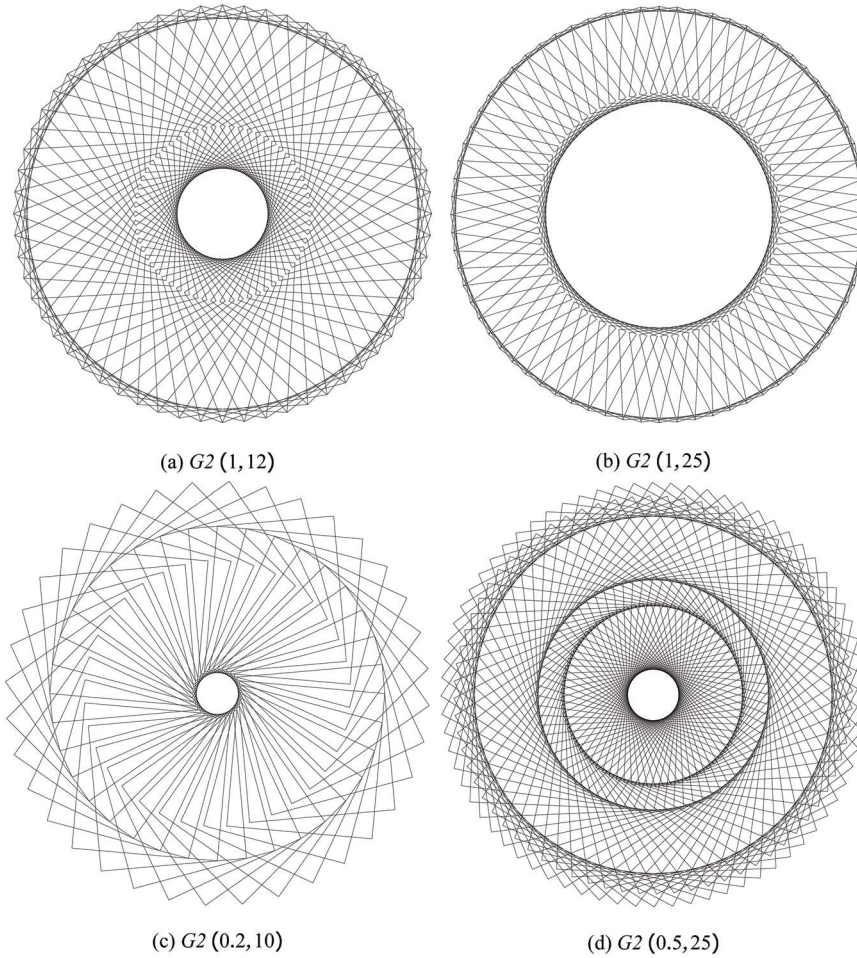

FIGURE 6.3 Output of *G2* (Instances of *Gx,y* (100 iterations))

(Source: Ekéus, 2016: 61)

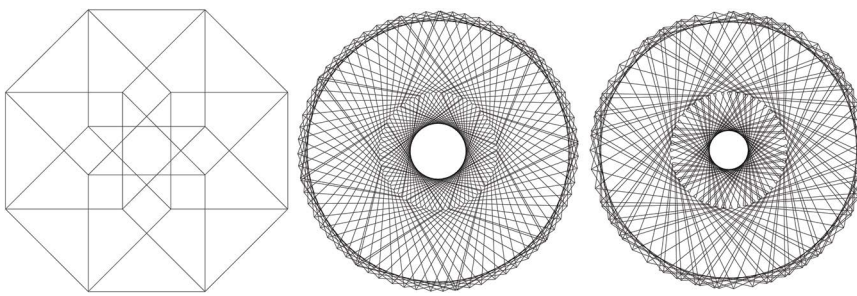

FIGURE 6.4 Output of *G2* (three instances of *Gparametric*, *G1* and *G2* with the angle parameters set to 45, 46 and 43, respectively)

(Source: Ekéus, 2016: 68)

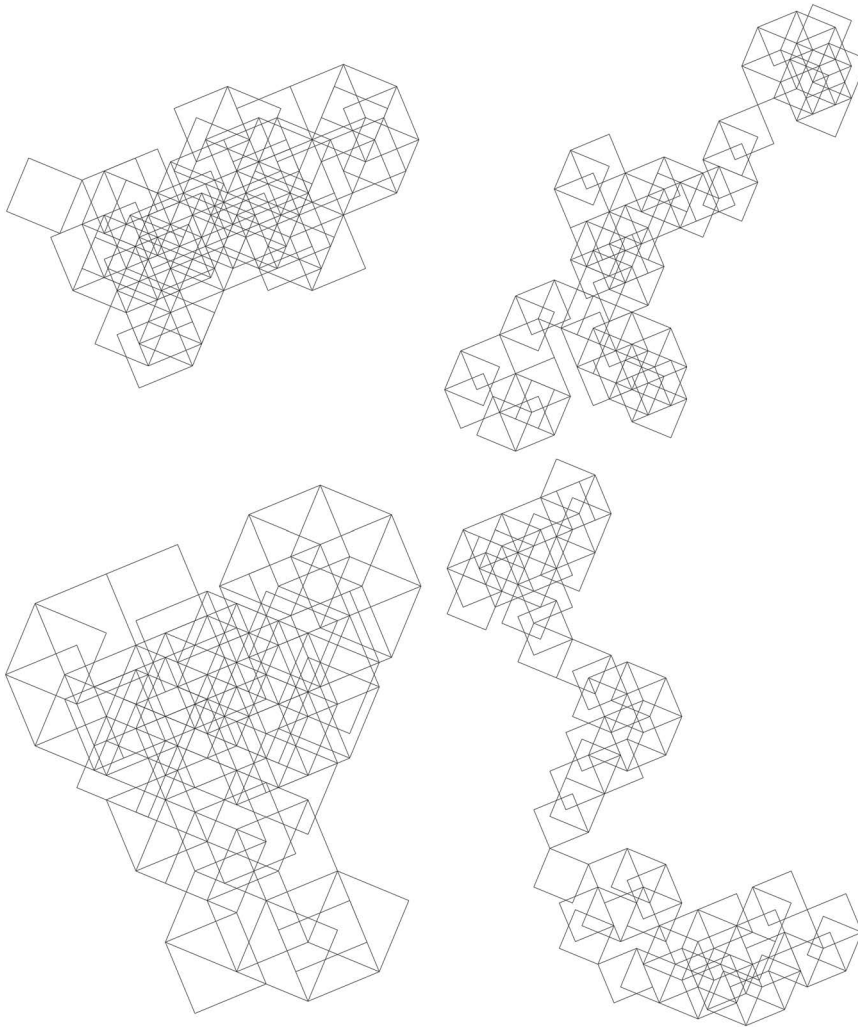

FIGURE 6.5 Outputs of *G3a* (instances of *Gstochastic1* (100 iterations))
(Source: Ekéus, 2016: 63)

In Figure 6.2, the generative process is repeated eight times to produce the aesthetically interesting and complex outcome. The simple generative function (*G1*) and merely using a simple set of eight squares yields an 'artefact that is perceived as more complex than the instructions *per se* seem to embody' (Ekéus, 2016: 53). For example, one of the shapes which the human visual system or the viewer can pick/perceive is the stars, but nothing in the instructions suggests stars. A higher level phenomenon (e.g. stars and cubes) *emerges* as the lower level phenomena (squares, parameter inputs) interact with each other. The same

TABLE 6.3 An alternative algorithm to produce the same output

G1b
1. move forwards unit distance
2. turn 90 degrees to the right
3. move forwards unit distance
4. turn 90 degrees to the right
5. move forwards unit distance
6. turn 90 degrees to the right
7. move forwards unit distance
8. move backwards unit distance
9. turn 45 degrees to the right
10. go to 1

(Source: Ekéus, 2016: 54)

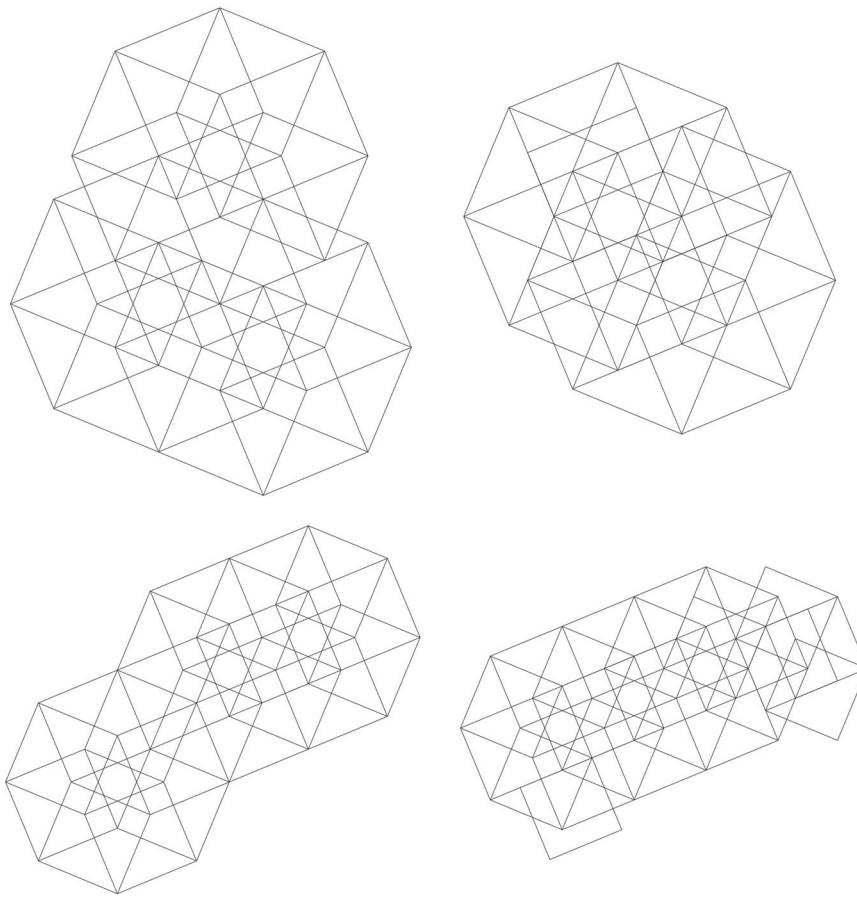

FIGURE 6.6 Outputs of *G3b* (instances of G*stochastic2* (100 iterations))

(Source: Ekéus, 2016: 65)

form (Figure 6.2) can be produced using another set of instructions (*G1b)* (see Table 6.3), using a set of 32 lines of equal magnitudes (inputs). Compared to *G1* above, *G1b* involves more steps and can be considered to involve a lower level set of instructions.

In other words, different generative processes and algorithms can be developed and used to generate the same desired output. *G1*, which involves a higher level set of instructions, will render the same output in a faster manner and may be regarded as more efficient.

Second, in *a partially underspecified algorithm*, some aspects of the algorithm are left underspecified through parameterisation to produce outputs with a certain degree of unpredictability. The generative process in *G1* can be rewritten as in *G2* (see Table 6.2). In *G2*, the steps are fixed and specified but the parameters of step 2 (x – the amount to be shifted) and step 3 (y – the angle of rotation) are left undefined and are to be decided by the user of the algorithm. Hence, the final state of the output is unknown given that the parameters of the process have not yet been decided. There is less certainty concerning the outputs to be generated. As the parameters change, the process generates different outputs. Figure 6.3 (a, b, c, d) shows a number of examples generated by the algorithm with different sets of parameters. In the first output (a) in Figure 6.3, the amount of translation relative to the unit length of the edge of the square (x1) is set at 1 unit and the angle of rotation (y1) is set at 12 degrees. In the output (b), the amount to be shifted (x2) is still 1 unit while the rotation (y2) is 25 degrees. In the output (c), the amount of translation (x3) is 0.2 and the rotation (y3) is 10 degrees and in the output (d), the amount of translation (x4) is 0.5 and the rotation (y4) is 25 degrees. The generative process is iterated 100 times in all four outputs. Although the resultant outputs are all unique, they seem to be 'of a class' and demonstrate some perceptual similarities. They all have circular shapes and some have 'spiral or star-like properties' (Ekéus, 2016: 60).

Figure 6.4 shows three outputs produced by three parametric versions of the generative process. The unit length (x1, x2, x3) for all three versions is set to be the same (a unit distance 1) whereas the rotation angle (y1, y2, y3) are set to be slightly different from each other (45, 46 and 43 degrees, respectively). The last two outputs are more visually similar whereas the first output is visually different from the other two. Although the parametric distance between the two sets of parameters between the first two outputs (45 and 46) is only 1 degree and thus lower than the distance between the parameter sets between the last two outputs (46 and 43, 3 degrees difference), the smaller distance produces more perceptually varied outcomes. Ekéus (2016) argues that:

> a small 'parametric distance' between two sets of parameters, may, or may not yield perceptually similar outputs. There is little that can be predicted

> with regards to similarity by looking at parameter values, especially as systems become more complex. (…) This makes the parameter selection process, and finding what are 'good' parameters, a difficult problem for designers.
>
> *(Ekéus, 2016: 67–68)*

Third, unpredictability can enter algorithms through stochasticity. Stochasticity refers to the introduction of non-determinism to algorithms through random processes. In stochastic algorithms (also known as algorithms with randomisation), the sequence of steps is not fixed but is changed in a random way and this allows a certain amount of surprise in the outcomes produced. The sequence of steps in algorithm *G1* can be rewritten using chance operations as in *G3a* and *G3b* (see Table 6.2). In *G3a*, instead of always going back to step 1 after step 3, randomness can be introduced by going back to step 1 (0.5 probability) and repeating step 3 (0.5 probability). The probability for going back to step 3 or step 1 can be changed from equal probability to any ratio (e.g. 0.05 vs 0.95 as in *G3b*). The repeated runs of this stochastic algorithm will produce different outputs each time (see Figures 6.5 and 6.6).

In Figures 6.5 and 6.6, the unit length and the angle of transition remain the same but the difference is in the sequence of steps. Figure 6.5 shows a number of possible runs of this process where probability is set at 0.5 between step 3 and step 1. This results in uncertainty. Different outputs are produced each time the process is run. In Figure 6.6, the generative process has different probabilities in the final step. The transition from step 3 to step 1 is set as a probability of 0.95 and the transition to stay in step 3 is reduced to a probability of 0.05. The outputs produced thus have less uncertainty compared to those generated when the probability to stay in step 3 is higher at 0.50 (see Figure 6.5). The outputs seem to be less disordered.

> Underspecifying a generative process through stochasticity allows a certain amount of surprise in the designs. The greater the amount of stochasticity, the greater the gamut of possible outputs, yet the less control, and predictability the designer has in the final design.
>
> *(Ekéus, 2016: 64)*

Despite this uncertainty, the outputs generated in both Figures 6.5 and 6.6 are still considerably similar as the inputs (squares) used are the same. They are still made up of squares and all have 'this rather jagged somewhat disorganised, grid-like structures' (Ekéus, 2016: 62).

To sum up, the creation of algorithms can be broken down into two major steps: 1. formulating the generative process or algorithm (procedural

search/procedural rules), and 2. searching for the appropriate parameters to input into the generative system (parameter search and discovery). Despite running the same generative process, variations in parameter sets yield different products. The degree of difference in parameter values cannot be used to predict the degree of difference in the resultant outputs. A small parametric distance may lead to a big difference in the outcome than a larger parametric distance. A relatively simple set of steps (a simple generative system) can result in a complex output, giving rise to complex features in the outputs that nothing in the generative system indicates explicitly. Regardless of whether parameter sets are fully or partially specified or whether randomisation is or is not introduced to the steps, all outputs produced by a particular set of generative processes are unique at the same time similar: they all seem to be of 'a class' and demonstrate similar features. Introducing chance operations to the generative process renders more surprising and uncertain outcomes. Non-determinism (where the outcomes to be generated is less determined by the system) can be achieved through scholastic techniques or chance operations.

An algorithmic view of language teaching: Teaching as a hard-work type of creativity

Algorithmic thinking involves not just following an existing algorithm. It involves developing new algorithms. Algorithmic creation includes a high level of creativity and involves engaging in both procedural and parameter search. Searching for 'good parameters' which can produce a desired outcome is not an easy task but requires hard work and repeated experimentation with various parameters. Creativity in this sense is an outcome of hard labour and an iterative process. It can also be an outcome of stochasticity or chance operations. With reference to musical creativity, Jacob (1996) distinguishes 'hard-work type of creativity' from the 'flash out of the blue' creativity where creativity comes out of the blue. We are still far away from understanding the latter view, let alone learning how to implement it. However, the hard-work type of creativity is 'algorithmic in nature' and 'often involves trying many different combinations and choosing one over the others' (Jacob, 1996: 157). This iterative process is vital for the discovery of 'good' parameters and generative processes that lead to desired outcomes.

Language teaching, like other daily activities, is featured with many hidden algorithms. There are sets of procedures teachers and students follow both consciously and unconsciously. The IRF (Initiation-Respond-Feedback) pattern is an example of a well-known routine or algorithm of teacher-student interaction found in language classes. In terms of the procedural form, initiating, responding, giving feedback are the major steps followed in a fixed sequence. In terms of parameterisation, the length and the mode of delivery can vary (e.g. how

much time to spend, whether to respond as a whole class or individually, giving feedback orally or in writing, whether it is the teacher or the student to initiate the step, etc.). In terms of input, it can also vary (e.g. topics being initiated, the type of techniques/questions used to initiate, the language to be used in the feedback).

Having identified/learned this IRF generative process, teachers and students need to engage in the parameter search, searching for the appropriate parameters to input into this procedure to generate a desired outcome. For example, the search involves looking for what is to be initiated, responded and given feedback to? How is it to be initiated, responded and given feedback to? How long should it be? How many times should this process be iterated? Who performs the step? As we have seen above, a small difference in terms of parameters may make a huge difference in terms of the actual outcome (in this case the overall outcome and performance). We can also introduce stochasticity or randomness to the IRF process by changing the sequence randomly. For example, step 2 (Respond) may not always follow step 1 (Initiate) in some episodes of the teacher–student interaction and there may be only a certain chance of step 2 occurring after step 1.

The algorithmic view of the classroom shows that the actual outputs (products of class interaction) are varied but at the same time look similar. A small difference can lead to a big difference. Teachers (like designers) cannot always predict in advance of what the final outcomes will be. Teachers need to experiment with and combine various input parameters, engage in parameter search, look for appropriate parameters to input into the system such as IRF to achieve the most desirable outcome (e.g. the richest language exchange).

With so many possibilities and choices available which can fill those routine steps, the challenge is how we as teachers can find the appropriate input parameters. This makes teaching a 'hard-work type of creativity': like the designer, creative teachers are always in constant search of input parameters which would lead to valuable outcomes once they are entered into an existing system or process such as IRF. Even though we may be using the same generative process such as IRF year after year in our lessons, the outcomes of what happens (the teacher-student interaction) may vary although they all belong to a class of possible outputs defined by the IRF process. We may find it impossible to step in the same linguistic, interactive or pedagogic river twice if we look at language teaching through a detail-oriented, algorithmic thinking style. This, I believe, is the beauty or the art of teaching and this I believe is what makes many of us remain fresh and inspired despite an iterative task we all perform. Despite following the same procedure, a seemingly similar procedure can still bring about a certain degree of surprise and uncertainty which keep us intellectually stimulated, challenged, inspired and at times frustrated and puzzled.

Task 6.2: Adding an element of surprise and humour to IRF

In a study conducted by Forman (2011), a bilingual teacher brought spontaneous humour to the classroom using the IRF exchange. Based on what students said in the Response step, the teacher used the Feedback part of the IRF skilfully. Instead of using it to give corrective feedback (e.g. commenting on the quality of students' responses), the teacher inserted humorous comments. The Feedback step was used creatively through parameter search (the use of spontaneous humour). This contributed positively to the classroom atmosphere and increased students' motivation. Students also begin to join the teacher by coming up with humorous responses. In the following extract, students are responding to the question (initiation) ('what are the items you would find in a bathroom?') given in the unit of materials related to dwellings and rooms.

1. Please look at humour comments inserted by the teacher. Do you have similar examples where the teacher responded to students in a humorous way in the 'Feedback' part of the IRF exchange?

   Extract 1: Shower, water (adapted from Forman, 2011: 550–551, comments added)

	Extract	**Comments**
	Q. What are the items you would find in a bathroom?	(Initiation - task)
S:	shower.	(Response)
T:	shower. Good. Shower. yep!	(Feedback)
S:	water.	(Response)
Ss:	@@@@@@ ((some sporadic claps))	(Feedback)
T:	yep! water.	(Feedback)
Ss:	@@@	(Feedback)
T:	*(don't forget the ceiling. that's there too.)*	(Feedback in L1 (Thai), humourous, sarcastic comments)
Ss:	@@@	(Feedback)
T:	*(There is also the floor)* @@	(Feedback in L1, humourous, sarcastic comments)
Ss:	@@@@	(Feedback)

(Continued)

S:	floor ((student translates the teacher's Thai word into English))	(Feedback)
T:	*(Next word is)* floor. @	(Feedback)
Ss:	@@@	(Feedback)
T:	*(Are you sure?)* @	(Initiation)
S:	telephone	(Response)
T:	telephone? ((high pitch – amazement))	(Feedback)
Ss:	@@@	(Feedback)
Ss:	(??)	
T:	you have a telephone in the bathroom? you be careful okay? you could get electro-cuted. I can just imagine – somebody calls him ((a student)) in the bathroom, right? and he's in the bath? and somebody calls him. *(Hallo)* ((English loan word, with Thai pronunciation)) /ɕɕɕɕɕɕɕ/ ((sound of being electrocuted))	(Feedback, use of humour)
Ss:	@@@	(Feedback)
T:	*(it serves you right.)*	(Feedback)
Ss:	@	(Feedback)
S:	a TV.	(Response)
T:	a TV? ((disbelief))	(Feedback)
Ss:	@@	(Feedback)
S:	(??)	
Ss:	@	(Feedback)
T:	you guys are over the top.	(Feedback)

Symbols used in transcribing:
@ laughter (more symbols show more intense laughter)
(xxx) text typed in italics in brackets is English translation of Thai utterances spoken by the participants. (The original Thai words are omitted here. The translation is added by the transcriber.)
((xxx)) comments added by the transcriber.

Recent literature on language teaching has paid attention to innovative teaching in the form of changing the procedure (or a set of algorithms) rather than exploring alternative structural forms or parameter search within a given procedure. For example, task-based language teaching (TBLT) and communicative language teaching (CLT) approaches are procedurally different from the

so-called traditional approach. Proposals are made to replace the PPP (presentation-practice-production) with a different set of procedures and to replace teacher talk with student talk. According to the algorithmic view of teaching, despite following the same procedure (e.g. IRF, PPP), the outcome may differ as the structural component (parameters and inputs) may vary. For example, the feedback step can focus on the language or the meaning. A creative teacher in this case is adept at applying the known familiar procedure using a wide range of inputs and parameters to lead to desirable outcomes such as making language memorable, creating language learning opportunities and creative language use (also see how one teacher used teacher talk effectively in Tin, 2016). Instead of outlawing procedures such as IRF, PPP, teacher talk and repetition as ineffective, we should investigate how creative teachers successfully produce effective language lessons within those sets of rules, procedures and routines.

Although finding new sets of rules or generative procedures to solve known familiar problems is part of creativity, creativity is not just inventing new rules but also finding new parameters in the form of inputs to which a set of rules will be applied. In other words, following and applying the formal set of rules can also be creative in terms of the parameter search. For example, repetition and drill are well-known procedures used in language teaching. The teacher introduces a form (e.g. 'Can I …. (making a request)?') and students are required to produce sentences using that form. The same procedure can be applied in a creative way in the form of new parameter search. Instead of making requests for usual items, the teacher can use unusual inputs. An example is given in Task 6.3.

Task 6.3: Parameter search for a drill (making a request)

Dear Doctor, can I have your wife for dinner?

1. Ask students to call out names of animals (e.g. elephant), natural objects (e.g. river), occupations (e.g. doctor), etc. Write them on the white board.
2. Get students to randomly select a word from a category (e.g. dinosaur from the category of animals). Repeat it with another category (e.g. doctor from the category of occupation). Write those on the board.

Category A	*Category B*
Animal: Dinosaur	Occupation: Doctor
Animal: Kangaroo	Occupation: Nurse

(Continued)

3. Ask them to write a request using 'Can I ….?' (from category A to category B).Some examples written by students are:

   From a dinosaur to a doctor: 'Dear Doctor, can I have your wife for dinner?'
   From a kangaroo to a nurse: 'Hi nurse, can you jump over here?'

4. Can you think of other parameters to act as inputs for the repetition of the structure 'Can I ….?' (making a request) to add an element of surprise to the task and consequently to make language memorable for language learners?

Creative language teaching also involves applying a well-established procedure from another discipline to language teaching. For example, in Tin (2013), the procedure proposed for a creative task (idea-generation and idea-exploration) (see Task 3.2 in Chapter 3) is based on the well-established procedure in the discipline of psychology. In that article, I create a new structural search space where the set of rules and procedures (found in another discipline) is applied in the discipline of language teaching.

Rules and procedures are by nature to be repeated. We do not make rules if they are to be used only once. Despite following the same set of rules (e.g. haikus, acrostics), the outcomes may differ in terms of creativity. One reason for this is that people differ in the use of parameters (which act as the input on which the rules are applied).

Task 6.4: Algorithms for classroom management

Language teachers' job is not just teaching the language. Teachers need to perform various tasks related to class management. Many of those tasks have a well-defined problem which requires the use of algorithmic thinking. Experienced teachers have developed and used algorithms to solve various problems efficiently even though most of them are unaware of this. The successful performance of seemingly simple tasks such as distributing handouts and sorting out students' worksheets contribute to the overall positive experience for students in class. A good set of procedures (algorithms) can help facilitate this performance.

Problem statement:
Every year in an undergraduate course I teach, I need to sort out the hard copies of evaluation forms students submitted in the previous class in the alphabetical order so that when I return them to students, they are able to

get their sheets easily without messing up the pile of sheets. We don't have much time to spend as there are demonstrations and activities to continue.

1. So, how do I most effectively sort them within the shortest time? There is a class list available in the alphabetical order.
2. Take a look at the two procedures used. Which one do you think will solve the problem more efficiently (i.e. a more time-efficient solution). Help Tan Bee choose the most efficient algorithm. Apart from the two given below, do you have another better algorithm?

Example 1:
Teacher A uses the class list as the starting point and sorts the sheets according to the name list. First, she looks at the first name in the class list and goes through the pile of sheets to find that name. The procedure is repeated until it reaches the last name in the class list. This involves going through the piles of sheets several times. If there are 25 names in the list, the pile of sheets needs to be looked through 25 times. There are missing sheets as students may sometimes be absent. The algorithm needs to cover those aspects of the problem. The procedure can be written as follows:

G1: sorting out students' sheets

i. Take the first name in the class list.
ii. Look for the pile of sheets from the beginning to the end to find the first name in the class list.
iii. Put aside the sheet once it is found. If it is not found, go to the next name on the list and repeat the procedure.
iv. Repeat the above procedure until it reaches the last name in the class list.

Example 2:
Teacher B uses another procedure to attain the same output (i.e. to achieve alphabetically sequenced evaluation forms). Instead of using the class list to direct the sorting task, she uses the worksheets/forms. The following procedure is used:

G2: sorting out students' sheets

i. Take a sheet from the pile of sheets. Put it aside.
ii. Take another sheet from the pile and put in either before or after the previous sheet based on the alphabet (e.g. if the first sheet is Jane and the second sheet is Ben, the second sheet will appear on top of the first sheet).

(Continued)

iii. Repeat the procedure until all the sheets have been put in relevant places. (e.g. if the third sheet is Henry, it will appear between the first two sheets).

This procedure is more efficient in that it saves time as the teacher doesn't need to look through the sheets multiple times. It also saves time when there are missing cases (i.e. a student in the class list doesn't fill in the sheet).

3. Can you find other aspects of language teaching which reflect the features of algorithmic thinking discussed in this chapter?

Language teacher education programmes can help teachers to develop algorithmic thinking by getting them to engage in both structural search and parameter search, analysing language-teaching related problems and formulating a set of procedural rules and procedures to help solve those problems. Language teachers need to solve various types of problems and make decisions as they teach. Seemingly simple tasks like giving out handouts or eliciting responses from students involves detailed thinking: who to nominate, how to nominate, what is the topic/content of the nomination, how and when to distribute handouts and so on. Those details are often taken for granted and neglected by novice teachers during their lesson planning. The result is at times detrimental: interesting lesson content and materials can get disrupted and spoilt due to the way they are used. Distributing handouts while giving oral instructions to students can lead to some students missing out the important information as they get distracted by the handout. While half of the class who has the handout can read what the teacher is talking about, the other students who are waiting for the handouts won't understand what the teacher is talking about. These seemingly trivial details do not feature in the lesson planning of many novice teachers.

Teachers make many decisions when they teach. Teachers need to decide whether to nominate individually or as a whole class. At what point of the lesson and how often should such nomination be done? All those little details make a difference in the actual outcome of the lesson. The goal or the problem to be solved here is perhaps known and pre-determined. For example, the aim is to get students involved, to help them learn, to get them motivated and so on. But the various steps to be taken to reach that given goal need to be worked through. This involves creativity if creativity is regarded as problem solving. Creative language teaching involves algorithmic thinking: paying attention to details and executing a series of steps sequentially. This is a skill that experienced teachers have developed and used naturally without being aware of. Finding, inventing and implementing an effective algorithm (unknown to self or forgotten one) to solve known problems is part of being creative. It requires various cognitive processes: identifying the problem, setting up steps to be taken, finding alternative

routes, considering all aspects of the problem and integrating them in one's solution pathway. This kind of creativity involved in everyday activities of a teacher can be called 'trivial creativity' (Nake, 2009), 'mini-c' (Beghetto & Kaufman, 2007) or everyday creativity.

> *Trivial creativity* is what is happening in everyone's activities and always. Whatever we do, wherever, and however we do it, some type of creation occurs: Something appears now and here, that was not there before, and our activity is responsible for the event. This creativity is trivial insofar as it is happening automaticly. It is entirely tied up with human existence.
> *(Nake, 2009: 103–104)*

Algorithmic thinking can also be developed in our students through language learning tasks. Detail-oriented thought processes and many cognitive abilities involved in algorithmic thinking are valuable skills that should be taught in various education programmes. When we teach language, we are not just teaching language. There is a hidden curriculum behind the overt language curriculum (Littlejohn, 1998). Along with language, our students are learning various cognitive abilities and socio-cultural values. Among those cognitive abilities, algorithmic and heuristic thinking can be developed along with language competence. There are many problem-solving tasks in language materials. They can be designed to help students develop various cognitive abilities. Many pedagogic tasks used in general education can be modified and adapted for language classrooms. In fact, this forms the core feature of task-based language teaching originally proposed by Prabhu (1987). Many tasks used in his study are tasks performed in various disciplines such as maths.

Task 6.5: Algorithmic thinking as a hidden curriculum in language learning

1. The example (Activity 1) below comes from general education (Subramanya, 2014). The task is designed to promote algorithm thinking. How can it be used and adapted for language learners? What sorts of language input would students need to do those tasks?
2. Analyse the following problem statement and develop a set of precise rules, instructions or steps which will solve the problem and render the desired output. Think about all possible special and normal cases of the problem. Then evaluate the algorithm using various inputs and improve the algorithm. The algorithm developed should be able to effectively solve other similar problems.

(Continued)

Activity 1: Team Photo (Source: Subramanya, 2014: 523).

Problem statement:

'There are two teams of N players and the players are of different heights. The teams need to be photographed with the teams lined in two rows and all members of team should be in the same row, and no player in the front row should be taller than the player right behind. What is a condition (constraint) that needs to be satisfied to ensure that a photograph could be taken?' (Subramanya, 2014: 523).

Activity 2: Also look at various examples of algorithms given in Table 6.2 and think of how you can use them in a language classroom. (e.g. Students are provided with the picture of the final output and an incomplete algorithm. They are asked to fill in the sequence of steps.)

Conclusion

Algorithms have been mainly used in computer science and maths. However, everyday activity involves the use of algorithms: whether making an omelette or delivering a language lesson, we apply a certain set of procedures (which may no longer be noticed as they may become automated) consciously or unconsciously. Algorithms play an important part in creativity if the definition of creativity is extended to include the ability to produce new valuable ways of solving a known, well-defined problem. An important characteristic of the algorithm is its attention to detail: the programmer must have identified and articulated every minute step which needs to be followed in the correct order. The problem to be solved needs to be broken down, various steps need to be formulated, various parameters that could fill those steps need to be searched and experimented with until a desired outcome is achieved. Variation in those steps will result in different outcomes being produced.

In terms of language teaching, we have often argued that despite using the same materials, the outcome is different from one class to another. We have often attributed this difference in outcomes to the contextual circumstances and individual differences rather than to the algorithm itself (a set of steps or procedural rules taken in our teaching or the input parameters). It is possible that the variety of outcomes occurs because the way we conduct the lesson (despite looking similar) differs in terms of the micro-procedure (e.g. whether one gives oral instructions or written instructions, when the instruction is given and the manner in which it is given) and parameters. It is important for us to be aware of the minute steps (or algorithms) used in our language lessons and to reiterate and make changes to the algorithm to see what variable outcomes can be produced.

Exercising mental agility is an important feature of creative people. Many researchers have described creative people as the possessors of complex personalities featured by 'polarities' (McMullan, 1978: 265). Cropley (1997: 8) describes the creative personality as 'a bundle of paradoxes'. Similarly, Csikszentmihalyi (1996: 47) states that creative people 'show tendencies of thought and action that in most people are segregated. They contain contradictory extremes – instead of being "an individual", each of them is a "multitude"'. The ability to 'fluctuate between apparently contradictory poles' (Haller & Courvoisier, 2010: 150) such as algorithmic thinking and heuristic thinking is an important feature of creativity.

7

The discourse of creativity in language teaching publications (2012–2018)

Introduction

In recent years, the word creativity has appeared in the titles of several books published in the field of language teaching. Several books (mainly edited books or multi-authored books) have appeared, using the word 'creativity' or 'creative' with reference to language teaching in their titles. In this chapter, I will examine the discourse used to talk about creativity in language teaching. I acknowledge that the spirit of creativity or the creativity construct has long existed in our language teaching practices, studies and many other publications although the creativity label has not received the headlines. I also acknowledge that many have written about creativity and language teaching in the form of other publications such as journal articles or conference proceedings and so on. The discussion here, however, mainly focuses on the discourse of creativity used in books published between 2012 and 2018 in the field of language teaching[1]. With reference to those books and their chapters, I will discuss: Who have been writing about creativity in language teaching in recent years? What have they been writing about creativity? How has creativity been written about in their publications?

Who have been writing about creativity in language teaching?

It is interesting to note that creativity has attracted the attention of not only researchers but also practitioners. A glance through the biodatas of contributors in the books on creativity and language teaching show that the writers of creativity in language teaching belong to two social groups (or 'fields'): 1. writers with strong background in applied linguistics and language teaching research

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(here referred to as 'researchers' or 'academics'), and 2. writers with a strong background in materials development and teacher training (here referred to as 'professionals' or 'practitioners'). According to the systems model of creativity (Csikszentmihalyi, 1999), 'persons' in those communities belong to different 'fields' (social organisations) made up of members with diverse expertise and experience ('domains') and varied notions of what is regarded as creativity. They work in environments with varied affordances and resources. The majority of the first group of writers ('researchers') usually work in university settings with access to resources for research publications, resources available for research and job requirements for conducting research. On the other hand, the majority of the second group ('practitioners') usually work in private language teaching settings or are freelance teacher trainers with limited access to research publications but have plenty of valuable practical experience in training and working with language teachers, developing language teaching materials and teaching foreign/second language learners. Those two groups can overlap. For example, researchers may have once been practitioners or teacher trainers. Similarly, some of the freelance practitioners (retired professors) may have once worked in university settings. However, the different resources and affordances available especially in their *current* environment have an impact on or limit what and how they view and write about creativity in recent years.

What and how has been written about creativity in language teaching?

What has been written about creativity in language teaching and how it has been written about change in accordance with the person (who is writing about it) and the social, academic background and context ('the field') in which the writer works. Table 7.1 summarises the various themes and styles of writing and each is explained in the sections that follow.

Teaching language creatively vs. teaching language for creativity

Writers with a strong background in materials development have written mainly about teaching language creatively, focusing on language teachers' creativity. Creativity mainly refers to teachers' divergent thinking, teachers' ability to generate, design, develop and implement a diverse range of practical ideas and pedagogic activities in the language classroom. Adding variety to language teaching materials, use of play, fantasy, imagination and improvisation are particularly emphasised with the aim of motivating students. Such features are regarded as characteristics of being a creative language teacher. Drawing on content from the arts, many have proposed the use of games, drama, poems, stories, music, songs to add creativity to language teaching materials (e.g. see Maley, 2018; chapters

TABLE 7.1 What and how has been written about creativity in language teaching

	Who has been writing about creativity	
	'researchers' or 'academics' (writers with strong background in applied linguistics and language teaching research)	**'professionals' or 'practitioners'** (writers with strong background in materials development and teacher training)
What has been written about creativity	• Focusing on language users' creativity, teaching language for creativity • View of creativity as a ubiquitous feature of everyday language use • Creativity as the generative power of language and language-related practices	• Focusing on language teachers' creativity, teaching language creatively • View of creativity as an endangered species in language classroom • Creativity as freedom from external constraints
How has creativity been written about?	• Majority of edited books • Fragmented and discontinuous views of creativity • Selective view of creativity and citation • Combining creativity with something else • Focusing on product rather than process creativity • Dissatisfaction and frustration as a driving force	

in Dat (ed.), 2018; Maley & Peachery (eds), 2015). We are spoilt with choices when it comes to innovative materials and activities to be used in second/foreign language classes, in particular English language classrooms. However, there is a shortage of empirical studies investigating the relation between creative teaching and creative learning.

On the other hand, writers with a strong research background have often focused on teaching language for creativity (e.g. see chapters in Argondizzo (ed.), 2012; Jones (ed.), 2015). They have identified and detailed the features and functions of creative language use mainly by native speakers and the abilities second or foreign language learners need to develop to become creative language users in a second language. Creativity is portrayed as a ubiquitous feature of ordinary language use and a special property of ordinary language users. It is often proposed that the goal of second language teaching is to help learners to become creative language users and language makers, to develop students' ability to act upon the various affordances and creative potential inherent in language and language learning activities (e.g. see Jones, 2016). Although many writers (researchers) offer fascinating insights into the way normal language use is creative and artful (which they propose should be the goal of the language curriculum), as often noted by practitioners, 'the pedagogical pay-off is meagre' (Maley & Kiss, 2018: 73). Concrete practical implications for practitioners are often left for readers to figure out on their own or are left to other writers to explore. For example, after giving a long and fascinating account of the affordances inherent

in language and the abilities learners need to develop, Jones (2016) makes the following confession in his conclusion:

> I conclude with the rather unsettling feeling that I have spent a lot of time in this chapter talking about the abilities learners need to cultivate to become creative users of language and not enough time offering concrete suggestions as to how we can help them do this (…) I'm sure, though, that readers will find plenty of ideas in the following chapters.
>
> *(Jones, 2016: 28)*

Creativity as an endangered species vs. a ubiquitous feature

Most writers from the first group (researchers) view creativity as a ubiquitous feature of everyday language, language use and practices, and thus it should be promoted in L2 (second language) classroom. We should help students to become creative users of not only L1 (first language) but also L2. This ubiquitous view of creativity is reflected in quotes such as the followings:

> every time users of a language get together they are in a way creating for the first time what they say.
>
> *(Freeman, 2012: 11)*

> "creativity" is not an optional ingredient that we can bring in to "spice up" our language teaching, (…) it is instead an intrinsic aspect of language use that language teachers and learners cannot ignore. Creativity is at the heart of all successful communication, even seemingly mundane forms of discourse that might show little evidence of what we usually think of as "artfulness".
>
> *(Jones, 2016: 28)*

> language acquisition is an inherently creative process that draws on the creative potential in all of us and is manifested continuously and incidentally in novel utterances that display productivity and that sometimes are also deliberately engineered for purpose of fun and enjoyment.
>
> *(R. Ellis, 2016: 33)*

> all teaching involves acts of creativity
>
> *(Richards & Cotterall, 2016: 97)*

Many writers from the second group (practitioners) talk about creativity as an endangered species in education and the need for teachers to bring back creativity to their class. For example, Maley (2015) notes:

> current educational ethos is damaging to creativity (…) largely due to the increasingly tight curricular constraints, the obsessive concern with objectives to the exclusion of broader educational aims, the intense focus on

> testing and measurement, and the love-affair with 'efficiency' expressed in statistical terms and quick results.
>
> *(Maley, 2015: 6)*

The two groups of writers do not seem to be talking about the same type of creativity. For most practitioners, creativity is defined as freedom from external constraints such as assessment, externally controlled and institutionally imposed curriculum and guidelines. For the majority of the researcher group, creativity is defined as the generative power of language.

Fragmented and discontinuous views of creativity

Books written by both groups are edited or multi-authored books which usually lack an opportunity to present a coherent view (see Appendix 7.1 for examples). Authors of various chapters often refer to different references related to creativity, resulting in varied conceptualisations of creativity. Hence, there is often a lack of continuity and coherence between one chapter and another concerning the meaning of creativity. Thus, claims like 'I'm sure (…) that readers will find plenty of ideas in the following chapters' (implementing what is discussed in the current chapter) (Jones, 2016: 28) are problematic as the 'following chapters' do not always follow what has been said about creativity in the previous chapters written by different writers. The writers may or may not adopt the same definition of creativity in language teaching and what they propose may not fit the ideas proposed in the previous chapters. Despite using the same word creativity, authors of various chapters are often talking about different aspects of creativity or different things altogether. As seen in Chapter 2, creativity is a multi-dimensional concept and has been conceptualised in various ways. Creativity is made up of multiple concepts and this makes it impossible to address all those concepts within one's writing – especially in a short chapter that appears as part of an edited book.[2]

Selective views of creativity and citation

Beyond the discipline of language teaching, in various disciplines and domains, a vast array of publications has used the word creativity in their titles. It is unavoidable that writers referring to creativity literature would have to be selective and use cognitive shortcuts (heuristics). Heuristics as we have seen in Chapter 4 are used especially when dealing with a large world problem which has a large conceptual space to explore and search. Although the criteria for selecting what creativity references are cited are not always made explicit, several heuristics seem to be commonly employed by creativity writers (as well as writers of any other topic). Examples of such heuristics are the familiarity and ease of access heuristics – using references which one has access to, referring to those written by people one has closer professional contact with, referring to one's own references and so on. A more systematic way of consulting a wide range of creativity literature can also be employed.

Task 7.1: A search heuristic using google scholar

1. One of the key references regularly cited in creativity literature is 'Boden'. Now, take a look at who has cited the following book: Boden (1992). *The creative mind: Myths and mechanisms*, New York: Basic Books. Type the whole reference in google scholar (https://scholar.google.com/) and then click on 'cited by'. You can then go on and search further 'cited by' of any interesting references you come across.
2. Do you have any unique heuristic which you discover and use successfully for searching literature? How did you discover those heuristics?

Comments:

Magicians don't reveal their secrets!

My heuristic listed above in activity 1 was accidentally discovered during my PhD study. When preparing the reference list for my PhD thesis, I consulted google to find missing information about some references (e.g. to find the missing year of publication, place of publication, etc.). To find the missing information, I typed the incomplete reference (e.g. the name of the article/chapter) in google scholar and google. My original intention was to find the missing information for that reference. But as I repeated that process, I accidentally discovered some interesting references that came up as part of the search result. Over the years in publishing research, this accidental discovery led me to a more systematic use of the heuristic: to look for other references which have cited a particular reference. This gives me an opportunity to find more recent references.

Another interesting heuristic is looking for 'Handbook series' (such as Routledge Handbooks, Cambridge Handbooks) related to the topic one is writing about. For example, if the topic is about second language curriculum, we could look for a book titled 'Handbook on curriculum'. Usually, those handbooks are edited books published by international publishers such as Routledge and Cambridge University Press and can give a quick overview of the topic and guide researchers for further reading.

Whatever techniques and heuristics we use, the search requires certain kinds of determination, time commitment and availability of resources. While some writers are more committed in terms of a creativity literature search, others seem more opportunistic, simply referring to what has been cited in other publications about creativity and citing them without necessarily reading them or acknowledging the original writers who have cited them. Presumably, we may have all used that heuristic to some extent! There are also writers who merely rely on their own intuition of what creativity might mean without making an attempt to refer to creativity references.

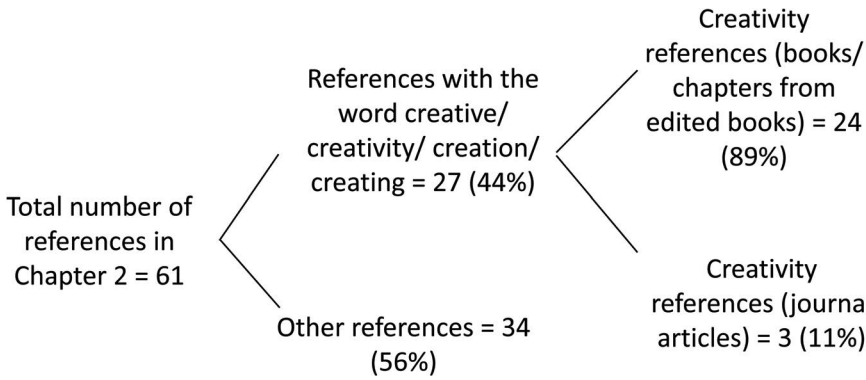

FIGURE 7.1 An analysis of the reference list of 'Chapter 2: Creativity Theory' in Maley and Kiss (2018)

In the various chapters of edited books on creativity and language teaching, a glance at the references often shows that the quantity and proportion of references (creativity-related references vs. other references) differ. Creativity has been written about in various disciplines not only in the form of monographs and edited books but also in the form of journal articles. In fact, there are several journals which are mainly concerned with research on creativity. Examples are *Thinking Skills and Creativity*; *Creativity Research Journal*; *Psychology of Aesthetics, Creativity, and the Arts*; and *Journal of Creative Behaviour*, just to name a few. Many writers (especially the majority of the professional group) work in private language teaching settings and thus have limited access to certain types of publications, especially journal articles. A quick glance through the references cited in Maley and Kiss (2018) shows that most works cited in chapters (especially chapters in Part I) are books. Very few journal articles are cited (e.g. see Figure 7.1 for the analysis of reference list of Chapter 2: Creativity theory).

A word cloud analysis of reference lists (listed at the end of chapters in Part I of Maley and Kiss (2018)) also shows that frequently cited works include 'The Routledge Handbook of Language and Creativity' and its various chapters (13 times), 'The Cambridge Handbook of Creativity' (9 times), the works by Jones (23 times) and the works by the lead author (Maley) (18 times). The heuristics used here seem to be 'consulting a Handbook heuristic' and 'consulting one's own work' (also see Task 7.1 and Chapter 4). See Figure 7.2 for a sample of the word cloud analysis of reference lists.

Combining creativity with something else

Writing for publication about creativity (or any other topic) itself is a creative act. For most writers, the goal of writing is to share something new and valuable. So, writers of creativity with reference to language teaching have unconsciously or

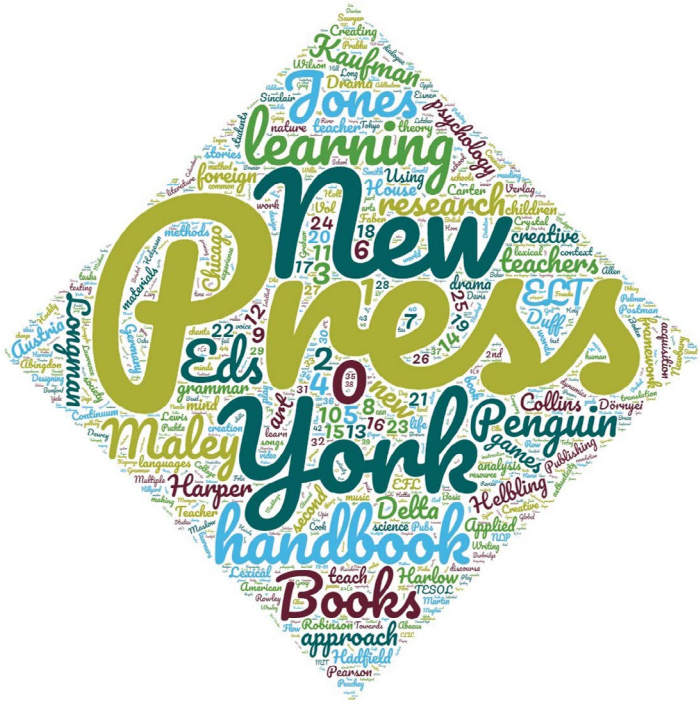

FIGURE 7.2 Word cloud analysis of reference lists in Part I of Maley and Kiss (2018). (https://classic.wordclouds.com/)

consciously employed some features of creativity in their writing. One feature frequently used is exercising combinational thinking (Boden, 2001), combining creativity with something else (also see Chapter 3). Very often, writers with different experiences and expertise are invited by editors to contribute to their edited books. This naturally results in combining creativity (a topic assigned by the editor(s)) with another topic which the writers are familiar with, have previously published, researched, practised or experienced.

For example, in a chapter titled 'Creativity and language learning', R. Ellis (2016), who is well-known for his work on SLA (second language acquisition), talks about creativity with reference to various SLA theories such as Mentalist theories (following Chomsky's Universal Grammar), Behaviourism and Emergentism. His use of 'incidental' and 'intentional' creative language use by learners in the following quote echoes his previous work on implicit and explicit learning: 'As we have seen, creativity manifests itself *incidentally* in the communicative uses of the L2 and also more *intentionally* in language play' (R. Ellis, 2016: 45) (emphasis added). Rod Ellis has used those terms such as 'incidental' and 'intentional' focus on form in his other publications labelled under SLA (second language acquisition) and TBLT (task-based language teaching). Likewise, Alan Maley (in his joint-authored book with Kiss)

(Maley & Kiss, 2018) adds his signature take (his expertise on materials development) on creativity. Drawing on his expertise on materials development, Maley discusses how to create materials through the manipulation of input, outcome and processes. Similarly, Jones (2016) draws on his expertise and knowledge of discourse analysis and socio-cultural theories when defining creativity inherent in language use. In his chapter titled 'Creativity and Language', Jones (2016) elegantly examines the nature of language in terms of four key features (rule-governed, ambiguous, situated, dialogic) and proposes four corresponding abilities that need to be developed in language learners to help them utilise the potential, affordances and design features that language has to offer.

However, the combination is not always balanced. There are times when the writing turns out to be more about something else than about creativity. For example, Jones' (2016) discussion on affordances of language could have easily been written about without requiring the need to use the word creativity. It seems to me that the chapter is more about language than about creativity. Creativity is not just about the potential of language, but about many other things. Moreover, there are other writers who tend to merely drop the creativity word in passing when discussing something else. Such writers do not engage in exploring the creativity literature. For example, in the chapter titled 'The Vexed nature of language learning and teaching' by Gee (2016) published in Jones and Richards' (2016) edited book titled 'Creativity in Language Teaching', the author does not refer to any creativity literature. After talking about how language learning is a complex business, the author introduces the section 'Creative Language Teaching' but does not define what 'creative' means. How is 'creative language teaching' different from language teaching without the word creative? Or is every language teaching creative? Similarly, the chapter titled 'Creativity and technology in second language learning and teaching' by Chik (2016) in the same edited book by Jones and Richards' (2016) seems to be more about technology than creativity. A glance at the reference list shows that overwhelmingly technology-related references outweigh creativity references. Only two old references related to creativity published in the 1960s are cited. The author's previous publications cited are related to digital technology and autonomy.

Similar unbalanced combinational thinking is found in the writings of writers from the practitioner group. For example, in the chapter titled 'Challenging teachers to use their coursebook creatively' by Tomlinson (2015), many of the ideas presented have previously been published by the author under other labels such as 'the humanistic approach', 'humanizing materials' or 'the text-based approach'. Activities such as 'readiness activities', 'discovery activities' (Tomlinson, 2015: 26) have previously appeared in other publications by Tomlinson without the word creativity (e.g. see Tomlinson, 2003, 2013). In the chapter titled 'Old wine in new bottles: solving language teaching problems creatively' by Bailey and Krishnan (2015), the references cited are related to multiple intelligence. Examples of activities proposed focus on developing various types

of intelligence (e.g. visual-spatial intelligence) and are not based on creativity research in other disciplines. Instead of merely relabelling our current practices as creative, we should also engage in a more balanced combinational creativity. This would require making an effort to learn about the concept of creativity in a primary sense.

Focusing on product rather than process creativity

Both groups of writers (researchers as well as practitioners) seem to focus on product creativity rather than process creativity. Writers from the researcher group describe numerous instances of creative language use in various contexts and genres (e.g. online media, visual images, multilingual users, texting, blogging). Process creativity (how various language users have come up with creative language use) is often under-investigated. Product rather than process is regarded as more important. This is reflected in quotes such as this:

> I will begin with the issue of the creative product, since no matter on which point of reference a scholar settles – whether he or she is more interested in language as a set of resources for creativity, or in the cognitive or social processes that result in creativity – the creative product must be the starting point, for it is how we know that creativity has occurred in the first place. The creative product is evidence of creative processes and, as many of the chapters in this book show, it is often the main means through which scholars make inferences about how these processes unfold.
>
> *(Jones, 2015: 3)*

> more important for understanding how creativity works in language learning is creativity-as-an-object.
>
> *(R. Ellis, 2016: 45)*

Viewing creativity as products has led writers to make claims such as this:

> making our students into "creative" users of language is not about teaching them to write poetry or getting them to imagine themselves to be extra-terrestrials or elves (….). It's about helping to develop in them the effective abilities to exploit the rich potential language affords for taking creative actions in their everyday lives.
>
> *(Jones, 2016: 28)*

In the above quote by Jones (2016: 28), it is clear that the writer views 'taking creative actions in their everyday lives' as producing a different kind of end product from 'writing poetry'. Although these two activities differ in terms of the final products (one is about everyday conversations, the other is poetry), if

we look at the processes and mechanisms involved in creating such texts, there are similar processes involved which could complement each other (also see Chapters 8, 9).

A similar focus on product creativity is found in the writing of the practitioner group. Publications especially those focusing on practical ideas are often written in a list-like manner, giving a long list of innovative ideas and activities one after another (e.g. see Maley, 2018; Maley & Peachery, 2015). Those ideas, the authors claim, would promote creativity. The list for exercising creativity in language class gets longer and longer. It would also be beneficial for teachers to find out how those writers (teacher trainers) have come up with innovative ideas. In addition to trying out a long list of practical ideas proposed by others, knowing the process for generating new ways of teaching language could empower teachers and could help them to discover their own creativity heuristics and algorithms (new procedures and new parameters) (also see Chapters 4, 5 and 6). As well as spoiling the readers with a long list of choices available, the writers could share the underlying processes which have led them to discover innovative ideas. Perhaps, magicians (in this case, creativity writers) feel reluctant to share their secrets!

So, despite many publications which claim to be about creativity, frustratingly it is often the case of an old, familiar idea dressed up in a new creativity fabric without sufficient attempt to combine, explore and transform what we know. Instead of adding something new to the field of creativity, many writings about creativity in language teaching sometimes dilute the word, making it lose its value.

Task 7.2: Banning the word 'creativity' or 'creative' (Creativity under lockdown)

1. Take a chapter that appears in an edited book which has the word 'creative/creativity' in the title. Can you rewrite the chapter without using the word creative or creativity? Do we really need the word creativity?
2. Alternatively, take a chapter written about language teaching which hasn't used the word 'creative/creativity' in the chapter and the title. Can you rewrite that chapter using the word creative or creativity and including the literature on creativity?

Dissatisfaction and frustration as a driving force

Creativity (producing new, valuable ideas) is inspired by various motives (also see Chapters 3 and 8). Cognitive reasons for creativity are often intertwined with affect and emotions. One powerful motive which drives us to create something new, in this case to write about creativity, is dissatisfaction with what is currently available. Nothing can inspire us more than negative

emotions, especially frustration. The tone of frustration is often reflected in the writings of both groups (researchers and practitioners). A tone of sarcasm or mockery against the other group is subtly reflected in their writings, especially in the writings of the lead authors/editors who initiated the creativity book projects. For example, a tone of frustration with applied linguists' treatment of creativity (and their writing style) is reflected in the writing of professionals. In the following quotes from Maley and Kiss (2018), the authors'[3] frustration with the applied linguistics community shines throughout the various chapters in the book:

> There is (…) relatively little to be gleaned for application to L2 classrooms. (…) the papers are written in an opaque and inaccessible style (…) dividing the AL community from the teaching community.
>
> *(Maley & Kiss, 2018: 79) (AL refers to applied linguistics)*

> However there are very few valid, reliable research findings due to poor research methodology and techniques.
>
> *(Maley & Kiss, 2018: 294)*

> researchers, with a few exceptions, do not read each other's work.
>
> *(Maley & Kiss, 2018: 314)*

The authors, in Part III of their book, make various accusations – for example, researchers working on creativity and language teaching 'simply ignore what others are doing' and there is 'a very negative trend in research' (Maley & Kiss, 2018: 308). It could be said that the same crime has been committed as the authors too have left out some key research on creativity and language teaching in their review on process creativity. In a chapter in another edited book by Maley and Peachery (2015), Maley (2015) says again:

> As Amabile (1996) points out, 'a clear and sufficiently detailed articulation of the creative process is not yet possible'. Yet we readily recognise creativity when we meet it, even if we cannot define it precisely. For all practical purposes that is enough, and we do not need to spend too much time agonising over a definition.
>
> *(Maley, 2015: 7)*

On the other hand, in the writing of applied linguists, a similar tone of frustration and sarcasm against many practitioners' writing and proposal can be detected. Jones (2016) in his chapter titled 'Creativity and Language' writes:

> Being a "creative" teacher does not necessarily mean inventing outlandish new contexts in which our students can pretend to be communicating

> (such as desert islands or nuclear holocausts) but, more importantly involves helping students to understand the richness of everyday contexts and the potential language has for transforming them.
>
> *(Jones, 2016: 25–26)*

> Making our students into "creative" users of language is not about teaching them to write poetry or getting them to imagine themselves to be extra-terrestrials or elves.
>
> *(Jones, 2016: 28)*

One can feel the author's frustration with so-called creative ideas and practical activities put forward by practitioners – activities such as games, fantasy role-plays (desert island), creative writing (poetry).

To sum up, we can feel a tone of frustration in the writings of both groups (in particular the leading authors/editors) which may have led to the emergence of ideas in their writings. Likewise, the readers will notice my own sense of frustration echoing throughout this book. For example, my frustration with how creativity has been written about has largely shaped my approach, tone and style of writing used in this chapter.

The paradoxical nature of creativity: More is less?

> Queen Elizabeth: Mr. Tilney! Have a care with my name – you will wear it out!
>
> *(From 'Shakespeare in Love')*

As many writers have expanded the conceptual space of creativity to include many things, creativity may come to 'wear out' and may become redundant through its ubiquitous use. As the conceptual space of creativity gets larger, there seems to be more we need to explore. This results in an occasional feeling of getting lost – a paradoxical feeling of knowing less as we read more. This paradoxical feeling is contributed largely by the way creativity is written about. Many have used the word creativity in the title especially in recent years in language teaching (since 2015) without much citing creativity references. Those so-called creativity works are further cited by others who also claim to be writing about creativity but without exploring or defining the concept in detail. A reason often given is that it is impossible to define creativity but we recognise it when we see it and that it is futile to engage in a definition for practical purposes. The assumption is that if we are writing for practical purposes, we don't need a definition. So, the more creativity is used in publications, the less distinctive and the more diluted the word seems to become. Creativity comes to mean everything and yet nothing at the same time.

In fact, such paradoxical experience is in line with the spirit of the word creativity (also see Chapters 2 and 3). The paradoxical nature of the notion of

creativity is reflected in many scholars' discussions in which creativity is viewed as being made up of two opposite things. Examples are given below:

- Csikszentmihalyi (1996) sees creativity (creative people) as demonstrating both extroversion and introversion, both feminine and masculine characteristics (cited in Maley & Kiss, 2018: 17).
- Boden (2001) sees creativity as exercising freedom within constraints.
- Finke (1996) views creativity as using both chaotic and ordered thinking.
- Sawyer (2011) views creativity as including both improvisation and structure.
- Cook (2000) sees creativity as including both playfulness and seriousness.
- Carter (2004) (as well as many others) views creativity as extraordinary properties of ordinary language users.
- Gardner (1993) views creativity (creative genius) as 'a merging of the child and the adult' (cited in Maley & Kiss, 2018: 19).
- Even within the same book by Maley and Kiss (2018), creativity is viewed an endangered species as well as the potential we all have.

Task 7.3: Paradoxical statements about creativity

1. Can you come up with your own paradoxical statements about creativity?
2. While writing this chapter, I encountered several dilemmas and behaved paradoxically. One of them was concerned with a heuristic (a cognitive shortcut) I used concerning the literature search – i.e. judging a book not by its cover but by its reference list (also see Task 4.1 in Chapter 4). In what way is my heuristic paradoxical?

   Comments:

   'The paradox of judging a book by its back'

   My attempt to judge a book not by its cover (its title) but by its back (reference list) is paradoxical as it ends up judging other works cited in the reference list by their cover (their title). The reference list (which appears at the back) is the summary of what appears at the front (the titles of other works). So, in my attempt to judge a book not by its cover, ironically, I am in fact judging other works cited in the reference list by their cover.

3. Can you find other paradoxical statements about creativity in the various chapters of this book?

Conclusion

If bringing two different things together is one way of being creative, there is a missing link between the two groups of writers: applied linguists/researchers/academics and practitioners/materials developers/teacher trainers. Instead of

combining the uncombinable (research and practice), the authors from both sides often take a divisive tone, dividing the two communities further. It seems that we all commit the same crime which we accuse others of committing and many writers fail to practise what they preach. Maley's rejection of what applied linguistics (AL) has to offer ('There is (…) relatively little to be gleaned for application to L2 classrooms' (Maley & Kiss, 2018: 79) is a misfortunate decision and a missed opportunity. Shouldn't it be a valuable gap the authors could have filled? Shouldn't it be a reason for saying something new about creativity? We could find an opportunity to apply the unapplicable, to combine the uncombinable. We can ask how the various insightful offerings applied linguistics has to give can be applied in language teaching. We can also investigate how the various practices and heuristics used by practitioners to promote creative language teaching can inform the directions for applied linguistics research.

One of the frustrations demonstrated among practitioners is frustration with the current education system. Following Robinson's (2006) tone, many practitioners often demonstrate strong frustration with the current education system for its tight control and emphasis on assessment and accountability. Like Ken Robinson, they are very critical of current educational practices which focus on standardisation, testing and institutionalised practices. This frustration leads them to propose education which fosters individualisation, curiosity, freedom and diversity rather than conformity, compliance and standardisation. Writers from the practitioner group often talk about creating a supportive atmosphere which is free from fear of failure to nurture creativity at school (e.g. see Chapter 3: 'Creativity and Education' in Maley & Kiss, 2018). However, if creativity is exercising freedom within constraints and rules (e.g. Boden, 2001), both external and internal negative factors such as regulations and fear of failures and hostility can be exploited as a fertile ground for higher forms of creativity. Such external constraints can be used to generate the emotion of frustration and can be manipulated to create a sweet spot for creativity (also see Chapter 5). Before we sweepingly 'bash' educational systems, we should ask ourselves: Are schools really killing creativity like Sir Ken Robinson and other followers of him seem to claim? Or in fact are such bad experiences at school blessings in disguise which have led many creative people like Einstein and others in the history of mankind to come up with historically innovative ideas, to create something amazing (big-c creativity) out of sheer frustration?

Notes

1 See Appendix 7.1 for examples of books published between 2012 and 2018.
2 Even within the same sole-authored book like the one I am writing, the meaning of creativity inevitably changes from one chapter to another!
3 Probably the first author who has voiced similar frustration in his other writings (e.g. see Maley, 2012. Book review: The Multilingual Subject (C. Kramsch), Oxford University Press, 2009. *ELT Journal*, 66(3): 396–399, https://doi-org.ezproxy.auckland.ac.nz/10.1093/elt/ccs024).

8

Segmentation of creativity from a linguistic perspective (from language of creativity to creativity of language)

Introduction

The previous chapters have looked at the language and rhetoric of creativity by considering how the term creativity has been used in academic domains, by examining the rhetoric surrounding the various uses of creativity and other terms used in association with creativity. This chapter, on the other hand, shifts the attention from the *language of creativity* to the *creativity of language* itself. It explores creativity associated with language, often known as linguistic creativity. Linguistic creativity, like the term creativity, offers a horizon of possible interpretations. Creativity here is something to do with the language we use, hear, produce, engage in, practise, learn or encounter in our daily life. As language is a vital part of human activities, understanding linguistic creativity can contribute to our understanding of human thoughts and creativity in other disciplines.

Language can be manipulated to mediate the production of new valuable ideas and this manipulation is used in this chapter to segment linguistic creativity. Seemingly simple linguistic resources such as prepositions, question words and lexical associations can significantly change the way we look at reality. In this case, the semiotic reality and meaning potential of linguistic creativity change as we change the language used to talk about it. This chapter segments linguistic creativity through question words, prepositions and lexical associations.

Segmentation of linguistic creativity through question words

One way of defining creativity, as seen in Chapter 2, is a confluence-style, reductionist approach which views creativity as made up of various components which interact with each other. This approach is adopted here to define

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TABLE 8.1 Four dimensions of linguistic creativity

Behaviouristic dimension (what, how) The behaviouristic dimension is concerned with the product and the process features of linguistic creativity. In terms of product features, it investigates: What counts as linguistic creativity? and what are the various forms of linguistic creativity? In terms of process features, it describes: How and in what way is linguistic creativity achieved and manifested? What linguistic devices, cognitive processes/mechanisms are involved in the production of various forms of linguistic creativity?	**Contextual dimension (where, when)** The contextual dimension is concerned with where and when linguistic creativity occurs. It investigates linguistic creativity in terms of the various sociocultural, physical environments and temporal aspects. Key questions are: What affordances in the physical and social environment facilitate linguistic creativity? How does linguistic creativity develop or manifest itself in various contexts and at various time frames such as personal, societal, historical?
Motivational dimension (why) The motivational dimension deals with the motives and purposes of linguistic creativity. Key questions are: Why does linguistic creativity take place? What motivates linguistic creativity? Why do language users turn to creative language use? Why do language users use various forms of linguistic creativity in various contexts?	**Demographic and personal dimension (who, whom)** This dimension looks at the characteristics of people involved in producing and/or receiving linguistic creativity. Who produce and receive various forms of linguistic creativity? What are their demographic and personal traits (e.g. age, gender, education, nationality, personal attributes) and how do these affect their creative language use and/or the interpretation of creative language use?

linguistic creativity. Discussions on linguistic creativity can be explored using a series of question words which can be categorised into four segments or dimensions – the behaviouristic dimension (what, how), the contextual dimension (where, when), the motivational dimension (why), and the demographic and personal dimension (who, whom). A brief summary of what each dimension means is given in Table 8.1. This is followed by a detailed discussion of each dimension.

The segmentation of linguistic creativity through question words can be seen as being similar to as well as different from creativity frameworks proposed in the general creativity literature (discussed in Chapters 2 and 3) such as 4Ps (Rhodes, 1961) and 5As (Glăveanu, 2013) (see Table 8.2 for a comparison). The behaviouristic dimension (what and how) relates to the product (artefact) and the process (action) features in Rhodes' (1961) 4Ps framework and Glăveanu's (2013) 5As framework. The contextual dimension is similar to the press or the affordance whereas the demographic and personal dimension is comparable to the person (actor) and the audience. The segmentation through question words, however, highlights new perspectives such as the motivational and the temporal dimension which are not foregrounded in previous creativity frameworks.

TABLE 8.2 Comparing the segmentation of linguistic creativity through question words with other frameworks (the four Ps and the five As frameworks)

The four Ps of creativity (Rhodes, 1961)	*The five As of creativity (Glăveanu, 2013)*	*The segmentation of linguistic creativity through question words*
Person (focus on internal attributes of the person)	Actor (focus on personal attributes in relation to a social context)	Who (demographic and personal dimension)
Process (focus on primarily cognitive mechanisms)	Action (coordinated psychological and behavioural manifestation)	How (behaviouristic dimension)
Product (focus on features of products)	Artefact (cultural context of artefact production and evaluation)	What (behaviouristic dimension)
Press (focus on the environmental attributes)	Audience Affordance (the interdependence between creators and a social and material world)	Whom (demographic and personal dimension) Where (contextual dimension) When (contextual dimension) Why (motivational dimension)

The behaviouristic dimension of linguistic creativity (what, how)

The behaviouristic dimension can be examined in a general or a specific sense. In the general sense, researchers are interested in identifying the general product and process features of linguistic creativity which apply to various contexts of language use. In the specific sense, features associated with different types of situations and text types have been investigated by researchers, making this behaviouristic dimension interconnected with other dimensions such as the contextual dimension. In this section, I will mainly look at the general behaviouristic dimension. The next section (the contextual dimension) will include the context-specific behaviouristic features of linguistic creativity.

Most discussions of linguistic creativity focus on the behaviouristic dimension and are concerned with describing the product and process features of linguistic creativity. They address questions such as – what counts as linguistic creativity? what are the various forms and features of linguistic creativity? how can linguistic creativity be achieved or manifested? what linguistic devices, cognitive processes/mechanisms are involved in the production of various forms of linguistic creativity? A distinction is often made between 'structures' (forms) and 'mechanisms' (Lobina, 2011). While structures (forms) refer to the observable properties reflected in the final product or behaviour, mechanisms refer to the underlying processes and operations used to produce or understand the structures.

Two major views of what counts as linguistic creativity can be found: formal linguistic creativity and semantic linguistic creativity. Formal linguistic creativity, also known as rule-governed or weak creativity, is a feature of natural

language system demonstrated in ordinary language use and mainly afforded by the recursive mechanism. On the other hand, semantic linguistic creativity, often known as rule-changing or strong creativity, is based on analogical and metaphorical processes (e.g. see Zawada, 2006). While rule-governed linguistic creativity is a ubiquitous, productive feature of ordinary language use, rule-changing linguistic creativity is a special, less-productive feature as its use requires some effort and expertise.

Linguistic creativity as rule-governed behaviour: Grammatical creativity

Following Chomsky's (1966) view, many have used the term linguistic creativity to refer to the creativity inherent in the natural language system, particularly in its grammatical system (e.g. Asoulin, 2013). Human beings can use a finite set of rules or finite means to produce and understand an infinite number of novel sentences. It is not possible to memorise the infinite number of sentences we can produce and understand. We produce and understand an infinite number of sentences through the recursive process and reiteration. Both iteration and recursion involve repetition of a rule. Iteration repeats the rule to produce 'flat output structures which do not increase depth' (Karlsson, 2010: 43) while recursion embeds the rule within the rule and renders embedded output structures with increased depth. Examples are given in Table 8.3.

Example 2 ('The boy hit the man (and) the man filed a complaint') is an example of iteration (structural iteration). It produces a flat sentence without increased depth. The grammatical rule 'Subject + Verb+ Object' is repeated in a linear, additive manner. Structural iteration is the most frequent example found in real-life data. The main feature here is 'coordination, with or without explicit conjunctions' (Karlsson, 2010: 46) such as 'and'. An instance of the same structural type (e.g. the subject + verb + object structure) is repeatedly added.

On the other hand, a signature feature of recursion is self-similarity or the embedding of a component within a component of the same kind. In example 1 ('The man the boy hit filed a complaint'), the sentence 'the boy hit the man' is embedded in the sentence 'the man filed a complaint'. The recursive process (self-embedding) increases the depth of the structure and generates hierarchical structures. In principle, this self-embedding can be repeated infinitely (Woycicki, 2016: 20–21). However, recursive structures which involve more than two degrees of embedding are rare and considered ungrammatical (Christiansen, 1992). Various types of linguistic constituents can be self-embedded (see Table 8.4 for examples).

TABLE 8.3 Examples of recursion and iteration

Recursion	*Iteration*
Example 1: *The man the boy hit filed a complaint.*	Example 2: *The boy hit the man (and) the man filed a complaint.*

TABLE 8.4 Examples of self-embedding recursion (Roeper, 2010: 48)

Recursion domains	*Examples*
Adjectives	The second, green ball
Compounds	Christmas tree cookie
Possessives	John's friend's mother's hat
Complements	John thought that Bill thought that Fred was here

Task 8.1: Grammatical creativity (recursion)

Despite being rare in everyday language use (speech), recursive structures can be found in the literature. For example, the sentences from a well-known children's story titled 'The House That Jack Built' would help children to learn to appreciate the power of recursion:

1. *This is the house that Jack built.*
2. *This is the malt that lay in the house that Jack built.*
3. *This is the rat that ate the malt that lay in the house that Jack built.*
4. *This is the cat that killed the rat that ate the malt that lay in the house that Jack built.*
5. *This is the dog that worried the cat that killed the rat that ate the malt that lay in the house that Jack built.*

(Corballis, 2007: 698)

1. Can you find examples of recursion found in literary texts and real-life data?

Linguistic creativity as rule-changing behaviour: Lexical and semantic creativity

An alternative view of linguistic creativity focuses on 'semantic and lexical' creativity of language users (e.g. see Zawada, 2006). Linguistic creativity, in this semantic view, is more than grammatical recursion and iteration. It is not about 'the mechanical application of formal rules' but should be about 'making new meanings': it is about language users' ability to 'create and name novel concepts, either by creating completely new lexical items, or by using existing lexical items in a novel way' (Zawada, 2006: 238). Two forms of lexical creativity have been proposed: formal lexical creativity and semantic lexical creativity. Formal lexical creativity has overt linguistic signals, indicating that

a change in meaning has occurred. The purely semantic lexical creativity has no overt linguistic signals and the meaning of old words has changed or the semantic shift has occurred through processes such as metaphor and metonymy (Zawada, 2006).

In formal lexical creativity, overt linguistic signals indicate that a change in meaning has occurred. Various linguistic mechanisms and strategies are involved in the formation of new words. Those strategies vary in terms of the degree of productivity and predictability of meaning. While word-formation rules such as compounding, derivation are more productive and can be used with ease to coin new words, word-creation strategies such as blending, invention (neologisms) are less productive and their use requires more effort and imagination. See Table 8.5 for examples.

TABLE 8.5 Formal lexical creativity: Word-formation and word-creation processes

Linguistic mechanisms	*Examples*
I. Word-formation processes/rules:	More productive
Derivation	local → localise global → globalise mobile → mobilise
Compounding	apple tree, mango tree, tea tower, muffin top, belly button
II. Word-creation processes/rules:	
Blending	global + local = glocal Britain + exist (EU) = Brexist flexible + extension = flextension
Invention (neologisms)	Selfie, meme, Twitter, Google, Yahoo (https://unicheck.com/blog/19-examples-of-neologisms, accessed 18.8.21) Many new words are invented by creative writers. Some examples are: Bedazzled: (Shakespeare invented the word in 'The Taming of the shrew' *('Pardon, old father, my mistaking eyes, that have been so bedazzled with the sun that everything I look on seemeth green'.)* Chortle: (Lewis Caroll invented the word in the poem 'Jabberwocky' to give a name to a laugh that falls somewhere between a chuckle and snort: *And hast thou slain the Jabberwock?* *Come to my arms, my beamish boy!* *O frabjous day! Callooh! Callay!* *He chortled in his joy.* (Source: https://literaryterms.net/neologism/ accessed 18 August 2021)
	Less productive

Task 8.2: Lexical creativity (blending and inventing new words)

1. Do you recognise the etymological source words of the following blends? brunch, blog, shrimply delicious (see Tagg, 2013), sleeptember, blendacious, winterrific, scaredemic
2. In the words given above, which are more conventionalised blends (i.e. they become the new words widely used and their innovative blend becomes like a dead or conventionalised metaphor)?
3. Find examples of blends used in advertisements and in social media. Also, create your own blends or new words.
4. The following are examples of lexical blend (winterrific, octoslap) found in advertisements by Powershop (an online electricity company). Can you predict the meaning of the blends? Which example has a more predictable meaning?

Winterrific special[1]

Powershop NZ

Be in to WIN a $50 power credit this June

Buy a Winterrific Special throughout June 2020 and be in to win a $50 Power Credit. (…). The more you buy, the more you save and the more chances you have to win!

Octo-slap[2]

Powershop NZ,
27 September 2018

Today's special may not be the biggest pack, but it's better than a slap in the face with a wet octopus! Ten dollars worth of power for just eight smackeroos. (…).
(If you haven't seen the video yet, a kayaker in Kaikoura called Kyle was slapped in the face with an octopus by a seal the other day*. Yes you did read that right.). You've got until midnight Sunday to seal this deal.
*Neither the kayaker nor the seal were harmed and the octopus got away apparently.

Lexical creativity also differs in terms of the degree of *predictability*. On the one hand, the new meaning of the blend 'glocal' or 'winterrific' can be predicted and derived from the form. On the other hand, the new meaning of blends such as 'Octo-slap' is less predictable from the form and contextual knowledge is required

to understand its meaning. The word 'Octo-slap' was used in an advertisement by Powershop for the sale of electricity power immediately after the appearance of a video on social media about a kayaker who got slapped by a seal with an octopus (https://www.youtube.com/watch?v=HxRAVxkfrOs, 27 September 2018). Similarly, while the meaning of the compound 'apple tree' can be derived from the constituting words (it refers to a kind of tree), the meaning of 'belly button' is more metaphorical and less predictable. Although it results from the same formal mechanism (compound), its meaning (referring to a person's navel) cannot be predicted from the constituting words. Such compounds are often known as creative noun-noun compounds. To understand the meaning of 'belly button', the user needs to draw on other resources such as analogy (visual similarities between the two things 'button' and 'navel') rather than its formal device (i.e. compound).

In the purely semantic lexical creativity, the form of the word doesn't change but its meaning has changed. The semantic shift (i.e. both narrowing and extension of semantic meaning of the word) results not from word-formation rules but from various mechanisms such as metaphor and metonymy. For example, an example of lexical narrowing has occurred when the word 'band' (which originally refers to a group of people) has come to mean a specific group of people who make music together. An example of lexical extension can be found in the word 'silverware'. Its meaning has expanded to refer to all kinds of cutlery even if they are not made of silver (Zawada, 2006).

Another important aspect of linguistic creativity is a creative lexical choice. Chafe (1999 cited in Zawada 2006) notes that language users' ability to produce and comprehend novel sentences doesn't come from recursion, but from creative lexical choice, i.e. the ability to insert 'a vast lexicon into a relatively small set of patterns' (Chafe, 1999). Two types of lexical choice are available to language users: choosing lexical items in a paradigmatic and a syntagmatic sense (Zawada, 2006).

In a paradigmatic lexical choice, a speaker makes choices between words to insert in a syntactic structure. Lexical innovation occurs through a novel paradigmatic lexical choice. For example, in the phrase 'Don't mist the ribbon', the word 'mist' (noun) is used to fill the slot of 'verb'. Instead of using a normal expression such as 'Don't squirt the ribbon with water', the speaker chooses 'mist' to substitute the verb slot in 'Don't' ___ the ribbon', expanding the syntactic property of 'mist' from noun to verb (Zawada, 2006). The syntactic shift of the word 'mist' has occurred from noun to verb.

In a syntagmatic lexical choice, speakers make choices about which lexical items will go together. Words that are used frequently together collocate and form lexical co-occurrence patterns which bestow a 'semantic prosody' on their collocates. For example, the lexical pattern 'an outbreak of' collates with negative events (e.g. 'an outbreak of disease') and offers a negative semantic meaning on the word that follows 'an outbreak of'. A speaker can deliberately disrupt this semantic expectation by choosing a positive event to co-occur with the phrase when he/she says 'an outbreak of peace occurred'. The phrase is innovative as it adds a new meaning to the more usual expression 'peace was declared' (Zawada, 2006).

Task 8.3: Funny you should ask (creative lexical choice)

In the TV show ('Funny you said that'), participants are asked to name the most frequent response people would give to a survey question. The host gives the participants some examples of responses. Participants playfully join the host by adding some funny responses to the list. Participants show off their creativity by coming up with the most playful and unconventional response.

Funny you should ask
(TV programme on TV1, New Zealand, 4:55pm, 13 August 2018)

Host: The survey asks the parents 'The kid will grow up to be: 1. Lawyers, 2. Teachers'
Participant 1 (adds to the list): '3. Not living at home'.
(audience laugh)
Host: Which is the most frequent response?
Participant 2: 'Not living at home'
Participants choose the response and give reasons. The Host reveals the right answer. In this case, 'lawyers' is the right answer but the unusual one added by the participant 'not living at home' is the wittiest and most creative response.

The extract illustrates the paradigmatic lexical choice for playful purposes. The participant inserts a funny response (lexical words) in a syntactic pattern ('the kids will grow up to be …'. The response deviates from the previous responses (which belong to the category of occupations) and adds a creative twist.

1. Design survey questions. Get students to give both usual responses and unusual responses which add a creative twist. Write an exchange of conversation for the TV show (similar to the one given above.)
2. In Chapter 2, we have seen that several creativity tests have been designed to measure people's creativity. Two of the criteria used in Torrance test of creativity are 'flexibility' and 'originality'. Examples from Torrance test of creativity are given below:
   a. List things that you can think of that are square. Focus on *originality.* Think of ideas that no one else will think of.
   b. List things you can think of that are heavy. Focus on *diversity/flexibility.* Try to list ideas from various categories. For example, if you were asked to 'name round things', you might say 'baseball, football, tennis ball, and volleyball'. But those are all in the same (athletic) category. What you should do here is to try to *use a variety* of categories.

Use these criteria to assess students' creative responses given in activity 1 above.

In addition to syntactic and lexical creativity, linguistic creativity also occurs at other levels such as graphological, phonological and discourse. Language users have the ability to manipulate language at various levels of language (see Chapter 9 for further details).

The contextual dimension of linguistic creativity (where, when)

The section above views linguistic creativity in a broad sense, looking at the general syntactic and lexical features inherent in language which enables linguistic innovation. This section reports another way of looking at linguistic creativity in a specific sense, taking specific contextual aspects (where and when) into account. The contextual dimension is concerned with where and when linguistic creativity occurs. It investigates linguistic creativity in terms of various sociocultural, physical environments and temporal aspects. Key questions asked are: what affordances in the physical and social environment facilitate linguistic creativity? how does linguistic creativity develop or manifest itself in various contexts and at various time frames such as personal, societal, historical and so on.

Linguistic creativity from the socio-cultural, contextual perspective (where)

Language is 'reality-soaked' (Wittgenstein cited in Moyal-Sharrock, 2016): our reality, various contextual factors and bodily experiences we have and live in are reflected in the language we use. Our environment and context influence our creative language use. This kind of context-induced linguistic creativity is mostly reflected in metaphorical creativity (e.g. see Kövecses, 2010). Metaphors we use vary from one context to another. For example, many studies have investigated the importance of sports-related metaphors in the construction and maintenance of national identity. Using national newspapers as the data, Callies (2011) compares sport-related metaphors and idiomatic expressions used in five varieties of English (American English, British English, Australian English, Indian English, South African English). The study shows that American English has the most frequent use of baseball-related metaphors[3] whereas football[4] is the most frequent source domain in British English. This difference may be attributed to the physical and cultural setting. The dominance of a certain type of sport in one nation may have led to more metaphors related to that sport. While football embodies the national identity in England, baseball is 'a distinct feature of American culture' (Callies, 2011: 58).

The term 'context' can also be seen in terms of social genre or text types. Discussions on linguistic creativity have focused on different genres (text types). Some examples are:

- literary creativity (linguistic creativity in literary contexts) (e.g. Maybin & Pearce, 2006; Pope, 2005; Swann, Rope & Carter (eds), 2011),

- everyday creativity (linguistic creativity in everyday contexts) (e.g. Carter, 2004; Tannen, 1989),
- linguistic creativity in computer-mediated communication such as texting (Tagg, 2013), Facebook, blogging, Twitter, discussion forums (Kadir et al., 2012),
- linguistic creativity in specialist genres such as journalistic texts (Renouf, 2007), advertisements (Ngwenya, 2011), academic genres (Allison, 2004; Hamilton & Pitt, 2009).

Earlier discussions of linguistic creativity have focused on literary creativity. Researchers have examined and identified literary devices and figurative language used in literary texts such as poems, stories, drama and the interaction between literary texts and the reader (Rosenblatt, 1938/1970; Widdowson, 1975). The word 'creative writing' has been frequently used in the discussion of linguistic creativity in literary contexts. However, this view of literary creativity as being a property of special people such as expert literary writers has been challenged. Literary creativity and foregrounding devices used in literature have been employed in other contexts and text types which are not usually regarded as literature (e.g. MacRae, 1991). Those features are discussed in Chapter 9.

Based on their corpus data of everyday conversations collected in the UK, Carter and colleagues, propose the term 'everyday creativity', arguing that linguistic creativity is not a property of special people but a special property of normal people. Figurative language and various literary devices are used in everyday conversations. Based on their corpus, Carter and colleague propose two linguistic patterns observed in everyday creativity: pattern reinforcing and pattern reforming (e.g. see Carter, 1999; Carter & McCarthy, 2004). Examples of pattern reinforcing are echoing, repetition whereas examples of pattern reforming are metaphorical extension, disruption of fixed lexical phrases, morphological inventiveness (see Chapter 9 for further details). Their study shows that linguistic creativity (language play) is more likely to occur in intimate social relations and is a collaborative effort. Linguistic creativity is construed not as individual creativity but as collaborative creativity: it is jointly co-constructed by interlocutors (especially in intimate contexts) and emerges as the conversation continues.

In recent years, with the advancement of technology, numerous forms of computer-mediated communication have emerged, offering various affordances and opportunities for linguistic creativity and language play. Many forms of linguistic creativity have emerged as a result of affordances and constraints new technology and computer/mobile-assisted communication offer or impose on its users. For example, in a study of text messages, Tagg (2013: 480) discovers the emergence of creative practices afforded by 'a particular configuration of technology and user-related features'. Communication via the texted medium (texting) is often informal, dialogic, but asynchronous. It features several constraints and affordances. In terms of constraints, there is a lack of paralinguistic cues such as gesture and voice quality for texters to draw upon. In terms of affordances,

texters can 'return to earlier messages in a way not possible in speech' (Tagg, 2013: 483) and have time to edit and comment on text messages before and after sending them. These affordances and constraints encourage texters to engage in creative practices such as:

- self-repetition within the same turn ('I think I'm waiting for the same bus! Inform me when you get there, if you *ever* get there') (Tagg, 2013: 488),
- repetition across turns ('A: (….) Hope cardiff is still there! B: (…) Cardiff is still here *and still cold!* I'm sitting on the radiator!') (Tagg, 2013: 490),
- metacommentary where texters make an explicit comment on an earlier part of the same text message (e.g. 'Shall I bring us a bottle of wine to keep us amused? Only joking! I'll bring one anyway') (Tagg, 2013: 489),
- idiom manipulation where texters transform formulaic, figurative, fixed expressions (e.g. 'I've got some salt, you can rub it in my open wounds if you like!') (Tagg, 2013: 492–493),
- morphological inventiveness (e.g. 'Thanks lotsly') (Tagg, 2013: 494).

Advancement in technology and digital communication has revolutionised the way we communicate and the speed at which innovative linguistic items can spread. How language use is affected by technologies and digital medium has received increased attention among applied linguistic researchers (e.g. Crystal, 2006; Kadir et al., 2012). Creative practices which were previously marginalised and less frequent have become common due to social media and the internet. For example, lexical blends have now become common due to social media and the internet (Lehrer, 2007).

Linguistic creativity from the temporal, contextual perspective (when)

In addition to the physical, socio-cultural context (where), an important contextual aspect of linguistic creativity is the temporal aspect (when). Zawada (2006) identifies three distinct time frames in which linguistic creativity can occur: the personal time frame, the historical time frame and the palaeoanthropological time frame. Most studies of linguistic creativity have been investigated in the personal time frame, focusing on creative linguistic practices produced by 'a specific speaker at a given point in time' (Zawada, 2006: 242). The historical time frame examines how language changes over time and how new language items emerge. Studies in this historical aspect examine how an innovative form which emerges at the individual level ('the person') is taken up at a large scale by the wider community ('the field') and enters a specific 'domain' of language use. An example of such studies is by Renouf (2007) where the researcher traces the usage of a linguistic item 'weapon of mass destruction' over a period of time and the changes it goes through. Finally, the third palaeoanthropological time frame is the focus of many evolution studies which investigate the emergence

of language. Researchers in this approach are interested in the origin of language: how language may have evolved in the history of mankind. Nowadays, linguistic creativity has caught the attention of researchers working in other disciplines such as neuroscience, philosophy, computer science and biology (Chomsky, 2007: 1).

The motivational dimension of linguistic creativity (why)

Another dimension from which linguistic creativity can be examined is the motivational dimension which addresses the issue concerning motives. The key questions addressed are: Why does linguistic creativity take place? What motivates linguistic creativity? Why do language users turn to creative language use? Why do language users use various forms of linguistic creativity in various contexts? Reasons for creative language use can be divided into two broad categories: conceptual reasons, and social, pragmatic reasons (Gerrig & Gibbs, 1988).

First, the conceptual reason refers to the language user's need to 'express ideas that are unavailable in the standardised repertory of meanings' (Gerrig & Gibbs, 1988: 3). This need for expressivity is one of the reasons for speakers turning to creative language use. New linguistic utterances (e.g. new blends) result from the need of individual speakers in a specific situation to express new concepts and their 'dissatisfaction with the existing language and its waning expressivity' (Spitzer, 1956 cited in Zawada, 2006: 240). The human mind is in constant search of new ideas (Ward et al., 1997: 2–3). The ever-changing conceptual development of the human mind leads us to create new linguistic utterances as the existing language (which was designed to express existing, old ideas) is no longer sufficient. Many examples of lexical innovation and blends such as 'blog', 'biolinguistics[5]', 'vlog' (video logs such as YouTube's) are coined to express new experiences and knowledge.

Task 8.4: Inventing new words to express new meanings

New words (neologisms) are invented by speakers and writers to define something which has not been defined before (to express new concepts and feelings). 'Neologisms can be onomatopoeic or entirely unique words – you are free to be, as neologisms by definition are new and interesting'. (https://literaryterms.net/when-and-how-to-write-a-neologism/, accessed 19 August 2021).

1. Think of a feeling or thing that does not have a name. Give that feeling or thing a unique name which reflects its meaning.

(Continued)

Examples are given below:

a. Think of the frustration you feel upon missing a bus.
   Feeling:
   Frustration upon missing a bus
   Neologism:
   Bustration

b. Think of the wheel that every once in a while does not go along with the rest of the wheels on a shopping cart. It spins out of control and forces your cart off track.
   Thing:
   Mismatched wheel on a shopping cart
   Neologism:
   Wonky-wheel

(Source: https://literaryterms.net/when-and-how-to-write-a-neologism/, accessed 19 August 2021)

The second reason for creative language use is concerned with social and pragmatic motivation such as the need to establish social relations, to achieve communicative effect (e.g. to intensify the message being communicated). The need for communicative effect can motivate language users to be creative. For example, wordplay and lexical creativity are often used in persuasive discourse such as advertisements to create impact and to make the message memorable. Puns, jokes, playful language are often used not only to reinforce social intimacy between group members but also to exclude non-members. Linguistic creativity serves other purposes such as vividness, compactness, context, memorability. Benczes (2010), with reference to creative compounds, addresses the motivational question: 'why creative compounds are coined?', 'what motivates linguistic creativity?'

> If we already have a simple word denoting a concept – such as *navel* – then why do we create a metaphor-based compound expression, such as *belly button*, to denote the same concept? Or, if we have a nonmetaphorical, transparent compound such as *metal detecting*, why do we coin a metaphor-based, seemingly nontransparent expression such as *land fishing*?
>
> *(Benczes, 2010: 220)*

These examples of metaphorical creativity indicate that even when a simple word exists to denote a concept, language users create a metaphorical expression not to precisely communicate their intended meaning but to create a rich, vivid mental imagery or to express complex ideas in a compact manner.

Moreover, the immediate context (e.g. the topic one is talking about) and the wider socio-cultural context may motivate speakers to coin innovative expressions (Kövecses, 2005). For example, when talking about the topic of Boeing

shares, the metaphorical expression 'Boeing shares go sky-high' (a newspaper headline) may be motivated by the immediate context – the topic of airplane evokes the image of flying high to the sky (Kövecses, 2005). Similarly, during the 2020 United States of America vice-presidential debate (for United States 2020 election) between VP Mike Pence and SEN Kamala Harris, a fly landed on the vice-president Mike Pence's hair when he was speaking. This unexpected and amusing event triggered several linguistic innovations (e.g. truth over flies, help this campaign fly) used by opponents campaigning for Mr Joe Bidden to raise funds and to persuade votes.

Task 8.5: An example of linguistic creativity motivated by the immediate context

1. The following is an example of linguistic creativity motivated by the immediate context (the amusing event of a fly landing on the hair of VP Mike Pence during the vice president debate (also see Figures 8.1 and 8.2).
   a. The event which triggers linguistic creativity:
      US Vice Presidential debate takeaways: Housefly steals the show
      Bill Barrow Jill Colvin17:16, 8 October 2020[6]

FIGURE 8.1 A fly landing on the hair

(Continued)

b. Example of linguistic creativity based on the fly

In CNN news, the reporter writes 'Within minutes of the debate wrapping up (…), the Bidden campaign tweeted a photo of Joe Biden with a fly swatter and a caption that said, "Pitch in $5 to help this campaign fly." (…). Two hours later, the Biden campaign website was peddling $10 "Truth Over Flies" swatters. (…) The goal was to show that "Joe Biden and Kamala Harris will always choose truth over lies, science over fiction, and unity over division," he [the merchandise director for the Biden campaign] added'.[7]

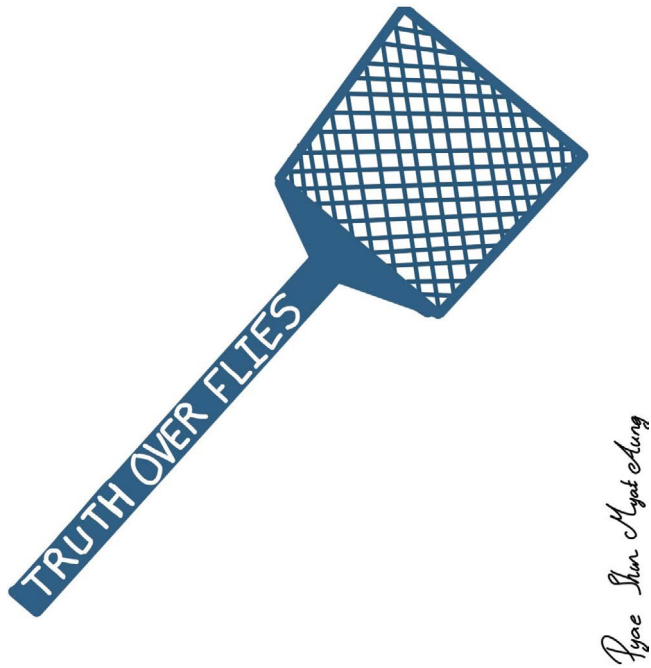

FIGURE 8.2 Truth over flies swatter

2. Can you find other examples of linguistic creativity motivated by immediate contexts? Describe the context and the examples of creative language motivated by the context.

In the dialogue (Table 8.6), the coining of the innovative expression 'godfeather' (which alludes 'Godfather') can be seen as being inspired both by the immediate physical context (e.g. a family feeding a group of pigeons), the previous linguistic utterances mentioned in the immediate linguistic context (e.g. scruffy feather, thug) and the wider socio-cultural context (i.e. the speakers' shared knowledge

TABLE 8.6 Example of linguistic creativity motivated by the context

The extract comes from a family's conversation about a dishevelled but aggressive pigeon in a group they are feeding.

A: He might look scruffy but he's seen off that one over there
B: Obviously a thug amongst pigeons
C: Al Capigeon
D: The godfeather

[Laughter overlaps C and D]

(Source: Maybin and Swann, 2007: 506)

concerning the cultural significance of 'Godfather'). The immediate social context, as well as the broader socio-cultural context, plays a part in motivating the production and interpretation of innovative expressions such as 'godfeather'.

The demographic and personal dimension of linguistic creativity (who, whom)

The demographic and personal dimension looks at the characteristics of people involved in producing and/or receiving linguistic creativity. Who produce and receive various forms of linguistic creativity? What are their demographic and personal traits (e.g. age, gender, education, nationality, personal attributes) and how do they affect their creative language use and/or the interpretation of creative language use? In the field of general education and other disciplines, creativity has been investigated widely with reference to person creativity (see Chapters 2 and 3). Researchers have investigated the general traits of creative people (e.g. Csikszentmihalyi, 1996). Creativity measures and tests have been designed to measure creativity as a personality trait (e.g. Guilford, 1967; Torrance, 1974). With reference to linguistic creativity, people involved in creative language use are also worthy of close examination. Under demographic profiles, several features that could be examined are age, gender, ethnicity, nationality, profession, interests and other personal attributes.

Information about participants is often missing in various studies of linguistic creativity. For example, Kadir et al. (2012) investigated linguistic creativity demonstrated among Malaysians in their online communication (mainly Facebook and online discussion forums). Individuals' profiles of participants were not provided. Participants' profiles, when provided, indicate that most linguistic creativity studies have used one particular group – mainly middle-class, professional people. For example, the participants in Tagg's (2013) study were 'overwhelmingly British and spoke English as a mother tongue, were aged >18 years, and tended to be well-educated students or professionals' (Tagg, 2013: 485). The so-called 'normal' people may not always be representative of what is considered as 'normal' people in other contexts. Linguistic creativity as demonstrated in other demographic groups such as L2 users, people from different socio-cultural backgrounds and age groups need to be investigated.

The personal aspect of linguistic creativity does not refer just to the producers of linguistic creativity (who) but also to the receivers of linguistic creativity (to whom is something regarded as creative language use?). Views of what counts as linguistic creativity can differ from one person to another, from one society to another. For example, research has shown that compared to Western society, Asian society puts less emphasis on the notion of novelty and surprise (features of creative products). The practicality and usefulness are more valued among Asian societies. Novelty is an important aspect of creativity in the Western conceptualisation of creativity.

> The 'Eastern' conception of creativity is more focused on the creative process than the 'Western' conception, which pays more attention to the creative output (Dubina & Ramos 2016). As a result, Asians tend to hold a wider or more dynamic view of creativity, involving the adaptation and reinterpretation of acquired knowledge and past experience from tradition, than Westerners, who view creativity as entailing breaks in tradition.
>
> *(Xie & Paik, 2019: 134–135)*

Studies show that there is a connection between different creative styles and personality traits. Kirton (1976) proposed two different styles of creativity (adaptive and innovative styles of creativity). The adaptive style of creativity is concerned with preference to 'follow the accepted ways', 'create change by improving on the existing structure', and 'to solve problems in a disciplined, methodical and predictable manner' (Kirton, 1994 cited in Ee et al., 2007: 364). On the other hand, the innovative style of creativity is concerned with the preference to take risks, to 'create change by altering the existing paradigm' (Kirton, 1994 cited in Ee et al., 2007: 364). Ee et al.'s (2007) study shows the connection between creativity styles and Big Five personality traits (extraversion, agreeableness, conscientiousness, neuroticism and openness to experience). While people who preferred the innovative style of creativity tended to be more extraverted and open to experience, people who expressed the adaptive style of creativity were significantly more conscientious and had an ego avoidance orientation.

To sum up, this section dissects linguistic creativity through question words and proposes four major dimensions from which we can examine linguistic creativity: behaviouristic (what, how), contextual (where, when), motivational (why) and demographic and personal (who, whom) dimensions. Despite this segmentation in terms of four dimensions, in reality, they are all interconnected. To have a complete understanding of what makes language creative, we need to look at how those various dimensions interact. This is in alignment with a similar view reflected in general creativity literature as seen in Chapter 2. Plucker et al. (2004: 90), for example, propose the need to investigate creativity as 'the interaction among *aptitude, process and environment* by which an individual or group produces a *perceptible product* that is both *novel and useful* as defined within a *social context*'.

TABLE 8.7 Segmenting linguistic creativity through prepositions

Creativity through language	*Creativity of language*	*Creativity with language*
Mediational power of language: • language users' ability to use language as a tool for thinking and constructing new ideas, • using 'existing'/ 'known' language to construct new, valuable ideas – new knowledge/ new social realities/ ways of life/ new communicative purposes. • Focus on content and/ or functions rather than language forms.	Creativity inherent in the language system (grammatical/formal linguistic creativity): • language users' ability to use the finite set of existing/known rules and mechanisms to produce/ understand an infinite number of novel utterances. • Focus on rule-governed creativity (weak creativity)	Creativity applied to language (lexical and semantic linguistic creativity): • language users' ability to manipulate and transform existing language forms and rules to produce new forms (and meaning), • language users' ability to invent new words, insert a vast range of lexical items in a small set of syntactic patterns. • Focus on rule-changing creativity (strong creativity).

Segmentation of linguistic creativity through prepositions

In this section, I will manipulate prepositions to foreground various aspects of linguistic creativity. Using three prepositions (*through, of* and *with*), I demonstrate how the meaning of linguistic creativity changes. The section is divided into three parts: creativity *through* language, creativity *of* language and creativity *with* language. The three aspects of linguistic creativity using prepositions are summarised in Table 8.7. Each aspect is explained in the sections that follow.

Creativity 'through' language

This first approach (creativity *through* language) focuses on the mediating power of language and the use of language as a tool for mediating thinking and creating new ideas. It considers language users' ability to be 'creative *through* language' – to be able to produce new valuable ideas through known familiar language. Linguistic creativity, in this sense, is not just about inventing new words to define new concepts but about using existing words and language in an appropriate way to help construct new knowledge. Research in this approach follows Vygotsky's (1978) views of language as a mediational tool. It focuses on the construction of new conceptual knowledge or non-linguistic content rather than new language forms. It investigates how known familiar (ordinary) language can be used to construct and understand new ideas. In mainstream education, researchers have investigated the use of known, common language to construct new knowledge in educational settings (e.g. see Edwards & Mercer, 1987; Mercer & Dawes, 2008; Tin, 2000a, 2003). Following Edwards and Mercer's (1987) work on common knowledge, three types of talk in educational settings have been proposed: disputational talk, cumulative

TABLE 8.8 Four segments of new ideas and knowledge

1. *Open knowledge* (known knowns) Ideas known to self and known to others	2. *Blind knowledge* (known unknowns) Ideas unknown to self but known to others
3. *Secret knowledge* (unknown knowns) Ideas known to self but unknown to others	4. *Hidden knowledge* (unknown unknowns) Ideas unknown to self and unknown to others

talk and exploratory talk (e.g. see Mercer, 1996). Exploratory talk is considered to be most effective in facilitating the construction of new knowledge in educational settings. Tin's (2000a, 2003) studies showed how language users used a variety of common lexical and syntactic resources to mediate the process of generating 'new significant ideas' in group discussion tasks in higher education settings.

Creativity *through* language can also be interpreted with reference to four types of ideas/knowledge discussed in Chapter 3: open, blind, secret, hidden knowledge. Using Johari window, new ideas can be described in terms of four segments as in Table 8.8. In this view, language can be used to construct and communicate four types of knowledge and ideas. First, it can be used to talk about ideas which we (both the speaker and the hearer) already know or are familiar with (communicating open knowledge through language). Second, language can be used to uncover our blind self, to find out what others know but we don't know. It can also be used to convey our secret knowledge (which we know) but others don't know yet. Finally, language can mediate the discovery of hidden knowledge (ideas both self and others don't know).

This view of creativity *through* language is relevant to the field of language teaching. Many language learning tasks require students to use language to talk about 'open' knowledge (ideas known to self and their interlocutor). Students are often asked to use language to talk about known familiar topics (holiday, travel, about what they have read etc). On the other hand, information-gap activities promote the use of language for communicating secret or blind knowledge. Each participant is provided with a different piece of information and they are required to communicate to convey their secret knowledge to the other interlocutor or to find their blind knowledge (what their partner knows). What is missing is the opportunity to use language for constructing hidden knowledge (idea new to both self and others). In Tin (2011), using a complex, dynamic approach to language learning, I have argued how the use of language to construct new knowledge (new to self as well as to other) plays an important role not only in promoting students' creative thinking but also in developing complex language. Such language use creates an opportunity for the conceptual expressivity – one of the reasons which drive linguistic creativity as discussed in the previous section. The need to say something new (new to self) helps language users and language learners to explore and transform existing linguistic utterances, facilitating the emergence of complex, rich language (see Tin, 2011, 2013).

As discussed in Chapter 3, the term new 'ideas' can encompass not only new, valuable conceptual knowledge but also new social realities, new ways of life and/or new communicative functions. With reference to language learning tasks, creativity *through* language includes the use of language (by students and/or teachers) for new communicative purposes (functions for which language is not normally used in language classrooms). For example, in language classrooms, questions are frequently used by teachers to elicit known information (known to the teacher). Creative teachers can widen the use of questions for other new, valuable purposes such as using questions to raise attention, curiosity and to get students to think.

Task 8.6: Creativity *through* language (using questions for raising curiosity)

1. Compare the following two teacher-students exchanges that occur in an English language class in China. Compare the teacher's use of language in terms of helping students to understand the topic of the talk. Which extract is more effective and why? Which extract involves more playful and creative use of language? In what way is it creative?
2. Pay attention to the questions used by the teacher. Find examples of reasoning questions used to raise students' attention and curiosity? Find examples of display questions used merely to elicit known information (known to the teacher)?

Extract 1: the teacher is giving information about an essay outline (given on the handout).

T: This is an outline for an essay; let's look at this paper together. In the middle, you see the title. You don't have the title yet right? My advice is don't write the title until after you finish the essay, so you can leave that blank, the next part is one, introduction, let's read this, introduction A, opening remarks to catch the reader's interests, do you remember this? Where did you see this before?

S1: The speech.

T: From your speech, right? When you write an essay, you should also have some opening remarks to catch the reader's interests, you don't need to do this now, I just want to tell you this is where you write opening remarks. B, thesis statement, your thesis statement is similar to your one, two, three, four, five *(Teacher points at notes on blackboard)*, because that is the main topic or thesis that you choose. You can write your sentence in here later for homework. The next one, it talks about supporting

(Continued)

paragraphs or the body, number two. Supporting paragraphs. Topic sentence one, your A, here, will give one of three things that can answer the five point two, so in my paper, for A, I would write work hard, do my best, that's what I would write here, nothing else, work hard, do my best. B, I would write, work together well, that's all you need to do, work together well, and C, topic sentence three, don't want this job. After you finish writing your A B C here, you can see that there's number one two three, right? *(Students keep silent)*

T: These numbers one two three are, what?
S2: Detail.
T: Details, right. So if you tell me that, you're surprised, you did not expect so many classes at the university, tell me details, I want three details, why you don't expect so many classes. If you tell me that you must do morning exercise, maybe that's your B, morning exercise, I want to know one two three details, and your C, didn't expect it to cost so much money, well, what costs so much money? Books, tuition and beer, right? So that's where you write the details of your topics, the other we'll do later, but for your homework, write in all of these answers, the topics and details, you can start now, we have only five minutes.

(Source of data: Data collected by Li (2016) for her PhD study. Used with permission.)

Extract 2: 'I had a story in Beijing'

In Extract 2, the same teacher is explaining about the use of emotional argument in argumentative essays.

T: A beggar is using an emotional argument, right? Remember argument is to change or get something. A beggar on the street is using emotional argument, how do they use emotion to get you to think about giving them money?
S1: It's a sad story.
T: Yeah, it's a sad story, right? *(Teacher writes 'sad' on blackboard)* They look sad, what are some details when you see a beggar?
S2: Broken legs
T: They have some disability? *(Teacher writes disability)*
Ss: Um
T: Right?
S3: [[Very old
S4: [[They're old
S5: [[Illness
T: They, sometimes they crawl on the ground?
S6: 太恐怖了 ((too horrible))

S7: They have no money
(Teacher writes No $)
S8: They have no hat
(Students laugh)
T: *(Teacher writes 'poor clothes')* They have something right?
S3: No arms
T: Dirty clothes, they have a sad story, some kind of physical disability that you can see, right?
Ss: Um.
T: And they're often, in New York city, in Chicago, in Beijing, they are often very easy to see, because they choose where to do this?
S4: Street.
T: What kind of street?
S4: [[Business
S9: [[Busy
T: A busy street right? Why do they go to the busy street?
S5: [[There are people
S7: [[More people
T: There's more people, is their home near the busy street? Is that where their house is?
S9: No.
T: Probably not, if they have no money, how can they have a house so near the busy street? If they have no legs and no arms and have such a disability, how do they get to that place? Someone has to carry them, somebody has to take them to that place right?
Ss: Yeah.
T: They can't just live there, so they need to find somewhere to uh, find a place to make people seeing sad. This is an emotional argument that beggars use to make you think that they need your money, right? Often, because I'm a foreigner, the beggars try to get money from me, and I, I don't know how to help them, coz foreigners haven't a lot of money right? But these days, beggars, are choosing a different approach, do you know? Do you know about the beggars of two thousand and twelve? *(Teacher writes 2012)* There's a new kind of beggar, do you know them?
Ss: No.
T: They look a lot like Justin *(Teacher points at a student)*
(Students laugh)
T: Yeah, two times, two times in Beijing, the new, the new two thousand twelve beggars, look just like him, and they come to me and they want money, do you want to hear the story?
Ss: Yeah!
T: You know I go to Beijing a lot. Did you know that? I like Beijing, [[and

(Continued)

S9: [[我知道啥啊 ((how can I know))
(Students Laugh)
T: [[Is that your hometown?
S5: [[Beijing is very
T: What?
S5: Messy, and very expensive.
T: The taxi is expensive
Ss: Yes!
T: But I like Beijing
S5: And it's very 拥挤怎么说 ((how to say拥挤))
S7: Crowded
S5: 堵车怎么说 ((how to say堵车))
S1: Traffic jam
T: So, when I go to Beijing, because I'm a foreigner, people can easily see me and the new beggar in Beijing is not the sad, poor clothes, disabled person on the street, they're young, maybe twenty, nineteen twenty one years old, they have great English, sometimes they have a girlfriend with them.
(Students laugh)
T: and they come to me a foreigner, to beg money, how do they do this? Well, I will tell you more about the story, we must study the chapter first, [[and
S6: [[No!
T: what the skills we will learn in this chapter will show you, how I know what is a beggar and the skills that we'll study in the chapter, so let's go to chapter eight, part A, recognising arguments, who will read this? *(a student raises hand)* Owen, thanks.

(Source of data: Data collected by Li (2016) for her PhD study. Used with permission.)

Symbols used in transcribing:
[[overlapping turns between speaker
(xxx) comments added by the transcriber/researcher
((xxx)) English translation of what students say in Chinese

Creativity 'of' language

The second approach (creativity *of* language) focuses on the creativity *of* language itself or creativity inherent *in* the language system – especially in its grammatical system. As discussed in the previous sessions, studies following Chomsky's (1966) view at the productivity of the grammatical system (how known grammatical rules can be repeated to produce novel sentences we

haven't uttered before). Using a finite number of rules and known utterances, we can produce an infinite number of novel utterances to express new ideas. Many researchers and philosophers have argued that language itself is well-designed to help us to express new realities and meanings. Recursivity of grammatical rules and metaphoricity of lexical items are some examples. Chomsky's view of the creative power of language refers to the production of novel sentences (sentences we haven't heard before) (new to self and new to others) based on the use of known grammatical rules and known lexical items (known to self and others). In other words, structural outputs (sentences produced and the ideas they convey) are new (which we haven't heard/produced before) but the processes (linguistic mechanisms and rules) employed are known and familiar to us. See the previous section (*Linguistic creativity as rule-governed behaviour*) for further details.

Creativity 'with' language

Finally, the third approach (creativity *with* language) is concerned with investigating how language users skilfully manipulate and transform existing linguistic rules to produce various novel forms (e.g. lexical creativity, new coining of lexical items, unusual selection of grammatical patterns and lexicon to fill in a set of syntactic patterns). The focus shifts from syntactic/grammatical creativity inherent in the language system to other forms of linguistic creativity that have emerged as a result of users' ability to manipulate language at various levels. The focus is on creativity as rule-changing rather than rule-governed behaviour. While 'creativity *of* language' focus on the generative power of language afforded by its grammatical system and can be easily produced by many normal people, 'creativity *with* language' focuses on creativity as an aspect of linguistic genius or a special ability of language users which researchers such as Cook (2011) argue is worthy of investigation. Also see the section (*Linguistic creativity as rule-changing behaviour*) for further details.

Task 8.7: Top up online

1. There are two payment options available for commuters travelling by bus in Auckland: a) to pay for the bus fare using the pre-paid AT HOP card which can be topped up online, or b) to pay the driver the bus fare when they get on the bus. The second option often delays the journal during rush hours, resulting in a long queue of passengers waiting to get on the bus. In a promotion material used by Auckland Transport (AT), an advertisement was glue to the concrete payment at a bus stop, getting the attention of commuters getting on the bus. The advertisement has a combination of a text 'Top up online' and an image of eight passengers holding various objects such as a guitar case, a bag put on the ground, a child holding up a ball above her head, etc.). The people are queuing in a straight line. The artist

(Continued)

used the people along with their objects to form the word 'INLINE'. At what level of language was the user being creative *with* language? What was the intention? (The layout of the ad is given in Figure 8.3).

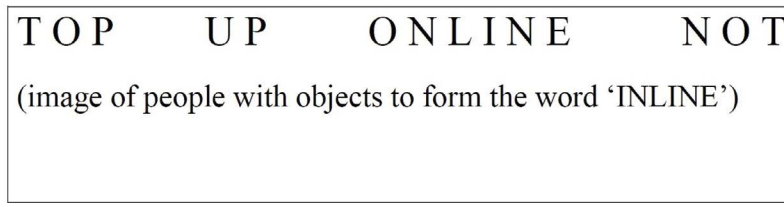

FIGURE 8.3 The layout of the advertisement (top up online)

Comments:
This is designed by Auckland Transport, encouraging commuters and the public to use AT HOP bus cards with money topped up online in advance to prevent a long queue of passengers, queuing in line to pay the bus driver by cash. The word 'inline' is written using visual images of passengers. The word 'inline' also rhymes with 'online'. This poster uses linguistic creativity at the graphological level – playing with language both at the visual, graphological level and the phonological level (rhyming).

2. Find other similar examples of linguistic creativity at the graphological level (i.e. the way it is written).
3. Can you form the word 'INLINE' using 8 people and different objects? What sorts of objects might they be holding and in what positions might they be holding them to form the word 'INLINE'? Think about the kind of objects passengers are likely to carry when travelling on a bus.
4. After you have done activity 3, please visit https://federation.net.nz/news__hop-top-up to view the image used in the advertisement.

Task 8.8: In search of a new preposition

One of the motives for creative language use is the need for expressivity. Our dissatisfaction with the waning expressivity of existing language items leads to the coinage of new words and expressions.

1. Are you satisfied with the three prepositions (*through, of, with*) I have used to talk about linguistic creativity? Can you coin a new preposition or propose an existing preposition to talk about linguistic creativity in a new way?
2. How have 'prepositions' been used in a novel way to foreground meaning in academic texts or in other creative texts?

3. Look at the examples below where the language user skilfully manipulates relatively simple prepositions such as 'to', 'from', 'in' to convey significant meaning. What is the meaning that is being conveyed?

   Example 1:
   In a movie called 'Rumour has it', a character said this to another character: 'Nobody comes *from* Los Angels. Everybody comes *to* Lose Angels'.

   Example 2:
   You can make a living in New York. But you can't live in New York. (from a conversation during tea break at work).

Creativity 'and' language

Studies in the preposition approaches (*through, of, with*) can be viewed as investigating creativity as an outcome variable. The creative outcomes (concepts or language) and the mechanisms (the underlying processes, rules, types of talk) are the focus of those studies. In the domain of applied linguistics, there is another set of linguistic creativity research which investigates creativity as a predictor variable. The level of general creativity measured through a creativity test or a creative task is used as a variable to predict participants' linguistic performance and behaviour in another task/situation. Although not a preposition, I would use 'and' ('creativity *and* language') to describe those studies. Many studies in this approach are correlational in nature and interested in investigating whether there are differences between the language used by individuals who score high on general creativity tests and those who score low in creativity. They investigate how creativity (as a general ability of people) is correlated with the types of language used in various language learning tasks (see Albert, 2006; Albert & Kormos, 2004; McDonough et al., 2015; Ottó, 1998).

Task 8.9: The creative use/interpretation of 'and'

In the second impeachment trial of President Donald Trump in February 2021, the lawyers from both sides refer to an extract in the constitution concerning the purpose of impeachment:

> The Constitution provides that Judgment in Cases of Impeachment shall not extend further than to removal from Office, and disqualification to hold and enjoy any Office of honor, Trust or Profit under the United States.
>
> (https://constitution.congress.gov/browse/article-1/section-3/, accessed 1 March 2021)

(Continued)

While the defence lawyer (defending Donald Trump) interpreted the act of 'disqualification' as an act that follows the act of removal from the office, the manager of impeachment team pointed out that 'and' doesn't mean 'followed by' and argues that the president can still be impeached even after he/she has left the office.

1. Can you find examples of language use where relatively simple words such as 'and' and prepositions are used and interpreted in a novel but appropriate way?

Segmentation of linguistic creativity through lexical associations: Linguistic creativity as language play and improvisation

Another way of looking at linguistic creativity is through lexical associations. Several words have been used in association with linguistic creativity. Creativity is used frequently in association with 'play' or 'playfulness' in both mainstream general education literature and applied linguistics. In fact, following Vygotsky's (1978) view of learning and development, the word 'play' is a popular and widely used term. In the field of applied linguistics, scholars such as Cook (2000) has talked about creativity using the word 'play'. Playfulness is not only a characteristic of children and young learners but also that of adult learners. Play is regarded as fostering creativity. Other words such as 'games', 'simulation', 'imagination' have also been used to talk about 'play and creativity'. Researchers have proposed the need to integrate facts and fictions, mixing work with playfulness, combining seriousness with fun. Various words such as 'word play, verbal play, speech play', 'humour' have been used in discussion of linguistic creativity (e.g. see Maybin & Pearce, 2006).

'Improvisation' as a way of facilitating creativity has also been discussed frequently in the context of music, arts-based improvisation for creativity. Divergent thinking and breaking away from set patterns are proposed as some key features of improvisation. Various improvisational techniques used in theatres and music (e.g. jazz music) have often been applied in various contexts to promote creativity. In the field of language teaching, such improvisation and drama techniques are common techniques used as part of creative language teaching (e.g. Graham, 1978, 2007).

While 'play' calls for the antonymous word 'work', 'improvisation' evokes the antonym 'structure'. As discussed in Chapter 2, creativity is a term which combines oppositeness. Both structure and improvisation have been proposed by researchers as a required component to facilitate creativity (e.g. see Kurtz, 2011). Improvisation does not mean working without structures. Words such as 'disciplined improvisation' have been used to reflect this paradoxical feature of

creativity. In the field of language teaching, formulaic language and pre-imposed structure have been proposed as playing a part in improvised, unplanned, spontaneous creative language. Kurtz (2011) proposes a framework called 'guided improvisation' – planned and unplanned (improvised) lesson sequences in language teaching and learning.

> Effective classroom discussion is improvisational because the flow of the class is unpredictable and emerges from the actions of all participants (…) Creative teaching is *disciplined* improvisation because it always occurs within broad structures and frameworks.
>
> *(Sawyer, 2004: 13 cited in Kurtz, 2011: 139)*

An example combining structure and improvisation for language learners is given in Table 8.9.

The essence of creativity is finding connections between ideas which are not usually connected, and it is inevitable that new lexical associations for creativity will emerge. Take 'sustainability' for example and let's associate it with 'creativity'. The modern world is obsessed with innovation and change, and a constant need to produce new ideas and objects. Creativity doesn't mean having

TABLE 8.9 Guided improvisation

Procedure of improvisational classroom tasks:

1. scripted opening (planned dialogue/structure)
2. unscripted middle part (unplanned/spontaneous dialogue)
3. scripted closing (planned dialogue/structure)

Example 1. Bus stop
(Life is like a box of chocolates – you never know what you are going to get) (inspired by Forrest Gump movie).

Situation: at the bus stop, two people meet and have a conversation. (S refers to student).

1. scripted opening (planned dialogue/ structure)	S1: Hello. S2: Hello, I'm (name). S1: Pleased to meet you, (name). I'm (name). S2: Are you waiting for the bus? S1: yes. How about some sweets? S2: Thank you.
2. unscripted middle part (unplanned/ spontaneous dialogue)	S1 accepts the offer of sweets and draws a piece of paper from a box. (e.g. 'I'm on my way to the pet shop. This is my cat 'Fluffy'. It …'; 'Excuse me. Why are you smiling?'; 'Listen! Can you hear that? It's coming from that old bag over there. What's in it?' (S1 and S2 continue the conversation.)
3. scripted closing (planned dialogue/ structure)	Students can exit from the conversation at an appropriate point by saying: S1/S2: Oh, here comes my bus. I have to go. Nice talking to you. Bye. S1/S2: Good bye.

(Source: Kurtz, 2011: 141–142)

access to or producing an abundance of ideas and artefacts. It can also mean (linguistic) recycling, working under constraints, turning something negative into positive, investigating how normal people can flourish under a constrained environment with limited resources. The endless obsession with new (valuable) ideas and products can lead to exhaustion and waste. It can lead to various kinds of waste such as linguistic waste, conceptual waste, product waste, environmental waste and so on. For example, products can get out of fashion very quickly (e.g. smartphones and computers, teaching techniques and materials becoming outdated very quickly). As the society crazes for new products endlessly, there is a shorter shelf life for ideas and products and there can be a danger in terms of waste and burnout. Creativity is not just about pattern-reforming but also pattern-reinforcing (Carter, 1999). It is also about reusing and recycling existing ideas and resources for new ideas and this will lead to more sustainable creative practices. Revitalising old teaching methods, practices and dying languages have been the hallmark of modern eras. In this sense, creativity could be viewed in association with sustainability.

Conclusion

This chapter has examined the creativity of language (often known as linguistic creativity) using various resources language offers. First, using question words, it segments linguistic creativity in terms of four segments: behaviouristic (what and how), contextual (where and when), motivational (why) and demographic/personal (who and whom). The second resource used is prepositions. Seemingly insignificant prepositions can change the way we talk about linguistic creativity. Creativity *through* language focuses on the novelty of content and meaning. Studies in this approach look at the use of language as a powerful tool to express, communicate and construct ideas and knowledge at various levels of newness – open knowledge (known to self and others), secret knowledge (known to self but unknown to others), blind knowledge (unknown to self but known to others) and hidden knowledge (unknown to both self and others). Creativity *of* language highlights the creativity inherent in the language itself – in its grammatical system. The inherent feature of language enables all language users to express and understand novel utterances. On the other hand, creativity *with* language refers to the ability of language users to skilfully manipulate language at various levels: graphological, phonological, morphological, syntactic, semantic and discoursal levels. People differ in their ability to be creative *with* language while all language use features the creativity *of* language. The third resource used to unpack linguistic creativity is through lexical associations. Linguistic creativity has been used in association with various words such as language play and language improvisation.

As a way of summarising segmenting linguistic creativity through various language resources presented in this chapter, I would like to present the reader with Task 8.10.

Task 8.10: Segmenting linguistic creativity

Carter (2013), in his Preface to the book titled 'Creativity and Innovation in Language Education' gave an example of linguistic creativity produced by a student. When being asked to give feedback on the university website, the student wrote: 'I came, I saw, I logged off'. Carter analysed the utterance, focusing on its formal and functional features. The Preface with Carter's analysis on this phrase is given below:

Prefaces

Ronald Carter

(….) A group of staff specialising in Applied Linguistics recently developed a website in which we displayed information about our new courses. The website had a particular interesting new design and we asked students to send us e-mails with comments after they had reviewed the site. One of our students wrote the following: "I came, I saw, I logged off". Now I think that is a particular interesting use of creative language. First of all it involves a pattern 'I + past tense of the verb repeated three times'. So there is a pattern established. Secondly, there is an element of echoing of intertextuality because it recalls Julius Caesar's famous statement when he invaded the British Isles and conquered them: "I came, I saw, I conquered", and the student assumed that we were able to pick up that intertextual reference. But it also involves a deviation of what is expected because 'I logged off ' is different from 'I conquered'. At the same time there is an element of language play: the student is playing with the structure, playing with the language and at the same time suggesting of course that our website is nothing as significant as the invasion of a country or the conquering of a country. In other words, he might just be signifying that he thought our website to be particularly insignificant, so insignificant that as soon as he saw it he logged off. So, he is using creative language here indirectly to convey a particular message. I think a message of criticism; it is obvious he did not like the website particularly: "I came, I saw, I logged off' might mean 'As soon as I saw it I immediately logged off". So, there is always, in the relation between language and creativity, an element of critique, an element of criticality. You can use creative language for play, for entertainment, for stimulating enjoyment. You can also use it for criticism, for ironic criticism, for indirect criticism, sometimes for quite powerful criticism (….).

(Carter, 2013: 9–10) (Republished with permission of Peter Lang, from '*Creativity and Innovation in Language Education*', edited by Argondizzo (2013), Berlin: Peter Lang.)

(Continued)

1. Read the extract from the Preface. How can you re-analyse the phrase 'I came, I saw, I logged off' using various features of segmenting linguistic creativity presented in this chapter. The following is an example of how that could be done.

   "I came, I saw, I logged off"

   Segmentation through Question Words:

1. What and how (the behaviouristic dimension): What makes 'I came, I saw, I logged off' creative is its formal features. The repetition of 'I + past tense' pattern draws attention to its form. In terms of how, the linguistic devices used are 'pattern reinforcing' (repeating the structure) and 'pattern transforming' and 'intertextuality' (double-voicing). The phrase echoes the famous quotation by Julius Caesar 'I came, I saw, I conquered' (double-voicing) but it transforms the last part 'I conquered' into 'I logged off'.
2. Why (the motivational dimension): Social, pragmatic and psychological motives can be seen as underlying the above utterance. In terms of social reasons, the utterance serves the function of establishing the student as a playful, cool language user with knowledge of English literature. The utterance serves the pragmatic function (to make the somewhat negative comments memorable, amusing and persuasive). Its goal is to make ironic criticism about the insignificant quality of the website as opposed to the significant event highlighted in the original statement ('conquered'). In terms of psychological needs, the utterance is created instead of normal direct feedback (e.g. it is not good and I left immediately after logging on, etc.). The dissatisfaction with existing linguistic utterances to give criticism may have led to the creation of this relatively innovative utterance.
3. Where and when (the contextual dimension): As for 'where', the utterance is an example of 'everyday linguistic creativity' and is used in a context giving feedback about a website. As for 'when', it is an example of creativity at the personal level. It can also be seen at the historical level (i.e. innovation based on the famous statement). We can investigate how the original statement 'I came, I saw, I conquered' has been transformed over time by different users. A quick google search using 'I came, I saw, …' could yield some interesting results.
4. Who and whom (the demographic, personal dimension): As for 'who', the utterance was produced by a university student probably with knowledge of English literature. To be able to recognise its intertextuality, the audience must also be someone familiar with the statement ('I came, I saw, I conquered'). Like other studies by Carter and his colleagues, the example came from and was intended for the middle-class, professional, white British society and could be labelled as 'white-collar, primarily British creativity'.

Segmentation through prepositions:
The above example is more about 'creativity *with* language', demonstrating language users' ability to play with language and existing language structure. The mechanism used here is creative paradigmatic lexical choice. The user used 'I logged off' to fill the last slot in a relatively well-known (to the members of a certain society) fixed statement ('I came, I saw, I conquered'.). Probably the idea (criticising about the website and the content that makes up the utterance (came, saw, logged off)) is not something unfamiliar. It is a known, familiar content. What is innovative is the formal property: the way the idea is expressed, using the familiar linguistic utterances in an unfamiliar manner.

Segmentation through 'and':
We can also explore the connection between the language used *and* the creativity of the person who produced it. Among other students who responded to the same task, a question we can investigate is what particular personal characteristics might be associated with such creative language use.

Segmentation through 'lexical associations':
Carter used 'language play' when discussing the above example. The word 'creativity' is discussed in association with 'language play'.

Caveat:
The above segmentation gives us only a partial picture of linguistic creativity (in this case, concerning the utterance 'I came, I saw, I logged off'.). The other questions left unanswered are: How did the student come up with that phrase? Out of many famous quotations and statements to echo and transform, how did he end up choosing Julius Cesar's statement? What heuristics, algorithms, chance occurrence, randomness and immediate contexts might have led to that choice? Did he use/encounter that statement recently? What reminded him of that statement to play with and transform? Although the linguistic processes such as pattern transforming, pattern reinforcing, echoing, recontextualising, intertextuality are processes manifested in the final product, what remains hidden is the actual genetic processes that the student consciously or unconsciously went through while producing this utterance. This leads to the need to investigate linguistic creativity from another perspective, from a process approach. The process here does not refer to the process which is traced backward based on the final product (or linguistic mechanisms reflected in the final product). Instead, it refers to the actual cognitive process and thinking styles that the language user undergoes at the time of production.

Notes

1 Source: https://www.powershop.co.nz/buy-specials-in-june/ (accessed 26 August 2021).
2 Source: https://www.facebook.com/powershop/photos/todays-special-may-not-be-the-biggest-pack-but-its-better-than-a-slap-in-the-fac/10152884955294979/ (accessed 30 September 2018).
3 An example of baseball-related idiomatic expression: 'Last week, the defence secretary, John Hutton, said that it was time for our European allies "to step up to the plate" and send more of their troops to Afghanistan' (Callies, 2011: 62) ('step up to the plate' = 'take on or accept a challenge or responsibility').
4 An example of football-related idiomatic expression: Play it safe (act carefully, avoid risks), get the ball rolling (start something happening) (Callies, 2011: 69).
5 The term 'biolinguistics' was coined in 1974 as the topic for an international conference to investigate 'the human language faculty as an internal biological property' (Chomsky, 2007: 1).
6 See https://www.stuff.co.nz/world/americas/300127894/us-vice-presidential-debate-takeaways-housefly-steals-the-show (accessed 8 October 2020).
7 Source: 'The Biden campaign started selling fly swatters right after the debate. They've already sold out' by Alexis Benveniste, CNN Business, updated 0217 GMT (1017 HKT) October 9, 2020. (https://edition.cnn.com/2020/10/08/business/biden-campaign-fly-swatter-trnd/index.html).

9

View of language and creative language pedagogy

Introduction

We have seen in Chapter 3 that creativity can be an inclusive term, accommodating various meanings into its concept. In the same vein, creative language pedagogy can be viewed as an inclusive approach. It is not a standalone approach which stands in complete contrast with other teaching approaches. Instead, creativity can be integrated into various approaches whether it is a traditional approach such as the grammar translation method or a modern approach such as task-based language teaching (TBLT) or communicative language teaching (CLT). Creative language pedagogy is an approach not to replace but to repower any teaching approach.

This potential for inclusiveness doesn't however mean that we condone a free-spirited relabelling of everything we do as 'creative'. Creative language pedagogy is a disciplined act which requires an understanding of what creativity means. This chapter proposes one of the pillars on which creative language teaching should be based – the view of language as a tool for creativity. Based on the view of linguistic creativity discussed in Chapter 8 and the meaning of creativity discussed in Chapters 2–7, the chapter proposes that the goal of creative language pedagogy is to promote creativity (both domain-general and domain-specific) in our learners.

Many scholars have proposed that language is a tool not just for communication but also for creativity. Language is not just for exchanging information but also for play (Cook, 2000; Crystal, 1998), for constructing, maintaining or disrupting social and interpersonal convergence (Carter, 2004). It is a tool not just for communicating about known ideas but also for constructing new ideas – ideas new to self (Tin, 2013). This playfulness, artfulness and creativity of language is a property not only of specially gifted people (e.g. creative writers, comedians)

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but a special property of normal people (Carter, 2004). The creative function and potential of language has been discussed with reference to literary contexts (e.g. Maybin & Pearce, 2006) as well as everyday language use (e.g. Jones, 2016).

What we know about linguistic creativity and creativity are crucial for creative language teaching. The segmentations of linguistic creativity discussed in Chapter 8 offer insightful contributions to language teaching. They offer various choices on which creative language pedagogy can be based. In this chapter, I will consider two specific views of linguistic creativity which have been widely adopted in the field of applied linguistics: literary creativity and everyday creativity. I will demonstrate how those views can be applied in a creative language pedagogy – specifically with reference to teaching language for creativity to promote creative language use (domain-specific creativity) and creativity in a general sense (domain-general creativity). I will first present some 'fascinating insights' offered by applied linguistics researchers concerning the nature of language as a creative tool. This is then followed by an application of those insights into practice. In doing so, this chapter attempts to counterbalance complaints often raised by some creativity writers (e.g. see Maley & Kiss, 2018: 73) that the 'pedagogical pay-off' of many fascinating insights into creative language use offered by applied linguistic researchers is 'meagre'.

Literary creativity: Foregrounding language

In the discipline of applied linguistics, creativity has traditionally been researched and discussed in association with literature. The term creativity has been used as a synonym of literariness. Researchers in this approach are interested in investigating what makes various texts 'literary' or 'creative'. Maybin and Pearce (2006) summarise three approaches to investigating literary creativity: the inherency approach, the sociocultural approach and the cognitive approach. Although those three approaches have originally been proposed with reference to literature or literary creativity, they can also be applied to non-literary contexts.

First, the *inherency approach* views literary creativity as a property inherent in the language itself. The focus is on producers or language users' ability to manipulate and foreground language in a novel and appropriate way. This manipulation involves exploiting the 'creativity *of* language' afforded by the grammatical system of language and the user's ability to be 'creative *with* language' at various levels of language. Through such manipulation of language, new ideas and meaning are constructed. In other words, creativity *through* language occurs. The focus of the inherency approach is on the behaviouristic dimension of linguistic creativity (what and how) (see Chapter 8). Two major foregrounding devices or mechanisms used by language users are deviation and parallelism (see Maybin & Pearce, 2006).

Deviation is defined as unexpected irregularities. Linguistic features at various levels can draw attention to themselves by deviating from the norms (or what is expected). That type of deviation can occur at various levels of language:

graphological, phonological, grammatical, lexical, meaning and semantic, and genre/discourse. Parallelism on the other hand refers to unexpected regularities. Language can be foregrounded through prominent patterns of repetition at various levels of language such as sound, lexis, grammatical structure, meaning and semantic, etc. Examples of phonological parallelism are the use of alliteration, assonance, rhymes, rhythms and so on. Examples of grammatical parallelism are the prominent repetition of certain phrases and sentence structures. Semantic parallelism can be achieved through the repetition of certain images and meaning.

Literature or literary creativity, in the inherency approach, is often described as 'organised violence committed on ordinary speech' (Jakobson, 1960 cited in Eagleton, 1983: 2). Unexpectedness – appropriate and disciplined unexpectedness – is a key feature that makes texts creative. It requires a skilful, organised manipulation of language. This feature of unexpectedness is valuable for language learning: it makes language salient and memorable, catching learners' attention to language forms and their meaning (see further details in Chapter 10). It also encourages leaners to manipulate and transform existing language utterances for a wide range of conceptual, social and pragmatic reasons (see Chapter 8).

Second, the *sociocultural approach* views creativity as a property assigned to texts/language by the society (in particular the receivers and consumers of creative products) and is concerned with the contextual dimension of linguistic creativity (where and when). What is regarded as new and valuable differs from one society to another, from one context to another. Creativity is not just the inherent property of language or language users but also the emergent property of society (mainly the receivers of the products). What is regarded as creative varies in accordance with changes in society's attitudes and values. Ordinary language can become creative as the socio-cultural context in which it appears changes. This view of creativity is in alignment with the models of creativity such as the systems model by Csikszentmihalyi (2014) which puts emphasis on the role of society (field) in evaluating and producing something as creative (see Chapter 2).

Third, the *cognitive approach* looks at literature from the point of view of the mental processes the reader/the audience undergoes. The creativity of language utterances/texts is contributed by the way the reader/receiver reads/listens and the cognitive effect the text has on the receiver. The approach sees literature as schema refreshing and discourse deviation. Readers/listeners approach a text with certain background knowledge and expectation and when such expectation is disrupted by the skillfully manipulated text, their schemata is refreshed. The approach is concerned with the demographic/personal dimension (who and whom) and the motivational dimension (why) of linguistic creativity. The demographic dimension and the background information (schemata) the audience brings into the text play an important role in evaluating something as creative. It is also concerned with the motivational dimension of linguistic creativity in the sense that one of the motives for creative language use is to disrupt the audience's expectation, refresh and transform

their schemata. The effect of unexpectedness which arises from the interaction between the text and the audience in a particular context is an important feature of creativity. Creative language (or literary creativity) not only serves the aesthetic purpose such as entertaining the audience but also the cognitive function (transforming our knowledge and expectation by reshaping and disrupting our existing knowledge).

Task 9.1: Schemata refreshment

1. View the YouTube video clip advertising Vogel Bread. Find out how the listener's expectation is disrupted. https://www.youtube.com/watch?v=QFUz4RFUy8Q&feature=emb_logo

   The advertisement is a 60-second ad in which a power cut interrupted a man who was about to toast the slides of Vogel bread for his breakfast. Distraught at the idea of not getting his Vogel's toasted properly, he ran through the streets in search of a house with power on, shouting 'Help my Vogel'. He then knocked at the door of a house which had power and requested the lady of the house to allow him to use her toaster. The following is the conversation between the man and the lady:

   MAN: ah, Mrs. Lady, could I please use your toaster like (looking at his Vogel slides in his hand) 33 seconds.
   LADY: (showing disapproval) Absolutely, not. (pause).
   LADY: You're going to need 44. (The woman takes the man into her kitchen to get the bread toasted. Later, they enjoy breakfast together).

   In the exchange above, the first response from the lady indicated disapproval, refusing the man's request. This expectation set up in the first response was disrupted by what she said next. The last line made the listener revisit the previous line and reinterpret its meaning: that is, her disapproval was not about the request to use her toaster but about the time it would need to toast Vogel bread properly. Such schemata refreshment has an amusing effect on the listener, drawing their attention to the message being communicated and making the message memorable. The advertisement may not work for all viewers if they are unfamiliar with Vogel bread. It relies on the viewer's ability to draw on their existing background knowledge and experience– that is, Vogel bread is different from other bread in its texture and taste. Its unique flavour lies in the fact that it needs to be toasted longer than other brands of bread.

2. Can you find other examples of schema refreshment in various texts you come across? (e.g. advertisement, movies, etc)

Taking all these approaches to literary creativity into account, literary creativity can be viewed as an inherent property of texts (the product-oriented approach) as well as an emergent property of texts (the socio-cultural process-oriented approach). While the product approach focuses on literary creativity as inherent in texts, the socio-cultural, process approach views literary creativity as emergent from the interaction between the text/the language user and the individual/the society in a specific context. This view of literary creativity aligns with the view of creativity as an emergent, dynamic concept proposed in Chapter 2, Csikszentmihalyi's (2014) systems model and Glăveanu's (2016) distributed model of creativity discussed in Chapter 2. It also highlights the role of cognitive processes one needs to experience to produce and comprehend language utterances as creative.

Implications of literary creativity for creative language teaching

One of the major goals of a creative language programme is to help learners to develop an awareness of the foregrounding function of language. Language is not only an object to be mastered, analysed and used but also a tool to be modified, manipulated and played with. Although one may say that all language use involves the manipulation of language in one way or another, literary creativity (linguistic creativity at a higher end) involves making the familiar language unfamiliar or surprising in order to draw attention to language itself.

In we apply the 4C model (mini, little, small, big c) of creativity proposed by Kaufman and Beghetto (2009), we can see that the level of linguistic creativity differs along a continuum. Although every sentence we make is creative in a mini-c sense (new and valuable to ourselves), it may not be so in the little-c sense (new and valuable to others). We can help students to move from mini-c to little-c and then pro-c through various pedagogical activities. We can help students to master not just the creativity *of* the language system but also to develop their ability to be creative *with* and *through* language at various levels of language for social, pragmatic and cognitive purposes. Drawing on the various insights offered by creativity researchers, this section offers two conditions that can be set up in language learning tasks to promote and raise students' awareness of language as a tool for creativity:

- raising learners' awareness of the use of language as a creative tool through inputs (a product-oriented approach),
- creating opportunities for learners to experience literary creativity as an emergent property (a process-oriented approach).

Promoting literary creativity through a product-oriented approach

One way of raising learners' awareness of the use of language as a creative tool is through inputs. Students can be given exposure to a range of creative texts featured with foregrounding devices at various levels of language.

Although many such examples of foregrounding language can be found in literary texts such as poems, such creative language use is abundant in many texts we encounter in everyday contexts (such as political speech, interviews, advertisements and so on). In the examples given in Task 9.2, while the first text comes from what a politician said during an interview with a journalist about America's invasion of Iraq, the other texts are examples of poems. All these examples fall on the higher end of the creativity continuum (pro-c or professional creativity). Students can be encouraged to find examples of creative language use in L2 which they come across in various contexts outside the classroom. Activities can also be designed to encourage the playful use of language, exploiting deviation and parallelism.

Task 9.2: Foregrounding language

1. Look at the examples of texts given below. How is language foregrounded? At what levels of language is it being foregrounded? Can you find examples of foregrounding devices used: deviation (unexpected irregularities) and parallelism (unexpected regularities)?

   Text 1: Known unknowns

   As we know, there are known knowns; there are things we know we know. We also know there are known unknowns; that is to say, we know there are some things we do not know. But there are also unknown unknowns – the ones we don't know we don't know.

   (Source: Maybin & Pearce, 2006: 4)

   Text 2: Mister Moore (by David Harmer) (see Figure 9.1)

   Text 3: In case of fire

   In case of fire, break glass
   In case of glass, fill it with wine
   In case of wine, come to New Zealand
   In case of New Zealand, travel to South Island
   In case of South Island, visit Milford Sound
   In case of sound, join the party
   In case of party, make loud noise
   In case of loud noise, call the police
   In case of police, hide guns
   In case of gun, don't fire
   In case of fire, break glass.

   (This poem was inspired by Roger McGough's 'In case of Fire'[1]).

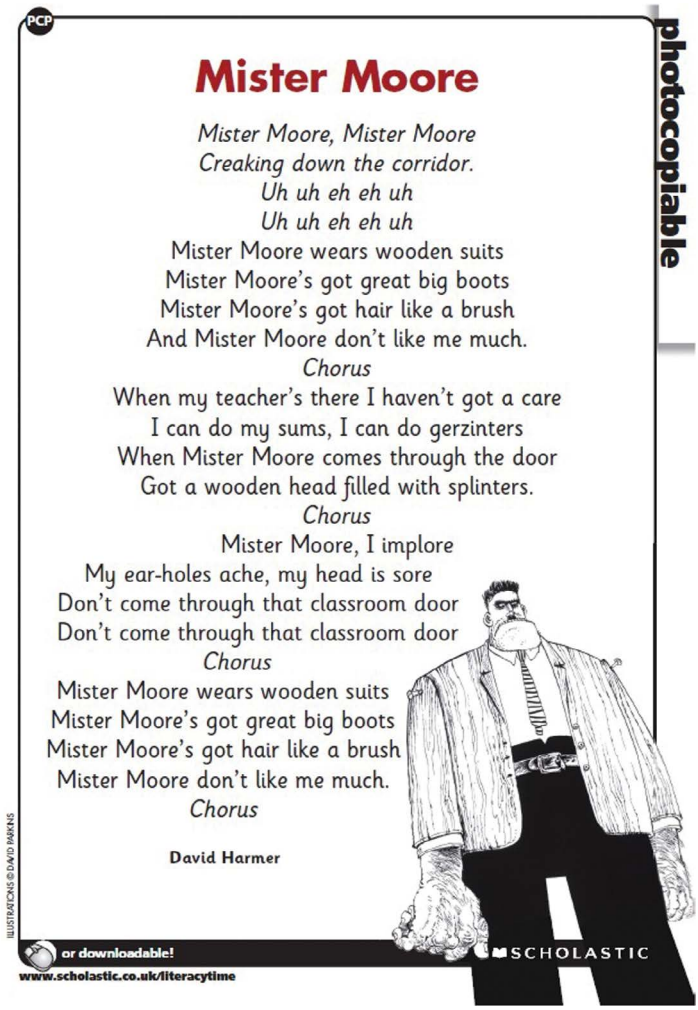

FIGURE 9.1 Mr Moore (reproduced with permission from David Harmer)

Text 4: As we grow old (see Figure 9.2)

Comments on Text 1 and Text 2:
In both texts 1 and 2, we can see examples of both unexpected regularities (parallelism) and unexpected irregularities (deviation). An example of parallelism in Text 1 (prose) is that it draws our attention through an unusual repetition of the word 'know' (and its various forms such as 'known unknown'). An example of deviation in Text 1 is that it also combines words in an

(Continued)

FIGURE 9.2 As we grow old

unusual but meaningful way (e.g. known unknowns, known knowns, known unknowns), disrupting our expectation, refreshing our schemata (what we usually know about the word 'know' and how we use the word). In the process of doing this, the new meaning and new usage of 'know' is constructed (e.g. what we know or do not know can be seen in terms of various perspectives: known knowns (things we know we know), known unknowns (things we know we don't know), unknown unknowns (things we don't even know we don't know)).

Similarly, Text 2 has examples of parallelism. Through the unusual repetition of certain sounds ('m', 'c', 'w'), words (Mister Moore), phrases and sentence structures ('Don't come through that classroom door'), the text draws the reader's attention to its form. There are also examples of deviation such as unusual combinations of words ('got hair like a brush', 'got a wooden head filled with splinters'). Creative lexical choices – a feature of linguistic creativity as rule-changing behaviour (see Chapter 8) – are found in the text. Words are combined in an unusual manner for aesthetic purposes. As discussed in Chapter 8, this example illustrates linguistic creativity via creative lexical choices at the paradigmatic and the syntagmatic level.

Comments on Text 3:
Text 3 on the other hand manipulates language at the grammatical level. There is an unusual repetition of the phrase (In case of) and the repetition of the last word of the previous line in the next line. This is an example of parallelism (unexpected regularities) at the syntactic level. There is also

deviation at the discoursal, pragmatic and semantic level. The phrase 'In case of fire, break glass' is usually used as a notice, informing people what to do when there is fire. In the poem, that context is transformed. The meaning of 'fire' (the breakout of fire) in the first line deviates from the meaning of 'fire' (shooting gun) in the last line.

Comments on Text 4:
Unlike Texts 1, 2 and 3, Text 4 does not have much playful manipulation of language at the lexical and syntactic level. If the text is written in a normal format using the same font ('As we grow old, we become slow. Our eyesight begins to fade away'.), the form won't be much foregrounded and it may not draw much attention. The writer manipulates the text at the graphological level. The shape of the text foregrounds both its form and message.

In a poem (40-love) by Roger McGough, the poet writes about how an 'invisible net' exists between a middle-aged couple playing tennis. The poet says the net will still exist between the couple even after the game is over and when they go home. The poet skilfully manipulates the text at the graphological level. The splitting of words (e.g. the word 'between' is split over two lines) and the shape of the text (written in two columns) foregrounds both its form and message. The reader needs to read the text turning to left and right, just like watching two tennis players playing tennis. It also visually highlights the division (the invisible net) between the middle-aged couple by splitting words and lines. There are 12 lines in the poem and 24 words. Can you imagine what the lines in the poem are and how the poet would write them? The beginning and the end line are given below. Use only one word for each blank.

40	love
middle	aged
couple	…….
…….	…….
…….	…….
…….	…….
…….	…….
…….	…….
…….	…….
…….	…….
…….	be
tween	them.

(For the whole poem, see McGough (1989)

Promoting literary creativity through a process-oriented approach

Taking a sociocultural, process-oriented approach and the contextual dimension of linguistic creativity, one can also argue that creativity is not an inherent property of texts but an emergent property of texts in context. The context in which we receive and produce a text plays an important role in our evaluation of something as creative. What is regarded as creative text varies from one context to another, from one society to another. What started as a non-literary text can become literary. Literary creativity emerges as a result of collaborative effort and interaction between the person, the field and the domain. This view of creativity as an emergent process focuses on how creativity emerges and how we make things becomes creative.

In terms of a creative language teaching curriculum, just presenting students with the finished products (creative texts) or getting them to analyse the features of those texts is not sufficient. We need to help students experience creativity as an emergent phenomenon: how creativity emerges through the interaction between the person and the text. There are two conditions that could be created:

- involving students in the process of *transforming* ordinary speech to literary/creative texts. We need to create opportunities for students to manipulate language at various levels to produce creative texts. In other words, language learning tasks can be set up in such a way to help students 'commit organised violence' on ordinary speech/texts or to transform relatively low-value texts into high-value ones, echoing Sternberg and Lubart's (1992) investment theory of creativity as 'a decision to buy low and sell high in the world of ideas' (see Chapter 2). This condition involves adding creativity to productive language skills such as writing and speaking.
- involving students in the process of *experiencing* texts as creative texts through skilfully manipulated presentation, using various pedagogical procedures, techniques and heuristics. To see a text as creative, the student needs to experience the cognitive process involved in creativity – the schemata refreshment where their expectation is disrupted. This condition involves adding creativity to receptive language skills such as reading and listening.

Involving students in the process of transforming texts

To involve students in the process of constructing creative texts, several heuristics and constraints (rules and limitations) can be used by teachers. First, one heuristic that can be used is *media transfer* or transforming a text from one mode to another based on a certain set of rules and constraints. This helps students to manipulate language playfully and exercise their transformational creativity, transforming a given linguistic text into a creative text or committing organised violence on ordinary texts (Jakobson, 1960 cited in Eagleton, 1983: 2). See Task 9.3 for examples.

Task 9.3: Transform prose into poetry: Foregrounding language at the graphological level

1. The activity aims to get students to manipulate language at the graphological level.

   Rules/procedures:

   - Give students short texts in prose format.
   - Get students to work in pairs and groups.
   - Give the following set of formal product constraints (what the final outcome should and shouldn't be): Don't add any words. Don't change the lines and their order. You can change the format or shape only (the way it is written). Also, give a title to your poem.
   - After students have produced their texts, get them to share them with the class. They can also look at the original version.

   The following is an example of how students manipulate text 1 (given by the teacher) at the graphological level.

   Text 1:
   As we know, there are known knowns; there are things we know we know. We also know there are known unknowns; that is to say, we know there are some things we do not know. But there are also unknown unknowns – the ones we don't know we don't know.

   Examples of texts produced by students during a course I taught.

   Example 1 (see Figure 9.3):

   In Example 1, students use the traditional format of poetry where the shape of the lines is used to indicate that it is a poem. The students end their lines with 'know'.

   Other students in examples 2 and 3 experiment more unusual formats.

   Example 2 (see Figure 9.4):

   Example 3 (see Figure 9.5):

   In Example 2, the two students notice the repetition of 'know' in the original text and rewrite the text in a way to foreground the word by putting it in big font in the centre of the text. In Example 3, another pair of students uses a different form and rewrites Text 1 in the form of a question mark.

2. Can you propose other rules (product-oriented and process-oriented constraints/rules) and limitations for Activity 1 above while maintaining the same media-transfer heuristic (transforming prose into poem)? (e.g. allowing students to add a list of words provided).

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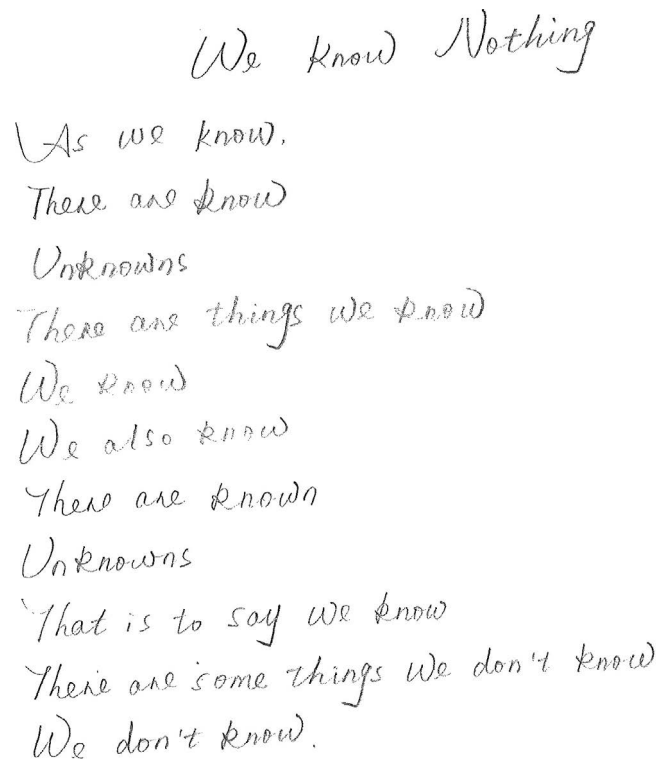

FIGURE 9.3 We know nothing (by Ting Wu)

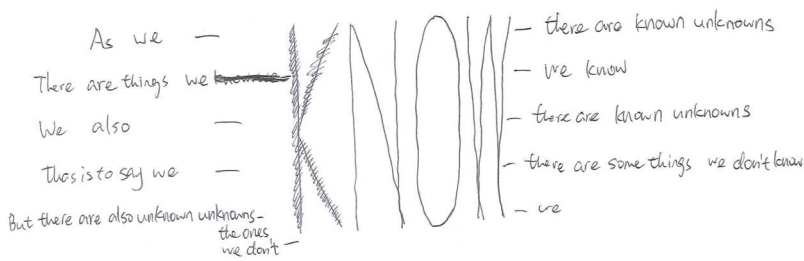

FIGURE 9.4 Know (by Yuyin Yang and Yuan Fang)

3. Try out the activity using different constraints and compare the final outcome and the process students go through. Which constraints seem to promote more creative language use and creative processes? Why might that be?

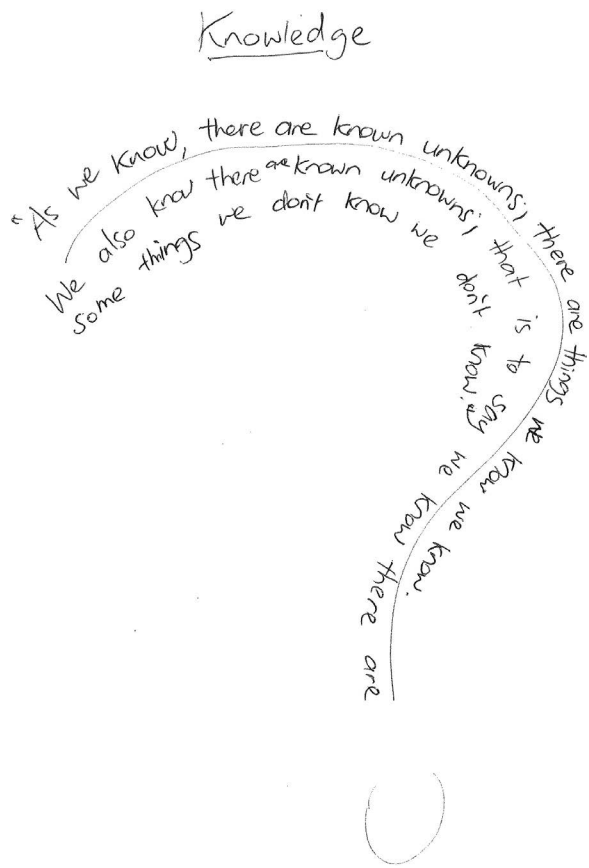

FIGURE 9.5 Knowledge (by Tabitha McGregor)

4. What other text types can you use for the media-transfer heuristic? (e.g. transforming a shopping list into an advertisement). Try out different product and process constraints and algorithms (a set of procedural steps) for the task and compare their outcomes and the processes students go through in doing the task.

The examples in Task 9.3 get students to manipulate texts at the graphological level. Through this manipulation, we can help students to view literary creativity not as a property of special people (e.g. creative writers, genius, etc.) but as a special property which all language users can possess. Literary creativity is not a property of special texts (e.g. story, poem) but a special property that can be assigned to ordinary texts through skilful manipulation of language. Engaging in those tasks is likely to create natural situations for negotiation of both meaning

and form among students. It also invites students to use a variety of creative processes and thinking such as chaotic thinking, ordered thinking, exploratory, transformational thinking (also see Chapters 2 and 3).

Committing violence on ordinary speech for creativity is an organised act, involving disciplined manipulation of language and reasoning. It involves a mixture of both chaotic and disciplined thinking. There is an element of chance operation as well as a logical thinking involved. When asked to reflect on the process they went through in performing Task 9.3 (changing prose to poetry) and how they came up with the shape of the poem, various reasons given by students indicated the use of both chaotic and ordered thinking as well as randomness and chance occurrence.

An example of ordered thinking is reflected in students' application of some existing features of poems (structure) into the task such as their decision to end the lines with the same word (know) and to keep the length of the lines even. An example of chaotic thinking is also reflected where the shape of the text emerges as students continue working on the task (e.g. students beginning to notice the repetition of the word 'know' in the text and foregrounding it by writing it in a big letter in the middle). Chance and randomness are also reflected. For example, a pair of students who happened to have two different colour pens took turns in writing the lines. This use of different colour pens which started accidentally later led them to use it more systematically as a way to foreground the text through colour.

In addition to media transfer, another heuristic that can be used is *expansion and contextualisation*, getting students to foreground an ordinary text through the context in which it is used. Relatively simple texts come alive and creative due to the context in which they appear. The context may be the immediate linguistic context as well as the external socio-cultural, historical context in which it is spoken (also see Chapter 8). For example, phrases such as 'let's keep moving', 'let's do this', 'yes, we can' on their own look ordinary. There is no special manipulation involved at the lexical, phonological or grammatical level. However, in a specific socio-cultural context, those phrases become powerful political slogans.

Task 9.4: Let's keep moving

1. In Text A, the phrase 'let's keep moving' appears on the Labour Party's billboard, persuading the New Zealand public to vote for Labour in the upcoming election in September 2020. The meaning of the phrase is foregrounded by the immediate context in which it appears (i.e. on the billboard, next to the popular Prime Minister, Jacinda Arden whose popularity increased worldwide due to her handling of Covid-19 pandemic). The external context (the recent success of New Zealand's government handling of Covid-19 pandemic and the combat against the spread of

it in New Zealand) has brought special meaning to the relatively simple phrase 'Let's keep moving', indicating that now that we have put Covid-19 under control, let's keep moving by working on other issues such as building the economy, etc.

Text A, July 2020[2] (see Figure 9.6)

FIGURE 9.6 Let's keep moving

Text B is an example of another similar phrase 'Let's do this' which was used by the Labour Party as part of their campaign slogan four years ago in 2016.

Text B, 2016[3] (see Figure 9.7)

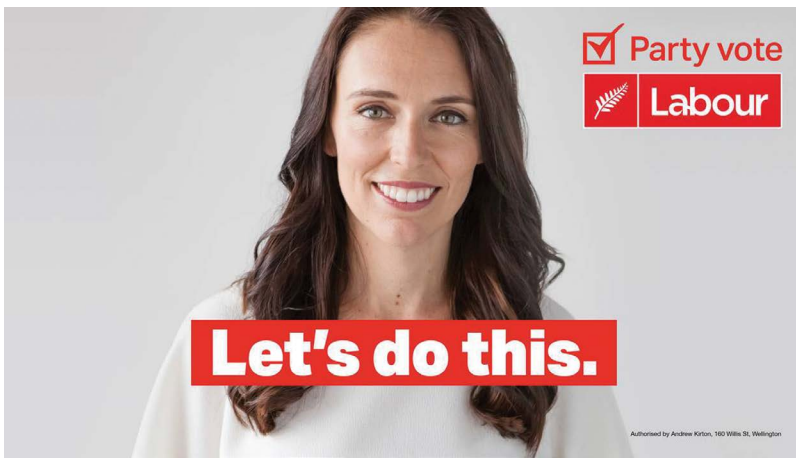

FIGURE 9.7 Let's do this

2. Now imagine what other slogans might Labour come up with 4 years later. The slogans must start with 'Let's …'. Design a billboard using that phrase.

Task 9.5: Creating a context for creativity (It rains!)

1. The sentence (It rains!) was produced by a student when asked to write a non-creative sentence using the word 'rain'. It was also rated by other students as the least creative sentence (out of many other sentences given to them). If we take the socio-cultural approach to creativity, any text can become creative in the right context. How can you create a context in which 'It rains!' catches the reader's attention and becomes creative.
   - Present the sentence 'It rains!' in that context.
   - Please explain briefly in what way the context makes that sentence creative.
2. Look at the following examples written by two students during a course I taught. In what way does 'It rains!' catch the reader's attention and become creative?

   Example 1: It rains!

   A teacher is talking to students during science class.
   'When you want to dry the washing at home and you hang it up inside, how well does it dry?'
   'Not very well'
   'That's right. But, when you hang it on the line outside, what happens?'
   'It rains!'
   (By Joseph Owen)

   Example 2 (See Figure 9.8):

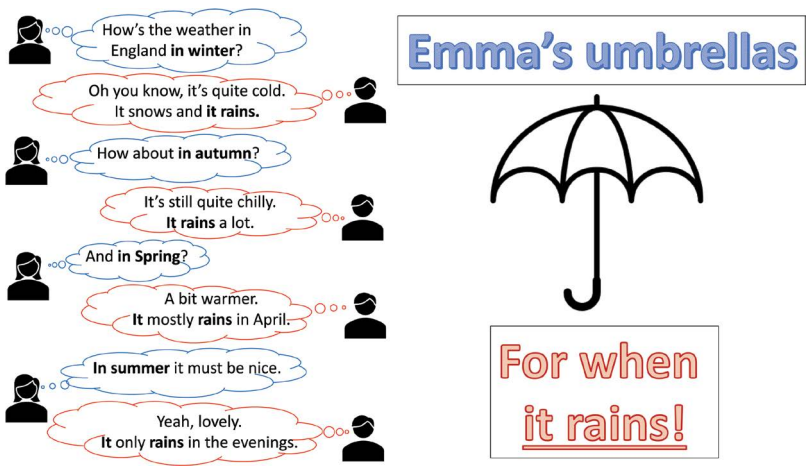

FIGURE 9.8 Emma's umbrella (by Emma Skipp)

3. Now give students relatively simple sentences which often appear in mechanical drills such as 'The chicken is small'. 'There is a cat on the table'. Ask them to create a context in which the sentence catches the reader's attention and becomes creative by disrupting and refreshing the reader's schemata.

Creativity is not just an inherent feature of language but also an emergent property. Transformational creativity is proposed by Boden (2001) as a higher form of creativity (also see Chapter 3). The more we transform taken-for-granted rules, the more creative it is considered. In the examples (it rain!), a sentence which is regarded to be very simple and least creative can be transformed and foregrounded through the way it is contextualised. In doing so, the conceptual space (the meaning) as well as the linguistic space (the context in which it is used) are transformed and expanded. Although the sentence itself (form) is not changed, the semantic and the discoursal context in which it is used is transformed and expanded. A semantic shift has occurred for relatively simple sentences.

As we have seen in Chapter 7, researchers have often accused creative language teaching of focusing on creative writing or imaginary situations for language use. Jones (2016: 25–26), for example, says:

> Being a "creative" teacher does not necessarily mean inventing outlandish new contexts in which our students can pretend to be communicating (such as desert islands or nuclear holocaust).
>
> *(Jones, 2016: 25–26)*

The examples given in this section show that creativity can be added into language learning tasks not only in the form of creative writing but in the form of other text types. 'Inventing outlandish new contexts' for known familiar language utterances is not always the responsibility of a teacher but that of a student. The process of transforming mundane texts into extraordinary ones can help students not only to understand the creativity of language as an emergent phenomenon but also to use various creative thinking types, exploring and transforming their linguistic and conceptual space – which has far-reaching relevance and value beyond language classrooms.

Involving students in the process of experiencing texts as creative

In addition to involving students in the process of foregrounding texts and committing organised violence on ordinary texts, teachers can create conditions where any piece of writing can be read poetically (Eagleton, 1983). That is, the teacher can create a situation where a text is experienced as a creative text

through the way it is presented. Creativity, which has been largely associated with (creative) writing skills in the field of language teaching, has relevance for other receptive language skills such as reading and listening. A text which would usually be read in a normal way can be presented in such a way that students would pay more attention to it and will experience schema refreshment – a cognitive process required to experience a text as a creative one. Adopting the view of creativity as emergent in context, we can create situations where normal texts are read/presented to become more creative, more surprising and valuable. One heuristic that can be used is presenting the text in an ill-defined manner by withholding some information and revealing it only later. An example is given in Task 9.6.

Task 9.6: An ill-defined reading task

A letter written by Ernest Hemingway to his friend (Gianfranco Ivancich) on 22 February 1953 was released to the public by JFK library on 28 March 2012[4]. In that letter, Hemingway talked about the painful event of having to shoot his cat named Willie after it was injured due to a car accident. Part of the letter is available on several websites[5]. The letter (Hemingway Shoots His Cat) can be used in a variety of different ways, ranging from a familiar (less cognitive refreshment) to an unfamiliar (more cognitive refreshment) way. A familiar way of using it is giving the whole text to students who are required to read and answer comprehension questions. This kind of reading task can be described as a well-defined problem-solving task. The whole text is given in a well-defined manner.

1. How can we transform this well-defined reading task into a creative task by making it become an ill-defined problem-solving task? How can we transform that familiar practice into something unfamiliar to allow students to experience schemata refreshment, foregrounding both its meaning and form?

Letter from Hemingway

On 22 February 1953, one of Hemingway's cats, Uncle Willie, was hit by a car. Following the accident, Hemingway sent his close friend Gianfranco Ivancich the following distraught letter. The outline of the letter is as follows:

- In the first paragraph, Hemingway describes what has just happened to Willie (his cat) – Willie has broken his legs as a car must have hit him.
- In the second paragraph, Hemingway describes how he asked René to give a bowl of milk to Willie and how Hemingway shot Willie while Willie was drinking milk. Although Monstruo offered to shoot Willie,

Hemingway shot Willie himself as he didn't want Willie to know that anyone was trying to kill him.

- The letter ends with a sentence which reveals the sadness Hemingway felt about the shooting of his cat: '*Have had to shoot people but never anyone I knew and loved for eleven years. Nor anyone that purred with two broken legs' (*Hemingway cited in Alison Flood, Friday 30 Mar 2012, 15.52 BST, 'Ernest Hemingway letters reveal painful late years of affection and loss'. *The Guardian*[6]*).*

Comment:
The procedure below reveals the text in a way to create surprise. Parts of the text related to the cat are revised and temporarily removed and students are gradually led into a certain kind of expectation (e.g. the one that was shot was a human being). That expectation is finally disrupted when the last part of the text is revealed.

Step1. Read the extract below.

Willie was drinking milk while I shot him through the head. (…) Monstruo wished to shoot him for me, but I could not delegate the responsibility or leave a chance of Will knowing anybody was killing him. ….

Q: What is the writer talking about? What is happening? Why did he shoot Will?

Step 2: The teacher reads out the text below.

Willie was drinking milk while I shot him through the head. (…) Monstruo wished to shoot him for me, but I could not delegate the responsibility or leave a chance of Will knowing anybody was killing him. …. Have had to shoot people but never anyone I knew and loved for eleven years.

Q: What is the writer talking about? What is happening? Why did he shoot Will?

Q: What might be the text that comes before and after the paragraph? Can you elaborate it?

Q: Does the text get your attention? Why? What draws you to the text?

Step 3. After discussion, the teacher can show the last sentence 'Have had to shoot people but never anyone I knew and loved for eleven years. Nor anyone that purred with two broken legs'. We can also discuss how the text draws the reader's attention through the unusual co-occurrence of lexical words such as 'drinking the milk' (which indicates a normal, non-violent act) and 'shot him through the head' (which indicates a violent act).

The procedure described in Task 9.6 can be seen as an example of a teacher exercising transformational creativity where the teacher manipulates the way the text is presented to maximise its impact and transforms a familiar practice (e.g. a reading text) into a less familiar one. The main heuristic used here is withholding information and presenting a text in an ill-defined manner to increase its surprisingness. Such transformational creativity and heuristics don't occur over night but require exploration and experiment over time.

In my earlier teaching, I used the text in its original format just merely to perform a reading task in a well-defined manner in a second language teacher education course I taught. Students read the text and were asked to choose a line from the text to be used as the headline to grab the reader's attention. They were also asked to discuss how they could use the text creatively in their language lesson. When asked to choose sentences to be used as headlines, students presented various sentences such as 'I shot him in the head when he was drinking milk', 'I didn't want Will to know someone else was killing him', 'I had never killed someone who purred with two broken legs'. During the discussion concerning how we could exploit this text in our language classroom, an idea came up accidentally due to a student who commented 'What about asking students to read the letter without telling them it is about a cat. Let students react to those sentences chosen as headlines without telling them they are about a cat'. This accidental comment was recorded in my journal entry in 2015. The idea was later gradually adapted and refined in subsequent years. This accidental discovery in 2015 led me to transform a normal reading activity into a more creative one to get students involved in experiencing texts as creative. This heuristic discovered by chance was later applied to other contexts and texts.

Everyday creativity: Overt and covert presentational uses of language

The sections above show how the view of language as literary creativity can be implemented in creative language teaching. This section looks at the notion of 'everyday creativity' offered by applied linguistics, and examines what pedagogical pay-off this insight has to offer for language teaching. Following the work of Carter and his colleagues, researchers in the field of applied linguistics have investigated linguistic creativity with reference to everyday contexts, specifically everyday conversations. It is argued that creative language use is the normal part of everyday context and appears in various genres (e.g. dialogues between friends, workplace communication, written genres – letters to friends, letters to group members, advertisements, social media, etc.). The research on everyday dialogues (e.g. Carter, 1999; Carter & McCarthy, 2004) revolutionises the way we look at everyday conversations and creativity. Based on a naturally occurring spoken corpus collected in England using native speakers of English (middle-aged, middle-class professional people), Carter (1999) proposes creativity as a cline from overt (intended/recognised) to covert (unintended, unrecognised)

display of creativity. Two patterns of linguistic creativity are proposed: pattern reforming and pattern reinforcing linguistic choices.

Pattern-reforming linguistic choices are overt presentational uses of language in a creative manner, drawing attention to form by deliberately disrupting, displacing or deviating from expected linguistic norms and fixed linguistic features. Examples are punning, morphological inventiveness (inventing new words), metaphor extension, displacement of fixed linguistic patterns (e.g. transforming fixed idioms, formulaic expressions, proverbs, sayings) (see Carter, 1999). Those linguistic choices, which are similar to deviation found in literary creativity, foreground language, drawing the listener's attention to both form and meaning. It can serve both cognitive and social functions. In terms of cognitive effect, it can have the effect of schemata refreshment (making us see things in a new way). In terms of social functions, it entertains people and contributes to the construction of the speaker's social identity as someone who is fun to be with.

Pattern-reinforcing linguistic choices are less overt creative language use, involving linguistic devices such as repetitions and echoing across speakers and turns. These devices contribute to the construction of intimacy and social and affective convergence between speakers. Although they are similar to parallelisms in literary creativity (as both rely on the use of repetition), in pattern reinforcing, it is the absence of the features rather than the presence which will draw the listeners' attention. Echoing and repetition across speakers take place so naturally that we do not normally notice them. Only when such features are missing (e.g. one speaker fails to echo or repeat when they should), may we begin to notice that something is wrong and begin to wonder whether the other interlocutor is paying attention or is behaving in an abnormal way.

Both pattern-reforming and pattern-reinforcing linguistic features play an important role in everyday creativity and contribute to the construction of social relationships. They both signal artfulness of everyday language. Although all language use involves skilful manipulation and artfulness to some extent, the degree of manipulation may differ along the continuum of deliberated, intended, obvious choices to unintended, unplanned, covert choices. Carter and his colleagues divide everyday conversations into different categories using two dimensions: interaction dimension (monologue – dialogue) and contextual dimension (business like – intimate). In terms of the interactional dimension, conversations vary along the monologue/non-collaborative – dialogue/collaborative continuum. Three interactional dimensions are proposed: information provision (non-collaborative, monologic talk where one speaker dominates and provides information), collaborative idea (interactive sharing of opinions, attitudes and thoughts) and collaborative task (task-oriented communication where speakers engage in collaborative talk while performing a task such as cooking).

In terms of contextual dimension (interpersonal relationships), dialogues vary along the business-like to intimate continuum and four contextual dimensions are identified: transactional (usually no previous interpersonal relationship is established between the speakers), professional (speakers share either a profession

TABLE 9.1 Types of everyday conversation (adapted from Carter & McCarthy, 2004: 67)

Interaction dimension: interaction- types		*Contextual dimension: context-types (business-like ⟷ intimate)*			
		Transactional	*Professional*	*Socialising*	*Intimate*
monologue	*Information-provision*	commentary by museum guide	oral report at group meeting	telling jokes to friends	partner relating the story of a film seen
	Collaborative idea	chatting with hairdresser	planning meeting at place of work	reminiscing with friends	siblings discussing their childhood
dialogue	*Collaborative task*	choosing and buying a television	colleagues window-dressing	friends cooking together	couple decorating a room

or a regular place of work), socialising (speakers in various social and group settings such as sports clubs, pubs) and intimate (speakers share common knowledge and can assume to be 'linguistically most 'off-guard'') (Carter & McCarthy, 2004: 66). See Table 9.1 for examples.

Using the corpus of everyday conversations collected in various situations, Carter and McCarthy (2004) argue that the features of everyday creativity are found in certain types of conversations: two-way dialogues taking place among people in socialising and intimate social contexts especially when they are engaged in collaborative interaction types (talking about an idea/person, talking as they are performing a task such as cooking). See Figure 9.9.

Interaction dimension: interaction- types		**Contextual dimension: context-types (business-like ⟷ intimate)**			
		Transactional	*Professional*	*Socialising*	*Intimate*
monologue	*Information-provision*	xx		xxx	
				xxx	
	Collaborative idea	xx			xxxxxxx
					xxxxxxx
	Collaborative task	xx			xxxx
dialogue					xxx

FIGURE 9.9 Everyday creativity and types of conversations. x refers to instances of creative language use (adapted from Carter and McCarthy, 2004: 80)

Implications of everyday creativity for creative language teaching

Similar to the implication of literary creativity, everyday spoken creativity can be implied in language classes through a product-oriented and a process-oriented approach. In the product-oriented approach, language learners are given exposure to spoken texts which manifest various features of everyday creativity. Activities can be designed to raise their awareness of those features (See Task 9.7 for examples). In the process-oriented approach, language learners are involved in transforming a text into a more creative text by applying the features of everyday creativity (See Task 9.8).

Task 9.7: A product-oriented approach to everyday creativity

1. The following are extracts taken from Carter's (1999) and Carter and McCarthy's (2004) corpus of everyday conversations which took place between people of intimate social relationships. Find examples of pattern-reforming linguistic choices (e.g. puns, displacement of fixed idioms) and pattern-reinforcing linguistic choices (e.g. repetition, echoing).

Extract 1 (Source: Carter, 1999: 196)

The following extract is an example of collaborative task talk in which members of a family in Cardiff [1993] have a dialogue while preparing food for a party.

A: Now I think you'd better start the rice
B: Yeah … what you got there
(….)
C: Foreign body in there
B: It's the raisins
C: Oh is it oh it's rice with raisins is it
B: no no no it's not supposed to be [laughs] erm
C: There must be raisin for it being in there?

Extract 2 (Source: Carter, 1999: 197)

Two friends in London [1996] are discussing a third friend's stormy marriage and the fact that, as a result of continuing infidelity, relations between the couple are 'frozen' and they are barely talking. It's an example of collaborative idea talk.

A: … he's at it again but he really wants you know just to sit down
B: like they just talk about how they both feel
A: out of the frying pan into the deep freeze this time

Extract 3 (Source: Carter & McCarthy, 2004: 68)

(Continued)

The extract is from a conversation involving three Art College students (all female, aged between 20 and 21) who share a house in Wales. Two of the students (S 01) and (S 03) are from the south-west of England and one (S 02) is from South Wales. They are having tea at home on a Sunday. The dialogue is an example of a 'socializing/collaborative idea'.

S03: I like Sunday nights for some reason. [laughs] I don't know why.
S02: [laughs] Cos you come home.
S03: I come home+
S02: you come home to us.
S03: +and pig out.
S02: Yeah yeah.
S03: Sunday is a really nice day I think.
S02: It certainly is.
S03: It's a really nice relaxing day.
(The dialogue continues. S01 joins the conversation later.)
(+ = interrupted sentence)

In terms of language teaching, pattern-reforming choices may sometimes run the risk of students being misunderstood. Before we learn how to disrupt/displace the fixed utterances (e.g. transforming the fixed idiom 'out of the frying pan into the fire' into 'out of the frying pan into the deep freeze'), we need to master them first. Only after students have learned those norms and familiar patterns, can opportunities be created for playing with such patterns in a new but appropriate way. Pattern-reinforcing choices, on the other hand, can be more useful for language learners as they involve less covert language display. Through the use of appropriate echoing and repetition, students can have more exposure to language and can succeed in establishing social relations which contribute to more opportunities for social interaction.

The following is an activity designed to raise teachers' awareness of creative language use in everyday conversations. The activity can be adapted for use with advanced language learners, adding creativity to speaking activities. The main heuristic used here is transforming a text from one mode to another based on a certain set of rules and constraints.

Task 9.8: A process-oriented approach to everyday creativity (transforming a dialogue from a language teaching coursebook)

1. Listen to the dialogue taken from a language coursebook (Source: Clare & Wilson, 2006: 173). Comment on the features of language used in the conversation. What do you think about the relation between the people?

2. How can you transform the dialogue to reflect the features of everyday creativity found in an intimate social context?

Unit 7 Recording 2

A = Aziz; G = Gemma

A: Do you remember Mr Halsworth, our History teacher?

G: Yes. He was the short man, with those terrible glasses. He was really boring and we were always so naughty in his classes. We would throw paper at him!

A: That's right. He used to shout so much he would go red in the face.

G: Poor man. I remember Miss Matthews – the Music teacher. She was really beautiful, and she used to play us Mozart, and teach us songs from Africa. I remember her lessons were so relaxing, and enjoyable. She was inspiring.

A: Yes, she was lovely. And so patient. Not like Madame Bouchier, the French teacher! She was frightening! I didn't use to like her lessons at all. She used to tell me to sit at the front of the class, right under her nose, and ask me all the most difficult questions. And if you failed a test, or forgot to do your homework, she would punish you.

A: Oh, do you remember Mr Ford, the Religious Studies teacher?

G: Oh yes. He was great!

A: He was so open-minded, wasn't he? He used to teach us all about different religions of the world, like Rastafarianism, and he was also interested in astronomy, so we'd learn about the stars too. He was very knowledgeable.

G: Yes, and he never lost his temper, not even when we used to …

3. Find an example of a dialogue (from a language teaching coursebook) which takes place between friends/family members in an intimate social situation.

   - Rewrite the dialogue using some features of everyday creativity that researchers propose (e.g. see Carter, 1999: 211–212; Carter & McCarthy, 2004: 75).
   - Compare your rewritten version with the original version to highlight what changes have been made and how they reflect the features of everyday creativity that researchers propose.

Comment on activity 1:

In terms of the contextual dimension, the dialogue above from Total English Intermediate (Unit 7) takes place between friends (a socialising context). In terms of interaction type, it represents a two-way dialogue where two close friends engage in collaborative ideas, talking about teachers they met

(Continued)

in the past. However, in terms of linguistic features, the dialogue is devoid of pattern-reforming and pattern-reinforcing devices associated with everyday creativity. Instead, it looks more like a series of monologues. The content of the dialogue seems to indicate that the two speakers are close friends (as they attended school together and shared some common knowledge about what happened at school). However, the way they speak doesn't match that social relationship. The following is an example of the revised version of part of the dialogue with features of pattern-reforming and reinforcing added. Examples of pattern-reforming choices are metaphor ('red as a beetroot'), exaggeration ('I thought he'd explode'). Examples of pattern-reinforcing choices are repetition and echoing (e.g. 'our history teacher', 'ah, history teacher', 'he was so boring').

A: Do you remember Mr Halsworth?
G: Mr Halsworth, who was he?
A: Our history teacher.
G: Ah, history teacher, Mr Halsworth! Mr Horrible Histories, yes!
A: He was so boring.
G: So boring. I almost fell asleep once.
A: Almost! You were snoring.
G: Oh, he was so boring. We were so naughty! Do you remember?
A: Do I remember? I remember you throwing paper at him. He got so mad at you!
G: He went so red. Red as a beetroot. I thought he'd explode.
A: Poor man, we were so naughty, weren't we?

Conclusion

Creative language teaching can act as a complement to modern language teaching approaches which focus on utilitarian purposes. It can also be applied to traditional language teaching approaches such as grammar translation methods which focus on forms rather than meaning. As the examples in the chapter show, such form-focused activities can be transformed into creative tasks. For example, teachers can create a context in which those seemingly trivial sentences such as 'The chicken is small', 'The cat is on the table', 'It rains!' are foregrounded.

One cannot manipulate language forms unless one has learned the basic forms and rules. Creativity is often metaphorically described as thinking outside the box. To be able to think outside the box, we need the box to start off with. Applying this to language, before we can manipulate language in an unexpected way (either through parallelism/pattern reinforcing or deviation/pattern reforming), we need to know first the expected norms and patterns of language use. Language learners often come up with unexpected patterns of

language use (often amusing or sometimes regarded as errors) (see R. Ellis, 2016). Metaphorically speaking, such language uses, which are the result of lack of knowledge about the norms and rules, are instances of thinking *without* the box rather than *outside* the box (also see Chapter 10 for further details about creativity vs mistakes).

Teachers can show that language utterances, vocabularies, grammatical rules, reading passages found in coursebooks are not just an object to be analysed, comprehended, learned but an object to be played with and manipulated at various levels. Such manipulation is not just for aesthetic purposes but for motivational purposes (i.e. giving learners a sense of confidence) and cognitive and social purposes such as transforming existing knowledge and expectations and establishing social relations. In many cases, such playful language use serves a serious communicative function such as persuasion, appealing to emotion and cognition.

There are various features and functions of creative language use that could be promoted in language teaching materials. Those features, although traditionally associated with literary language, are also reflected in ordinary/everyday language use. Raising awareness of the literariness of everyday language doesn't mean that we are getting students to 'imagine themselves to be extraterrestrials or elves' as Jones (2016: 28) notes. Helping students to manipulate language is an important skill that needs to be developed. Getting students to use language for creativity develops not just their creativity but also their language. As they use language to construct new ideas or commit organised violence on ordinary language, opportunities are created for learners' language to be transformed and negotiated (This will be further developed in Chapter 10). Instead of asking students to transform active into passive voice or vice versa (which often happens in the traditional grammar translation method), we can ask students to transform ordinary language forms (eg. *The chicken is small*) and ordinary language functions (such as talking about people) for foregrounding purposes. Mundane dialogues can be transformed into creative ones, applying features of everyday creativity. Creativity can be added not just to activities which promote productive language skills (writing and speaking) but also to those which promote receptive language skills (listening and reading). Literary creativity is a special property that can be assigned to ordinary texts not only through skilful manipulation of language but also through skilful manipulation of the way the text is encountered/processed. Teachers can use a wide range of heuristics, pedagogical techniques and procedures, constraints and algorithms to help that happen. As discussed in Chapter 4, teachers develop such heuristics and procedures over time and through repeated uses, heuristics are modified, adapted or transformed.

This chapter has shown how views of language as a tool for creativity proposed by applied linguists can be applied in language teaching to develop language learners' ability to manipulate the second language. Two examples of views discussed with reference to literary and everyday linguistic creativity highlight the importance of unexpectedness as one of the key features of what counts as linguistic creativity. The question then is: Do all unexpected regularities and

irregularities count as creative language use? How does creative language use (foregrounding language) differ from learners' mistakes and errors which are a kind of unexpected irregular and regular forms? This will be addressed in the next chapter.

Notes

1 Watch https://www.youtube.com/watch?v=5bQG5U2_-vw for the reading of Roger McGough's poem.
2 https://news-image-prod-imgix.tech.tvnz.co.nz/api/v1/web/image/content/dam/images/news/2020/07/04/thumbnail_Party%20Vote%20Hoarding.png.-83342943.png?fm=webp&w=784&h=441&fit=crop.
3 https://pbs.twimg.com/media/DHkxMs-UAAAvnzj?format=jpg&name=900x900.
4 https://www.jfklibrary.org/about-us/news-and-press/press-releases/unpublished-letters-written-by-ernest-hemingway-to-be-made-available.
5 See https://flaunt.com/content/place/hemingway-cats; https://www.brainpickings.org/2012/07/18/hemingway-shoots-his-cat/.
6 https://www.theguardian.com/books/2012/mar/30/ernest-hemingway-letters-reveal-softer-side.

10

View of language learning and creative language pedagogy

Introduction

The goal of creative language teaching is not just for developing domain-general and domain-specific creativity such as linguistic creativity or literary creativity in our students but also for developing the emergence of more complex language in our learners. It is thus important to understand not only how people learn to be creative (the focus of various preceding chapters) but also how people learn language while learning to be creative and using language for creativity. In Chapter 9, we have seen that developing literary and linguistic creativity in L2 learners should be a major goal of language teaching and that creative language use, according to applied linguistics researchers, is a feature of not only literary but also of everyday contexts (e.g. Carter, 2004; Maybin & Pearce, 2006).

One major feature of creative language use is unexpectedness – unexpected irregularities (deviation or pattern reforming) and unexpected regularities (parallelism or pattern reinforcing). This view of creative language as unexpected language raises several questions: Do all unexpected regularities and irregularities count as creative language use? How does creative language use (foregrounding language and pattern reforming choices) differ from learners' mistakes and errors which are also a kind of unexpected irregular and regular forms? How does creativity *through* language (the use of language to produce new, valuable ideas), creativity *with* language (manipulating language through pattern-reinforcing, pattern-reforming and foregrounding devices) contribute to the development of complex language – a key feature of second language learning?

To address these questions, we need to understand how language learning takes place and how it is connected with features of creativity and creative language use. Among various views of language learning, the usage-based, emergentist view is gaining increased attention in recent years and has been discussed

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in association with creativity (e.g. see Tin, 2011). This chapter discusses the view of language learning reflected in the usage-based model and examines how this view supports the role creativity plays in language learning and helps us to unpack various puzzles associated with creative language use and language learning. Implications for creative language pedagogy are also discussed.

The usage-based model of language learning and creative language teaching

'Usage-based' is a term used in association with (or to cover) a wide range of approaches to second language acquisition (Wulff & Ellis, 2018: 37) such as item-based models, emergentist approaches, complex-adaptive models, dynamic systems theory (DST), complex dynamic system theory (CDST) and ecological views of second language acquisition. Several key features of the usage-based model which contribute to our understanding of creativity and creative language pedagogy are as follows:

- language learning involves domain-general cognitive processes.
- change and complexity in language occur not just at the observable level of language products but at the level of underlying cognitive processes.
- language learning is learning constructions: as we use language to deal with complex tasks and construct new meaning, abstract constructions and new language emerge.
- language learning is using language: through repeated exposure to language items as types and tokens and through the salience effect of unexpected language, learners develop abstract constructions and patterns.

The chapter examines each of these key features, relating it to various components of creativity and highlighting creativity as an integral part of language learning. The chapter proposes the usage-based model as the view of language learning that underlines creative language teaching.

Domain-generality of cognitive processes in language learning and creativity as the ability to exercise a multitude of cognitive processes

In the usage-based model, the cognitive processes involved in learning language are not domain-specific but are similar to the learning of any kind. Linguistic knowledge is not stored as an autonomous cognitive modularity but involves the use of domain general cognitive processes and abilities such as memory consolidation, chunking, automatisation, repetition, imitation, categorisation, analogy, abstraction, perception, attention, entrenchment, anticipation and so on (e.g. see Schmid, 2016). Understanding the learning behaviour of any kind, including learning how to be creative, and research on general cognitive thinking skills contribute to our understanding of language learning.

This view of language learning indicates that research on creative thinking skills and our understanding of how people learn to be creative are of relevance to understanding language learning. Several cognitive processes involved in creativity have been identified (e.g. see Chapters 2–5). Generating conditions to activate creative cognitive processes in language learning tasks is desirable for facilitating not just creativity but also language learning.

Task 10.1: Integrating creative thinking skills in language learning tasks

1. As we have seen in Chapter 3, process creativity is viewed by Boden (2001) as being composed of combinational, exploratory and transformational thinking.
   - combinational thinking: associating old ideas in unfamiliar yet intelligible and valuable ways;
   - exploratory thinking: exploring all possibilities inherent in a current conceptual space using existing rules;
   - transformational thinking: altering one or more rules of the current conceptual space.

   In the examples given below, the language user skilfully manipulates language to produce new, valuable ideas and various types of cognitive thinking skills are reflected (also see Tin, 2013).

   - 'Because you're mine, I walk the line' is a line from a song. The language user produces an unusual meaning through exploratory thinking, i.e. using the existing rules of rhyming 'mine'—'line'.
   - 'Cats walk thin and sleep fat' is a line from a poem for children, producing an unusual image of cats through combinational thinking by associating ideas from different remote areas in an unfamiliar way ('walk, sleep' versus 'thin, fat').
   - 'If there is a will, I want to be in it' is a witty statement which involves producing a surprising end to a familiar utterance ('if there is a will, there is a way') through transformational thinking by significantly altering part of the current conceptual space.

2. What type of creative thinking is reflected in the language used in the example below?

   Give a man a gun, he can rob a bank.
   Give a man a bank, he can rob the world.

(Continued)

3. In the activities (a–d) below, what types of creative thinking skills are students encouraged to exercise?
   a. Give students a series of proverbs and popular sayings. Ask them to produce new ways of seeing the ideas in those statements by changing part of the statement. Examples are given below:

      a stitch in time saves nine → a stitch in time …
      the weapon of mass destruction → the weapon of ….

   b. Ask students to produce an interesting story by transforming a popular fable (e.g. Cinderella) slightly.[1]
   c. Ask students to continue the text and get them to explain what it means.

      Two is a company.
      Three is a crowd.
      Four is ……. (e.g. a perfect number of people for my car.)

   d. Colour words are used in combination with feelings/mood. Can you use other colour words to describe various emotions or personalities?

      green with envy
      red with anger
      white with ….
      black with …
      yellow with ….
      pink with ….
      orange with ….
      …. with ……

Change and complexity in language and creativity as the ability to produce new, valuable ideas

Even though change is proposed as a natural feature of human language, we cannot take it for granted that change takes place automatically from one stage to another in a linear manner. Our language development often falls into an attractor state and we may get stuck in the seemingly frozen zone of safe linguistic utterances. It is important to pull language users out of the attractor state. According to the complex, dynamic system, a higher-order level (complex system) emerges through the repeated interaction among the lower-level elements as we use the system to deal with *complex tasks* – tasks which we don't know the outcome of yet. This emergent higher level cannot be predicted in advance and is more than the sum of the lower levels. The relation between the higher and the lower order is a non-linear, dynamic, non-causal relationship. 'Learning is a global change that emerges from numerous planned and unplanned activities' (Steffensen & Kramsch, 2017: 22).

The notion of complex tasks in the usage-based model is conducive to the concept of ill-defined tasks in the creativity literature. As discussed in Chapters 4 and 5, in ill-defined tasks, the meaning to be constructed (or the solution) is unknown or unpredictable in advance. The imaginative use of constraints in ill-defined tasks (see Chapter 5) is relevant not just for facilitating creativity but also for developing complex language. It creates a condition for repeated interactions among lower linguistic elements, pulling learners out of the attractor state. It helps to prevent learners getting stuck in safe linguistic utterances. In the process of using language as a creative tool – to construct new ideas or to deal with a task with unknown outcomes, the tool (language) itself is reshaped, reorganised, changes and grows in complexity (see Tin, 2011).

In traditional SLA research, change and complexity were viewed as an effect or a product (a feature of language output) rather than as a process. Various mechanisms and analytical tools have been developed to describe and measure product complexity of learner language.[2] In the usage-based model, change and complexity in our language does not necessarily mean the change in performance (surface level change). Change can be manifested in terms of change in our awareness of the language system and change in the cognitive processes involved. This situation is often known as 'reanalysis' where the rule of language has changed without the change in the surface linguistic patterns. For example, the language user may come to re-analyse the previously unanalysed utterances which they may have been using as an unanalysed, holistic chunk (e.g. Mummyiscoming). Through repeated exposure to the particular linguistic item and other similar items (e.g. Daddyiscoming, Grandpaiscoming) in various contexts, the user may begin to segment the utterance into its components (mummy is coming). He/she may become aware of the underlying construction (subject – is – verb-ing) and may begin to extend the use of that construction to other situations (a process known as 'analogy') (e.g. Peter is coming, Car is coming). In terms of creative language pedagogy, this view of *change and complexity as a process* indicates that even when learner language performance may look unchanged at the surface linguistic level, the underlying mechanisms and cognitive processes involved in producing such language may have changed and are thus worthy of investigation. Creating conditions for the use of various cognitive processes is important when implementing creative language teaching.

Task 10.2: Re-analysing the meaning and use of 'unremarkable'

A vignette: unremarkable

My sister who was visiting me in New Zealand (NZ) would like to extend her visa. She was requested by the NZ Immigration to perform cardiogram tests and to submit additional medical reports. Yesterday (6 June 2019)

(Continued)

the ECG results for my sister came out (the test was required for the immigration purposes). A word used in the result ('unremarkable') caught my attention. I didn't expect it to appear in that context. This was the first time I came across the word in a medical report. I started googling to find out the meaning of 'unremarkable'. When I started typing 'what does unremarkable mean', Google suggested '… CT scan'. As I was reading it (the meaning of 'unremarkable' in the CT scan), my colleague came to my office to leave her indoor plant with me as she would be away for a few weeks. She asked me whether I was ok and then I started talking about my sister's ECG report and the word 'unremarkable' (what it meant, etc.). My colleague explained that it was not significant enough to be noteworthy. Later after she left, I read more about the meaning of 'unremarkable' used in the medical context. I asked myself: why isn't the word 'normal' used? I found out why 'unremarkable' was a preferred word as nothing could be said with certainty as 'normal' in a medical context. Perhaps abnormality was the norm (just like what Carter said about everyday creativity).

1. How does the vignette described above reflect the view of language learning and language change as a process? What changes in cognitive processes have occurred? What are the conditions that led to that change?
2. Do you have examples where a language item you knew was re-analysed? What led to that re-analysis?
3. How can you create situations in language classrooms to help learners to re-analyse familiar language items?
4. How can foregrounding language discussed in Chapter 9 help learners to re-analyse language and undergo change at the underlying cognitive process level?

Comments:
In the above vignette, the semantic and functional property of 'unremarkable' which I had encountered and used many times in the past began to change. The word 'unremarkable' was re-analysed and its rule (functional property) began to change. This change emerged as I encountered the word in a new situation (reading a medical report for my sister) to understand its meaning. The report was important or valuable as it would decide whether her visa extension would be successful or not. Despite encountering the word only once, the situation in which it was encountered was salient and personally important. This led to my noticing and re-analysing the meaning of the word, checking it on google, asking a colleague (a native speaker) about the meaning. The process resulted in the restructuring of the functional property

of the word 'unremarkable'. The form-function mapping for 'unremarkable' was adjusted based on that experience.

The situation described above was also akin to the experience of schema refreshment (the cognitive function of literary creativity) discussed in Chapter 9. My expectation of what 'unremarkable' meant was disrupted and my schema about the meaning of remarkable was refreshed. The word 'unremarkable' which was an expected word for this medical context for my colleague was a form of unexpected irregularity for me: it was foregrounded and caught my attention. This shows that the concept of foregrounding is not just an inherent property of language but also an emergent feature in accordance with personal and contextual experiences. What is foregrounded and salient for one person at one time may not be so for another or even the same person at another time. Unexpected irregularities (deviation) at one time/for one person can simply be expected regularities at another time/for another person.

Language learning as learning constructions and creativity as the ability to produce acceptable and novel combinations within constructional constraints

In emergentism and usage-based approaches, learning a language involves learning 'a huge warehouse of constructions that vary in their degree of complexity and abstraction' (Wulff & Ellis, 2018: 39). Constructions come with different combinational qualities. Language learning involves gradually expanding the repertoire of constructional combinations to 'less frequent (…) acceptable novel combinations' (Wulff & Ellis, 2018: 39). The complexity of language in emergentism refers to the expanded repertoire of constructional combinations (or constructional combinational creativity). Constructions refer to 'form-function mappings that are conventionalized as ways to express meanings in a speech community' (Wulff & Ellis, 2018: 38). Constructions vary from simple, smallest pairings of form and meaning at the morpheme level to more complex, abstract pairings at the syntactic level. Examples are given in Table 10.1.

First, constructions differ in their level of *size* and *complexity*. Examples of simple, short constructions are the word 'nut' and the plural '-s' morpheme whereas constructions such as the ditransitive construction (Subject-Verb-Object1-Object2) are more complex.

Second, in terms of the level of *abstraction (schematisation)*, constructions differ along the continuum of lexicalised (lexically specific) to fully abstracted/schematised patterns. Some constructions are lexically fixed while others are partially or fully abstract syntactic patterns. For example, idioms such as 'kick the bucket' which is paired with the meaning of 'to die' is lexically fixed and specified. 'Thank you' and 'excuse me' are stored as fully lexicalised formulas in our repertoire of language constructions. On the other hand, 'Good + [time of day)'

TABLE 10.1 Examples of constructions at various levels

Levels	*Examples of constructions (form-function pairings)*
Morphemes	The morpheme '-aholic' (form) is paired with the meaning of 'being addicted to something'. The morpheme '-ed' (form) is paired with the meaning of past actions.
Words	The words 'nut, fruit, cake' (form) are paired with the meaning of various food items. The words 'eat, sleep, read' (form) are paired with the meaning of various activities.
Phrases (lexically specified, fully fixed)	The phrase 'excuse me' is paired with the meaning of getting someone's attention. It is used as a holistic chunk. The lexical items in the phrase are fixed. 'Kick the bucket' is paired with the meaning of 'to die'. The lexical items are fixed. 'kick a bucket' or 'kick a green bucket', etc. refers to different meanings.
Phrases (partially specified)	The phrase 'Good + (time of the day) is paired with the meaning of greeting. It is partially filled. Several times of the day can be inserted (Good morning/evening/afternoon).
Syntactic frames (abstract and general)	The double-object (ditransitive) syntactic form (Subject-Verb-Object1-Object2) is paired with the meaning of something being transferred. The form is abstract and general: the slots in the form are not lexically specified, but can be filled with various words. For example, Max gave the squirrel a nut. Steffi baked Max a cake. Nick gave Max a hug. The meaning of something being transferred is not reflected in the individual words (e.g. baked, gave) that make up the sentence. The ditransitive syntactic form coerces that meaning to those words.

is a partially schematised pattern which renders phrases such as *Good afternoon/evening/morning*. At the other end of the continuum are completely unfilled, fully schematic/abstract constructions such as the ditransitive construction. The slots in the construction can be filled with various words. The ditransitive construction is paired with the meaning of 'something (e.g. a nut) is transferred from one entity (e.g. Max) to another (e.g. squirrel)' (Max gave the squirrel a nut). This meaning is not completely predictable from the meaning of individual words which make up the sentence. The overall meaning of the sentence emerges through 'the fusion of the meanings of particular words with the construction meaning' (Goldberg, 1995: 140).

In terms of *productivity*, constructions vary. Lexically fixed constructions are less productive. Unfilled, abstract constructions, however, are very productive, enable the production of many utterances and afford the potential for creativity. Many words which share commonality of form or meaning can fill the slots

in those unfilled constructions, enabling the language user to produce a large number of language instances that fit the pattern. Abstract constructions can also enable language users to exercise creative lexical choice (also see Chapter 8). Both usual and unusual words can be used to fill the slots in the construction (Bybee, 2006; van Rooy & Kruger, 2015). Even fixed constructions such as fixed idioms, proverbs and sayings can be manipulated and disrupted by language users (e.g. see Carter, 1999).

Task 10.3: Abstraction, productivity and creativity

1. Look at the following examples. Rank them in terms of the level of abstraction, productivity and potential for creative language use. To what extent are the slots in the examples lexically fixed or replaceable with other words? To what extent can those slots be filled with unusual words and manipulated to disrupt our expectation (schema refreshment) and to produce unexpected irregularities? Try to commit an 'organised violent linguistic crime' on each of the examples.
   a. Mary gave Max a book.
   b. In case of fire, break glass.
   c. Out of the frying pan into the fire.

Comments:
The first example is the most abstract construction. Each slot in the sentence can be replaced with other words (e.g. Mary baked Max a cake. Susan gave Max a book. Mary gave Max a cake.) This construction, known as the ditransitive construction (something is being transferred), is the most productive construction compared to the other two examples. The language user can come up with many sentences using the construction. The verb slot can be filled with an unusual verb such as 'smiled' in 'Mary smiled me a kiss' (Schmid, 2016: 16). 'Smiled' is usually used as intransitive verb (e.g. Mary smiled). Hence, its appearance in the ditransitive construction is innovative. A new meaning (the ability to transfer something – a kiss) is now assigned by the ditransitive construction to 'smile'.

The second example is a partially fixed construction. 'In case of' is fixed, and the other slots in the construction are replaceable. However, the number of words that can replace the slots is limited as compared to the first example (e.g. In case of emergency, dial 911. In case of Covid-19 level 4, stay at home.). This construction is less productive compared to the first example but more productive than the third example. The 'in case of' construction is assigned with the meaning about what should happen in a certain situation. The poet (Roger McGough) skilfully manipulates this construction in

(Continued)

his poem entitled 'In case of fire' (also see Task 9.2 in Chapter 9). Various unusual words are used to fill the slots and the lines are arranged in a way to foreground the construction. (e.g. In case of fire, break glass. In case of glass, fill with water. In case of water, avoid nudist beach[3]). Applying the concept of creativity as exercising freedom within constraints (see Chapter 5), partially fixed constructions (despite having a higher degree of constrainedness compared to abstract constructions) can be manipulated to produce creative language utterances. An imaginative use of formal constraints such as a partially fixed lexical phrase can enable language users to search in the unfamiliar conceptual space while limiting search in the familiar space (i.e. deliberately avoiding the use of a small set of words usually used to fill the slots).

The third example ('Out of the frying pan into the fire') is lexically fixed and the least productive. Words in the construction are fixed. It is paired with the meaning: 'in an attempt to escape a bad situation, you end up in a worse situation'. However, a speaker in Carter's (1999: 197) study used 'out of the frying pan into the deep freeze' when talking about a couple whose relationship froze as they stopped talking to each other. Even lexically fixed constructions such as fixed idioms, proverbs and sayings can be disrupted and manipulated in an appropriate but unexpected way.

Productivity of constructions is not free but constrained. There are restrictions and rules constraining the types of lexis that can fill the slot (see Goldberg, 2019). Restrictions occur through *entrenchment* and *pre-emption*. For example, through repeated exposure to many exemplars of the ditransitive construction, the language user gradually comes to infer and generalise which grammatical categories (e.g. verbs) are more likely to be associated with the verb slot in the ditransitive construction and some verbs (e.g. give) may become more entrenched compared to other verbs. This entrenchment also leads to 'pre-emption' – a tendency to adopt constructions which language users have frequently encountered while pre-emptively eliminating other constructions (Tomasello, 2003).

This notion of pre-emption helps us understand a puzzle associated with creative language use: why are some innovative language usage events regarded as awkward, odd or wrong while others are judged by language users to be acceptable. For example, 'Mary explained him this' would be considered 'wrong' by language users while 'Mary smiled him a kiss' would be perceived as creative (see Goldberg, 2019). Although 'explained' or 'smiled' is not usually used in the double object construction, why does 'Mary explained him this' appear less acceptable than 'Mary smiled him a kiss'? According to the usage-based model, the answer to this puzzle lies in the notion of competition via statistical preemption (Goldberg, 2019). When there exists a familiar alternative, which is easily accessible to express the same message, the use of a novel utterance is less acceptable. The sentence 'Mary explained this to him' is a preferred alternative

which competes and wins over 'Mary explained him this'. In 'Mary smiled him a kiss', there is no alternative formulation which serves as a strong competitor to express the intended message. The form 'Mary smiled' or 'Mary smiled at him' are not competitors as they do not express the same message.

The above puzzle can also be explained with reference to the *motivational dimension* of linguistic creativity. As we have seen in Chapter 8, one of the motives for creative language use is the cognitive motive – the dissatisfaction with the meaning potential of existing language items and the need to express new meaning. In 'Mary smiled him a kiss', a new meaning is attributed to 'smiled' ('something being transferred via smiling') not by the meaning of the verb 'smile' but by the meaning associated with the double-object construction. However, in 'Mary explained him this', no new meaning is attributed by the double-object construction to 'explained' as the same meaning can be sufficiently expressed by the existing alternative ('Mary explained this to him'). Thus, there is no conceptual motive to use 'Mary explained him this'.

The notion of pre-emption can also be combined with the notion of *process creativity* to help understand the puzzle associated with creative language use and to help learners to develop language and creativity. When encountering or producing a novel utterance, language users naturally and unconsciously engage in exploratory thinking (one of the cognitive processes involved in creativity): exploring the current conceptual space for possible alternatives which can express the intended meaning. When this alternative is not easily available, the need to transform the current conceptual space of constructions is triggered or justified. When there is no strong competitor to pre-empt the novel utterance, it is likely to be judged as not only novel but also acceptable.

To sum up, the usage-based model complements the creativity literature and reinforces the view of language learning as learning constructions and learning to be creative within constructional constraints of various kinds. The usage-based model helps us unpack several puzzles such as: why do some language utterances produced by learners, despite being unexpected irregularities, look odd? why some unexpected irregularities (a feature of literary creativity) are more acceptable than others? Most language users through interacting with their speech community have built up a repertoire of shared, conventionalised constructions (a linguistic conceptual space) and within the constrainedness of those constructions, they have learnt to be creative. However, language learners' linguistic conceptual space will differ from knowledge of the target speech community. Language learners may be unaware of strong competitions which are accessible to other advanced users to express the same meaning. This results in the learner's use of novel utterances which, although interpretable, are judged by others to be 'wrong'. Before learners innovate and produce novel combinations of constructions, they need to be equipped with a rich network of constructions accepted to be conventionalised ways of expressing meaning in a speech community. This can then act as the conceptual space within which strong linguistic competitors are detected and statistical pre-emption is

exercised through exploratory thinking while being creative with language. In other words, creative language teaching is about enabling learners to exercise freedom within constraints – to exercise linguistic creativity within constructional constraints of various kinds.

Language learning as language use and creativity as the ability to foreground language

In the usage-based model, through repeated use and exposure to language in communicative contexts/discourse, language changes and becomes more abstract and complex not only in terms of the surface level but also in terms of the underlying cognitive processes. The term 'use' here refers not only to producing language but also to comprehending language. It covers both productive and receptive language. In addition to the need to produce language, 'The linguistic input learners receive is the primary source for their second language (L2) learning' (Wulff & Ellis, 2018: 37). Two key features of linguistic input that contribute to language learning are frequency/repetition and salience. I will discuss what each feature means and how each relates to the notion of creative language use.

Repeated language use, type and token repetitions and creativity

Linguistic structures, categories and constructions emerge through repeated exposure to language and through the use of general cognitive abilities such as generalisation, memorisation and categorisation. What is being repeated and how it is repeated have an impact on our linguistic knowledge, use of cognitive abilities and creativity. Repetition of language items occurs as tokens or types (Bybee, 2007).

Token frequency is the repetition of identical items (tokens) in the input. It refers to how often an item is repeated in the language we receive or produce. The token repeated can be individual words such as 'went', 'go', 'gave' or a combination of words ('there's', 'gave up') or a sentence (e.g. 'what's that?' 'there's noise'). Some linguistic items may have a higher token frequency than others in the input we receive or the language we produce.

Type frequency, on the other hand, is concerned with the repetition of 'varied items sharing commonalities of form or meaning' in a construction (Schmid, 2016: 14). 'Type' frequency is defined as 'the number of distinct lexical items that can be substituted in a given slot in a construction' (Bybee & Thompson, 1997: 384), or 'the number of items that exemplify a pattern' (Bybee, 2008: 221). Type frequency can refer to morphological patterns (e.g. the English regular past tense –ed, the English plural form –s) or syntactic patterns such as the ditransitive construction (Subject-Verb-Object1-Object2). Various distinct lexical items with shared commonalities of form or meaning can replace the slots in those

constructions. (e.g. 'He gave me a book, She baked him a cake, Travelling gives me a great pleasure' fill the ditransitive construction). Similarly, many verbs can fill the open slot in the –ed construction (e.g. learned, waited, conveyed, portrayed, etc.).

Every language use and repetition (type and token repetition) have a positive impact on language while 'extended periods of disuse have a negative impact' (Langacker, 1987: 59). In the usage-based model, the positive or negative impact is described in terms of the degree of *entrenchment*. 'Entrenchment can be understood as referring to a set of cognitive processes – mainly memory consolidation, chunking and automatisation – taking place in the minds of individual speakers'. (Schmid, 2016: 10). Linguistic items 'are variably entrenched depending on the frequency of their occurrence' (Langacker, 1987: 59).

Token repetition (repetition of identical items in discourse) results in *increased entrenchment* in terms of the *strength of representations* (memory consolidation) of the specific items in the mind of the language user. High token frequency of specific items has 'a conserving effect on their morphological form (Bybee, 2007: 10; Diessel, 2007), which makes them resistant to paradigmatic analogical pressure and change' (Schmid, 2016: 5). High token frequency may also have *contradictory effects* on language usage. It may have 'a reducing effect' on the phonological form of the specific items being repeated and a *'bleaching effect'* on the meanings of the specific items (Bybee, 2003, 2006). For example, the repetition of 'there's noise' in the poem (see Task 10.4) reinforces or strengthens the representation of this form-function correspondence in our mind and it is more likely to be remembered and repeated as it is. It may become resistant to change. However, paradoxically the high occurrence (overuse of this pattern) may result in its phonological form being reduced and its meaning becoming less important/noticeable (the bleaching effect). This may also explain why the repetition of 'the' in the poem is less likely to be noticed compared to the repetition of 'there's noise'. 'The' is a high-frequency word in various other linguistic texts and hence it is less likely to catch the learners' attention.

On the other hand, type frequency (repetition of varied items with shared common features of form or meaning) 'facilitates categorization, abstraction, generalisation and the emergence of variable schemas' (Schmid, 2016: 14). Type frequency facilitates the emergence of constructions (Traugott & Trousdale, 2013), allowing the language user's ability produce and comprehend 'an unbounded number of novel utterances' (McCauley, 2019: 2) as well as increasing 'the potential for innovation' (Traugott & Trousdale, 2013: 18). Like token frequency, type frequency can also have a contradictory effect: high frequent fillers of the variable slot are strongly represented, may function as 'attractors' and may contribute to the resistance to change. In terms of creative language teaching, it is important to create conditions to pull learners out of such attractor states, encouraging them to experiment with new varied items to fill the slots in constructions of various levels of abstraction and lexical specificity.

Task 10.4: Type and token frequency and creativity as foregrounding language (there's noise)

1. Identify examples of type frequency and token frequency in the following poem.
2. Discuss how both types of repetition (type and token frequency) contribute to creative language use and serve as foregrounding devices (deviation and parallelism) (also see Chapter 9).

There's noise in the house
There's noise in the backyard
There's noise on the hill
There's noise over the pillow
There's noise under the blanket
There's noise inside the mirror
There's noise between the lines
There's noise inside silence
There's uninterrupted noise when you have tinnitus
There's tinnitus when you hear permanent noise

(The poem is inspired by the poem 'there's noise on the street' in Spiro, 2004: 45)

Comments:
Examples of token frequency: At the level of phrase, the token 'there's noise' is the most repeated item (8 times). At the level of words, the words repeated are 'noise' (10), 'there's' (10), various prepositions which indicate location 'in' (2), 'on' (1), 'over' (1), 'under' (1), 'inside' (2), 'between' (1), conjunction 'when' (2), various nouns such as 'house' (1), 'backyard' (1), 'hill' (1) 'pillow' (1), 'blanket'(1), 'mirror'(1), 'lines'(1), 'silence' (1), 'tinnitus' (2), pronoun 'you' (2), verbs 'hear' (1) and 'have' (1), the definite article 'the' (7), adjectives 'uninterrupted' (1) and 'permanent' (1).

Token frequency plays an important part in making the items salient, catching language users' attention and helping language learners to notice the item. However, just being repeated is not sufficient to catch the reader's attention. While 'there's noise' catches our attention, the article 'the' is less likely to do so. The repetition of 'there's noise' in close proximity in this context is regarded as unexpected regularities (i.e. parallelism). However, the repetition of 'the' is an expected regularity and doesn't have the same foregrounding impact as 'there's noise'.

Examples of type frequency: The pattern (a partially filled construction) that is repeated is 'There's noise + prepositional phrase' to indicate the existence of a

phenomenon. Many prepositional phrases can fill the slot of the prepositional phrase. Within the context of this poem, this slot is filled by eight distinct lexical items which all share similar features of form (preposition + Noun) and meaning (indicating the location).

However, in the last two lines, the clause ('when + clause') that fills this slot changes the pattern. They have a varied form and meaning (showing the condition) compared to the meaning and form of the lexical items in the previous lines (which shows location). In doing so, the user has expanded the meaning and usage of the 'there's noise + …' construction from talking about the existence of a phenomenon in a location to the existence of the undesirable phenomenon (noise) due to a medical condition (i.e. tinnitus). The last two lines thus make the reader revisit the meaning of the previous lines. A new meaning is added/attributed to what looks like a series of unconnected sentences talking about the existence of noise in various locations. The lack of peace and silence in those various locations is now foregrounded and explained by the last two lines.

In terms of creativity as a process, both token and type repetitions can encourage the use of exploratory thinking, exploring all the possible varied lexical items with similar forms or meaning that can exemplify a particular pattern or a partially filled construction. Repetitions can also give rise to the use of transformational thinking. Through repeated use, the pattern can be transformed, giving rise to a new construction or a new form-function mapping. Unfilled abstract constructions provide an opportunity for innovation and creative language use through transformational thinking.

In terms of linguistic creativity discussed in Chapter 8, we can see examples of both pattern-reinforcing (parallelism) and patterning-reforming (deviation) linguistic choices (e.g. Carter, 1999). The pattern being reinforced is 'there's noise + prepositional phrases'. It serves as an unexpected repetition (parallelism). Pattern-reforming occurs in the last two lines which transform the pattern.

Through unexpected repetition of 'there's noise' in close proximity, the writer foregrounds the form and draws our attention to it. This could help to activate the use of re-analysis and abstraction – important cognitive skills involved in language learning. Learners can begin to re-analyse the function of 'there's' and notice which varied items of similar form or meaning can fill the slots. In other words, the process of abstraction occurs. There is also an element of playing with language intentionally for social and pragmatic purposes. This playfulness is afforded through parallelism – unexpected regularities or the skilful use of type and token repetition in an unexpected, but appropriate manner.

Salience of language use, language learning and creativity

Repetition alone is not always sufficient for language learning. Not all items, even after years of frequent exposure, are learnable (Wulff & Ellis, 2018). For example, despite the high occurrence in the input we receive, grammatical units such as the definite article 'the' may not become fully entrenched. On the other hand, some language items, despite occurring only once, are learned and remembered. This has led usage-based researchers to propose the salience effect of language input as an important feature of language learning. 'Salience' is a term used in psychological research to refer to 'the ability of a stimulus to stand out from the rest' (Ellis, 2016: 342). 'Learnability depends on salience: less salient cues are less readily learned than highly salient ones' (Wulff & Ellis, 2018: 43). Salient items are 'more likely to be perceived, to be attended to, and are more likely to enter into subsequent cognitive processing and learning' (Ellis, 2016: 342). Among various features that make items salient and catch our attention, *situation-specific salience*, most relevant for creative language teaching, refers to salience that arises due to our experience, background knowledge, expectation and the context in which an item appears. Situation-specific salience arises either via the confirmation or the violation of our immediate or long-term experience and expectation.

In *confirmation-based salience* (also known as *salience by entrenchment*), salience is driven either by the immediate context/experience or by the knowledge stored in our long-term memory. A segment is salient because it is the first thing that comes to our mind either because it is highly familiar and strongly entrenched in our long-term memory or because it is highly expected in a given, immediate context. In *violation-based salience* (also known as *salience by novelty and surprisal* (Schmid & Günther, 2016: 2), a segment is cognitively salient because we have never experienced it. It is totally unfamiliar and stands out because of 'violation of expectations based on lack of stored knowledge' in our long-term memory or due to 'violation of expectations derived from the probability of occurrence in the current context' (Schmid & Günther, 2016: 1). It is 'highly unexpected in a given context' (Schmid & Günther, 2016: 1).

For example, in the poem 'There's noise' (see Task 10.4), the phrase 'there's noise' is repeated and followed by a series of prepositional phrases. This makes our anticipating brain to predict what is going to happen next. Phrases which fit the semantic and formal properties of the previous lines are expected to follow and are the first thing that comes to our mind. These prepositional phrases are examples of confirmation-based salience. The last two lines are examples of salience by violation of expectations. Those two lines violate our expectation set up by the preceding lines. The form and function of the last two phrases are unexpected in the immediate context. The result is a surprise and this catches our attention. The type of knowledge which contributes to salience in that poem is based on the immediate, current context.

The notion of violation-based salience, in the usage-based model, helps us understand the role creative language use plays in language learning. Through foregrounding devices such as deviation and parallelism, linguistic items can be made salient via violation of expectation. They can be presented in a way that learners' expectations are violated (violation due to the immediate context in which they appear). This, in turn, makes those linguistic items memorable and therefore learned even though they are encountered only once. Salient effect created by novelty or surprisal (violation of expectation) is a powerful tool for language learning. Despite occurring once, a language item can catch our attention.

In violation-based salience, a linguistic form and/or a concept is salient by virtue of the use of cognitive processes such as *comparison*. Through a comparison of a piece of segment (form and/or meaning) against its immediate and/or long-term memory-based context, salient effects arise when the segment appears unexpected. Based on our exposure to language events and experience, we have accumulated a large amount of knowledge (linguistic knowledge and conceptual knowledge) which is activated, adjusted and modified every time we encounter a new language usage event. When the incoming event doesn't match our expectation, there is a surprise or novelty. Something is unexpected either because we have never experienced it in our life or we do not expect it to occur in a particular context.

If salience by novelty or 'surprisal' is to catch our attention, the *degree of novelty* plays an important role. If a segment is perceived as too novel or too surprising, our attentive brain may switch off due to the limited cognitive capacity. The event may be judged as not worth processing due to the great cognitive demand it makes on the language user. A certain degree of confirmation of our current conceptual space and expectation (known familiar experience) is required for violation-based salience to work. In other words, a combination of violation and confirmation of expectation is required for salience to catch our attention which is vital for language learning. This combination can occur through various form-function mappings (see Figure 10.1). As discussed earlier, constructions (form-function correspondences) are the key units in language learning.

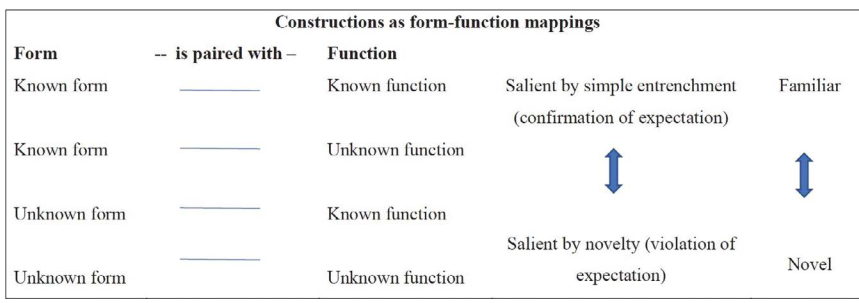

FIGURE 10.1 Salience through form-function mappings

The degree of novelty of linguistic segments and constructions can be viewed in terms of forms, functions or both.

- Known form-known function correspondence: In this situation, the language user produces or is exposed to a known construction (known form-known function correspondence). For example, a known word ('scream') is used to express a known meaning in a specific context (e.g. she screamed and children ran out of the shop) and the language user has experienced this association (the meaning associated with 'scream' and the use of the word in an intransitive construction (subject + verb)) previously. Encountering this usage event again adds to the confirmation of one's expectation about the language event (the use of 'scream' and its meaning) and increases the entrenchment of the form-function mapping of 'scream'.
- Known form–unknown function correspondence: The language user comes across a language usage event where the previously familiar form is used in an unfamiliar way to express a new meaning. For example, the known word 'screamed' may appear in a new sentence pattern 'She screamed the children out of the shop'. The caused motion construction[4] and the words that fill up the slots are familiar to the language user. But the way they are combined and the meaning the word 'screamed' is assigned to covey in the example above are somewhat unexpected and are new to many language users. The lack of readily accessible alternatives to compete with and to express the message also makes the new use of 'screamed' in this manner acceptable. In this case, salient effect by novelty arises through the use of a known form in an unfamiliar manner in such a way that a new meaning/sense is assigned to the word and that the use is acceptable due to the lack of strong competitors.
- Unknown form-known function correspondence: In this scenario, language users are exposed to a new form to express a known function/meaning. For example, the meaning of requesting someone to repeat can be performed by various phrases. The user may be aware of some phrases but unaware of others. When the request for repetition has been frequently performed by 'Sorry, can you say that again', the language user may be surprised when the same function is performed by a new form ('I beg your pardon'). The novelty in this case is related to the form. The degree of novelty may vary. The word 'pardon' may be completely unfamiliar to the learner but other words such as 'I, beg, your' and the abstract construction (subject – verb – object) may be familiar to the language user.
- Unknown form-unknown function correspondence: In this scenario, both the form and the meaning are unfamiliar to the language user. For example, the topic of digital gaming may be an unknown topic for a language user and the language used to talk about that topic may also involve highly technical, unfamiliar language or may be completely conducted in a language the learner has no knowledge of. The event will be assessed as too novel and incomprehensible.

Task 10.5: Salient effect and form-function correspondences of 'fine' and 'mediocre'

1. Read the following scenarios. Which types of form-function correspondences create the salient effect of language input encountered?

   Scenario 1:
   The following is a language usage event encountered by my brother at the Auckland International Immigration check point on his first visit to Auckland. At the immigration luggage check, the immigration officer asked him whether he had any items to declare. My brother had limited knowledge of English and so I had previously briefed him what he might be asked and what he should do at the luggage check. I wrote a letter for him to show to the immigration officer, saying he's carrying medicine for himself prescribed by his doctor for his treatment. The letter from the doctor was also attached. After he showed the letter (as instructed by me), the immigration officer said 'Fine' and pointed him to go and join the queue where there was an officer checking people's luggage. My brother was worried. He had nothing to worry about in terms of the content in the luggage. His worry was caused by what the immigration officer said 'fine'. What caused this worry?

   Scenario 2:
   This example is about my first encounter with the word 'mediocre'. Although this incidence occurred about 30 years ago when I was working at the British Council in Burma (Myanmar), that memory still remains with me vividly. I was talking to my friend in our office as we had lunch. We were talking about something that happened at work in L1 (Burmese). It's a shared experience: I knew exactly what it was about. As part of that conversation, she used the word 'mediocre' to describe that event. Despite encountering it the first time and only once, I learned that word. It was a new word used to express a shared meaning in a conversation mainly conducted in L1.

Comments on Scenario 1:
My brother had previously encountered 'fine' in association with the meaning of 'penalty'. It is a frequently used loan word in Myanmar: we use it frequently to talk about various kinds of fines (penalty) and an encounter with officials and policemen is a prototypical event in which people are frequently charged with various fines (e.g. fine for driving through the traffic light) in Myanmar. My brother hadn't encountered the meaning of 'fine' as referring to 'alright'. Thus, when the immigration officer said 'fine', he thought he was being fined and this made him worried. Nothing happened later when he joined the queue: his luggage was checked along with other passengers. He was allowed to enter the country. Later, I explained the meaning of 'fine' (alright) to him. This incident made the word 'fine' salient for him and I don't

(Continued)

think he would ever forget that meaning. This is an example of a known form (fine) being encountered in an unfamiliar context (unfamiliar to self) to talk about an unfamiliar meaning that hasn't been associated with the word yet for my brother. The event was personally significant too: whether he would be allowed to enter the country or not. This made this language usage event appear more salient. Just one trial like this (after realising what it meant) had a huge impact on my brother's understanding of the word. Several conditions contributed to this: salient effect by surprisal (because a known word was used to express a new meaning (with which the form hadn't been associated in the previous linguistic repertoire of the individual) and the importance of the context in which it appeared (high-stake situation which could affect whether he would be allowed to enter the country or not).

Comments on Scenario 2:
This scenario is a language usage event involving an unknown form- known meaning correspondence. The word 'mediocre' was a new word (unknown form) to me at that time. But the context in which it appeared made the meaning it conveyed familiar.

In both scenarios, the salient effect worked because there were both confirmation and violation of experience and expectation. In Scenario 1, the new, unexpected meaning was attributed to a familiar form. The word encountered was a familiar, frequently used word but the previous meaning associated with this known form was violated. In Scenario 2, the meaning was familiar due to the immediate context but the form used to convey this meaning was novel. I hadn't heard of the word in association with a known, existing meaning (which we frequently talked about with my friend).

Many language users will encounter language usage events at various stages of known-unknown form-function correspondences. To help learners' language to increase in complexity and to build a rich network of constructions, we need to create conditions where their familiar known utterances are used and combined in various ways to express new meaning. We also need to give them opportunities to be exposed to new forms to talk about known and unknown functions. Of course, there should be opportunities for language learners to use known forms in association with known meanings as this contributes to the entrenchment of those familiar form-function correspondences and the ease of processing. As discussed earlier, a long period of disuse can impact language negatively. It is however important that language learners do not get stuck in those familiar, entrenched language constructions but are given opportunities to explore and expand their language. Blocking (also known as learned attention/attentional biases) can occur due to previous experience and entrenched linguistic knowledge.

> Blocking is an associative learning phenomenon (…) that shifts learners' attention to input as a result of prior experience (…) Knowing that a

> particular stimulus is associated with a particular outcome makes it harder to learn that another cue, subsequently paired with that same outcome, is also a good predictor of it. The prior association "blocks" further associations.
>
> *(Cintrón-Valentín & Ellis, 2016: 4)*

That phenomenon of blocking is similar to what cognitive researchers call 'cognitive fixation tendency' or what complex/dynamic system theory calls 'attractor state'. The previously learned cue serves as the attractor state for a particular form-function mapping. It is important to pull learners out of such blocks, attractor states or 'learned attentional biases' (Cintrón-Valentín & Ellis, 2016: 4). One way of doing this, as discussed in the earlier part of this chapter and in Chapter 5, is getting learners to use language to deal with complex, ill-defined tasks where the meaning to be constructed is unknown and cannot be predicted in advance. As they use language to construct new meaning (new to self) within constraints, learners' language is reshaped and transformed.

Implications of the usage-based view of language learning for creative language teaching

The usage-based view of language learning serves as the ground on which creative language pedagogy can be based. The features of language learning found in the usage-based model are conducive to the view of creativity proposed in various chapters: in particular, the view of creativity as the ability to exercise a multitude of cognitive processes, the ability to use language as a tool to produce, new valuable ideas, the ability to produce acceptable and novel combinations within constraints, and the ability to foreground, explore, transform, reinforce, manipulate language and disrupt expectation. Based on the key features of language learning in the usage-based model which complement the features of creativity, the implications for creative language teaching are summarised below.

First, the usage-based view confirms the importance of ill-defined, complex tasks and the need to use language to construct new meaning (new to self). In the usage-based model, learners' language becomes more complex as they use language to deal with complex tasks. That is, as they use language to construct new meaning (unknown to self), their language is transformed and changed. Change and complexity in the usage-based model occurs not only in terms of the surface level but also in terms of underlying cognitive processes. Even though at the surface level learners' language may look unchanged, the underlying cognitive processes involved in producing that language may have changed. Although change is a natural characteristic of language learning, it is not automatic or doesn't occur in a linear manner. There is waxing and waning and learners fall into attractor state where they are temporarily trapped in using safe linguistic utterances. This phenomenon (also known as 'blocking', 'cognitive fixation tendency' or 'attractor state') occurs due to statistical pre-emption. When there are known, established alternatives available, the need to seek new alternatives is made redundant. In other words, the cognitive motive or dissatisfaction with current, existing expressions (one of the motives for creative language use) need to be experienced for the language change to occur.

Activities proposed in this chapter as well as in various preceding chapters are designed to afford opportunities for constructing new meaning within constraints and activating creative cognitive processes. If creative language pedagogy is to promote not only creativity but also language learning, it is vital to set up conditions for complex tasks which will facilitate language change not only at the surface level but also in terms of the general cognitive processes such as the use of re-analayis, analogy as well as creative thinking skills such as combinational, exploratory, transformational thinking and so on. The notion of ill-defined tasks proposed by creativity researchers in the field of psychology is vital for understanding complex tasks. Ill-defined tasks are tasks where the goal and outcome cannot be predicted in advance. The procedure or the steps learners go through need to be carefully planned by the teacher and an imaginative and disciplined use of constraints plays an important role to encourage the use of various general and creative cognitive processes. In terms of research, it is worth investigating not just the finished linguistic products but also the actual cognitive mechanisms and processes which learners undergo in producing language in various tasks. It is important to investigate how various creative thinking skills such as combinational, exploratory and transformational creativity complement and co-occur alongside the use of general cognitive skills such as re-analysis and analogy when learners use language to perform ill-defined, complex tasks.

Task 10.6: Ill-defined, complex tasks

1. In the activities below found in many language teaching coursebooks, the learner is told in advance what the final outcome they are producing will be. In other words, it is a well-defined task with a known outcome to be achieved. How can you modify the task to an ill-defined, complex task which will encourage language learners to explore and transform their language.

   Activities

   i. Describe a family member. Tell us about him/her in a few sentences.
   ii. Write a letter to express your emotions to someone you love or hate.

Second, the usage-based model of language learning indicates the need for confirmation and violation of expectation, experience and knowledge when setting up language learning tasks. Language items need to be presented in such a way that learners experience both confirmation and violation of expectation. While confirmation-based salience contributes to the entrenchment of linguistic utterances, violation-based salience makes language items memorable and catches the attention of language learners despite occurring only once. This may further facilitate the use of various cognitive processes such as re-analysis. Pattern-reforming choices and deviation (features of everyday and literary creativity) play an important role in foregrounding language, making language items salient and memorable for

language learners. However, the degree of surprise needs to be considered. Too much unexpectedness could overload learners' cognitive processing. There are various ways of manipulating the level of expectedness and unexpectedness, familiarity and unfamiliarity in terms of form-function pairing. Known familiar forms can be made salient by using them for unfamiliar meaning. Similarly, new linguistic forms can be made salient by using them for familiar as well as unfamiliar meaning.

Task 10.7: Known form-unknown function (Lady Ga Ga appeared not on a red carpet, but in a red carpet)

During the inauguration ceremony for the US president Joe Biden, Lady Ga Ga appeared in a dramatic costume (big red skirt) to sing the national anthem. The Late Night show host Stephen Colbert talked about her appearance as follows: 'Lady Ga Ga appeared not on a red carpet, but in a red carpet' (see Figure 10.2).

1. What familiar language form is being made salient here to refer to an unfamiliar meaning? (known form-unknown function)
2. Can you find examples of language usage events which illustrate various examples of violation-based salience?

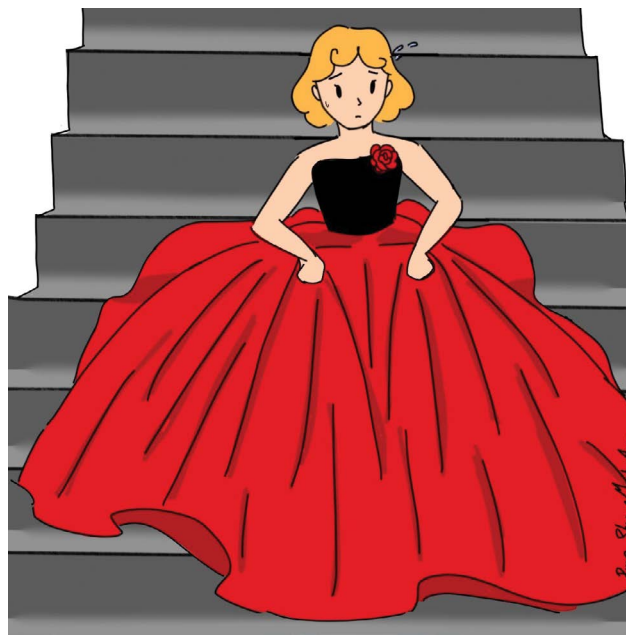

FIGURE 10.2 Arriving not on a red carpet, but in a red carpet: Commissioned by the author[5]

(Continued)

Comment:
Normally prepositions such as 'on' and 'in' which occur so frequently in language input we encounter wouldn't catch our attention. However, in this instance, the known familiar form 'in' is made salient and is used in an unfamiliar manner to convey a new meaning (someone arriving in a red carpet to exaggerate the enormous size of her costume). This is an example of the language user's ability to transform the meaning of a familiar language form and use it in a new construction.

Task 10.8: Unknown form-known function (crocodile on the ladder)

1. Look at the image (Figure 10.3) and the caption written in Burmese (Myanmar) (see Figure 10.3). Can you predict the meaning of the caption? What might the writer be trying to say?

FIGURE 10.3 Crocodile on the ladder: Commissioned by the author[6]

Task 10.9: The process of language change (throwing someone under the bus)

During the Covid-19 pandemic, the idiom 'throwing someone under the bus' caught my attention. The phrase was used by the TV news reporter in New Zealand. He was talking about the New Zealand Health Minister who blamed

the popular Dr Ashley Bloomfield when the managed facility failed to take proper procedure when dealing with Covid-19 cases. The reporter used 'the Mister is throwing Ashely under the bus'. It is an example of violation-based salience for me at that time: it's a new form used for a meaning which I can predict from the context. The idiom popped up again in various news talking about Donald Trump during the 2021 US election (how he threw his closest allies such as his personal lawyer under the bus when situations turned bad) and how he threw the whole country under the bus, etc. Those various encounters of the same known form in association with the known meaning contributed to the entrenchment of the idiom in my linguistic conceptual space. I begin to use it when the situation arises and also become curious to find out how language users may have transformed its use (a relatively fixed construction). I googled 'throwing someone under' and found other alternatives as follows:

> Beware of throwing someone under the bus. Remember: the bus does shift into reverse (Janette McGowen).
>
> Beware: Karma drives the bus you just threw me under. (Someecards, user card)
>
> (Source: https://www.pinterest.nz/pin/37647346863194340/ ;accessed on 26 January 2021)

1. Reflect on your own experience of language learning. Keep a journal, recording the following:
   - any new form you come across which refers to a meaning you are familiar with.
   - other further encounters with the same form in other situations, referring to the same meaning and the process of the construction becoming entrenched.
   - examples of that form being used in a transformative way.

Third, the usage-based model emphasises the importance of type and token repetition and the need for activating cognitive processes. Token frequency (repetition of identical items) can activate the use of cognitive processes such as entrenchment, chunking and memorisation. On the other hand, repeated exposure to language items as type frequency activates cognitive processes such as re-analysis, analogy, exploratory and transformational thinking and is important for abstraction and the emergence of abstract constructions and patterns. Learners need to be exposed to varied language items of similar form or meaning which can fill the slots in a construction. Such exposure to type frequency requires or promotes exploratory thinking (exploring all the possibilities that can exemplify a pattern or fill a slot in an abstract construction) and also has a potential for transformational thinking (transforming the pattern by filling the slot with new items to express new meaning).

Task 10.10: Type repetition, pattern-reinforcing and pattern-reforming choices

Take a structure presented in a language teaching coursebook. Ask students to produce many sentences, following the pattern (pattern-reinforcing) as well as transforming the pattern (pattern-reforming). The following is an example for the 'There is/are …' construction.

1. Get students to write as many sentences as possible that start with 'There is …'.
2. Get students to shout out the sentences and write them on the board. Students are likely to echo a similar sentence pattern or a construction that has been said by other students. They are also likely to retrieve the most familiar, entrenched examples that they have come across.
   e.g.
   S1: There is a cat on the mat.
   S2: There are many students in the class.
   S3: There are many people in China.

3. After a while, the teacher gets the students to change the pattern and encourages them to come up with a different structure.
   e.g.
   S3: There is a man trying to get into my house.
   S4: There are children playing in the field.
   S5: There is a girl sitting on the bench.

4. After a while, the teacher gets students to change the pattern and produce some other different patterns.
   e.g.
   S6: There is a girl whose lovely smile melts the heart of every man.
   S7: There are two reasons why you must buy this house.

   This procedure can continue until students can no longer come up with new patterns.

5. Ask students to work in groups. Ask them to organise and modify sentences produced in an interesting text (e.g. a poem, part of a speech, an advertisement or other text types). Alternatively, the teacher can give a title (e.g. in the town I want to live in) and ask students to choose the sentences they have produced and use them with some modification.

This introduction of a constraint (the title) only after they have produced sentences adds an element of surprise and unexpectedness, forcing learners to re-analyse and transform sentences they have produced earlier.

Conclusion

The chapter argues that learning to be creative complements language learning. Key features of language learning in the usage-based model complement features of creativity discussed in the previous chapter. The usage-based model is a foundation on which creative language teaching should be based. The key features of the usage-based model can be summarised as follows:

- Language change and complexity occur not only at the surface level but also at the level of underlying cognitive processes involved in comprehending and producing language. The cognitive processes involved in language learning are not domain-specific. Understanding the general cognitive processes involved in learning of any kind and creativity contributes to our understanding of language learning.
- Language learning is learning constructions and building a rich network of constructions. Constructions vary in sizes, complexity, abstraction, productivity and come with different combinational qualities. Some are lexically fixed (e.g. idioms) while others are partially or fully unfilled. Abstract constructions are productive and offer opportunities for creative language use and innovation. They afford the use of various creative thinking skills such as exploratory, combinational and transformational thinking and the use of domain-general cognitive thinking skills such as analogy, re-analysis, etc. Productivity however is not free but constrained. Partially fixed and fully fixed constructions can also be manipulated.
- Several factors contribute to learning constructions: repetition/frequency and salience. Repetition occurs in terms of token or type. Token frequency is the repetition of the identical language items whereas type frequency is the repetition of varied items with similar forms or meanings that can fill the slots in abstract constructions or that can represent a pattern. Token frequency contributes to the entrenchment of language constructions, strengthening the representation of form-function mappings and the ease with which they can be processed. Type frequency facilitates the use of various cognitive processes such as abstraction, generalisation, analogy, re-analysis and leads to the emergence of abstract constructions and patterns.

- A large amount of repeated exposure to language use in authentic contexts (type and token repetition) is desirable for language learning. Unfortunately, such rich language environments are not always available in many L2 learning contexts. Frequency is not the only determining factor for learning constructions. Language items, despite occurring frequently, are not always learnable and there are other factors that need to be considered. Among them, salience effect by novelty or surprisal is a powerful tool for language learning. Despite occurring once, some language items are learned and remembered.
- There are many ways by which a salient effect by novelty or surprisal can be achieved. Both confirmation and violation of expectations afford the salience effect to work. Complete violation of expectation without a certain degree of confirmation of expectation will lead the language user to switch off processing language due to the great cognitive demand it makes.
- If constructions which form the basic unit of language learning refer to form-function mappings, a salient effect can occur in terms of form, function or both. A familiar form can appear in unfamiliar semantic contexts to indicate meanings which they haven't previously been paired with. Such occurrences make the form salient and a new meaning is added to the existing form. There are also other possibilities in which novelty of form and meaning can occur. The need to express new meaning and the lack of existing alternatives which are easily accessible to express the meaning can facilitate language users to innovate and use language in creative ways, combining known constructions in unusual but acceptable ways and transforming current constructional networks.
- Blocking (also known as learned attention or attentional biases) can occur due to previously learned and fully entrenched constructions serving as the attractor state and blocking further alternatives. Conditions need to be created to pull learners out of such temporarily blocked states. Designing tasks in an ill-defined manner where the meaning to be constructed is unknown can help unblock such cognitive fixation tendency.

Notes

1 In this 'The Rabbit and the Tortoise The Revolution 1M Project' (https://www.youtube.com/watch?v=Y-bM-WfQoN0) which received 1.5 million hits within 24 hours, the organiser created a revised version of the famous rabbit and tortoise fable to bait clicks to fund the 2021 Spring Revolution, Myanmar. The success of the video is because of the way the original story is transformed to fit the current ongoing revolution that is taking place between the civilians and the military regime (accessed 10 September 2021).

2 In this product view, complexity of language appears as a component of CAF (complexity, accuracy, fluency) and learners' language performance is described in terms of these three key features. Complexity refers to 'the extent to which the language produced in performing a task is elaborate and varied' (R. Ellis, 2003: 340).

3 Also see https://alanjwrightpoetrypizzazz.blogspot.com/2020/09/a-look-at-poetry-of-roger-mcgough.html (accessed 3 August 2021).
4 The caused motion construction (subject + verb + object + directional) is paired with the meaning of 'X causes Y to move Z'. Examples of the caused motion construction are 'Mike pushed the cat into the cage', 'Mary helped the old woman into the car', 'He kicked the ball into the room' (also see Goldberg, 1995).
5 This picture is inspired by the image of Lady Ga Ga arriving to sing the National Anthem during the 59th Presidential Inauguration at the US Capitol in Washington, Wednesday, January 20, 2021, AP Photo/Patrick Semansky, Pool. See https://wwd.com/fashion-news/fashion-features/schiaparelli-designer-daniel-roseberry-lady-gaga-dress-joe-biden-inauguration-1234710621/ (accessed 26 January 2021)
6 This image is inspired by the image drawn by Keigo. See https://www.boredpanda.com/crocodile-life-animals-illustrations-keigo-japan/?media_id=1392701&utm_source=pinterest&utm_medium=social&utm_campaign=organic

11

View of language teaching and creative language pedagogy

Introduction

This chapter discusses how creative language pedagogy is informed by a view of language teaching as a creative pedagogical act. It views teaching as a fundamentally creative act and views teachers as having the potential to teach language creatively for creativity. Teaching language for creativity targets developing students' creativity (both in a general and a discipline-specific sense) while teaching language creatively focuses on developing teachers' creativity and is concerned with the use of innovative pedagogical procedures, techniques and heuristics to add variety, novelty to language lessons and to motivate students. Various activities can be conducted to promote language teachers' creativity (i.e. the ability to produce new valuable ways of teaching language, to transform their current teaching practices to promote creativity in language learners). Developing teachers' creativity requires time. Conditions need to be created to get teachers involved in the process of discovering new valuable ways of teaching language for creativity.

The chapter focuses on teaching language creatively in terms of materials development, reflective teaching and teacher development. Developing language teachers' creativity is viewed as both product creativity and process creativity. The former focuses on developing language teachers' ability to produce new, valuable ways of teaching while the latter focuses on their ability to reflect on the underlying cognitive processes involved in creative language teaching and to transform ordinary language teaching materials into creative ones. There is a wide range of skills and abilities that teachers can develop in their creative language teaching.

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Teaching language creatively: Materials development

In the discipline of language teaching, creative language teaching has been discussed widely with reference to materials development (also see Chapter 7). Teachers' ability to teach language creatively can be conceptualised as their ability to come up with new ideas for language teaching materials. Teaching language creatively has been written about in a process-oriented approach as well as in a product-oriented way. In the process-oriented view, writers have shown how language teachers themselves can generate new ideas for language teaching while according to the product-oriented view, a popular approach taken by many writers, the focus is on demonstrating various creative activities for language teaching.

An example of the *process-oriented approach* is illustrated in Maley's earlier work on language teachers' creativity. Maley (2003) proposes how new ideas for materials can be generated in terms of input, procedure and outcome.

First, there is a wide range of raw *inputs* language teachers can use when designing materials and teaching language creatively. These inputs can come from various sources: texts, people, internet, student-made materials, topics/themes, realia, photos, images and so on. If one takes the investment theory of creativity (Sternberg & Lubart, 1992) where creativity is viewed as the ability to buy low and sell high, creative teachers are the ones who can transform low-value materials and inputs into high-value ones.

Task 11.1: The woman hated the man

1. Taking a simple sentence such as 'The woman hated the man' as raw input, think of a set of procedures that can be applied to the input. How can the teacher use that input? Think of as many ways of using that input.
2. Look at the following procedure. What principles and components of creativity and linguistic creativity are revealed?

   The teacher shows students the sentence 'The woman hated the man' (subject + verb + object). Then ask the students to write as many sentences as possible filling in the verb slot with different verbs. Encourage them to think of interesting verbs. Get the class to shout out the sentences and the teacher writes them on the board.

   Examples of sentences produced by students are:

   The woman framed the man.
   The woman adored the man.

(Continued)

The woman hit the man.
The woman drowned the man.
The woman beat the man.
The woman created the man.
The woman kissed the man.
The woman tricked the man.
The woman left the man.
The woman cared the man.
The woman ruined the man.
The woman tickled the man.
The woman kicked the man.
The woman destroyed the man.
The woman killed the man.
The woman betrayed the man.
The woman followed the man.
The woman missed the man.
The woman left the man.
The woman slapped the man.
The woman was the man.
The woman taught the man.
The woman gave up the man.
The woman gave birth to the man.
The woman dismissed the man.
The woman forgot the man.
The woman abandoned the man.
The woman believed the man.
The woman married the man.
The woman remembered the man.
The woman fired the man.
The woman became the man.

Comments:
The principle of creativity reflected here is the use of exploratory thinking – exploring all the possibilities within the current conceptual space (concerning the kind of verbs that can fill the subject + verb + object construction). This can also be described as the use of pattern-reinforcing choices where students echo and follow a similar pattern. The meaning of the construction is the subject does something to the object. What is being repeated here is 'type repetition' (repetition of varied items with a similar form to fill a construction). The repetition can also give rise to transformational thinking. This happens when one of the students comes up with 'The woman was the man'. This changes the pattern and also the meaning associated with the construction.

3. Now the sentences produced by students (a kind of outcomes) can be used as raw input to generate further outcomes. Think of a set of procedures, rules (product constraints and process constraints) and activities that can be applied to the list of sentences (inputs) above.

   Examples:
   Students can be asked to work in groups. They are asked to look at the sentences and select some sentences. They can also add some more sentences. Then, the teacher asks them to rearrange those sentences to produce various text types such as a love story, a thriller, a comedy, a philosophical piece, an essay, a controversial piece of news and so on. Students are allowed to add a few words to their sentences (minimum two or three words) and are also allowed to replace some words as appropriate.

   Examples are given below.

   A thriller
   The woman hit the man.
   She carried him in her arms.
   She then crushed him into pieces.
   She burned them to ashes.
   She buried the ashes in her rose garden.

   A love story
   The woman met the man.
   She dated him.
   She kissed him.
   She loved him.
   She married him.
   She divorced him.
   She found another man.

In many language classrooms, the *input* often takes the form of published materials or prescribed textbooks. Many limitations may prohibit teachers from exercising creativity in terms of inputs (e.g. limited access to texts, images, technology, internet, etc). However, constraints (limitations) can enable creativity as we have seen in Chapter 5. It is important to understand and investigate how language teachers exercise creativity within limited constraints such as limited resources and material inputs available. Creative language teaching does not necessarily mean having an abundance of material inputs that teachers can access and the freedom to choose a wide range of inputs. It can also mean how teachers exercise creativity within various forms of input constraints. It can mean exploring other alternatives while material inputs and resources are limited.

In recent years, innovative language teaching has been equated with the use of technology. Various technological resources, software, apps have been proposed and entered our language classrooms (e.g. see Kiddle, 2013; Motteram, 2011). During the Covid-19 lockdown, the importance of technology has more than ever received our attention. Many reluctant teachers have readily embraced and learned to use technology in their language classrooms. However, this access to technology is not equally distributed. Even if we have unlimited access to technology, it is desirable to explore other alternatives and transform our thinking and habit. Using creativity heuristics such as 'do-the-opposite', teachers can deliberately set up a constraint, banning technology to expand their pedagogical conceptual space. Various forms of input for language teaching can be experimented: using various forms of human resources instead of technology or using technology in a different way.

In addition to input, another important feature of creative language teaching comes in the form of *process*, procedures and techniques that can be applied to various types of raw inputs. While inputs usually come in the form of visible, concrete shapes, procedures and techniques are what Maley (2003) calls 'meta-materials' – empty pedagogical procedures which can be applied to any kind of inputs. The term 'process' in Maley's framework refers to how those various inputs are used or what we do with them. The process covers a wide range of things ranging from time, mode of interaction, form of interaction to techniques, task-types and generative procedures. Adopting the algorithmic view of creativity (see Chapter 6), the list can also be extended to include the sequence of steps to be followed, the order in which the steps are to be taken. Processes can also cover the various types of rules and limitations (constraints) as well as the timing of those constraints. Creative teachers have the ability to use, manipulate and generate a variety of processes such as procedures, algorithms, constraints, heuristics to solve both routine well-structured problems (with known solutions) as well as creative ill-structured problems (with unknown solutions and pathways). Inputs for language teaching materials (also known as 'semi-materials') are often controlled by external stakeholders such as the school's curricular policy, and the ministry of education. Inputs are also associated with cost. On the other hand, procedures (how teachers use those semi-materials or inputs) are more in the hand of teachers and are not much cost-associated. Equipping teachers with a wide repertoire of heuristics, algorithms, techniques and procedures could be a sustainable way of promoting teachers' creativity and producing creative language teaching materials.

Finally, the third component, *outcomes*, refers to what products are to be achieved as a result of the use of inputs and the process. Four major outcomes are listed in Maley's framework: material outcomes, pedagogical outcomes, educational outcomes, psycho-social outcomes. Materials outcomes can come in different shapes (written, oral, posters, visual, audio, video, etc.). Pedagogical outcomes are outcomes related to domain-specific language-related outcomes such as learning language items, constructions and language skills and creative

language use. Other domain-general educational and psycho-social outcomes can also be achieved through various language teaching materials. One such outcome is developing creativity-relevant skills.

Task 11.2: Same input but different procedures with different outcomes

1. Take a raw input such as a newspaper article. Think of how you can use that input creatively in a language classroom. Generate as many ideas as you can. What sorts of outcomes can you achieve? Think of as many as you can (product creativity).
2. Think of rules and constraints you can set up, using that same input (process creativity).
3. Think of a detailed procedure (a sequence of logical steps) (process creativity).
4. Think of some creativity heuristics that can be applied to that input (process creativity).

An example of the *product-oriented approach* to language teachers' creativity is found in a recent book by Maley (2018) in which he shares 50 creative activities for language teachers to try out in their classroom (see Table 11.1). Creative language teaching is seen in association with literary creativity and creative writing. Many activities proposed are related to the literary genre such as poetry, drama, songs and so on.

Many other scholars have also written about creative ideas and activities to help language teachers to teach language creatively. Different labels other than

TABLE 11.1 Maley's 50 creative activities

List of contents covered in Maley's 50 creative activities (Source: Maley, 2018)

A. Creative Writing
1. In the Distance: By My Feet
2. Growing Stems Into Poems
(…)

B. Working with Music and Sound
15. Rhythmic Clapping
16. Vocal Tapestry
(…)

C. Working with Drama and the Voice
24. Sculpting a Tableau
25. Performing texts
(…)

D. Playing with Language
34. Doing the opposite
35. Shortening a Text
(…)

E. Hands-on Activities
48. Construction Site
49. Installation Art
50. Making a Collage

TABLE 11.2 Examples of books on creative ideas and activities for language teachers

Clandfield, L. and Hadfield, J. 2017. *Interaction online: creative activities for blended learning.* Cambridge: Cambridge University Press.
Gerngross, G., Puchta, H., and Thornbury, S. 2006. *Teaching Grammar Creatively.* Helbling Languages.
Maley, A. and Mukundan, J. 2011. *Writing stories (A resource book for teachers of English).* Pearson Malaysia.
Maly, A. and Mukundan, J. 2011. *Writing poems (A resource book for teachers of English).* Pearson Malaysia.
Pugliese, C. 2010. *Being creative (The challenge of change in the classroom).* Delta Teacher Development Series: 62.
Spiro, J. 2004. *Creative Poetry Writing. (Resource books for teachers).* Oxford: Oxford University Press.
Spiro, J. 2006. *Storybuilding (Resource Books for Teachers).* Oxford: Oxford University Press.
Wajnryb, R. 2003. *Stories: Narrative activities in the language classroom.* Cambridge: Cambridge University Press.

'creative' or 'creativity' have also been used (e.g. games[1]). See Table 11.2 for a sample of some books that share innovative ideas and materials for teaching language creatively:

Although the writers of those books (Table 11.2) have generously shared an abundance of innovative language teaching materials, ideas and activities that teachers can try out, they often fail to demonstrate teaching language creatively as a process – that is, how teachers themselves can come up with such creative ideas and activities and how the writers have come up with those ideas. The writers often fail to explicitly articulate what view and definition of creativity is being adopted. The approach taken to creativity is often an intuitive approach. As discussed in Chapter 2, an intuitive approach does not formally define creativity and assumes that we recognise creativity when we see it. There is a need to articulate more explicitly the guiding principles which can help teachers to generate ideas for teaching language creatively: the principles which are informed by a view of creativity as a multi-dimensional concept.

Task 11.3: Language teaching materials and creativity

1. Take a look at the example of a creative idea presented in Maley (2018). What view of creativity seems to be reflected in this example? One of the approaches to defining creativity is a confluence-style, reductionist approach. As we have seen in Chapter 2, creativity is made up of various components. What components of creativity seem to be reflected in that example?
2. Get another example of a creative idea/activity published in a book related to teaching language creatively. Compare it with the example

by Maley (2018). What are the differences and similarities in terms of the view and definition of creativity reflected in the activities?

Example 1 (Maley, 2018: 4–5):

Growing Stems into Poems

Here students revise and rehearse grammatical structures they have been taught in a light-hearted way that encourages them to introduce a note of fantasy and humour.

In this activity, students use grammatical stems to develop short poems. A stem is the first part of a grammatical pattern, which students then complete. For example:

I used to … But now I …
I love … But I hate …
Will you …? Yes, I will./No, I won't.
(….)

You need to explain how stems work, then demonstrate by developing a short poem, eliciting the content to grow the stem. For example:

Will you … (do something for me)?
Will you sit with me? Yes, I will.
Will you talk to me? Yes, I will.
(….)
Will you come to my party? Yes, I will.
Will you dance with me? Yes, I will.
Will you marry me? NO, I WON'T. I'm married already.

Then choose a stem you want them to work with. In pairs, students try to find as many ways of completing the stem as possible. They then try to arrange the sentences into a short poem as in the example. They should try to make the last line humorous or striking in some way – by breaking the stem pattern.

Comments on Example 1:
The activity above is based on the view of literary creativity and two mechanisms are involved: pattern reforming and pattern reinforcing. Students are encouraged to play with language through type repetition (repeating the same construction with different fillers) and transformation (the last line significantly transforms the meaning of the poem and adds an element of surprise for an aesthetic purpose). Based on the example provided, teachers are encouraged to apply the same technique to other sentence stems. This could be seen as promoting teachers' ability to engage in exploratory thinking: exploring other alternatives within the same conceptual space.

Teaching language creatively: Reflective language teaching

Teaching language creatively does not necessarily mean teachers change what they do at the observable level and constantly find new ways of teaching language. As discussed in Chapter 3, the ability to produce new valuable ideas covers a wide range of things. Ideas refer not only to new observable artefacts, objects, activities but also to new valuable ways of thinking (processes) about their practices. As Freeman (1989: 38) notes, 'change does not necessarily mean doing something differently; it can mean a change in awareness. Change can be an affirmation of current practice'. Applying this notion of change to the meaning of creativity, we can perhaps say that creativity in language teaching or teaching language creatively does not mean teachers' producing or practising new valuable ways of teaching all the time – practising a kind of change at the observable level of practice. It can also mean teachers' exercising new valuable ways of thinking about their current practices. Teachers may not be able to change what they do but can take a look at what they do and what happens in the class in a new, valuable way. They can engage in discovering what they have not known about the nature and effect of their various pedagogic practices which they may have been repeating years after years.

Change and developing new ways of teaching takes place over a long period of time. Understanding change and creativity not only at the level of practices but also at the level of awareness and realisation is important. Creative teachers are reflective of what they do and what happens in class and are not just obsessed with product creativity (the ability to produce many different ways of teaching) but also are sensitive to process creativity (trying to understand why things happen the way they are in classes as a result of a particular language teaching practice), press and person creativity (e.g. understanding what factors in the environment and what personal attributes may have led to what happens in class as a result of our pedagogic practices).

Just like language users who fall into the attractor state and get stuck in the safe familiar linguistic zone, this cognitive fixation tendency (Tin, 2012) also applies to language teachers. We are often stuck in the way we teach, get stuck in doing the 'same' thing every year, feeling reluctant to change the way we teach. Despite this cognitive fixation tendency and teachers' tendency to repeat the same lesson and same practice year after year, if we take a closer look adopting an algorithmic view of creative language teaching, we will be amazed to see microscopic changes taking place, quite oblivious to our consciousness, in our apparently similar practices that are being repeated. As Pennycook (2007: 593) says, 'we can never write the same thing, say the same words, use the same language, step into the same river twice'. This applies not just to language use but also to our practice (in this case, language teaching practice). The fact that language teaching takes place in a particular social context means that it is impossible to repeat the same thing and expect it to have the same effect year after year. In other words, we are repeating but not repeating twice in the same manner.

Very often teachers are puzzled by what happens in class despite 'repeating' the same activity/lesson. The algorithmic view of creativity (see Chapter 6) would make us realise that various minute details, parameters, a slight difference in the steps we take and the various external inputs from students make a difference in the outcomes of our seemingly 'similar' practices. Such changes happening in our practices and classes often remain unnoticed. Through reflective teaching, teachers can be encouraged to pay attention to the seemingly insignificant details in their practices. Using that understanding, teachers can experiment with various procedures to see what varied outcomes can be produced.

Task 11.4: Stepping into a different river and attempting to follow the same footsteps

1. Try out a whole-class teacher-led activity in a language class. Record the activity, including everything you say and what students say. Write a reflective journal entry detailing the activity and how it turns out.
2. Next year (or next semester), try to follow your own footsteps by repeating the same activity with another group of students. Record the activity and write a reflective journal entry.
3. Then compare how the activity turns out differently or similarly in two different situations. What may have caused those differences?
4. Based on your comparison and reflection, what minor changes would you make to the activity when you repeat it again with another cohort? What do you think might happen?

Teaching language creatively: Teacher development programmes

Creative teachers are not only knowledgeable of a wide variety of activities to motivate students but also are aware of the importance of developing creativity in their students and themselves. They teach both creatively and for creativity. While teaching creatively implies teachers using various innovative and appropriate teaching methods and approaches, teaching for creativity implies the goal of teaching (creatively) is not just to motivate students but also to help students to become creative language users, to develop creativity-relevant skills and to help them learn language. As we have seen in Chapter 10, creative language teaching is not just for creativity but also for language learning.

Reflective teaching can help teachers to teach language creatively, exploring alternatives, transforming and reflecting on current practices. Moreover, to teach language creatively for creativity, teachers themselves need to nurture their own ability for creative language use and learn how to apply what they know about

creativity into practice. Various teacher development projects and activities have been used to develop language teachers' ability to be creative with language. One such project is an Asian teacher writer group set up in 2000 with a group of English language teachers in Asian countries (see Tin, 2007). The group met annually in different Asian countries and engaged in two types of activities: participating in creative writing activities led by members of the group and delivering a workshop related to creative language teaching as part of a conference for language teachers. The outcome of creative writing as well as the ideas for creative language teaching were published (e.g. see Maley & Mukundan, 2005-9a, 2005-9b). The goal of such annual meetings was two-fold: developing teachers' creative language use to help them teach language for creativity (focusing on creative language use) and developing their ability to teach language creatively (focusing on creative language teaching ideas and activities). Following the success of this group, another group called the C group was set up in the UK, focusing mainly on sharing ideas for teaching language creatively (see http://thecreativitygroup.weebly.com/). As an attempt to develop language teachers' creativity and creative language teaching, a new course was designed and taught by me as part of a postgraduate programme. The course aims to help teachers to teach language creatively for creativity and also gives an opportunity for them to be involved in researching creativity. The assessment is made up of two major activities:

- A series of forums, designed to develop their ability to be creative with language, applying various issues covered in the course and developing their ability to reflect on their practices.
- A research project conducted to investigate the effect of creative language teaching on students' language learning and language use.

Task 11.5: Developing language teachers' creativity and creative language teaching (making theory become alive)

1. Design a course to develop language teachers' creativity and creative language teaching as part of a language teacher education programme. Design the course outline.
2. Develop a workshop to be delivered to language teachers to help them teach language creatively for creativity.
3. Using some of the ideas presented in various chapters of this book, design an activity for a group of language teachers and try to raise their awareness of an aspect of creativity and creative language teaching.
    - The socio-cultural view of creativity suggests that creativity is an emergent property which arises through the interaction between the

text and the context in which the text appears. To demonstrate this aspect of creativity, design an activity for language teachers.

- Research on everyday creativity shows that everyday conversations between intimate people (family, friends) are full of creative language use (pattern reforming and pattern reinforcing choices). Design an activity for language teachers, applying this aspect of creativity to practice.
- Creativity has been discussed in association with culture (e.g. see Xie & Paik, 2019). Design an activity for language teachers, applying this aspect of creativity to practice.

Teaching language creatively: Use of humour

Using humour in an L2 classroom is a topic that has received extensive attention in language teaching and learning research. Humour, when used with care and sensitivity, can be part of the creative pedagogic repertoire to motivate students, and to serve cognitive, affective and social functions. The topic of humour itself has been widely researched in the field of applied linguistics and language teaching and a thorough discussion of humour is beyond the scope of this book. The discussion here is limited to the use of humour in teacher talk and language teaching materials.

Studies have highlighted benefits from the appropriate use of humour in L2 classrooms. For example, Forman's (2011) study demonstrates the teacher's use of spontaneous humour as part of teacher-student interaction. In his study, Forman observed an English language class in Thailand taught by a bilingual language teacher. He described two types of humour (discursive and linguistic humour). While discursive humour involves making use of the context for humorous effect, linguistic humour focuses on the language itself. In discursive humour, the audience or the interlocutor is positioned as 'lacking in socially appropriate qualities' (Forman, 2011: 548). Discursive humour also covers instances where the language users play with the task itself, making use of immediate context for humorous effect. Linguistic humour involves exploiting ambiguous features of language at various levels such as phonology, lexis, semantic, etc. (Forman, 2011: 548).

His study also shows how the teacher's spontaneous use of humour as part of the classroom talk had a positive affective and a social effect on students' language learning. Humour can create a warm, responsive atmosphere, laughter and amusement, reduce social distance between the teacher and students, and encourage students to develop their capacity for creativity and imagination (Forman, 2011: 560–561). Through humour, teachers can draw students' attention to language forms and meaning (to various aspects of language – phonology, lexis, semantics) and can develop students' awareness of language forms (meta-linguistic awareness).

Task 11.6: Spontaneous humour in language classrooms

1. Look at the examples of teacher-student interaction given in Task 6.2 in Chapter 6. What type of humour do they belong to?
2. Teacher-student interaction is often described as IRF (Initiation, Respond, Feedback). In which part of the interaction does the teacher use humour? (Initiation or Feedback?).

Humour can be divided in terms of planned and unplanned humour. The use of humour in language classroom can be planned by teachers in advance. Teachers can integrate such planned humour as part of their classroom talk or teaching materials. Such planned humour usually takes place in the Initiation part of the interaction or in the form of input (i.e. teaching materials). On the other hand, humour, which occurs in the feedback part of the IRF exchange, looks more spontaneous and unplanned. It requires the teacher's spontaneous ability to respond humorously to students' responses (or what happens in class). Instead of using feedback as a recast or a corrective feedback (giving students' feedback on their language), a teacher can skilfully use the feedback move to add humorous comments. That type of spontaneous humour can have a more powerful impact as it highlights the teacher's responsiveness and spontaneity.

Although such spontaneous humour is an important personality trait which can add creativity in the language classroom, it is a skill that not all teachers can learn and use. Humour can be planned and integrated into language teaching materials. In terms of cognitive perspectives, humorous comments and texts can refresh our schemata, disrupting our expectation. They transform some fixed patterns (fixed language utterances, expected responses, frequent adjacency pairs) into something new, unexpected but still relevant and congruent at another level. In a way, humour and jokes can be described as committing an organised violent crime on ordinary linguistic utterances.

Task 11.7: Planned humour in language classrooms

1. How do the following jokes transform the expectation set up by the question 'Do you know?' How can you use them in the language classroom to encourage students to explore and transform fixed linguistic responses?

Example 1:
A: Do you know the way to the library?
B: I am sorry I don't.
A: Go straight, take the first turning on the right.

Example 2:
A: Do you know the way to the gym?
B: I'm sorry I don't.
A: You might need to go there.

Example 3:
A: Do you know why number 6 is afraid of 7?
B: I don't know
A: because seven ate nine.

Example 4:
A: Do you know why there are too many Ds in Edward Woodword?
B: I am sorry I don't know.
A: Otherwise he will be ewar-woo-wor.

The last line in the various examples in Task 11.7 transforms the expectation set up by the question. The function of the question (asking for direction when you don't know the way or asking for information) is turned into another function (asking to test someone's knowledge and then to give the information (Examples 1, 3, 4) or to insult the speaker (Example 2 – indicating the person needs to go to the gym). In Examples 3 and 4, the problem presented in the first question invites logical thinking in a familiar manner. We are more likely to answer it by paying attention to the content (e.g. thinking about 'afraid', thinking about 'numbers', thinking about the name and counting D, etc.). But the answer presented in the third line draws attention to the language form. A problem which looks complex is solved in a playful manner.

However, the problem with those extracts in Task 11.7 is that the punch line (what will make the exchange a joke) is almost fixed. For the joke to work, we need students to say the pre-determined answer (known to the questioner/teacher/materials developer). Only students who have previously encountered the joke are likely to be able to respond to it in the way it is expected by the speaker A. Speaker A (e.g. teacher) is thus likely to be disappointed if students don't come up with the expected answer, or if students do not get the joke when the punchline is revealed. To help minimise such problems and to increase students' participation, teachers can involve students in the making of humorous exchanges, helping them to become language makers rather than language users/receivers of language. In other words, instead of using or understanding existing jokes with a specific pre-determined punchline, students can make their own jokes.

Task 11.8: Language learners as language makers and joke makers

1. Idea-generation phase: Get students to write down as many questions as possible starting with 'Do you know …'?
2. Idea-exploration phase: Reveal the template/constraint below with the formal and semantic constraints:

   Formal constraints: You are going to write a three lines dialogue. Follow the pattern below:

   A: Do you know ….? (Choose one of the questions that you come up with?)
   B: doesn't know the answer
   A: says something

   Semantic constraints: The dialogue must be funny. The last line must make it a funny exchange.

   Teachers can show examples of jokes given in Task 11.7.

Comments:
The following are examples of exchanges produced by students in a course I taught. Dialogue 3 transforms the task-imposed formal rule slightly by coming up with more than three lines.

Dialogue 1:
A: Do you know why Tan Bee looks tired?
B: No, I don't.
A: Because of students like you who don't know the answer.

Dialogue 2:
A: Do you know who Julie is in love with?
B: No, I don't.
A: Ask your husband.

Dialogue 3:
A: Do you know that you are pretty cool?
B: No, I don't.
A: Yes, cool people don't know how cool they are.
B: Oh, I'm pretty cool then.
A: You are not cool anymore.

The activity in Task 11.8 can complement a unit of materials which focus on asking questions or asking for direction. A normal exchange that appears in a coursebook might be as follows:

A: Do you know the way to the library?
B: I'm sorry I don't.
A: Thanks, anyway.

Although we do not necessarily want our students to start behaving like that (e.g. deliberately asking questions to provide the punchline), the activity can be used to foreground language: to help students realise how we can manipulate language (in this case, manipulating the function of questions). This could lead to further conversations, raising language awareness among learners. Students could be given a project to find other examples and unusual functions that questions could be used to perform. Creativity is not a standalone approach. Nor is it an approach to replace other approaches. It is an approach that can complement other approaches to language teaching.

Conclusion

This chapter has focused on teaching language creatively in terms of materials development, reflective teaching and teacher development. Developing language teachers' creativity is viewed as both product creativity and process creativity. The former focuses on developing language teachers' ability to produce new, valuable ways of teaching while the latter focuses on their ability to reflect on the underlying cognitive processes involved in creative language teaching and to transform ordinary language teaching materials into creative ones. There is a wide range of skills and abilities that teachers can develop for creative language teaching.

Creativity is not just about having a wide knowledge of various creative ideas and activities. It is not just about creative materials development. Creativity, according to the systems model (Csikszentmihalyi, 1999), emerges in context. Seemingly creative ideas and activities could fall flat unless we take other important components, social contexts and details into consideration. It is important to pay attention to teachers' implementation of various activities and the minute details such as the way teachers talk, give instructions and respond to students, and take advantage of the immediate and the wider social context. The person approach (Rhodes, 1961) to creativity indicates that there are various personality traits which could be nurtured. One such trait, discussed in the teaching of language, is the use of humour. The 'press/environment' approach indicates the importance of social context in creativity. What counts as creative may differ from one context to another. Many researchers have written about creativity with reference to culture and society. Surprisingness, novelty and unexpectedness are often described as more highly associated with creativity in the Western culture whereas usefulness may be valued more in association with creativity in the Eastern countries (e.g. Xie & Paik, 2019). Balancing the two core features of creativity in accordance with the socio-cultural context is thus important.

Note

1 Hadfield, J. 1990. *Intermediate Communication Games*. Pearson Education Limited, Essex.

12

Conclusion

Unpacking creativity for language teaching and learning

Introduction

Creative language teaching is not a standalone methodology. The spirit of creativity can be integrated into any teaching approach. Although it is impossible to apply everything we know about creativity to practice in one single language teaching task or class, an understanding of what creativity means is powerful and can help us generate a multitude of teaching practices and ideas to promote creative teaching language: teaching language for creativity and teaching language creatively. The central argument proposed at the very beginning of the book is that we need to unpack what creativity means before we unlock it. In the various chapters, creativity is unravelled from various perspectives and the relevance for language teaching and learning is explored. The various chapters have included ideas for applying what we know about creativity into language teaching and learning. This conclusion chapter summarises those key issues and their implications for language teaching.

Unpacking facets of creativity and implications for language teaching

Like many researchers have noted, there is no single mechanism for achieving creativity (e.g. Colton et al., 2001; Jordanous, 2012; Veale et al., 2006). Creativity is a multi-faceted term and it is important for us to be aware of which tenants of creativity are being reflected and applied in our language teaching when we talk about creative language teaching. The book explores the terminological landscape of creativity (the language of creativity) in the academic literature in various disciplines. Creativity has been defined in the general academic literature in various ways such as a metaphorical, an intuitive, a reductionist, a binary,

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a continual, a dualistic, an emergentist approach and so on (see Chapter 2). Creativity has also been written about in various ways in the discipline of language teaching (see Chapter 7). The creativity of language (often known as linguistic and literary creativity) has been extensively investigated and discussed in the discipline of applied linguistics (see Chapters 8 and 9). All these various approaches, perspectives and discussions have relevance for creative language teaching.

Take the metaphorical approach for example. Various metaphors have been used to describe creativity – the thinking-outside-the-box metaphor, the investment metaphor (buying low and selling high) (e.g. Sternberg & Lubart, 1992). If the view is applied to language teaching in terms of product creativity, creative language teaching is an approach which focuses on transforming low-value materials and resources into high-value materials, transforming ordinary language into extra-ordinary ones, transforming run-down, traditional approaches such as 'repetition' into creative practices. Examples of such activities can be found in various tasks in the book (e.g. Task 6.3, Task 9.5). Similarly, the metaphorical task itself can be used, encouraging students as well as teachers to come up with their own metaphor for creativity and to expand their metaphor.

Task 12.1: Metaphors for creativity

1. Write down a few words (both abstract and concrete words). Don't worry about the connection.
2. Pull out randomly three words. Choose one and write a comparison between the word and creativity. Include the explanation for the comparison.

e.g. *Creativity is as elusive as a butterfly.* (The word selected is 'butterfly' and the writer explains in what way creativity is similar to a butterfly: both are elusive to catch.)

Similarly, if one takes an intuitive approach to creativity, a formal definition of creativity is not the starting point, although it may be the end point (e.g. Veale et al., 2006). In terms of creative language teaching, we can get teachers and students to examine their intuitive understanding of creativity, creative language teaching and creative language use. Such an intuitive approach can be combined with other language skills such as reading, writing and speaking. In Tin et al.'s (2010) study, poems written by students were distributed to teachers as well as students. They were asked to read them, choose the most creative ones and give reasons for their choices in writing. Information about their intuitive understanding of creativity can be generated while giving them an opportunity to read, write and discuss with each other. In another activity, the teacher

prepared a list of words (ordinary, simple words such as 'rain', 'chicken', 'police', etc.). Students pulled out a word from the list and wrote a non-creative sentence on a piece of white paper (using their own intuitive understanding of what creative/non-creative sentence means). Then, they pulled out another word and wrote a creative sentence on a yellow paper. The teacher collected all the sentences, typed them and gave them back to students in the next class. They were asked to rank them in terms of the degree of creativity using a scale. This activity gave not only an opportunity for language practice (making sentences using the key word provided) but also an opportunity for further discussion concerning students' understanding of what creativity means. The outcomes of the activity could be used for further activities, integrating the intuitive approach with the metaphorical approach (the investment metaphor). For example, the teacher could choose the lowest creativity ranking sentence (e.g. It rains!) and could ask students to transform it into a creative sentence by using it in an unusual and amusing context (see Task 9.5). Writing and speaking could also be practised simultaneously. The activities can also improve creative processes such as chaotic and ordered thinking, exploratory, transformational thinking and so on.

The various models following the reductionist approach also have important implications for creative language teaching as follows:

- Taking various components into account when designing creative language teaching tasks: product, process, person, press.
- Building domain-relevant skills (e.g. linguistic knowledge such as vocabulary, grammar).
- Building creativity-relevant skills (e.g. various personal traits and cognitive styles, thinking types, combinational, exploratory, transformational thinking, creativity heuristics, algorithmic thinking, deviation, parallelism, foregrounding devices).
- Taking into account task-motivation (self-driven intrinsic desire and social support) (a desire to be creative, creating a favourable social environment).
- Integrating the task motivation with the motivational dimension of linguistic creativity – creating a conceptual need – the need to say something new (new to self).
- Creating opportunities for teachers and students to engage with the domain (existing knowledge and expertise) and the field (the society and social institutions), creating opportunities for not just producing creative works but making an effort for those to be recognised by the society and to be included in the relevant domain.
- Giving exposure and opportunity to examine extraordinary as well as ordinary creativity, domain-general as well as domain-specific creativity.
- Giving opportunities to experience creativity at various levels of the continuum: mini – little – pro – big-c creativity, or trivial-personal-historic creativity.

- Developing the ability to move between contradictory personality traits and thinking types, shifting between extreme poles (personality traits and thinking styles), between idea-generation vs. idea-exploratory, convergent vs. divergent thinking, chaotic thinking vs. ordered thinking, heuristic vs. algorithmic thinking, etc.
- Creating opportunities to experience creativity as an emergent property.

Chapter 2 also proposes that the various components and views of creativity can be reduced to two major components: product and process-oriented features. The process can be divided into three stages: pre-ideation, while-ideation and post-ideation/production of creativity. Individuals' background knowledge, expertise and skills (cognition) (domain-relevant skills or the domain) as well as their existing personal attributes, aptitude, intention, and emotions (the person) and the intrinsic task motivation they bring with them prior to a task serve as part of the pre-ideation stage. The various stages they go through while producing and the activation of cognitive skills, affective emotions, personal attributes are part of the while-ideation stage. The post-ideation stage includes the feedback and evaluation of their creative product which they receive from the field, the inclusion of the product in the domain and the creator's own self-evaluation. In terms of creative language teaching, tasks could be designed focusing on those various components of creativity.

Task 12.2: Language learning tasks and features of creativity

1. Take a look at various tasks given in this book. Which components of creativity do they focus on? Which tasks focus on raising students' awareness of product-oriented features of creativity? Which tasks focus on process-oriented features of creativity?

A core meaning embedded in all those various approaches and perspectives on creativity is that creativity is 'the ability to produce new valuable ideas'. As we have seen in Chapter 3, this seemingly simple expression has a large semantic footprint and the various words used allude to other meanings and words. A summary of the semiotic landscape of those various words and their implications for creative language teaching can be summarised as follows:

- When talking about creative language teaching, we need to be aware of whose 'ability' and which ability we are focusing on: Are we talking about the ability of language users, language learners and/or language teachers? As our view of creativity as an ability varies from inherent to

emergentist views, it is important to develop activities catering for a whole range of views and abilities, creating opportunities for all types of people with different abilities.

- Creativity as an intention ('to') implies that language learning tasks can be designed to cater for a range of purposes ranging from the use of language for constructing new ideas (fulfilling the conceptual need) and social, pragmatic and aesthetic purposes.
- The nature of stages involved in 'producing' new valuable ideas varies. In some disciplines, a refined model of creativity with different stages is suitable. On the other hand, a simpler model is a feature of other disciplines. If the goal of creative language teaching is to develop creativity for various situations and domains, students should be given an opportunity to engage in activities implementing an elaborated refined model as well as a simpler model.
- The word 'new' has many interpretations. One interpretation is in terms of novelty with reference to self vs others and there are four possibilities – hidden knowledge (unknown to others and self), blind knowledge (unknown to self but known to other), secret knowledge (known to self but unknown to others), open knowledge (known to self and others). The word 'new' can also be approached recursively: known knowns (things we know we know), known unknowns (things we know we don't know), unknown knowns (things we don't know we know), unknown unknowns (things we don't know we don't know). Many language learning tasks focus on the use of language to communicate known, familiar ideas (open knowledge) rather than hidden knowledge (ideas new to self and others). Many language learning tasks also focus on known knowns or known unknowns. Well-defined instructions are given to students, giving them information about what they do not know and what the problem they should be solving. Opportunities should be created for language learners to use language to construct new ideas (new to self and unknown unknowns). One way of doing this is by setting up tasks in an ill-defined manner and manipulating constraints (e.g. see Task 5.5, Task 9.6).
- Randomness, chance occurrences and ill-defined tasks, where the goal is partially defined and where some of the parameters of constraints (product and process rules) are left open for manipulation, would give students an opportunity to use language to construct ideas new to self (also see Chapter 5). Such tasks can also give them an opportunity to discover unknown knowns and unknown unknowns.
- Finally, the word 'idea' can refer to a whole range of different things: ways of thinking, processes, artefacts, systems, services and so on (e.g. Cropley, 2016). In terms of creative language teaching, various interpretations are available (e.g. ways of thinking, ways of communicating, ways of teaching, etc.) and activities can be designed giving teachers and students an opportunity to teach language and use language for the production of a variety of ideas.

Creative processes have played a centre role in academic literature on creativity. Chapters 4–6 explore the cognitive process involved in producing new, valuable ideas: heuristics, constraints and algorithms. The reader will notice that the chapters vary in their focus on whose ability is being targeted. While heuristics and algorithms are discussed with specific relevance for teachers' ability to produce new valuable ways of teaching, the chapter on constraints is explored with reference to language learners' ability to be creative.

In Chapter 4, we have seen that creativity as problem-solving and producing new valuable ideas necessitates the use of heuristics. Heuristics, in a general sense, refer to simple cognitive processes or strategies that people use either consciously or unconsciously, ignoring part of the information with the goal of making decisions quickly, frugally and/or accurately (e.g. Gigerenzer & Gaissmaier, 2011). Heuristics are suitable for rapid-response situations where a quick decision needs to be made or where the cost of search overwrites its benefit. Many language teachers regularly find themselves in such situations where they need to decide and act promptly responding to various unpredictable events in class (e.g. what students say). Creativity heuristics, on the other hand, are transformational strategies used to produce new valuable ideas and products, helping social actors to jump to a new conceptual space by directing search among the unfamiliar while limiting search among the familiar (e.g. Yilmaz et al., 2010). Various creativity heuristics have been found and used: 'when all else fails, try something counter-intuitive', 'do the opposite', 'investigate paradoxes', 'make the familiar strange', 'use constraints', 'use chance occurrences and randomness'. Cognitive simplicity is a key feature of both general and creativity heuristics. A relatively simple technique such as a 'cut-up technique' (an example of the make-the-familiar-strange and randomness heuristics) can lead writers to discover unknown and hidden ideas and come up with interesting and surprising outcomes (see Task 4.4). Taking the view of creativity as a continuum (see Chapter 2), general heuristics (using existing heuristics) can be regarded as belonging to the lower end of creativity (everyday creativity) whereas creativity heuristics (discovering new heuristics or new varied forms of known heuristics to produce new valuable ideas) fall at the higher end of the creativity (big- or pro-c creativity). Taking the view of creativity as a dualistic concept (see Chapter 2), one can also argue that language teachers and students need to develop the ability to shift between general heuristics (used to solve routine problems) and creativity heuristics (used to solve creative problems).

Chapter 5 examines one of the creativity heuristics, namely constraints, which have received increased attention in the creativity literature. Various terms have been used to talk about constraints. Constraints as limitations often refer to tangible limitations and limited material resources (often known as hard constraints) such as limited time, resources, domain-relevant skills and knowledge. With reference to language teaching, both language teachers and students have various limitations in terms of materials, time, human resources, linguistic knowledge (e.g. limited vocabulary), non-linguistic knowledge (e.g. knowledge about

the content/topic). Constraints as rules, on the other hand, refer to intangible, abstract structures, the existence of which is only given through the actions of people. People have the ability to flout the rules and do otherwise (e.g. Giddens, 1989). Rules by nature are intended to be repeated and through such repetition, old rules are transformed and new rules emerge. Constraints as rules can be product-oriented (what the final outcome should/could or shouldn't/couldn't be) as well as procedural-oriented (how one should/could or shouldn't/couldn't do during the process). While too many constraints impact creativity negatively, a moderate amount of constraints has a positive impact. The paradoxical nature of constraints suggests that it is important to consider not just what constraints can do to creativity but what we can do to constraints. Various constraint-handling and shattering practices have been proposed (e.g. Lombardo & Kvålshaugen 2014). Constraints are not fixed but dynamic social structures and constructs. Constraints can be temporarily removed, revised, introduced, violated. The intensity and degree of constrainedness can be adjusted and balanced throughout a task. Constraints (both product and process constraints) can be adjusted and manipulated in terms of various dimensions and continua (articulation, abstraction, complexity, flexibility, importance, origin, timing) (e.g. Onarheim & Biskjaer, 2017).

In terms of implications for creative language teaching, constraints can be set up and manipulated in various ways. Many language learning tasks vary along the continuum of control vs. freedom. Controlled activities are over-constrained with fixed parameters, leaving very little room for exploration and manipulation of both language form and meaning. Free tasks on the other hand are under-constrained and are likely to promote search among the known, familiar space. Moreover, many language learning tasks are well-structured problem-solving tasks in that they tend to reveal all the constraints (rules and limitations) at the beginning stage of the creative process. For constraints to facilitate creativity, constraints need to be manipulated along the various dimensions and continua and a certain degree of ill-structuredness in tasks (where some parameters of constraints are under-specified) is required (e.g. see Task 5.6, Task 5.7, Task 5.8).

Chapter 6 takes us to a view of creativity as a hard-work type of creativity and the role of algorithm and algorithmic thinking in creativity. Algorithmic thinking is a detail-oriented thinking process and refers to solving well-defined problems by developing and using a set of carefully defined steps in a logical order to produce the desired outcome (e.g. Futschek & Moschitz, 2010). Although algorithms are described as a deterministic system because the output to be produced is pre-determined in advance and is influenced by the sequence of steps to be taken, unpredictability can enter algorithms through parameterisation and stochasticity. Some aspects of the algorithm can be left underspecified through parameterisation to produce outputs with a certain degree of unpredictability. Unpredictability can also be introduced to the algorithm through the use of random processes, known as stochasticity, where the sequence of steps is not fixed but is changed in a random way (e.g. see Ekéus, 2016). Algorithmic creation

includes a high level of creativity and involves engaging in both procedural and parameter search. Searching for 'good parameters' which can produce a desired outcome requires hard work and repeated experimentation with various parameters. Creativity and creative language teaching in this sense is an outcome of hard labour and an iterative process. Language teachers (as well as students) both consciously and unconsciously use various algorithms to solve well-defined problems such as conducting language lessons and activities, nominating students to answer questions, managing classroom and so on. Slight variation in input parameters and randomisation can have a dramatic impact on the final outcome. Opportunities should be created for both teachers and students to engage in parameter and procedural search, creating new algorithms, re-creating existing algorithms, adding unpredictability to existing algorithms to produce desired outcomes.

While Chapters 2–6 explore the terminological landscape of creativity with references to how it has been written about and conceptualised in various disciplines and their implications for creative language teaching, Chapters 7–11 examine creativity with reference to the discipline of language teaching and applied linguistics. Chapter 7 examines the discourse of creativity in language teaching publications (between 2012 and 2018). The views of creativity reflected among those publications differ in accordance with the field or the domain they belong to. On the one hand, applied linguistics researchers focus on language users' ability to be creative with language and the generative power of language as a creative tool, proposing creativity as a ubiquitous feature of everyday language use (e.g. Jones, 2016). On the other hand, practitioners focus on teachers' ability to teach language creatively and view creativity as freedom from constraints and as an endangered species in classrooms (e.g. Maley, 2015).

In terms of implications for creative language teaching, Chapter 7 recommends the need to bring the two groups of writers together (applied linguistics and practitioners). We can explore what and how the various insightful offerings made by applied linguistics researchers can be applied in creative language teaching and what and how the various practices and heuristics used and proposed by practitioners to promote creative language teaching can inform the directions for applied linguistics research. Following on this recommendation, Chapter 8 takes a closer look at linguistic creativity – what various insightful offerings researchers have to offer and how they can be applied in creative language teaching. Chapter 8 segments linguistic creativity, using the language itself as a tool to talk about the creativity of language. The segmentation of linguistic creativity is conducted, using the question words, prepositions and other similar terms. In order to have a complete understanding of what makes language creative, we need to look at how those various dimensions interact. These various dimensions have important implications for creative language teaching as follows:

- As identified by the behaviouristic (what, how) and contextual (when, where) dimensions, it is important to design activities promoting various features and mechanisms of linguistic creativity (e.g. literary creativity,

everyday creativity, rule-governed creative language use through mechanisms such as iteration and recursion, rule-changing creative language use through mechanisms such as word-formation processes (e.g. deviation, compounding), word-creation processes (e.g. blending, neologism), metaphor and metonymy, and creative lexical choice (e.g. paradigmatic and syntagmatic lexical choice)).

- The motivational dimension (why) of linguistic creativity indicates that one way of increasing task motivation (i.e. intrinsic motivation required for creativity) is to create a need for learners to express something new (new to self). This conceptual need to express new ideas is one of the reasons which drives linguistic creativity. Opportunities should also be created for language learners to use creative language for other social and pragmatic purposes. As linguistic creativity is also motivated by the immediate context, opportunities should be created for experiencing linguistic creativity as an emergent phenomenon in a specific context.
- The demographic/personal dimension (who, whom) indicates that opportunities should be given to expose language learners to examples of linguistic creativity valued and practised by people from diverse demographic backgrounds in a diverse range of socio-cultural contexts.
- Many language learning tasks require students to use language as a tool to communicate about 'open' knowledge (ideas known to self and the interlocutors), 'secret' or 'blind knowledge'. Creativity *through* language indicates that opportunities should be given, promoting the use of known, familiar language to construct 'hidden' knowledge (ideas new to self and their interlocutors) or to perform new functions (e.g. the creative use of questions not just for eliciting information (known, familiar function) but also for raising attention and curiosity of students (a less familiar function)).
- Opportunities should be given, raising learners and teachers' awareness of creativity *of* language (grammatical creativity, rule-governed creativity) as well as creativity *with* language (rule-changing creativity).
- Segmentation of linguistic creativity in terms of lexical associations indicates that opportunities can be set up, getting language users and learners to play with language at various levels and to engage in structured improvisation using language.

Finally, Chapters 9–11 present three pillars on which the implementation of creative language teaching should be based: the view of language as a tool for creativity, the view of language learning as using language to construct new ideas, and the view of language teaching as a creative act. Chapter 9 takes a closer look at insights offered by applied linguistic research concerning literary creativity and everyday creativity (e.g. Carter, 1999; Maybin & Pearce, 2006) and suggests practical ideas for implementing those insights with the aim to develop language learners' ability to exercise creativity *of, with,* and *through* language. In terms of implications for creative language teaching, the chapter proposes

that both literary and everyday creativity can be promoted in language classes through a product-oriented and a process-oriented approach. In the product-oriented approach, language learners are given exposure to texts which manifest various features of literary and everyday creativity and activities can be designed to raise learners' awareness of those features (e.g. see Task 9.2, Task 9.7). In the process-oriented approach, language learners are involved in transforming ordinary texts or mundane dialogues into more creative texts, applying the features of linguistic creativity. Activities can be designed to help students experience ordinary texts as creative texts through the way they are presented (e.g. see Task 9.3, Task 9.8). Although unexpectedness is a feature of both literary and everyday creativity, not all unexpected regularities and irregularities count as creative language use. Chapter 10 further explores why learners' mistakes and errors which are a kind of unexpected irregular and regular forms, for example, are different from creative language use.

Chapter 10 examines how and why the use of language as a tool for creativity facilitates language learning and the development of complex language in language learners. The chapter shows how key features of language learning according to the usage-based model of language learning (e.g. Wulff & Ellis, 2018) complement the various features of creativity and linguistic creativity discussed in the previous chapters. In terms of implications for creative language teaching, both the usage-based model of language learning and creativity literature indicate the importance of the following issues:

- Opportunities need to be created for the development of a rich network of constructions accepted as conventionalised ways of expressing meaning in a speech community (i.e. building domain-specific knowledge). Repeated exposure to language items like types and tokens plays an important role.
- Opportunities are also required for manipulation and transformation of constructions (i.e. building creativity-relevant skills). It is important to create conditions where both abstract constructions (lexically unfilled constructions) and lexically fixed constructions can be manipulated by language users and filled with creative lexical choice.
- Conditions need to be set up for the cognitive dissatisfaction with existing language items and the need to express new meaning.
- Opportunities need to be set up for learners to experience both confirmation- and violation-based salient effect.
- Opportunities are required for using language to express various types of new meaning and form-function mappings.

Chapter 11 examines the third pillar (the view of language teaching as a creative pedagogical act) on which creative language teaching should be based. It focuses on teaching language creatively and various abilities and skills that teachers can develop in terms of materials development (e.g. Maley, 2003), reflective

teaching and teacher development programmes. The view of language teaching as a creative pedagogical act consists of the following:

- The ability to produce new, valuable ideas for language teaching materials in terms of inputs, procedures and outcomes to motivate students and to develop creativity in students.
- The ability to use a wide variety of raw inputs as teaching materials as well as the ability to transform low-value materials into high-value ones and exercise creative teaching within limited constraints and inputs.
- The ability to use and manipulate a variety of procedures, techniques, heuristics, algorithms, constraints to various types of raw inputs and materials.
- The ability to design materials with different learning outcomes ranging from domain-specific outcomes (e.g. language knowledge, creative language use) to domain-general outcomes (e.g. creativity-relevant skills).
- The ability to exercise new, valuable ways of thinking about their teaching practices and engage in discovering what they have not known about the nature and effect of their various pedagogical practices which they have been repeating year after year.
- The ability to pay attention to seemingly insignificant details in teachers' practices and use that understanding to experiment with various procedures and alternatives to see what varied outcomes can be produced.
- Awareness of the importance of developing creativity not only in their students but also in themselves and finding opportunities to develop their own creativity.
- The ability to use planned and unplanned humour appropriately to motive students, to establish social relations and to foreground language.

Conclusion

Before we unleash creativity, we need to unpack what it means first. The chapters in the book take the reader to the creativity terminological landscape, dissecting and unpacking the meaning of creativity and its implications for language teaching from various perspectives and dimensions. As the aim of this unpacking is to unleash creativity with reference to language teaching, an attempt is made to bring the reader to language teaching contexts and scenarios. This often comes in the shape of tasks for the reader in various chapters. The various chapters have shown that creativity is a paradoxical concept made up of multiple, at times opposite, components. Although applying creativity in language teaching has many routes and pathways available for us to take, we should not go about and claim that everything we do is creative. Creative language teaching is not an approach with a decorative adjective 'creative'. It is a disciplined approach – an approach which needs to be informed by an understanding of what creativity means.

Epilogue: My creativity journey

My journey to the West – to creativity

Introduction

'I feel. Therefore, I write'.

Writing a book about creativity is a creative act. This Epilogue depicts my creativity journey: how it started and where it led me. It describes various activities I have undertaken, various emotions I have experienced, people I have encountered and how they all contribute to the way I look at and write about creativity in this book. By telling this story, this Epilogue aims to let the reader know where I came from, how interest in creativity came to me and developed over the years through sweat, joy, sometimes pain, frustration and betrayal, and how personal and emotional that creativity has become to me. My ideas about and interest in creativity were intertwined with my work, my research, my life, my family, networking with my mentors, colleagues, teachers, students, friends and foes.

The beginning of a new chapter

I would like to end this book with the beginning of my creativity journey, going back to the beginning of my experience with creativity. My interest in creativity as a researcher started a long way back when I was awarded a scholarship to do my PhD study in the UK in 1997. I worked on a project which looked at the group interaction patterns of Malaysian students enrolled in a BEd TESOL programme at the University College Chichester (a college of Southampton University, UK). I recorded their group discussions that took place in their various content courses at the university and became interested not in the language in isolation but in the way language was used by the Malaysian and British students to produce

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ideas during the tasks. I was interested in how new ideas emerged and how language facilitated this. Although I didn't use the word creativity at that time and didn't consult the creativity literature, the concept of creativity *through* language preceded the label. At that time of my PhD study (between 1997 and 2000), creativity was not a hot topic in the field of applied linguistics. Instead of the word 'creativity', I used the word 'originality', 'thinking the unthinkable', 'framing of ideas' in my various publications (e.g. Tin, 2000a, 2000b, 2003) and my PhD thesis (Tin, 2001). While many PhD students and applied linguistics researchers at that time were analysing language of classroom discourse in minute linguistic details, often isolating language from the quality of ideas which language was used to express, I was fixated on 'original' ideas and content and the role of language in generating such ideas right from my earlier research career.

An unofficial love affair turning into a serious relationship: My love and hate relationship with creative writing

After the PhD study, my first position was a lecturer position for postgraduate programmes in Bangkok. From 2000 to 2004, I worked with Professor Alan Maley. I frequently sat in his lectures for MA in ELL (English Language and Literature) students. One of the courses was related to creative writing in which he asked his students to write poems and short stories. I wasn't required to produce creative writing as I was merely observing. But quietly in my apartment, I produced my first story titled 'Grandma and her bed' (see Tin, 2005) based on my childhood memory. I was amazed that I could write a story in English (my L2) – something I hadn't even done in my mother tongue (Burmese). Later, in 2003, I hosted 'a seminar on materials development for teaching creative writing in EFL classrooms in the Asia context' with funding I received from ELTeCS and AS Hornby Alumni Trust. That seminar led to the emergence of the forming of the Asian teacher writer group led by Prof Maley and Jaya Mukundan. As a regular participant starting from 2004 to 2015, I was required to prepare two things before each annual creative writing workshop: producing creative writing (poems and short stories) and producing an idea for teaching creative writing (training other teachers). By then, I was no longer in Bangkok and was working as a lecturer at the University of Auckland with a job requirement to do research as well as to teach. Creative writing and producing short stories and poems were not counted as part of research outputs. I was caught up in a dilemma: to write for publications (academic papers) and to produce creative writing so that I could participate in the various annual creative writing workshops. If writing academic papers for publications was my official relationship, creative writing was my unofficial 'love' affair. Gradually, however, I found a way of combining and reconciling the two previously unconnected endeavours by doing research on creative writing. My first creative writing project was conducted in 2007, using participants (students and teachers) in Indonesia, and was funded by the University of Auckland in New Zealand.

My own experience of creative writing before and during the various annual creative writing workshops I participated in led me to become interested in the process I went through in producing creative writing. I noticed that something interesting happened to my English (L2) as I engaged in creative writing in English. My L2 (linguistic content) was stretched along with new ideas (non-linguistic content) which I hadn't thought about before. I was impressed by my own writing. Those ideas and language were often produced not under freedom but under various rules, constraints and frameworks afforded by various poetic forms (e.g. following the rules of haiku, acrostic, the need to occasionally rhyme and so on). One poetic form I fell in love was acrostics because of its *disciplined randomness*. It is highly disciplined and has strict formal and semantic rules/constraints: every line needs to start with the letter of the key word and the poem must be about the key word. At the same time, it is random in the sense that the letters to begin the lines are not fixed but changed in accordance with the key word. There is no predictable relationship between those letters and the key word. For example, why the notion of 'LOVE' has the letters 'L, O, V, E' whereas 'HATE' has the letters 'H, A, T, E' are simply random and arbitrary. This simultaneous presence of discipline and randomness in the acrostic is a good medicine for creativity.

If someone asked me whether I liked creative writing, I would probably say that it was a complex relationship, like any relationship. My relationship with creative writing was made up of both love and hate. At times, I hated creative writing perhaps as a product. I hated some literary texts in English which were well beyond my reach and I felt inferior because my creative writing was not as creative as others in my creative writing group. But I loved the process (a somewhat rendezvous affair) more than the product. I loved the process involved in playing with ideas and language in my head and on paper, on the way to my office and while lying idle in bed. I loved seeing where my ideas led me to, and how the disciplined randomness of creative tasks kept me thinking about them even when I was doing other things.

The creative process I engaged in while doing creative writing was later more consciously exercised in my other serious tasks such as writing academic research papers for publication, writing for promotions at work, writing applications for research excellence awards and delivering various lectures and courses I taught. I exercised various degrees of playfulness in my serious work. I exercised new genres, transforming the pure academic genre which we were expected to follow. I became more 'daring' in my academic writing. My earlier writing (articles) had a different tone, based on serious and meticulous coding whereas my later writing adopted an exploratory and playful tone, paying more attention to the language I used to communicate and construct new ideas I was trying to disseminate or promote. I found the relevance of my story writing skills (where I had to pay attention to settings, characters and plot as well as the way I presented my story) in my ethnographic research work where I produced narrative accounts of what happened in classes I observed (e.g. see Tin, 2014a, 2014b).

Moving on from creative writing to creativity

As we had to prepare for our idea section for every annual Asian teachers/writers creative writing workshop, I was under pressure to look for new ideas to talk about related to creative writing. I was neither teaching creative writing courses nor teaching English as a foreign/second language at that time. I was lecturing on language teacher education programmes, teaching courses such as curriculum development. While all the other participants (of the Asian teaches/writers group) were talking about creative writing activities, my workshops were more about the idea of 'creativity' for teacher education and development. As I prepared for the conference in China (one of the annual workshops) in 2005, I chanced upon Finke's (1996) reference (chaotic and ordered thinking) and later Rhodes' (1961) 4Ps model and Runco (2003), using Google search. At that time, those references hadn't been cited in the field of applied linguistics. I became fascinated and obsessed with creativity literature in other disciplines – mainly psychology.

As the participants during the annual creative writing workshops talked about the value of creative writing (promoting it for all teachers regardless of their needs), I was overwhelmed and at times didn't believe in it. I had to find ways of selling the idea of creative writing to others who were not enrolled in a creative writing course. I began to look deeper at the underlying value in terms of the process rather than the face value associated with the finished products (creative writing). Not everyone needs to do creative writing. But we can all learn from the process we go through when doing creative writing (especially those creative poems which require a strict poetic form to be followed). This process can be used in other non-creative writing situations. Over the years, I experimented with various ideas in classes I taught and presented them at conferences.

My first research on creativity being plagiarised

My first serious creativity research was conducted in Salatiga (Indonesia) using creative writing tasks with students studying in an English programme. I discovered something exciting and presented it at a conference in Indonesia (the title of my talk was '*What happens when students do creative writing?*' (Tin, 2009). It was the moment where the penny dropped. I transformed the meaning of creativity from a product-oriented to a process-oriented approach, from narrowly looking at the value of creative writing in terms of its aesthetic benefits to its wider value in terms of language learning processes and creative thinking processes. Immediately after the workshop, I worked on the paper for Applied Linguistics Journal (see Tin, 2011). One of the participants requested the powerpoint slides I used and later while I was still revising my article for the journal, an article was published by that participant in a local journal and was freely available online. Many of those ideas were directly copied from my powerpoint slides, including the tasks and examples I used in my research project presented at the conference.

Since that experience, I tried to hide my unofficial love affair (rendezvous affair) with creativity and wasn't very eager to share my ideas until I finished writing for publication or until my unofficial love affair became official and announced to the world of academia in the form of published works. For example, I wrote this book starting from 2016 to 2021 without securing any signed book contract (until March 2021)!

My first postgraduate course on creativity: A complete sense of ownership and pride

In 2012, I developed a postgraduate course titled 'creativity in language teaching and learning' (which became the titles of several books not written by me!). Creativity has previously been used not much in association with language teaching and learning although other words such as language play, imagination, creative writing have been used. When I developed the course, there were hardly any references available from the field of language teaching and applied linguistics. The two edited books published by Palgrave Macmillan in collaboration with Open University Press (Goodman & O'Halloran (eds), 2006; Maybin & Swann (eds), 2006) were very theoretical and difficult for my students. I wanted something practical at the same time theoretically informed. Over the years, I groomed and developed ideas as I repeated the course. With every repetition, new forms and ideas emerged. That course was a personal favourite for both me (as the lecturer) and many of my students. I felt a complete sense of ownership and pride.

Writing a single-authored monograph: Never to be completed?

I started writing this monograph in 2016. However, 2016 began with my eldest brother's cancer operation and treatment and since then I was caught up with many other family commitments (even though in the lexicon of New Zealand immigration, my siblings, nieces and nephews don't come under the 'family' category). Meanwhile, I saw one creativity book after another came out and every time it hurt a little. Every time, I found a workable stretch of time to write, something seemed to happen either related to family or work or students I was supervising and I felt like I would never complete this book. At the beginning, I regarded those negative experiences as interfering with my writing. But later, those constraints became an integral part of my writing. I tried to turn something negative to something positive. Negative experiences and emotions became inspirational moments. As I was writing the last chapter for this book and editing the whole book again, the February 2021 Spring Revolution was taking place in Burma/Myanmar (my homeland) where civilians were protesting against the military junta and many lives were lost. Numerous live videos and posts about protests and bloodshed were spreading on Facebook. While watching

them with terror and tears, writing my last chapter felt like the longest, most painful chapter to write. On 20 July 2021, I lost my eldest brother who lived in Myanmar to Covid-19 (and his wife three days later also passed away). My brother (Ko Ko) was an inspiration for much of my creative writing as well as many of my research works and my life (although I never told him so).

Why do I tell this story?

I feel the need to tell this story to let the reader know where I came from, how interest in creativity came to me and developed over the years through sweat, joy, sometimes pain, frustration and betrayal, and how personal and emotional that creativity has become to me. I tell this story so that the reader will understand how the style and tone used in this book is at times negative and sarcastic. My interest in creativity didn't emerge overnight under the creativity brief externally imposed and assigned by others such as creativity book editors looking for possible contributors. My ideas about and interest in creativity were intertwined with my work, my research, my life, my family, networking with my mentors, colleagues, teachers, students, friends and foes. My earlier chapters for this book were written in 2016 and the first draft of my last chapter was written in February 2021. With every new chapter I wrote, there was a constant need to go back to my earlier chapters to refresh my memory as well as to revise them as many publications on creativity have emerged. The journey continued and I often felt like I was slipping away again from completing this book. There was the Covid-19 outbreak in 2020 (still continuing at the time of writing this) and there was a riot occurring in my home country (Burma/Myanmar) in February 2021 (still ongoing at the time of writing this in September 2021). In the place I now resided and worked (Auckland, New Zealand), there were people being made redundant in 2018 and then again in 2021 due to Covid-19.

Conclusion: My journey to the West – to creativity

The phrase 'Go West' has a connotation of travelling to find gold in the Western context. In the Asian (Chinese) context, the journey to the West has a connotation of embarking on a mysterious journey to find God. Although my journey to creativity is nothing akin to both connotations, I would like to use the phrase. The phrase 'the journey to' immediately sums up 'the West' in my mind. That is what language is about. Language calls upon something else we have personally encountered in the *past* and invites something to be responded to in the *future* while we are using it to mean what we have in mind in the *present*. Language bounds past, present and future. In a way, my creativity journey was like travelling to the West, to an unknown mysterious land. Along the way, I picked up several discoveries and surprises such as heuristics and algorithms which were some of the concepts I became interested in and explored further. The journey (the writing of the book between 2016 and 2021) was full of drama and trauma,

success and failure, hope and fear, gain and loss (or mostly loss). So, I hope the reader will understand and forgive me if the ideas presented in the book at times taste a bit sour like lemons. But in Burma (Myanmar) where I come from, we use lemons to sharpen the taste of sweetness in fruits (such as pineapples – my personal, secret recipe). I hope my ideas presented in this book, although a bit sour at times, will sharpen the sweetness of your brain.

My ideas taste like lemons
They are refreshingly sour
They will sharpen the sweetness of your brain.

Tan Bee Tin
9 September 2021, 2:43am
Auckland, New Zealand

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Appendices

Appendix 5.1: Examples of acrostics and similes tasks used in Tin's (2011) study.

Activity 1: Acrostic poems (pair work)

1. Read the following poems. What are the rules underlying these poems?
2. (Students are given three examples of acrostics.)Work in pairs. Write poems in English for the following, using the above rules.

S	T	H	J
C	E	O	O
H	A	L	Y
O	C	I	
O	H	D	
L	E	A	
	R	Y	

Activity 2: Similes about people

1. Look at the words in the lists below. Words in Column A are 'people you know'. Words in Column B are words related to 'nature'.

Column A	*Column B*
Mother	Tree
Father	Flower (rose, jasmine, etc.)
Uncle	Lake
Aunt	River
Cousin	Stone

(Continued)

Column A	*Column B*
Neighbour	Mountain
Grandfather	Ice
Grandmother	Sand
Sister	A leaf
Brother	Fruit: an orange, a mango, etc
	Road
(or any other words related to 'people')	Rock
	(or any other words related to 'nature')

(Source: Spiro, 2004: 52)

2. Now, choose at least **two** words from the Column A and match them with the words in Column B. Write at least two reasons for each match. Write your similes in the form of a poem.

(Students are given two examples of similes -'My little brother is like the pepper flower' and 'My father is like a rock' from Spiro (2004: 52)).

1. Now work in pairs. Write similes like above for the following people:

Our teacher is like ……..	Our friend is like ……..……
…….	……...
…….	……..
…….	……..

Appendix 7.1 Examples of creativity books published in the field of applied linguistics and language teaching between 2012 and 2018

The following books have been published in recent years (between 2012 and 2018) which have the word 'creativity', 'language teaching/education/classroom' in their titles. All, except Maley and Kiss (2018), are edited books with chapters written by various contributors.

1. Argondizzo, C. (ed.) 2012. *Creativity and Innovation in Language Education.* Bern: Peter Lang. (357 pages)
   (Four sections: I. Creativity, Cultures and Language Use, II. Creativity and Language Teaching, III. Creativity in Business Settings, IV. Creativity and Technology.) (Introduction + 19 chapters)
2. Maley, A. and Peachery, N. (eds). 2015. *Creativity in the English Language Classroom.* London: British Council. (172 pages)
   (Foreword, Introduction, Overview, 18 chapters)

3. Jones, R. and Richards, J. (eds) 2016. *Creativity in Language Teaching: Perspectives from Research and Practice.* New York and London: Routledge. (264 pages)
   (Four sections: I. Theoretical perspectives, II. Creativity in the classroom, III. Creativity in the curriculum, IV. Creativity in teacher development, 16 chapters).

4. Maley, A. and Kiss, T. 2018. *Creativity and English Language Teaching: From Inspiration to Implementation*. London: Palgrave Macmillan. (339 pages)
   (Four parts: I. Creativity: Concept to Product, II. Focus on the Teacher, III. Focus on the classroom, IV. Research on Creativity. 16 chapters)

5. Dat, B. (ed.). 2018. *Creativity and Innovations in ELT Materials Development: Looking Beyond the Current Design.* Bristol: Multilingual Matters. (237 pages)
   (Three parts: Part I (Improving ELT materials through creative pedagogies), Part II (Improving ELT materials through specific resources), Part III (Improving ELT Materials through Teacher and Learner Involvement. 13 chapters.)

6. Maley, A. 2018. *Alan Maley's 50 Creative Activities.* Cambridge: Cambridge University Press. (105 pages)
   (A collection of 50 classroom activities to promote creative language use)

7. Jones, R (ed.). 2015. *The Routledge Handbook of Language and Creativity.* New York and London: Routledge. (534 pages)
   (Four parts: Part I: Dimension of language and creativity, Part II: literary creativity, Part III: multimodal and multimedia creativity, Part IV: creativity in language teaching and learning. 31 chapters.)

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