THE AFFORDANCES OF VISUALS IN MATERIALS FOR FOREIGN LANGUAGE LEARNING AND TEACHING

PERSPECTIVES FROM THEORY AND RESEARCH

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CONTENTS

INTRODUCTION

In twenty-seven years of teaching English to speakers of other languages, it has often struck me that although materials for foreign language teaching (FLT) are rich in visual content, the role the visual components play in developing and consolidating language skills goes largely uncommented. Coursebooks I have used have provided little guidance to the use of their illustrations and graphics, and learners, in my experience, seldom mention them unless a task requires it. Starting from the premise that instructional visuals are essentially different kinds of informational resources from pictures in contexts such as advertising, packaging or entertainment media, and that not much is known about their (potential) effects and effectiveness, functions and functioning, uses and usefulness and the ways in which they may enhance, disrupt, support or fail to support language learning and language learning activities, the core question I address in this thesis is what the affordances of visuals in materials for foreign language teaching are.

With the advance of technologies that make high-quality colour-printing as well as the electronic storage, transmission and reproduction of images ever simpler and cheaper, it has become the norm for instructional materials to be generously illustrated. But how much instructional weight do the illustrations carry? As Jewitt & Kress point out, while 'modes other than speech and writing' are generally acknowledged to be 'meaningful', they are 'often regarded by educational research as ancillary, and marginal with little or no contribution to learning: "language" is often considered to be the core of communication where rationality resides' (Jewitt & Kress 2003: 2; original punctuation). The impulse to make language the centre of attention is perhaps inevitable in the realm of FLT. Nevertheless, a number of contemporary approaches (such as distributed cognition and cultural studies) with roots in various disciplines emphasize the roles of multiple and multimodal representations in communicating information, and seem to herald 'a deep change in the representational world' that raises questions about 'forms of cognition, possibilities for learning, new shapings of knowledge [and] the management of information […] different from those around which current understandings are formed' (Kress & van Leeuwen 2001: 127). To judge by research articles, a deep change of this nature is beginning to make itself felt in the design of materials for natural science and technology instruction, but in FLT the evidence of a 'visual turn' is patchy at best. Nevertheless, there is little doubt that multimodal literacies are slowly starting to be acknowledged and utilized with greater awareness in all subjects and disciplines, and will have to be addressed in the area of FLT in future. It is against this background that I attempt a

broadly-based, explorative investigation of the affordances of visuals in FLT, one that perhaps raises more questions than it answers. But before continuing to explain why and how I propose to do this, the terms 'visuals', 'affordances' and 'materials for foreign language teaching' have to be more closely defined.

The materials for foreign language teaching which I examine in detail in the thesis are coursebooks for adult foreign language learners in Germany. While the analysis of coursebook illustrations I present serves to concretize what is meant by the phrase 'visuals in FLT', which recurs throughout the thesis, most of the findings and ideas I present are equally relevant to visuals in other kinds of FLT materials, whether designed for language teaching in schools or for computer-based instruction.

I have used the word 'visuals' as a generic term for phenomena also variously described as pictures, images, illustrations, graphics, external representations, drawings, paintings, photographs, signs, symbols, icons, graphs, graphic organizers, diagrams, maps, charts, tables, collages, picture-stories, comics, comic-strips, caricatures, cartoons and animations. The choice of 'visuals' to cover all or any of these is made on pragmatic rather than dogmatic grounds: there is no consensus on the divisions between the more general terms, and the specific terms are limited in scope. The advantage of the term 'visuals' over 'graphics', 'pictures' and other general terms is that it reflects the emphasis I have placed upon the relationship between visual perception and cognition and ways of representing and understanding visual information.

The meaning of 'affordances' is less easily delineated, despite the fact that the origin of the word and its original meaning can be pinpointed with singular precision. It was coined by Gibson to express a central concept in his theory of direct perception:

> The affordances of the environment are what it offers the animal, what it provides or furnishes, either for good or ill. The verb to afford is found in the dictionary, but the noun affordance is not. I have made it up. I mean by it something that refers to both the environment and the animal in a way that no existing term does. It implies the complementarity of the animal and the environment. (Gibson 1979: 127)

Norman, who has made extensive use of the term in his work on the psychology of design, writes:

> The word 'affordance' was invented by the perceptual psychologist J.J. Gibson […] to refer to the actionable properties between the world and an actor (a person or animal). To Gibson, affordances are relationships. They

> exist naturally: they do not have to be visible, known, or desirable. (Norman 1999: 38)

Norman rather than Gibson is credited with popularizing the term (cf. McGrenere & Ho 2000), which is a key one in fields such as human-computer interaction (HCI, also CHI) studies and the area of cognitive science known as distributed cognition. Possibly encouraged by Gibson's having invented a word especially to express his idea, theorists and designers have subsequently invented a wide range of different meanings of their own for the word. Norman (*loc. cit.*.) himself points out that he ought to have used the term 'perceived affordances' in his *The psychology of everyday things* (Norman 1988), the book which gave it currency. A number of recent attempts have been made to clarify the concept of affordances, so as to increase its value as an analytical tool (McGrenere & Ho 2000, Bonderup Dohn 2006); but it has also been argued that the different understandings of the term can only continue to create confusion, thus 'muddling both research and design' (Oliver 2005: 412). Oliver's conclusion is that 'arguably […], the term ought to be abandoned' (*ibid.*). A further complication arises when one tries to determine what is meant by the phrase 'affordances and constraints' as used by some researchers. According to Norman's original definition, 'Affordances suggest the range of possibilities, constraints limit the number of alternatives' (Norman 1988: 82). The phrase is also sometimes used as if 'affordances and constraints' were a dichotomy; however, 'constraints' as used in distributed cognition (cf. Zhang & Patel: 2006) or in mathematics education (cf. Kennewell 2001) does not mean 'limitations' but guidance by means of a narrowing-down of possible interpretations or actions, in the sense Norman intended. Constraints are categorically 'not the opposite of affordances' (Kennewell 2001: 108) but something that may operate within an affordance.

The lack of agreement on what 'affordances' means, or whether it means anything at all, has the advantage that the term still admits of semantic tinkering to suit the user's needs. I propose to use it in the following sense, paraphrasing both Gibson and Norman. Visuals in FLT materials offer, provide or furnish the language learner, and teacher, with visual input, either for good or ill. They may offer support for learning activities (afford learning) to a greater or lesser extent, or, if they are bad visuals, they may fail to support them or even hinder them (afford failure to learn). The affordances of visuals do not have to be apparent, known or desirable. Although affordances are always present, they exist (as 'actionable properties') for a specific actor relative to the actions the actor is capable of taking. A piece of paper has different affordances: it affords writing or wrapping or burning or folding paper aeroplanes, provided an

actor is able to write, has a box of matches, etcetera. A photograph of people shaking hands in a coursebook for German as a foreign language may (depending on the processing actions the learner takes) afford the information that two people are shaking hands, or it may, if related to the accompanying text, afford the information that mutual activities like shaking hands are expressed with reflexive verbs in German and afford mnemonic support for learning that verb. In addition, the photograph could afford the information that German people shake hands in contexts which English people would consider too informal, and that various things about the German street, buildings and shop signs in the background are different from English ones, and so forth. Supplying this information is not an automatic *function* of the photograph however: it only *affords* the information if the learner is capable of processing the visual in a certain way, whether as a result of guidance or habitually attentive processing habits. It is because an 'affordance' has to be perceived and acted on in a certain way for it to have an effect that I find the term useful. The kinds of factors which may influence affordances of visuals in FLT materials so that they are more or less useful for language learning is a central issue considered in this thesis.

My own ideas about visuals in FLT and their affordances are best explained by tracing how these ideas evolved. As a student in South Africa and later while teaching English to Sesotho-speaking pupils in Lesotho, I regularly contributed cartoons and comic strips to the student press and local newspapers in South Africa. After moving to Germany in 1983 and starting to teach English in adult education here, I was sporadically commissioned to contribute illustrations to language coursebooks produced by South African schoolbook publishers. In the light of my language teaching experience and my own use of visuals in the classroom, it struck me that the illustrations I was instructed to draw often neither supported learning tasks nor provided any information that might facilitate text comprehension. A common request, for instance, was to draw a picture of people talking as an illustration for a dialogue. More frequently than anything else, however, the drawings were needed to fill up white spaces on the page. I decided that to illustrate FLT materials competently one ought to have a thorough grounding in FLT theory and methodology, so I enrolled for a degree in Deutsch als Fremdsprache at BielefeldUniversity, completing it with a *Magisterarbeit* on picture stories in the communicative language classroom. In the wake of these studies I taught more and illustrated less; but I continued to think about the roles of visuals in the FLT classroom and their functions in teaching materials, and I experimented with visuals of my own. These ideas and experiences form the basis for many of the questions explored in the thesis. By way of clarifying how some of my conjectures evolved, I would like to recount some classroom

incidents in which visual information was interpreted in unexpected ways. The first three examples are drawn from a discussion activity based on these pictures from Jones (1997: 13).

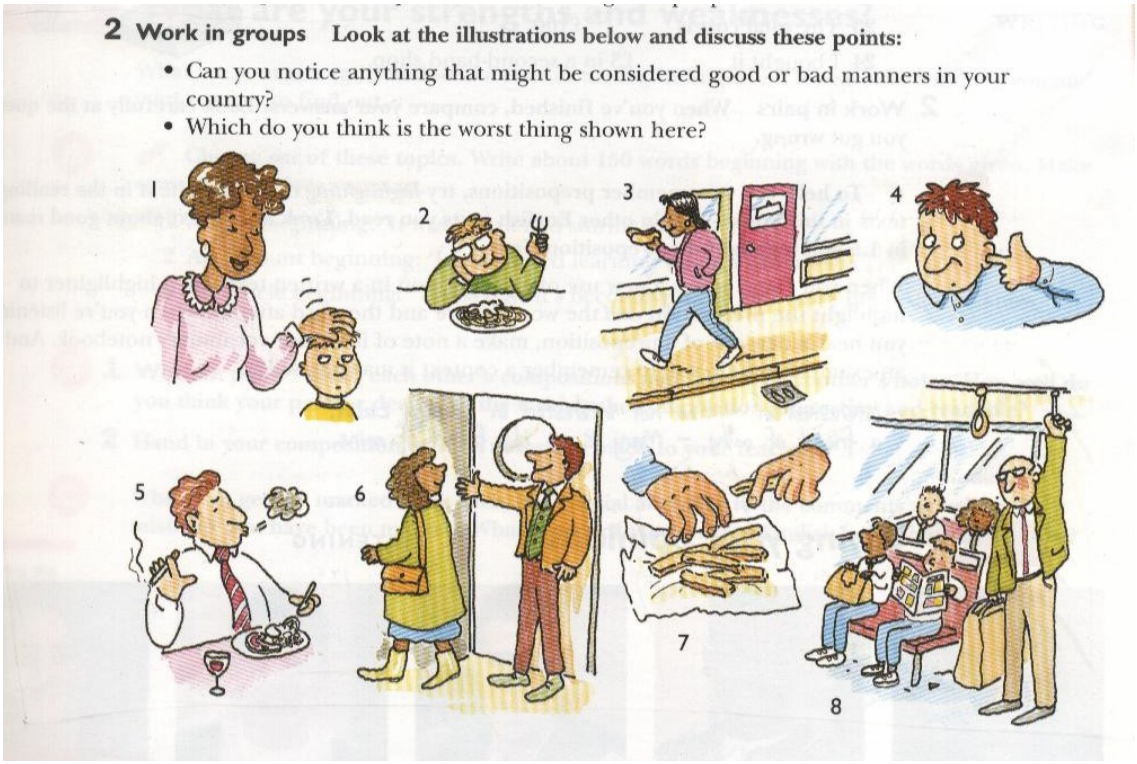
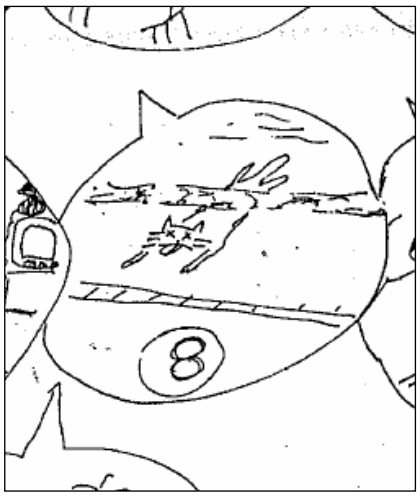


Figure 1: Jones 1997, 13; artist: Heather Clarke. Reproduced by kind permission of Cambridge University Press.[1]

On one occasion, a learner explained that picture no. 3 depicted bad manners because the person in the picture was littering (the wrapping from the food could be seen lying in the street). Others present (including myself) believed the square object in the road to be a drain cover, placed in the picture as an index of 'road'. On another occasion, someone said that picture no. 6 showed very bad manners, since it depicted sexual harassment. Picture no. 7 has been interpreted as featuring a soiled handkerchief. My own (and most other people's) interpretations of pictures 6 and 7 are a man politely standing aside for a woman to go through a door ahead of him and someone eating chips from a paper wrapping. I do not insist that my readings of the pictures are the right ones, however. All I can do is point out certain indices provided by facial expression, gesture or technical features of the drawings to defend my interpretation.

[1] Every effort has been made to trace the copyright holders and obtain permission to use those images which have not been created by the author. In the rare instances where this has not been possible and principles for scholarly use do not apply, I would be grateful for any information that would enable me to trace the copyright holder.



The second piece of anecdotal evidence that the actual affordances of a picture may not be the same as the intended ones is related to a set of pictorial cues that form the basis of a speaking activity. A participant, role-playing a phone-call between friends exchanging their latest news, used the cue shown in Fig. 2 to tell her partner that 'my tiger has swum across the river'.

Figure 2: 'My tiger has swum across the river'. Detail from an unpublished language practice exercise. *Like all other unacknowledged artwork in this thesis, this was created by the author.*

In the classroom, I stress that any interpretation of the cues is valid, but since I drew the picture, I am able to state that it is supposed to depict a run-over cat. Disagreements about the meanings of pictures are potentially productive in the language classroom and ambiguous pictures can be used to good effect. The significant things about these incidents were, firstly, that no learners had (explicitly) interpreted them in these ways before; secondly, that these interpretations came from articulate, highly-educated adult German learners; and thirdly, they came to light by chance. The questions these incidents raised for me were: a) Since factors like cultural knowledge and basic visual literacy seemed to play no part in these unexpected interpretations, where did they come from? Were they isolated and arbitrary, the results of individual and idiosyncratic readings? b) Were these divergent interpretations just the tip of the ice-berg? Did they happen all the time, but fail to come to light because most learners were less confident about voicing them? c) Could or should divergent picture interpretations be pre-empted by discussing what pictures mean in advance of a picture-based task?

This concludes the explanation of what I plan to explore, and why; I turn now to the 'how'.

As indicated above, the approach I adopt is broadly-based and explorative: rather than arriving at definitive answers, I aim to probe certain aspects of visuals in FLT and identify questions for future research. This approach was largely dictated by the nature of the subject-matter. Levie commented in 1987: 'It is clear that "research on pictures" is not a coherent field of inquiry. An aerial view of the picture research literature would look like a group of small topical islands with only a few connecting bridges in between' (Levie 1987: 26). The situation

some twenty years later is more complex, but not more coherent, and so a review of the relevant literature has to be broad in scope. Besides, if research on pictures presents problems of focus, then pictures themselves do so to an even greater extent. Mitchell has remarked that '[W]e still do not know exactly what pictures are, what their relation to language is, how they operate on observers and on the world, how their history is to be understood, and what is to be done with or about them' (Mitchell, 1994: 16).

Nor is it easy to choose a disciplinary framework with which to approach visuals, since

> no one recognizable discipline has staked a claim around the immense and vaguely defined area that is variously referred to as 'visual communication,' 'visual rhetoric,' or 'visual literacy.' Research and scholarship in the production, comprehension, interpretation, and analysis of visuals continually takes place in fields as diverse as art history, anthropology, education, semiotics, film studies, political science, psychology, and cultural studies, but none of these disciplines can claim the study of visual communication as its own, and there is little coordination among the various fields that study it. (Hill 2004: 111)

My strategy in view of these problems of focus has been to use the notion of affordances as a uniting concept, and move in the first part of the thesis from the basic question, *what are the affordances of visuals?* to a more specific one, *what are the affordances of visuals in learning?* and finally to the yet more specific one of *what are the affordances of visuals in FLT?*. A further strategy has been to move from the general to the particular, considering the question of the affordances of visuals first in terms of theories of perception and cognition, the understanding of pictorial representation and of the role of visual information in learning. In the transition from theory to empirical research, I examine the way theoretical approaches have been applied to research on the effects of pictorial and graphic representations in learning and consider the insights that emerge from this field before I approach the question empirically in three studies of my own, each of which illuminates a different facet of it.

In order to focus on the affordances of visuals as such, I begin by outlining some major approaches to visual perception and considering their implications for the understanding of visual information. A particular concern in this overview is to establish whether culture and environment are thought by researchers to cause differences in the processing of visual information. Subsequently, the relationship between visual perception and pictorial representation is explored, first by examining representational techniques which diverge from standard representational norms (and images which diverge from the appearance of things in the real world), then by describing and demonstrating basic techniques for representing space

and form, and considering how these techniques are related to the visual information that makes it possible for us to perceive our environment and function in it. The notion that members of certain cultures do not understand western representational norms, an assertion sometimes encountered in discussions of visuals in FLT materials, is also submitted to critical scrutiny. After this overview of the affordances of vision and visual representation, the focus narrows and turns to research literature that explores learning with visuals. I begin by reviewing approaches and research in the field of cognitive psychology which seek to explain and harness the mnemonic and cognitive load- reducing properties of visual information. By way of transition from a theoretical to an empirical focus, I go on to consider various functional typologies of visuals and principles for their effective use derived from research.

I then present the results of three studies in which I explore a) the affordances of visuals in FLT materials, b) the affordances of visuals from the perspective of language teachers and c) the affordances of visuals for language learners. The main question posed in relation to a) is what visuals in selected FLT coursebooks afford the learner and teacher in terms of support for language learning and consolidation of language skills. There is a practical link between this coursebook analysis and the review of general research on instructional visuals which precedes it, in that I use functional typologies of visuals discussed in the research review as a basis for examining the visuals in the coursebooks. I also consider ways in which existing typologies might be modified for FLT materials. In addition to its findings about the affordances of visuals in the teaching materials examined, the coursebook analysis provides essential background information for the study of teachers' views of visuals presented in the second empirical study, since all the coursebooks chosen for analysis are used by language teachers who were questioned. In this second study, which is conceived as a mass interview, seventy-one adult education teachers' views are collected by means of a questionnaire designed to explore how practitioners use visuals and perceive their affordances; how much guidance they feel they get from the books' producers, and how much they would like; the relative importance they attribute to visuals in their teaching; and how and where they have learnt to use them, if at all. In the third and final empirical study, the affordances of visuals for language learners are explored on the basis of language learners' written statements of what they believe ten pictures intended for a skills development activity to show. These statements are analysed to discover what sort of information the drawings afford, to what extent the interpretations of them diverge, what this reveals about the ways these learners have processed the visuals and what general inferences can be drawn about the affordances of visuals for language learners.

The different methodologies adopted for the three studies, a mix of qualitative and quantitative approaches, reflect the different focusses of the questions explored in each. In the absence of standardized ways of analysing these kinds of materials and data in this specific domain, the methods used have, where necessary, been developed in accordance with what the data offer and suggest. The teachers' questionnaire, whilst essentially a quantitative study designed for analysis with descriptive statistics, has qualitative elements, in that the respondents were invited to give written answers to some items, and these provide insights which purely quantitative data would not. Conversely, although a qualitative 'record review' method is used to analyse the learners' data in the picture interpretation study (its length is a result of the extensive quotations from the data), the large number of respondents provides scope for a quantification of the data where appropriate.

CHAPTER I
VISUAL PERCEPTION AND COGNITION

1 Introduction

As a preliminary to asking how people understand pictures, and specifically those used in teaching and learning foreign languages, it seems important to ask how people see at all, how they interpret what they see, and whether, given that intercultural factors have to be taken into account in the foreign language classroom, culture affects perception, particularly the perception of pictures. These appear straightforward questions. However, at the start of his review of theories of visual perception Gordon concedes that although 'psychology and neurophysiology have yielded numerous theories that address the question of how human visual perception functions, […] none of them offer a definitive or complete answer' (Gordon 1989: 1). And indeed, the challenges that understanding visual perception presents to cognitive science become more comprehensible if one considers its complexity. Gregory (1977) points out that

> We are so familiar with seeing, that it takes a leap of imagination to realise that there are problems to be solved. But consider it. We are given tiny distorted upside-down images in the eyes, and we see separate solid objects in surrounding space. From the pattern of stimulation on the retinas we perceive the world of objects, and this is nothing short of a miracle. (Gregory 1977: 9)

Theories of visual perception can be traced back at least as far as Euclid, who demonstrated the relationship of visual angle and appearance of decreasing size with increasing distance. Other approaches that constitute some of the major theoretical pillars of the discipline today, such as those of Gibson, Gregory, Marr and the Gestalt movement, date back thirty, fifty or even eighty years. Yet these well-established theories are not only unable to provide definitive explanations; some of their basic premises about the nature of vision are conflicting and irreconcilable. Nor is there a clear consensus on the dividing line between visual perception and the far younger science of visual cognition. For example, Pinker (1985) includes the topics one would find in an overview of visual perception in his book on visual cognition, implying that to him visual perception is part of visual cognition. Pinker takes the view that the pure visual uptake of the early stages of visual processing (which he calls visual recognition) passes over into cognitive operations at some point in the act of seeing. The question is, at what point? Theories diverge strongly in this regard. Top-down cognitive models suggest that seeing is largely dependent on hypotheses the viewer constructs or reconstructs on the basis of previous knowledge, with input providing only a sketchy impulse for these mental operations. The 'direct

perceptionist' approach developed by Gibson (e.g. 1966, 1979) holds that top-down operations relying on previous knowledge play no part in visual perception. These are only two of many approaches, all with widely different focusses and research methods. But they represent a profound schism in the field and pose a dilemma for anyone hoping to learn what the field of visual perception and cognition has established about the question of cultural influences on visual perception. In simplified terms, the problem is that top-down models admit the possibility that perception is influenced at a basic level by previous experience, so that human beings living out their lives in a certain environment might have a different kind of visual perception from those who have experienced only another kind of environment; and the direct perception approach does not.

2 Four major approaches to visual perception

2.1 The Gestalt approach

Although Gestalt theory, which is associated above all with the names of Wertheimer, Köhler and Koffka, was developed between the First and Second World Wars, it has continued to provide essential theoretical insights into the psychology of the visual up to the present (e.g. Gibson 1950, Marr 1982; [cf. van Campen 1994]). Via the work of Arnheim, who studied under Wertheimer and Köhler, it has also had a significant influence on theories of art, design and visual communication (for example Barry 1997 or Kress & van Leeuwen 1996). Apart from its application in these fields, where it is directly relevant, Gestalt has the status of a meta-theory that has fed into theories of learning, memory, problem-solving and motivation (Städtler 1998); as such, many Gestalt ideas have become integrated into contemporary consciousness.

One reason why Gestalt theory has been so pervasive and so enduring is historical. The first language of a number of prominent mid-twentieth century theorists of the visual – Wertheimer, Köhler, Koffka, Rudolf Arnheim and Ernst Gombrich for example – was German. Forced by the rise of the 3rd Reich to emigrate to Anglophone countries because they were Jewish or publicly criticized the Nazis, as Köhler did (cf. Henle 1978: 940), they began to write and lecture in English from the 1940s on. This meant that their ideas, which were rooted in German traditions of thought (Goethe, Schiller, Husserl and above all Kant were important influences on Gestalt thinking [cf. van Campen 1994]), were accessible to a wider audience than might have been the case if these scholars had continued to teach at German or Austrian universities and to publish mainly in German. Another reason for their continuing importance, according to Gordon (*op. cit.*: 51 ff.), was that they focused with great acuity on phenomena which have continued to interest perceptual psychologists. They also illustrated their work

liberally with simple figures that allow the readers to experience for themselves the phenomena under discussion. This use of minimal, abstract drawings is open to the obvious and valid criticism that, as perceptual stimuli, they are very far removed from the clutter, movement and arbitrariness that characterize real world visual input. Conversely though, the sparseness and abstraction of the figures they used mean Gestalt findings can be applied with great efficacy to theories of art, design or visual literacy. The essential idea that underlies Gestalt theory concerns a basic attribute of human perception and is formulated by Wertheimer as follows:

> Man könnte das Grundproblem der Gestalttheorie etwa so zu formulieren suchen: Es gibt Zusammenhänge, bei denen nicht, was im Ganzen geschieht, sich daraus herleitet, wie die einzelnen Stücke sind und sich zusammensetzen, sondern umgekehrt, wo - im prägnanten Fall - sich das, was an einem Teil dieses Ganzen geschieht, bestimmt von inneren Strukturgesetzen dieses seines Ganzen. (Wertheimer: 1924: 103)

This principle of the whole being more than the sum of its parts is frequently illustrated with figures such as these:

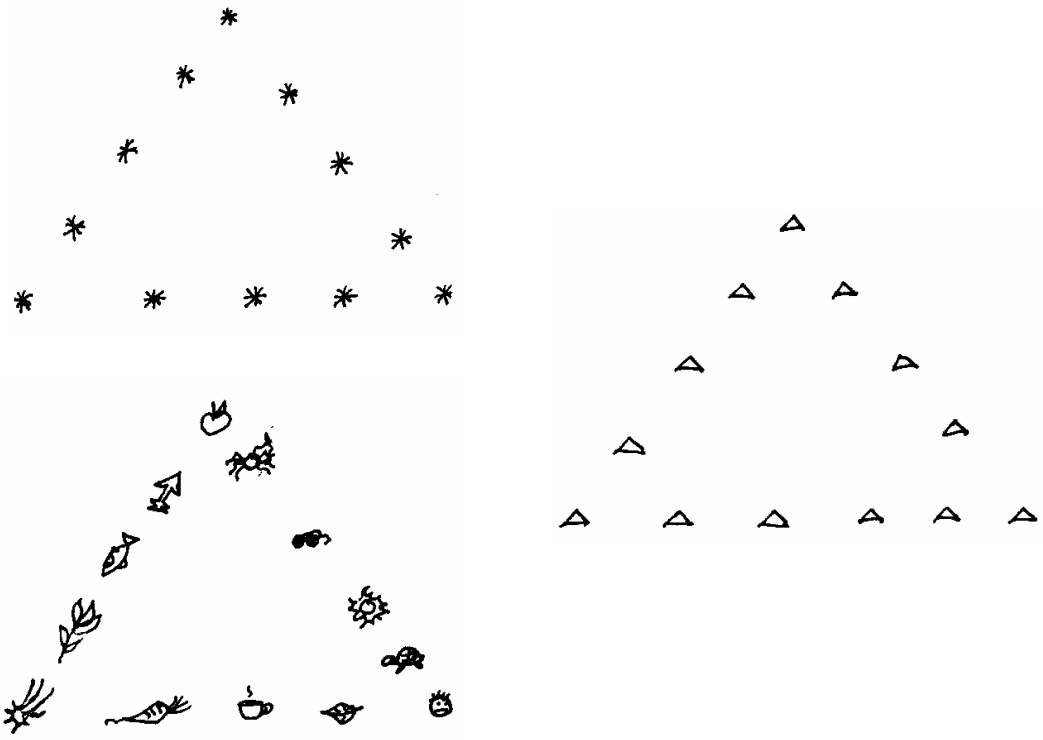


Figure 1: Triangularity Gestalten

These 'triangularity Gestalten' illustrate a quality first described by Ehrenfels in the nineteenth century as *Gestaltqualität*. Despite the differences between the elements composing each triangle, all three figures are perceived primarily in their Gestalt of triangles. In the 1924 lecture just quoted, Wertheimer illustrates this principle by pointing out that a melody can be transposed into another key (and thus be made up of different notes altogether) but it remains the same melody. Nor is a melody merely the product of a mechanical arrangement of single notes, he continues. Rather, the qualities and effects of its individual component notes are determined to an overwhelming extent by the whole – the melody – that they make up.

One fundamental principle that Gestalt research derived from these kinds of observations was that human beings tend to organize stimuli into meaningful wholes. On the basis of their investigations the Gestalt theorists proposed a set of principles, or laws, of grouping.

a) b) c)

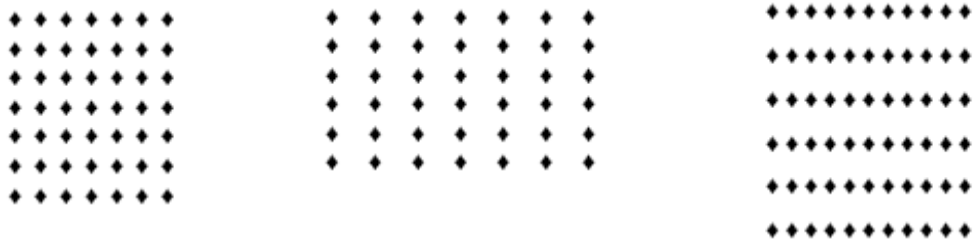


Figure 2: Gestalt law of proximity

In a), the diamonds are vertically and horizontally equidistant from one another, and are thus not perceived as forming discrete rows. In b), the spaces between the diamonds are smaller on the vertical plane than on the horizontal, and are perceived to form vertical lines; in c) the diamonds are perceived to form horizontal rows (although logically, if not visually, they also form vertical rows).

Figure 3: Gestalt law of similarity

The diamonds of the same colour are perceived as being grouped together in rows; again, logically, it is possible to conceive of vertical or diagonal rows of diamonds in alternating colours,

but the law of similarity overrides attempts to perceive them thus.

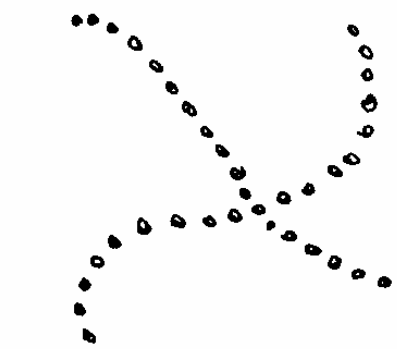


Figure 4: Gestalt law of good continuation

The beads in Fig. 4 are normally perceived as being arranged in two strands that cross one another to form an 'X', although it would be logically possible to regard the figure as being composed of two wide 'Vs" (either two on their sides, or one upright and one upside down).

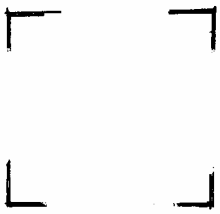


Figure 5a: Gestalt law of closure

Figure 5b: Gestalt law of closure

Although only the corners have been drawn, in Fig. 5a the figure is likely to be perceived as a square rather than four unconnected angles. In Fig. 5b the same law means that one sees a face rather than an accumulation of small penstrokes. The power of this law can demonstrated if one tries to see the angles or penstrokes as not being part of a square or face.

A further law, the law of common fate, can be illustrated if one imagines eight flies sitting on a white tablecloth: three of them are moving around and five are sitting still. The moving ones are likely to be perceived as forming a unit, in conformity with the law of common fate (example adapted from Städtler 1998: 408).

Noticing that these laws of organization (and other principles identified by the Gestalt theorists) resembled one another, Wertheimer subsumed them all under the concept of *Prägnanz*. Koffka summarizes *Prägnanz* in perception as follows: 'Of several geometrically possible organizations, that one will actually occur which possesses the simplest, best, and most stable shape' (Koffka 1935: 138), qualifying this statement with the assertion that 'Psychological organization will always be as "good" as the prevailing conditions allow' (*ibid*.: 110).

The Gestalt law that has found the broadest application is the law of closure. The concept of closure has been used extensively in design, but has been widely applied in non-visual contexts as well. Via the branch of psychotherapy based on Gestalt principles, the notion of 'finding closure' after personal crises has entered everyday speech. In foreign language teaching a familiar application of the principle is the cloze test, whose name is derived from the Gestalt concept of closure. The concept is important in designing visual materials for the foreign language classroom as well, since visual materials designed to support skills development activities are most productive if they are, in some sense or another, incomplete and prompt the learner to provide *verbal* closure in the target language.

Probably the most familiar area of Gestalt research on perceptual phenomena is that of ambiguous pictures. Optical illusions like Rubin's face-vase illusion are frequently found in activity books or comics, so that children often encounter them at primary school age.

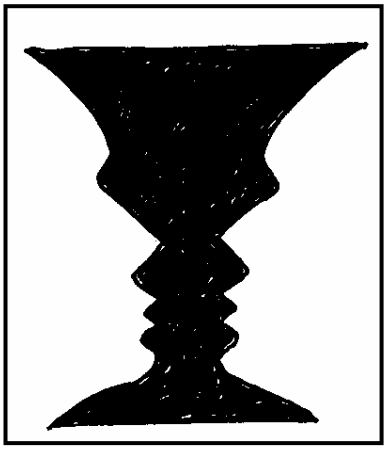


Figure 6: The face-vase illusion (after Rubin 1915)

In any kind of sensory perception, sensory information is automatically organized into "figure" and "ground", with more perceptual effort invested in attending to the figure. But in the Rubin illusion, the figure can also be perceived as the ground, and vice versa, yielding entirely

different images. For most viewers, figure and ground reverse spontaneously, and this is startling because they are not normally aware of carrying out the perceptual activity of separating figure and ground at all.

Among other well-known Gestalt illusions are the Necker cube, Jastrow's duck-rabbit figure, the Müller-Lyer illusion and the Ponzo illusion.

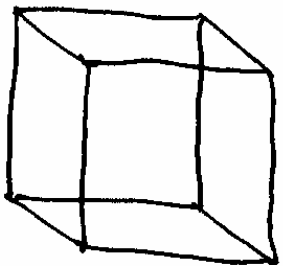


Figure 7: The Necker cube

The Necker cube provides ambiguous information related to linear perspective, so that the cube seems to be at a different angle when the figure reverses.

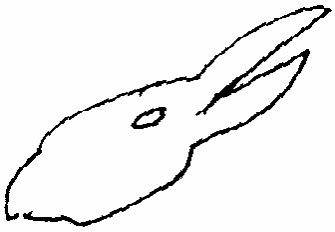


Figure 8: The duck-rabbit figure

The duck-rabbit figure contains features which could signify either a duck's beak or a rabbit's ears; there is no additional visual information to support either reading. In fact, I would dispute that the duck-rabbit figure illustrates a problem of perceptual organization at all, as is usually claimed (e.g. Bruce & Green 1990: 106ff.). Instead, it poses the problem of interpreting ambiguous signifiers, and it would make more sense to analyse it from a semiotic rather than a perceptual perspective.

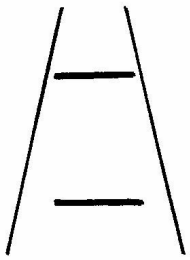


Figure 9a: The Ponzo illusion (1)

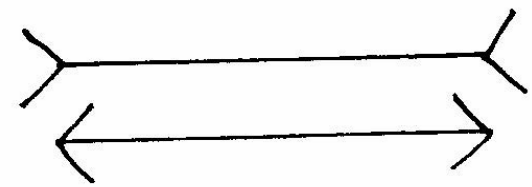


Figure 9b: The Müller-Lyer illusion

In both the Ponzo and Müller-Lyer illusions, the two vertical lines are exactly the same length, although the other visual information makes one appear shorter than the other. Both illusions are usually explained in terms of 'size constancy' mechanisms. Size constancy is well illustrated by the Ponzo illusion (Fig. 9a). The upper line, the one that seems further away, appears to be the longer, because (according to the logic of normal visual experience) if it was in fact the same length as the line in front - that is, if one were looking at logs of an equal length on a forest path - it would appear to be shorter, as the laws of perspective dictate. However, the Ponzo illusion is sometimes shown sideways on, and tends to produce the same illusion in test subjects in this position.

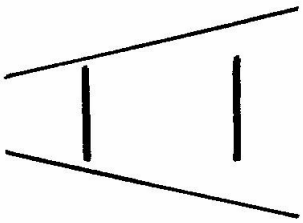


Figure 9c: The Ponzo illusion (2)

This makes the size-constancy interpretation problematic (cf. Städtler *op. cit.*: 385). The usual explanation for the Müller-Lyer illusion is that the directions of the arrows trigger different perspective-related depth cues and size constancy expectations: in the representational drawings in Figs. 9d and 9e, the lines used to indicate that the objects recede in space or project forward into it form the same angles as the Müller-Lyer illusion.

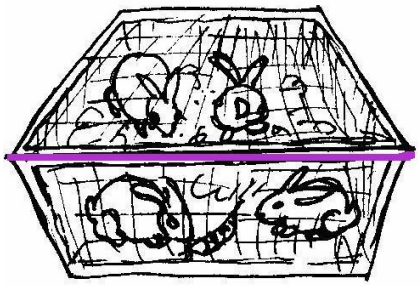


Figure 9d

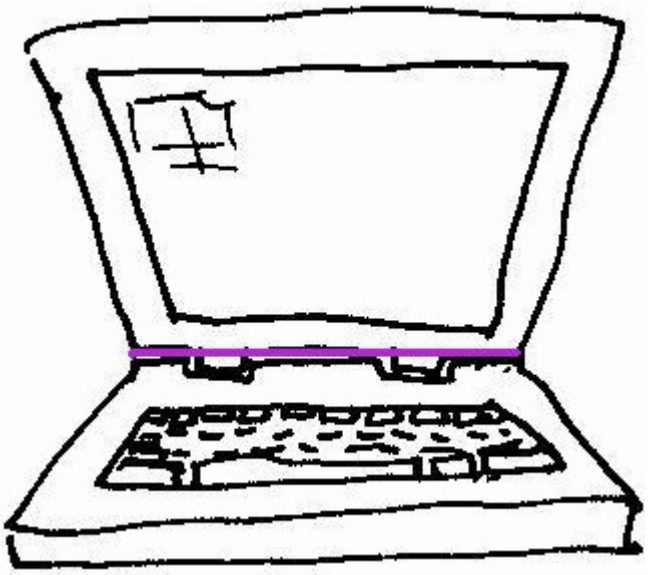


Figure 9e

Figures 9d and 9e: The Müller-Lyer effect in representational drawings: the purple line is the same length in both drawings.

The line between the inward-pointing 'arrowheads' (seen in the representational drawing of the rabbit hutch, which is receding from the viewer in space) appears shorter than the one with outward-pointing tips, which is seen as the back edge of a space bordered by straight sides projected towards the viewer (the half-closed laptop computer). However, if one studies the pictures closely and makes a conscious effort to see them as two-dimensional representations rather than the things they represent, the illusion remains; and this makes an explanation in terms of perspective effects less plausible. In experiments such as this and the sideways Ponzo illusion, Gestalt theorists demonstrate phenomena that are present in human perception but have not been fully explained by cognitive science.

. The value of Gestalt theory for a better understanding of the affordances of visual information and by extension, of instructional visuals lies above all in the principles of perceptual organization which it identifies and demonstrates, even if it does not explain them.

2.2 The constructivist approach

The constructivist approach is the dominant paradigm in the area of visual perception. A simplified version of visual perception as explained by this approach could be formulated as follows: sketchy, incomplete data are taken in rapidly through the eye, these data are compared to memories of previously stored images and other knowledge, and so construct what we 'see'. The roots of this paradigm can be traced to Helmholtz' writing on physiological optics (cf. Helmholtz: 1866). Helmholtz reasoned that the data the eyes signalled to the brain were so patchy and incomplete that they could not possibly produce visual perception on their

own, and that previously stored knowledge was used to make inferences that ultimately interpreted the signals. A prominent twentieth-century proponent of the constructivist position is Gregory, who traces the approach's debt to Helmholtz in the following passage:

> Following von Helmholtz's lead we may say that knowledge is necessary for vision because retinal images are inherently ambiguous (for example for size, shape and distance of objects) and because many properties that are vital for behaviour cannot be signalled by the eyes, such as hardness and weight, hot or cold, edible or poisonous. For von Helmholtz, ambiguities are usually resolved, and non-visual object properties inferred, from knowledge by unconscious inductive inference from what is signalled and from knowledge of the object world. It is a small step […] to say that perceptions are hypotheses, predicting unsensed characteristics of objects, and predicting in time, to compensate neural signalling delay (discovered by von Helmholtz in 1850), so 'reaction time' is generally avoided, as the present is predicted from delayed signals. (Gregory 1997: 1)

In Gregory's hypothesis theory, perception is conceived as a chain of events: this account of it is based on Gordon (*op. cit.*:132). Signals are received by the retina, setting off 'neural events' as light energy is converted into electrical impulses. At this point top-down processes come into play. Previous knowledge is selected and applied to the neural input, and the combination creates 'psychological data' which allow hypotheses to be formed. Only once these hypotheses are present is it possible to make sense of what one sees. Mere sensory input is not enough for meaningful seeing to take place. A good analogy might be that of listening to a speech in a language one has never encountered before and which is not related to any other language one knows. One hears the utterances, and can even make inferences about what parts of speech recurring words might be, but it is not possible to put a meaningful construction on the speech without prior knowledge.

As evidence that perception relies on the construction of hypotheses Gregory advances the following arguments (1971, 1997). One pertains to reversing figures like the Necker cube and the face-vase illusion. If perception is direct, and no hypotheses are involved, then surely one should only see the figure one way. Instead, the brain constructs different hypotheses on the basis of the visual stimulation, and so the image 'jumps' abruptly from one hypothesis to another. Another argument is that when one looks at a picture, for example this drawing of an elephant, one sees lines on a flat piece of paper as well as the three dimensional object they represent.

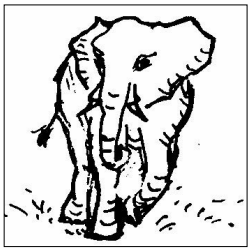


Figure 10: An elephant

It does not bother the viewer that this image of an elephant occupies only a few square centimetres on the page, although real elephants are very large. That is, although one sees the ink and the paper, or the scan on the computer screen, one accepts that they *represent* an elephant. This, according to Gregory, is only possible due to a considerable constructive effort. When Gregory speaks above of 'unsensed characteristics of objects' (Gregory *loc. cit.*.: 1997), he is thinking for example of something like this table.

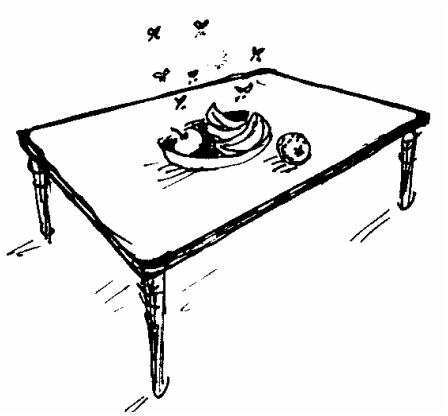


Figure 11: A table

From a certain angle only three legs can be seen, and the top appears as a trapezoid. However, the viewer knows that the table has four legs and a top with parallel sides, and responds to it on the basis of that knowledge. This, Gregory argues, is evidence of the constructive nature of perception.

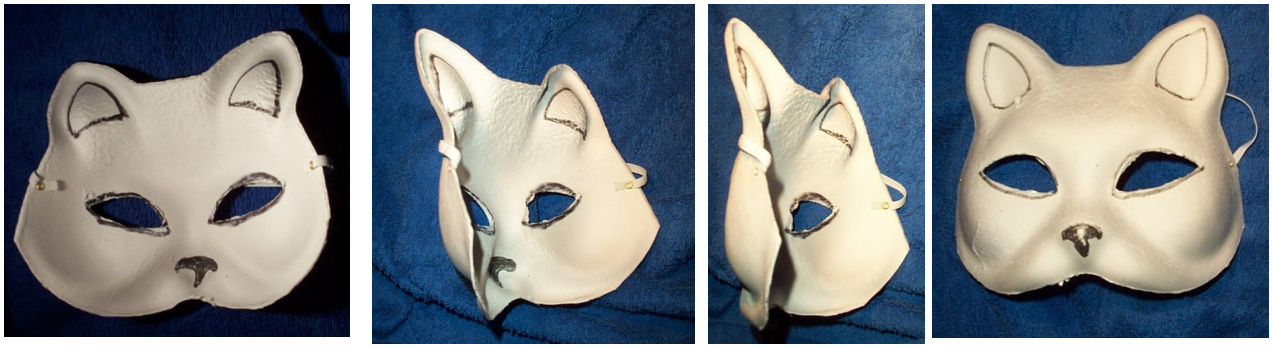
Gregory has in the past addressed the question of intercultural factors in the perception of visual information as well: in Gregory (1966), he argued that the kinds of top-down knowledge available for perceptual hypotheses are determined by culture and environment. In support of his claim, he drew on experiments by Segall et al. (1966), who explored the reactions of people from different cultures to Gestalt-style optical illusions. These researchers concluded that people who live in environments where straight lines and right angles are omnipresent are more liable to experience illusions presumed to be triggered by cues related to linear perspective than those whose environments are less 'carpentered'. In particular, Gregory

referred to that part of the research in which the Müller-Lyer illusion was presented to rural Zulu people in eastern South Africa.

> The people who stand out as living in a non-perspective world are the Zulus. Their world has been described as a 'circular culture' - their huts are round, they do not plough their land in straight furrows, but in curves, and few of their possessions have corners or straight lines. […] It is found that they experience the Müller-Lyer arrow illusion to only a small extent, and are hardly affected at all by other distortion illusion figures. (Gregory 1966: 162)

This suggests that members of the Zulu ethnic group have made things in their environment round as a cultural choice. I would argue instead that, to the extent that it exists at all, their so-called circular culture is a result of environmental constraints. Such constraints are for example the hilly terrain of the Drakensberg foothills, where agriculture is only possible with contour ploughing, or the fact that the only readily available building materials for traditional huts, clay and thin branches, lend themselves better to circular than rectangular constructions. Neither of these have anything to do with a dislike of, or unfamiliarity with, rectilinear forms. Besides, by 1966 many Zulu homesteads included rectangular buildings made of bricks and corrugated iron, and it is hard to imagine that, in the 1960s, any Zulu-speaking South Africans had remained so isolated in completely traditional homesteads that they had never seen the small rectangular houses in a black township, or the larger rectangular houses in the separate area of town reserved for whites. It is difficult to believe they had not had any visual experience of streets, offices, fences, windmills, vehicles, telephone wires or the rectangular pass-books they had to carry under the Group Areas Act. Besides, acute angles (such as those found in the Müller-Lyer illusion, which Zulu subjects were found not to understand) occur in nature as well, for instance in the branches of trees, as Wertheimer (1923) points out.

Despite the weakness of the evidence provided by the Zulu example, the claim that environment and culture condition perceptions to such a radical extent, if it has any validity, suggests that there might be significant intercultural differences in picture perception, which would, in turn, have implications for the foreign language classroom. However, in the discussion of a later investigation, Gregory seems to undermine his own notion of culturally-determined perceptual hypotheses. In this investigation, Gregory asserts that one of the strongest pieces of evidence for the power of top-down knowledge over bottom-up signals is provided by the optical trick known as the hollow-mask illusion.



12a: back (concave) view 12b: back, edge of front 12c: side view 12d: front view

Figure 12, a-d: The hollow mask illusion (photographs by the author)

Fig. 12a shows a photograph of the *inside* of a rigid papier mâché mask, illuminated by direct light. In 12b and 12c, the mask has been turned slightly and the edge of the convex side is visible. In 12b the visual information is ambiguous: the impression is of a cat's face seen from an angle, with the edge folded over. In 12c the inside of the mask can clearly be perceived as concave. 12d shows the mask from the front. But to most viewers, even after studying 12b and 12c and even if convinced on the conceptual level that they are looking at the inside of the mask, 12a will still appear to be convex. Gregory explains this in terms of knowledge of the world (we know faces are convex) overcoming the input-signal evidence that we are actually looking at concave spaces, and notes that:

> It is significant that this [the hollow mask illusion, P.S.], and very many other illusions, are experienced perceptually though the observer knows conceptually that they are illusory - even to the point of appreciating the causes of the phenomena. This does not, however, show that knowledge has no part to play in vision. Rather, it shows that conceptual and perceptual knowledge are largely separate. (Gregory 1997: 4)

Here Gregory seems to be introducing a third level of processing. Whereas before he distinguished between signals in the form of 'flat ghostly images in eyes' (*ibid.*, 3) acted on by appropriate perceptual knowledge to form hypotheses, he now adds abstract, generalizing conceptual knowledge, which one can bring to bear on perceptual knowledge without necessarily influencing it. This, Gregory explains, is because 'perception must work extremely fast (in a fraction of a second) to be useful for survival, though conceptual decisions may take minutes, or even years' (*ibid.*, 4). The term 'survival' connotes that perception is viewed here

as an evolutionary achievement; and since it works 'extremely fast', the phenomena Gregory is discussing must be the kinds of mechanisms human beings need to survive, and not something of a higher intellectual order. Since urban Europeans and rural Zulus have the same hominid ancestors - who survived because they developed the extremely quick perceptual processes needed to detect predators and enemies - it is unlikely that the mere local conditioning of living in an environment deficient in straight lines can cancel out the ability to perceive depth cues. There may have been other reasons why the Zulu subjects failed to perceive the illusions in the 1966 experiment (cf. references to disputed research findings in the area of culture and perception in the next chapter).

To return then to the question of whether culture and environment influence visual perception, or whether everyone sees in the same way. It is true that Gregory argued in the 1960s that visual experience in the lifeworld could affect fundamental aspects of perception. But if we take his later distinction between perceptual and conceptual knowledge to invalidate this argument, it appears that visual perception is essentially the same for all human beings, even in terms of this emphatically top-down model.

2.3 Marr's computational approach

Although Marr's computer modelling approach differs greatly from Gregory's, his computational theory, dating from the early 1980's, also posits an interplay of bottom-up and top-down operations in perception. In the introduction to *Vision* (1982), he asserts that the study of vision should include

> not only the study of how to extract from images the various aspects of the world that are useful to us, but also an inquiry into the nature of the internal representations by which we capture this information and thus make it available as a basis for decisions about our thoughts and actions. (Marr 2002 [1982]: 230)

In contrast to Gregory's approach, however, in Marr's computational model bottom-up knowledge (what we extract from images, in his terminology) is shown to play a stronger role in perception than internal representations. (The notion of internal and external representations is an important one in contemporary approaches to learning and cognition, and will be returned to in Chapter III.) In a well-known implementation of his 'early visual processing' program (see below), the program was able to model a teddy-bear's head from a photograph: As Bruce & Green (1990: 135) point out, the program was unable to apply any previous knowledge of teddy-bears to form a hypothesis of what it was 'seeing', yet it produced a recognizable image. To this extent Marr's model has certain affinities with Gibson's direct perception, and indeed he

credits Gibson with coming 'the nearest [of] anyone […] to the level of computational theory' (Marr 2002: 252). Marr also makes extensive use of Gestalt principles of grouping, such as proximity, similarity and closure (Bruce & Green *op. cit*.: 131f.) to model the ways in which he believes retinal information is aggregated.

In Marr's approach, vision is viewed in terms of an information processing system, and the 'main job of vision' is defined as being 'to derive a representation of shape' (Noë & Thompson 2002: 259). In vision, light enters the eye and is focused on the retina in a pattern known as the 'optic array' (a concept central to Gibson's approach). The light in the optic array, reflected at different angles off the surfaces and edges of things, differs in spectral composition and in intensity. Or to put it in Gibsonian terms, the edges of objects and the angles of surfaces are indicated by spatially distributed variations in the intensity of light reaching the optic array. It is these differences and the way they convey visual information about the shapes and positions of things that interest Marr. He divides the initial phase of perception, which he terms early visual processing, into three stages. He calls the first stage, in which intensity values are processed, the raw primal sketch. This first, crude stage determines the way the different areas of intensity are arranged symbolically into 'tokens' (bars, blobs and edge segments), as a preliminary to detecting surfaces and their angles, edges and solid areas. In the second stage, the raw primal sketch provides input for the '2½ D sketch'. This is the viewer's representation of approximate depths, shading, texture and the orientations of surfaces, and is still strongly dependent on the retinal image. That is, at this stage the table in Fig. 11 is represented as a trapezoidal form with three attenuated legs of different length, as it appears from the viewer's position. The final stage is the 3-D model of the things in the real world, as the approximate forms that emerged in the 2½ D sketch become tokens of three-dimensional objects. The representation of the table is now object-centred, in Marr's terms: the viewer makes use of 'a stored set of object descriptions' (Bruce & Green *op. cit*.: 80) to form a model of a table which has parallel sides and four legs of equal length, and it is only at this stage that top-down processes come into play.

The disciplines principally drawn on by Marr and his collaborators were computer science and mathematics. They used photographs of objects in the kinds of random arrangements which confront us in everyday life (a close-up of part of a weed against a fence, for instance) and computed intensity values of the images, after which they applied algorithms they had devised to model the stages of early visual processing. In other words, what their computational model provides is a working analogy for the kinds of processes that might take place in human vision. Does the model then help to ascertain whether everyone sees in the

same way or not? The first two stages, which involve identifying basic structures and assessing depth and orientation, are neurophysiological processing operations not susceptible to influences by environment and culture. They may not even be restricted to human beings as a species: in the 1960s Hubel & Wiesel discovered cells in the visual cortices of cats that appeared to be specifically geared to identifying the orientations of lines and edges, and Marr drew on this research (cf. Gordon *op. cit*.: 190). In the third stage, previous experience of the visible world comes into play, and here it is conceivable that one individual's set of object descriptions might differ from another's. But what level of perception are we concerned with here? If I saw a racoon in the garden I might think at first glance it was a cat, because there are no wild racoons where I live. But even if I had never seen a racoon before, in the flesh or in pictures, this does not mean that, if I looked at the racoon more closely, I would be unable to *see* its black mask, stripy tail, and so forth. I might not know its name, but I could identify it on the basis of my accumulated object descriptions as a small, furry, greyish animal. I might still believe it to be some strange kind of cat, but that would not mean I had failed to *see* all its typical racoon features. So at this stage too, it is unlikely that cultural or personal differences could affect perception, and it seems plausible that the approach is applicable to human perception in general.

2.4 The direct perception approach

Diametrically opposed to Gregory's constructivist position is Gibson's 'ecological optics', also known as the direct perception approach. As we have seen, Marr drew on Gibson in formulating his theory, and as Fodor & Pylyshyn point out, many perceptual psychologists working within the dominant paradigm have argued that Gibson's approach is not incompatible with their own: he simply formulates similar insights in different terms. Gibson himself categorically rejects such claims however (cf. Fodor & Pylyshyn 2002: 168-169).

Just as the spread of Gestalt theory was related to the global upheavals of the 1930s and 1940s, so World War II was also indirectly responsible for the genesis of Gibson's unorthodox theory. During the war, Gibson, a research psychologist, was involved in selecting and assessing American air-force pilots, and the ideas he developed about perception during landing and take-off formed the basis of his direct perception approach. By thinking about the visual information and orientation pilots received from seeing everything rushing towards and past them as they moved forward in space, he developed the notion of 'optic flow'. Optic flow, Gibson points out, is a major feature of human vision. When awake, we move constantly: we turn our eyes, or heads, we move through space, and other things in our environment move as well. Consequently, Gibson was critical of the tradition of empirical research in visual

perception in which subjects, their heads artificially restrained, were exposed briefly to static images (cf. Gordon 1989: 149 ff.). Such methods fail to reproduce the conditions under which perception takes place in the real world. Opponents of constructivist approaches such as Gregory's question the validity of constructivist models of normal perception with their successive stages of bottom-up and top-down processing, on the grounds that the data they are based on are obtained under abnormal conditions. Constructivist models reason that extensive top-down processing is necessary because the starting point of perceptual processing is an 'impoverished' and 'degraded' image of the world projected onto the retina. Gibson believes that there is no such thing as a static, impoverished retinal image, so there is no need to apply a series of perceptual hypotheses to it. Instead, human beings moving through space actively obtain rich, direct visual information from the constantly shifting structures of light falling on the retina. The term 'ecological optics' derives from the notion of humans or other animals performing the dynamic 'act' of perceiving (*ibid.*: 146) as they move through the environment which, in the course of evolution, has shaped the development of their senses.

Central to Gibson's theory is the concept of the 'ambient optic array'. The term 'ambient' is usually glossed as 'immediate' or 'instantaneous' in discussions of Gibson. The optic array is the millions of light rays, conceived as solid angles (that is, three dimensional, cone-like structures) subtended at the eye[2] of an observer as they 'sample' the environment. The presences of surfaces, structures and their boundaries are indicated by changes in the patterns and luminosity of the light.

With movement, the optic array changes, since light is reflected differently off surfaces and textures. Movement is one of the keys to the information in the optic array: the changes in the light reflected off surfaces provide information about their shape and position thanks to what Gibson calls 'invariant' information, changes in the ambient optic array that will invariably happen when a person moves (or when things the person is looking at move) and are therefore 'lawful' changes. Here are two examples, which can only provide an approximate idea of this complex notion.

The first example involves a texture gradient (see Figs. 13 and 14). If one stands in a cobbled street, the cobblestones at one's feet will look bigger, and their contours will be more clearly defined, than those ten metres ahead. Those further away will appear to be smaller, fuzzier and more densely packed, and will also be foreshortened in accordance with the laws of

[2] i.e., the sides that form the angle meet at the eye

linear perspective. As one walks along the street, the cobblestones ahead will appear to grow gradually bigger and the texture will appear less dense as one approaches. These lawful changes in the texture gradient also provide information about the size, position and distance of objects (the animal) juxtaposed against it, relative to the viewer.

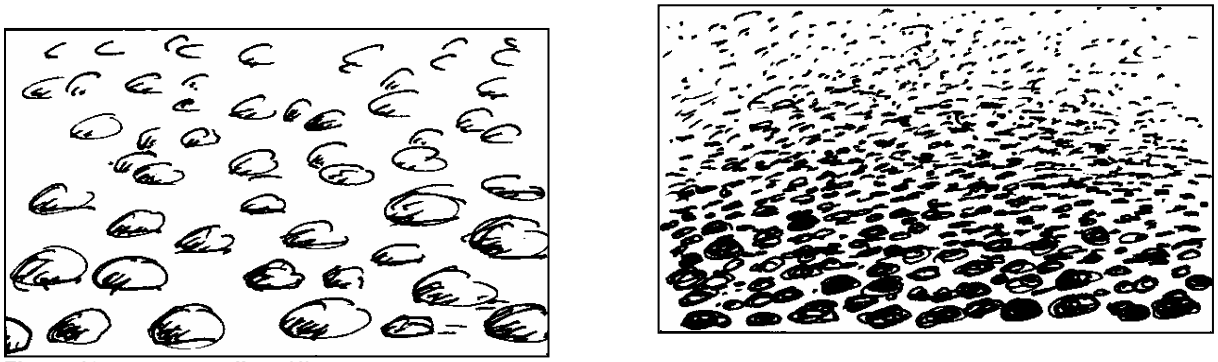


Figure 13: texture gradient (1)

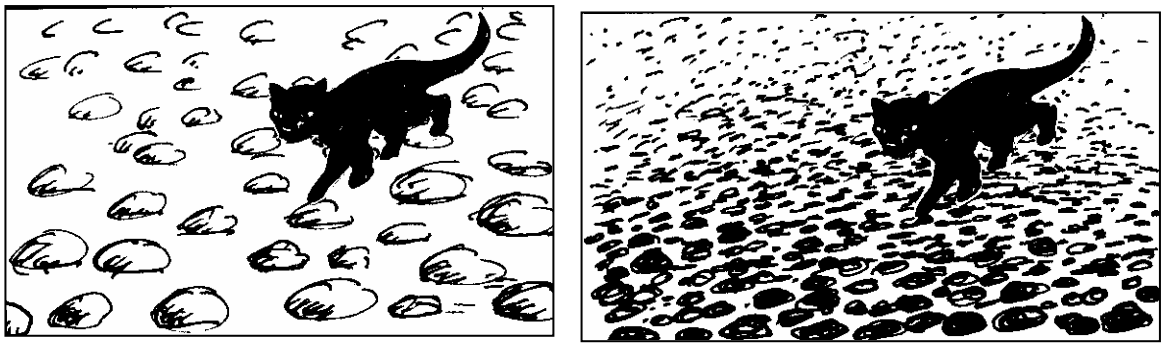


Figure 14: Texture gradient (2)

The different texture gradients in Figs. 13 and 14 should provide different information about the size and position of the same feline figure when it is juxtaposed on them.

As a second example, if a person moves around a rectangular table, from most angles the shape of the table-top will be trapezoidal, as in Figure 11. The viewer would not register this consciously, due to the mechanism known as shape constancy, but they would be made aware of its not looking rectangular if they set out to make a realistic sketch of it. The lawful changes in this case are the geometrical rules by which the trapezoid could be shown to be a transformation of the rectangle. This geometrical transformation, Gibson implies, is made automatically by the viewer in the kitchen environment, on the basis of visual samples - the many views of the table from different angles.

An application of the direct perception to questions of cultural differences in visual perception is found in Hagen (1986); in this study, she uses Gibsonian optics and the notion of geometrical invariants to analyse art that does not conform to the rules of linear perspective. The visual experience of invariants emerging from the constantly shifting optic array, so her argument goes, means that individuals have an implicit, instinctive knowledge of different optical geometries and the various transformations they are capable of. In earlier attempts to address the question of how people from very different cultures understand representational conventions, researchers have concluded that 'primitive' or 'unsophisticated' subjects are unable to understand depth cues in pictures and that their visual perception is of a fundamentally different nature to that of the researchers. Hagen's conclusions imply just the opposite: the fact that some representational traditions use different pictorial geometries from those of post-Renaissance western art is, she suggests, evidence that human beings have developed the ability to calculate different geometrical transformations of forms in the visible world.

3 Discussion and implications

Two questions asked in this chapter were how people see and how they interpret what they see. It was clear from the outset that a number of conflicting answers exist and that no definitive answer could be expected to emerge from an overview of approaches. Nevertheless, the different answers summarized here contribute substantially to a more informed understanding of visual perception and the perceptual issues involved in interpreting the visual information in (instructional) pictures and graphics.

The laws of perceptual organization demonstrated by Gestalt theory are especially relevant to understanding how drawings and graphics convey information. Gestalt principles are widely used in research and are not disputed in the fields of perceptual and cognitive psychology. However, they do not constitute a general theory of perception. They address only a number of specific, well-defined phenomena found in human visual perception, which they demonstrate rather than explain.

The other three approaches do offer general theories of perception, each differing significantly from the other. While this brief overview has neither the scope nor the authority to decide which of these is the most plausible, the different focusses and perspectives of the approaches provide essential insights into concepts and phenomena related to visual perception, and this helps greatly to contextualize the exploration of the affordances of visuals in FLT. Of the three approaches, Marr's computational model is the most compatible with the

information-processing approaches used in current research in the field of cognitive psychology on learning with visuals, and provides a fuller understanding of the early processing that precedes the higher cognitive operations addressed by research on learning with visuals. However, Marr's approach says little about how best to convey visual information for successful use in instructional contexts, or factors that might affect its understanding. Gregory's constructivist approach, by emphasizing the role played in visual perception by hypotheses based on an individual's previous visual experience and knowledge, provides a possible framework with which to explain individual variations in the interpretation of illustrations. Gibson's direct perception approach, in explaining how the environment affords visual information about distance and shape, addresses aspects of visual experience which play an essential role in techniques of visual representation and in the understanding of pictorial information.

The question of whether perception, especially the perception of pictures, is influenced by culture is answered differently by the three approaches. In terms of the direct perception approach, culture cannot influence perception, because perception does not involve top-down operations. According to this approach, environment is what affords perception, and the two are inextricably linked: but since perception is direct and unmediated, long experience of a particular environment and its cultural artefacts, and thus long experience of the kind of visual information it affords, does not imply that unfamiliar visual information in an unfamiliar environment cannot be perceived, or that people who are not used to it perceive it differently from people who know it well. Gibson holds this to be equally true for pictures and for perception in the real world, and thus the answer from the direct perception approach is that culture does not influence an individual's ability to understand visual information. The information-processing approach is more ambivalent in this regard, as one individual's repertoire of object descriptions may not be the same as another's: this would explain why illustrations might be differently interpreted on the basis of different cultural expectations. But since early visual processing is not affected by top-down processes, this approach too suggests that the ability to understand perspective and other depth cues in pictures should not be perceived differently due to cultural or environmental influences. Gregory's constructivist approach, by distinguishing in its current form between perceptual and conceptual knowledge acting upon the incomplete information on the retina, has similar implications to Marr's approach: individuals may interpret concrete things they see in pictures differently, and these interpretations, based on conceptual knowledge, will be coloured by culture and environment. However, the perception of shape and depth appear to belong to the realm of perceptual

knowledge, which suggests that this kind of basic visual information is not perceived in fundamentally different ways as a result of cultural or environmental influences.

CHAPTER II
PICTORIAL REPRESENTATION

1 Introduction

For a clearer understanding of the affordances of visuals for foreign language learning and teaching and factors that might influence their effectiveness, a number of questions related to the way visual information is conveyed in pictures need to be addressed next. First, how is representation related to perception? How can linear contours and areas of varying tone inscribed on a two-dimensional surface represent three-dimensional spaces and objects in the real world? Second, what conventions are used to encode visual information, and to what extent is representation constrained by convention? What influences representational conventions? Third, although visual perception as such appears not to be affected by culture, is it possible that the understanding of pictures is affected by culture in fundamental ways? What can research on the perception of pictures in different cultures tell us about problems of understanding that may arise? This question is crucial, because if conventions of pictorial representation are culture-bound, and if differing conventions have been found to cause major misunderstandings of visuals in cross-cultural contexts, this has important implications for the use of visuals in FLT.

2 Techniques of pictorial representation[3]

In a sense, artists and illustrators trick the viewers of their pictures into seeing realistic scenes and objects on two-dimensional surfaces by mimicking phenomena human beings experience in their perception of the environment. In this section, some of the basic techniques used in art and design to create the impression of depth and light are considered, and related to phenomena in human perception. This provides some of the background needed for considering various claims that have been made in the past about the interpretation of pictures in different cultures. It also serves as a reminder that notions of how things ought to look in graphics or pictures are dependent on a familiarity with specific rules and conventions. But people who create pictures may break these rules, or they may observe different ones, as will also be discussed in this chapter.

[3] The main sources drawn on in writing this account are Metgzer 1992 and Matlin & Foley 1997, as well as Hagen (1986) for section 2.1.4. The graphics used to illustrate the phenomena are my own.

2.1 Depth Cues2.1.1 Interposition

The impression of depth and three-dimensional form is created on two-dimensional picture surfaces by means of effects of visual perception known as depth cues. One of the simplest depth cues is 'interposition' or 'occlusion' (overlapping). In the real world, if one of the quinces was closer to the viewer, that is, partially in front of the other from the viewer's perspective, it would obscure some of the second quince (Fig. 1). In reality, the contour lines depicting the quinces on the flat surface of the page are the same distance from the viewer's eyes. Interposition creates an illusion based on visual experience of the real world, where solid objects obscure other objects.

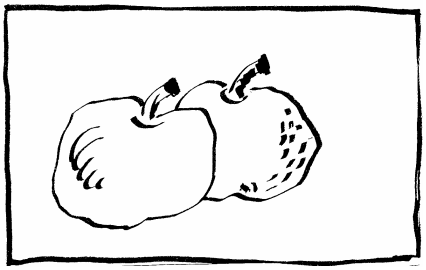


Figure 1

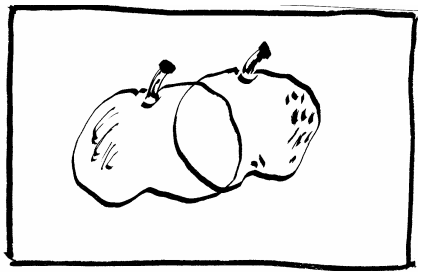


Figure 2

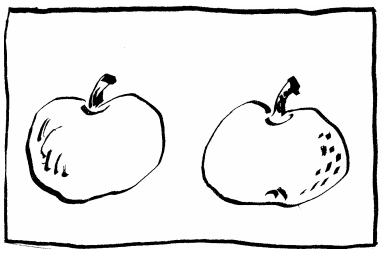


Figure 3

But since this is a drawing and not the real world, one could just as well draw the entire contour of each quince, as in Fig. 2. Here, the depth effect disappears and a greater decoding effort is needed on the part of the viewer, who is confronted with an image that conflicts with normal viewing expectations. If the quinces are drawn apart in space (Fig. 3) then the picture requires no special processing effort, but the depth effect is also absent: both quinces appear to be the same distance from the viewer.

2.1.2 Relative height

The lower halves of pictures are conventionally treated as ground and the upper halves as sky, with depth cues used within this illusory space. The depth cue known as relative height involves placing objects higher or lower or in a more central or peripheral position to give the impression they are closer to or further from the viewer. Objects close to the bottom of the picture will give the illusion of being closer to the viewer, and those closer to the horizon – where earth and sky meet – of being further away. Above the horizon, the order is reversed. Things just above the horizon are far away, those at the top of the picture are close by; this can be illustrated by imagining someone tilting their head back to look at a hot-air balloon right

overhead (that is, close by in a relative sense) or looking straight ahead to see one kilometres away, near the horizon.

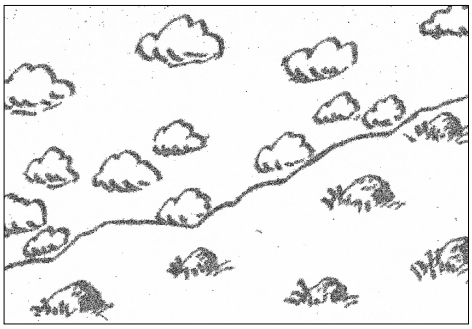


Figure 4

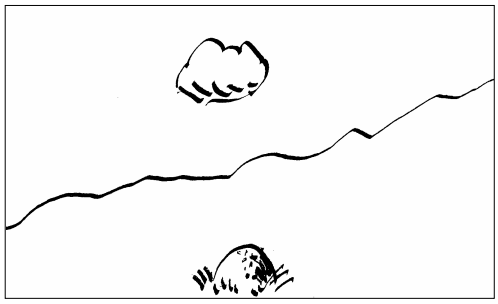


Figure 5

Because of these depth cues, the picture in Fig. 4 seems to have depth: the higher the dinosaur eggs are placed on the picture plane, the further away they seem to be. Peripheral objects also appear closer than those located nearer the centre. As regards the objects in the sky, the clouds nearest the horizon appear to be furthest away, while the clouds closest to the top edge of the picture seem nearest. Fig. 5 illustrates how much shallower the picture seems with fewer indicators of relative height.

2.1.3 Relative size

Relative size is a depth-cue best explained by means of a diagram familiar from biology textbooks. As the lines that represent the viewing geometry in Fig. 6 show, the further away from an object a viewer is, the smaller the image projected on the retina: the dinosaurs would appear to a museum visitor more or less as shown in Fig. 7, although they are in fact the same size.

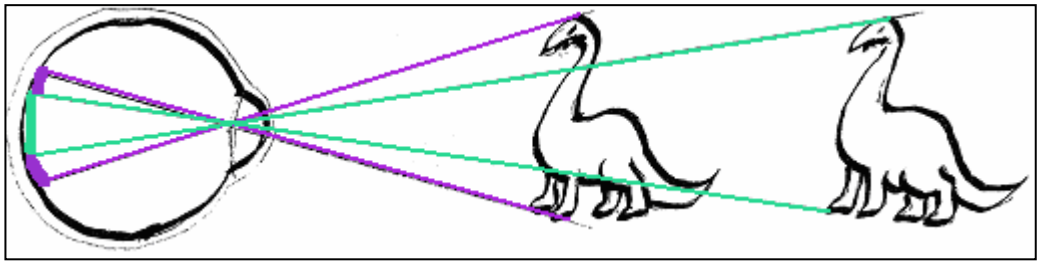


Figure 6

Figure 7

The image projected (upside-down) onto the retina is two-dimensional, just as a picture-plane is. Human visual cognition is specifically designed to use depth cues to assess distance in space. Thus as Renaissance artists observed, systematized and implemented depth cues they were able to produce pictures that seemed ever more realistic. In Figs. 8, 9 and 10 perceptual rules are violated to demonstrate how the phenomena of relative size and size constancy function. In Fig. 8, the hikers are depicted in conformity with the real life expectations of relative size. The hiker on the left is much the larger, and so appears to be closer to the viewer than the smaller figure on the right.

Figure 8

Size constancy accounts for the functioning of relative size as a depth cue (Boring 1964). In a real-life scene, despite the difference in the sizes of the images of the two people falling on the retina, one would perceive the woman to be the same size as the man. The size of her image on the retina would be combined with numerous other depth-cues in the scene to compute her actual size. Two further illustrations are needed to demonstrate what happens if the encoding conventions derived from the relative size depth cue are not observed.

Figure 9

The first, Fig. 9, shows the effect if the figures are the same size. The figures of the hikers from the original picture (Fig. 8) have been duplicated and manipulated with picture editing software rather than redrawn by hand so as to provide

more exact comparisons. In Fig. 9, the figure on the right has been cut out of the original, enlarged to the same size as the one on the left, and reinserted into the picture. The woman now seems bigger than the man, and the lines of the manipulated element have been thickened by the resizing process (the thickness of lines is also a depth cue; see 2.2.3). The impression of distance created by the use of relative size/height in Fig. 8 has been considerably reduced. In Fig. 10 the hikers have swapped positions, whilst retaining their original sizes. The result is that the figure of the woman, who appeared to be of similar stature to the man in Fig. 8 thanks to the size constancy mechanism, now seems to be some kind of pixie.

Figure 10

2.1.4 Linear perspective

Linear perspective is a depth cue closely related to relative size, albeit one capable of producing a more powerful illusion of depth and space. Most human environments contain numerous parallel lines in the form of roads and buildings; although parallel lines never meet, if one looks down a straight, flat stretch of railway line from the middle of a bridge for example, the lines that demarcate them are perceived to converge, meeting at the horizon. This is due to the same principle of visual cognition that accounts for relative size: the further away something is from the viewer, the smaller the image projected onto the retina. With straight, linear structures however, size is perceived to diminish gradually and continuously. Hence, recreating this phenomenon in a pictorial representation creates a more convincing and finely-tuneable illusion of depth than those signalled by the relative sizes of self-contained elements placed in the picture.

The principles of single vanishing-point perspective, the simplest kind of linear perspective, are illustrated in Fig. 11. Single vanishing-point exercises of this kind are composed of straight lines with geometrically-determined constraints on their positioning. All

parallel lines running away from the centrally-placed viewer into the distance, if continued, converge until they meet at the same spot (the vanishing point) on the horizon-line. Three-dimensional structures like water-tanks are seen from above (which means the top is visible) if below the horizon-line, and below (so the bottom is visible) if above it. To calculate the angles of these surfaces correctly in relation to other lines in the picture, convergence lines are drawn from the front corners of the structure to the vanishing point.

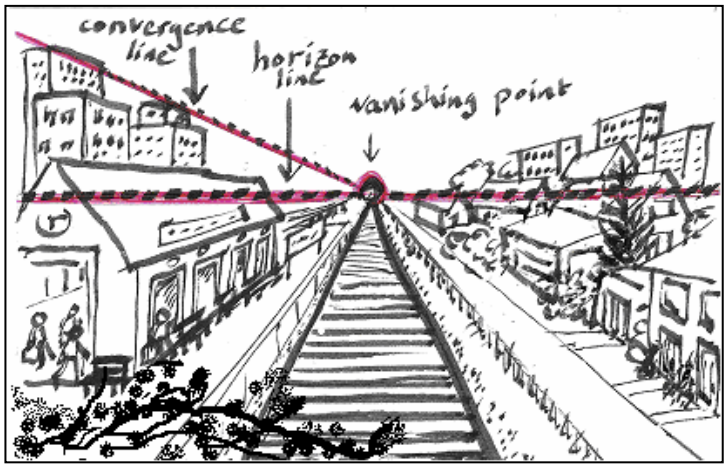


Figure 11

In linear perspective, the essential component that determines the position of all the other elements is the horizon line. Lying on the beach and looking straight ahead, one sees only a narrow strip of water between the beach and the horizon-line where the sea meets the sky. This is because the height of the horizon-line is determined by the viewer's eye-level, which in this case is very close to the ground. From the 14th floor of a shorefront hotel, the horizon-line will be much higher; one can see far out to sea now, but the point where sea and sky appear to meet still corresponds to the viewer's eye-level. In urban environments the actual horizon cannot be seen. And in fact, the 'horizon-line' that provides the primary orientation in linear perspective is not the same thing as the horizon in the sense of the line where earth/sea and sky seem to meet when viewing a real land or seascape. What 'horizon-line' refers to in this context is the individual viewer's eye-level, as the exercise in one-point perspective drawing in Fig. 12 illustrates. Here, the 'horizon-line' that corresponds to the eye-level of the hypothetical viewer is located along the street that runs between the high buildings.

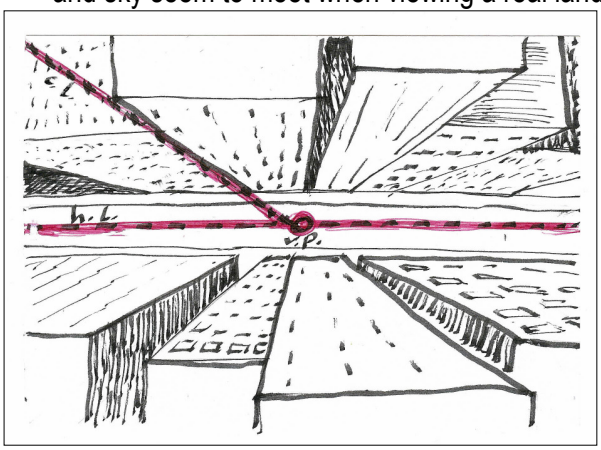


Figure 12

2.1.5 Two-point linear perspective

In two-point linear perspective, objects can be placed at various angles to the viewer: the horizon line still determines the angles of the lines, though there are now two vanishing points at opposite ends of the horizon line. The angles of lines depicting inclined surfaces like pitched roofs are determined by finding the point where a line perpendicular to the relevant vanishing point intersects with a convergence line drawn from the end of one of the horizontals of the inclined surface. Fig. 13 shows the most elementary realization of two-point perspective.

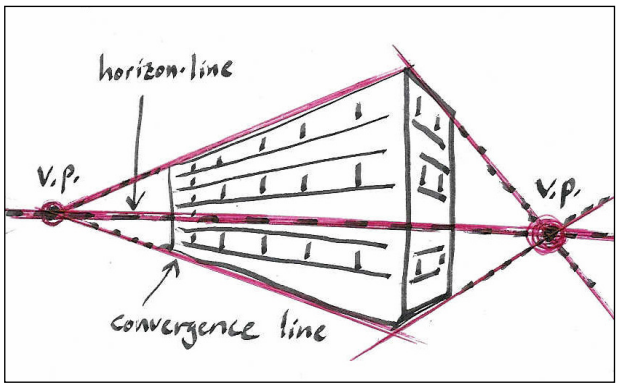


Figure 13

2.2 Representing light

2.2.1 Line and tone

The depth-cue techniques described thus far all have to do with the arrangement of elements on the two-dimensional picture surface to create the illusion of depth, and, apart from occlusion, have all had to do with the geometry of optics. This section deals with representational techniques that recreate the effects of light falling on objects in three-dimensional space. In the real world light is reflected off surfaces at different angles, giving information about the volume and position of objects, or it is blocked off, creating shadows or changes in luminance that indicate the textures, shapes or boundaries of objects and surfaces. In fact, it is only through contrasts in the intensity of light that we are able to see anything at all. Just as we cannot see anything in absolute darkness, we would also not be able to see in absolute lightness if it were physically possible to light the environment in such a way that no shadows were cast and everything were pure white and uniformly luminescent (Dondis 1973: 47). The shadows and reflections created by light falling on objects, and the intrinsic lightness or darkness of the objects themselves, deliver complex data by which we orientate ourselves in our surroundings, as the perceptual theories of Gibson and Marr assert. Contrasts in lightness and darkness are also essential to all kinds of visual representation. Pictures of every description are, at the most fundamental level, similarly composed of juxtapositions of lighter

and darker areas of tone on a two-dimensional surface. Line is one basic tool used in pictures to represent the effects of light in the real world; areas of differing tone (also known as value), that is, degree of lightness, is another. Tone is independent of colour, and despite the fact that human vision is designed to perceive the world in colour, human beings accept black-and-white images as representations of reality: according to Dondis, this demonstrates 'the dominance of tonal values in our perceptions' (Dondis 1973: 49).

2.2.2 Shading

The depth-cue most closely associated with the use of tone is shading. This technique greatly increases the illusion of three-dimensionality, as these two drawings of flowerpots illustrate (Fig. 14). The shadows are in different positions relative to the source of light: they are on the same side as the source on the inside of the pot, on the opposite side on the outside.

Figure 14

Since the position of the shadows is determined by the location of the source of light, in the absence of any other visual information a drawing such as the one in Fig. 15a is ambiguous. It might be an egg, but it could conceivably also be a hole.

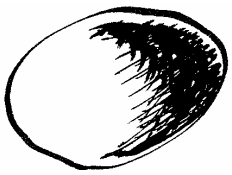


Figure 15a

Figure 15b

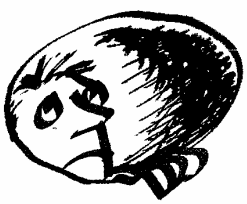


Figure 15c

Ramachandran observes that the 'shape from shading' depth cue, in contrast to the others discussed so far, tends to be regarded as an aesthetic refinement (and thus the province of artists) rather than a phenomenon to be explored in psycho-physiological research on perception and cognition. However, appealing to the kind of evolutionary evidence that characterizes his work, Ramachandran argues that of all the 'numerous mechanisms used by the visual system to recover the third dimension, the ability to use shading is probably the most primitive' (Ramachandran 1995: 249), since many animals have evolved 'countershading' to enhance concealment. That is, they are dark on top (to neutralize the effects of the sun shining on them) and light underneath (to neutralize the effects of shadow). Many caterpillars and fish are less easily visible to predators thanks to countershading, as are various kinds of antelope. Shading, he concludes, 'must potentially be a very important source of information about three-dimensional shapes' (*ibid*.). To explore shape-from-shading effects in human perception, Ramachandran and his team used computer-generated displays (circles shaded gradually from black on one side to white on the other) to produce an ambiguous effect due to conflicting visual information about the light source. In Fig. 16 the egg/hole from Fig. 15a has been reduced in size and rotated to illustrate the effects of this light-source ambiguity.

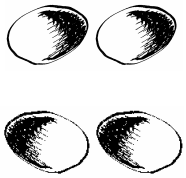


Figure 16

At first glance all the objects may well all look like eggs or acorns, but if one concentrates on seeing the top two as holes it will, Ramachandran predicts, be impossible to simultaneously perceive the two below as holes as well; they can only be perceived as eggs. According to Ramachandran, the experiment demonstrates that humans are subject to an innate 'single light-source constraint' as a result of having evolved on a planet with only one sun (*op. cit*.: 250). He acknowledges that although these effects have been ignored by modern research on perception, they were studied intensively and perfected by High Renaissance artists. This kind of depth information is almost always present in pictures, including the simple line-drawings used in modern illustrations and cartoons.

2.2.3 Texture gradient

Texture gradient is a depth cue in which specific treatments of line and tone are combined with other perspectival cues. If one looks at a cobbled street, the cobbles that are closest are the largest, clearest and most strongly textured; they appear to become smaller the further away they are, and are also seen in less detail. The cobbles far away may finally appear to merge into a smooth surface. This depth cue is provided in pictures by giving clearer definition and stronger texture to surfaces or objects closer to the bottom of the picture plane (i.e. in the foreground), using thicker lines, larger areas of tone and stronger tonal (light/dark) contrasts. The objects are delineated less completely, drawn with thinner lines, sparser detail and less pronounced contrasts in tone as they become smaller, denser and higher on the picture plane (i.e. as they recede into the background).

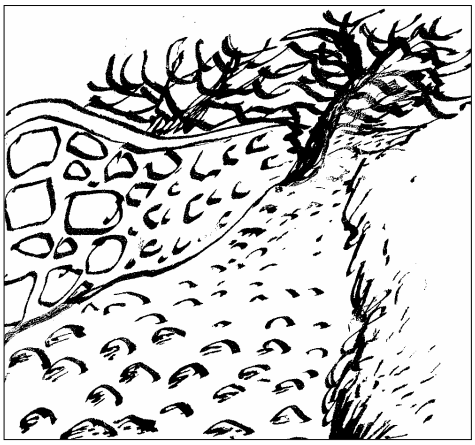


Figure 17

2.2.4 Aerial perspective

Aerial perspective is used in landscape painting to represent the scattering of light by the atmosphere which causes distant mountains to look bluish and blur at the edges. But also in simpler drawings and graphics depicting small spaces, foreground objects or figures often have more pronounced, strongly delineated contours drawn with thicker contour lines and greater tonal contrasts than background ones; these are often clearly delineated and tonally more neutral. In pictures, what this depth cue might also be recreating are the effects of our inability to focus our eyes sharply on an object close by and one much further behind it at the same time. This technique, whilst creating a sense of depth, also serves to direct the viewer's attention towards the important elements of a scene.

3 Pictorial representation and convention

Although the representational techniques described in Section 2 function by creating effects experienced in the visual perception of the real world, being able to understand a picture nevertheless always depends on familiarity with specific conventions of representation (including the familiarity with the media used, such as paper: see 4.3) to a greater or lesser extent. This section focusses on some factors related to convention in representation. By

examining types of representations that do not obey familiar conventions, it also seeks to illustrate the effects unfamiliar or non-standard conventions have on picture processing.

3.1 Historical changes in representational conventions

The changes that marked the transition from medieval to Renaissance art in Europe illustrate how representational conventions change over time. Until the Renaissance, artists in Europe were not concerned primarily with making their images look realistic. As they did not conceive of pictures as scenes in reality being looked at from a fixed position by an individual viewer as Renaissance artists did, it was normal to combine different visual points of view on one picture plane. In the well-known late 13th century altarpiece 'Madonna Enthroned with Angels and Prophets' by Cimabue, which Gardner describes as 'a final summing-up of centuries of Byzantine art before its utter transformation' (1970: 386), the figures are different sizes, despite apparently being located on the same plane. In fact, the Madonna, the infant Christ, and the assembled angels and prophets are painted according to three different scales, from larger to smaller.

Figure 18: figures on different scales

Relative size is thus not used to indicate distance; it is used symbolically to reflect the divine order. With the changing ideology of the Renaissance, western art strove to represent the world from the human perspective, as realistically as possible, as if viewed through a window by a single pair of eyes and lit from a single light source. The technical means developed to create this impression included techniques such as linear perspective (used to create the illusion of depth) and chiaroscuro (areas of darker and lighter tone used to model form by creating the effects of light and shadow). Such techniques provide viewers with the same visual cues that enable them to judge distances and perceive the presence of objects in the real world (cf. Hills 1987; Baxandall 1988).

3.2 Cultural conditioning and pictorial representation

The symbolic use of relative size in the Cimabue altarpiece seems quaint to a modern viewer, but the differently-sized figures would not have looked unusual to thirteenth-century Italian viewers, since it was the kind of depiction they were accustomed to seeing. The extent to which cultural norms determine pictorial representation are discussed by Gombrich with reference to

Dürer's woodcut of a rhinoceros dating from 1515 (Gombrich 1965: 81f.). The animal appears to be covered with plates of armour patterned with scales and spots, and has a small horn on its neck as well as a large one on its face. To this extent, it looks less like a real rhinoceros than an animal from fable. This much-reproduced woodcut, according to Gombrich, influenced pictorial representations of rhinoceroses for over two hundred years; as evidence he juxtaposes Dürer's woodcut with an engraving by Heath dating from 1789 and depicting a rhinoceros with similarly arranged armour-like shielding. Significantly, the engraving is purported to be based on observations of real rhinoceroses in the wild in Africa, yet it 'is surely not free from […] the all-pervading memory of Dürer's woodcut' (*op. cit*.: 82). Referring to Gombrich's example, Eco comments that 'one could say that Dürer's rhinoceros is more successful in portraying, if not actual rhinoceroses, at best [*sic*] our cultural conception of a rhinoceros' (Eco 1976: 205). When images supposedly drawn from life bear less resemblance to the things they represent than to other images in an artist's culture, this may, according to Eco, either be because perception is 'conditioned by current iconic codes' or because the artist's 'codes of iconic transformation [prevent] him from transcribing his perception in any other way' (*ibid*.).

3.3 Developmental constraints on pictorial representation

As well as being influenced by historical, cultural and ideological factors, representational conventions change with the cognitive development of the individual. For example, research has shown that adults in western and western-influenced cultures normally use overlapping to create a sense of space in their drawings, but young children do not. When they draw a horse or car, children draw either all four legs or wheels or else only two, as these drawings commissioned from two eight-year-olds demonstrate. (The children were asked to draw an animal from the side; no instructions were given about the legs.) Typically for their age too, both boys drew the animals at the bottom of the page, treating the edge of the paper as the ground, rather than perceiving the page as plane on which figures could be placed as if viewed in three-dimensional space. Children only start to use depth cues such as interposition (overlapping) and relative height (placement of figures on the picture plane) from of about the age of nine, when they begin to notice and try to copy the representational strategies used by trained artists (on children's drawings see Lowenfeld & Brittain 1987).

Figure 19: 'Dog', Jakob Herda, 8.

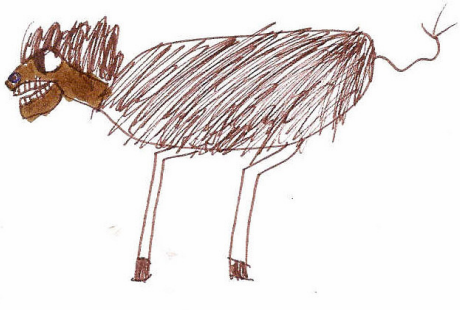


Figure 20: 'Horse', Sören Skorge, 8.

3.4 Conventions and processing

Gombrich's example of the rhinoceros images demonstrates that culture does indeed influence representational conventions substantially, and that culturally-bound ideas of how things should be depicted influence even images which artists might believe to be realistic depictions of things as they really are. This is of considerable significance for representation in the context of materials for the foreign language classroom, particularly when illustrators are not sensitive to the cultural specificity of pictures they create for learners who may be unfamiliar with the conventions they use.

A related point concerns the processing and understanding of images created on the basis of unfamiliar conventions. One reason for examining these images was to pinpoint which formal rules of contemporary realistic representation are *not* present in the representational conventions used to create them, and what effect this has. The altarpiece and children's drawings fail to use depth cues, and the woodcut embellishes the rhinoceros with features real rhinoceroses do not have. A modern viewer can of course see what the altarpiece and the woodcut are supposed to show, and knows that the children's drawings are of animals, if not of a dog and horse. Being familiar with images and genres of images, they also see that the first two pictures are historical and the last two are untutored. If a professional illustrator were asked to produce neutral, realistic pictures of a mother and child, a rhinoceros, a dog and a horse for an illustrated encyclopaedia however, the products would not look like these: to use a linguistic analogy, the professional illustrator's images would be the unmarked forms, and the images discussed above would be marked ones. A modern viewer who is familiar with realistic images produced on the basis of current rules and conventions would instantly recognize the figures drawn by the trained illustrator for what they are supposed to be - would see the things themselves only - and not reflect on them *qua* images. The images discussed above, by not conforming to current conventions in various ways, require slower and more attentive

processing by the viewer. A viewer is more likely to think about what the images show and why they have been put here. Slow and thoughtful processing are essential if visuals in instructional settings are to fulfil their intended functions of providing information and support for the learning task at hand, and one of the main issues related to instructional visuals is how to get learners to process them more carefully than images in other contexts. Thus there is a good case to be made for using visuals that are at odds with mainstream representational conventions in FLT visuals, provided they encourage attentive processing rather than confusing the viewer.

4 Culture and the understanding of pictorial representations

4.1 Pictorial representations and the foreign language learner

In a rare piece of research on the comprehensibility of pictures in FLT, Hewings showed 12 Vietnamese refugees learning English in the UK selected coursebook pictures, and asked what they showed. He found that 'there was frequently a difference between how these illustrations were perceived through "Vietnamese eyes" and "Western eyes"' (Hewings 1991: 237), among them profound misunderstandings of the illustrators' intentions in depicting the locations, roles, statuses and ages of people. In a picture-based task discussed by Hewings, learners have to say which objects belong to which of the people depicted. These are clearly – from an emic perspective – a wealthy, well-groomed couple on the one hand, and a youthful, unkempt, bohemian-looking man on the other. Their respective possessions, shown jumbled together in a panel of their own, include a Rolls Royce, large villa and Beethoven record versus an old Anglia, a terraced house and a Rolling Stones record. One Vietnamese learner Hewings questioned identified the hippyish individual as an old man on account of his beard, and as rich, because he was old (*ibid.*: 238). Due to different cultural stereotypes, the indices of age and social status were thus understood to mean the opposite of what was intended.

It is interesting to note that although Hewings discusses cultural factors, he does not consider the means of representation itself as a source of confusion. However, the artwork bears a number of specific stylistic features typical of British illustration of the 1970s (e.g. strong, clear lines to delineate facial features, the stylizing effect of outlining hair and trees with a strong contour line) that may, arguably, require some familiarity with the representational conventions for effective processing. The exaggerated facial lines, and not just the beard, may for instance have contributed to the perception of the man on the right as 'old' (see Fig. 21).

Figure 21: representational style (from Hartley & Viney 1978, Unit 18)

The lack of comment on the drawings is telling. It suggests for one thing that the representational styles and conventions viewers are familiar with look so normal that they do not anticipate any difficulties in understanding them. However, the pictures shown here are conceivably rather challenging for viewers *not* accustomed to the conventions used. The failure to comment on the style of the illustrations also raises the more general point that research on the understanding of visuals is sometimes curiously uncritical of the visual materials themselves, possibly because the researchers feel that they are not qualified to comment on their technical features.

In a more general discussion of the relevance of visual literacy in FLT, Sturm comments:

> Der […] Gedanke des 'Bild-Analphabetismus' trifft [...] nicht die Situation des fremdkulturellen Lerners, der auch bei ausgezeichneten Bild-Verstehensfähigkeiten und -fertigkeiten sich im fremdkulturellen Visualisierungssystem mit neuen Hermetiken auseinanderzusetzen hat. Er hat damit die Aufgabe zu lösen, zielkulturelle Inhalte zugleich mit einem in Teilen unbekannten bildlichen Symbolssystem im Hinblick auf seine kommunikativen Bedürfnisse verstehen zu lernen. (Sturm 1990: 61)

This suggests that individuals from different cultures have different visual literacies, and that the cultural differences that affect picture comprehension are located on a fundamental level of systems rather being related to more superficial issues such as unfamiliar styles of illustration. Whatever the level of understanding, Sturm is quite right in stating that learning to understand the partly unknown system of pictorial symbols is part of acquiring communicative competence in the L2. One implication of this would be that language teachers attend to picture comprehension in materials as a matter of course. Weidenmann too perceives potential problems in the understanding of visuals in materials for foreign language learners as being located at the level of the foreign visual code: 'Ein […] Verstehensproblem bei Abbildern ist

eine mangelnde Vertrautheit mit Darstellungscodes. *Wie* etwas abgebildet wird, ist oft durch kulturelle Darstellungskonventionen festgelegt. So wurde die für unsere Kultur übliche Darstellung nach dem Prinzip der Zentralperspektive erst in der italienischen Frührenaissance eingeführt' (Weidenmann 1991: 13, original emphasis). As an example of the 'Kulturgebundenheit räumlicher Darstellung' (*ibid.*), Weidenmann includes a reproduction of a Japanese woodcut with a number of features (parallel instead of converging lines, high station point, an open-roofed building allowing a view of a domestic scene) which allow it to be identified as an example of medieval Japanese yamato-e art (cf. Fig. 22 and Hagen 1986: 141ff.). By violating the rules of central vanishing-point perspective, Weidenmann points out, the picture creates problems of spatial perception for members of our culture. He goes on to present other examples of unfamiliar codes:

> Aus dem afrikanischen Kulturkreis (*sic*) kennt man die Darstellung von Tieren als flächiges Klappbild, von oben gesehen.[4] In anderen Kulturkreisen (Indianer, Eskimos u.a.) werden wieder andere Darstellungskonventionen verwandt. Bei Kampagnen zur Gesundheitserziehung in Entwicklungsländern musste man oft die Erfahrung machen, dass bebilderte Informationsblätter nicht verstanden wurden, weil den Menschen dort die 'westlichen' Darstellungscodes nicht bekannt waren und zudem das nötige Wissen um die dargestellten Gegenstände und Prozeduren fehlte. (*ibid*.)

An obvious qualification that needs to be made in this kind of discussion is that modern Japanese language learners naturally understand post-Renaissance western perspective, and that all but the most isolated individuals on the Arican continent have had sufficient exposure to modern visual media to be familiar with foreshortening and occlusion effects in photographs and drawings.

4.2 Representational codes in other cultures

While Hewings' study provides empirical evidence of problems in understanding visuals in the language classroom, Sturm and Weidenmann make the general point that unfamiliar codes or systems of pictorial representation may cause problems of picture comprehension for foreign language learners. What kinds of codes are known from other cultures, and how do these codes affect representation? According to Dondis, 'Environment also has profound control on how we see. […] Nowhere is this more evident than in the art of the Eskimo. Having experienced so much undifferentiated white snow and light sky in the environment, which

[4] cf Hudson 1962: 233 ff, which describes studies in which a plan view of an elephant was presented to African informants to ascertain their representational preferences, rather than being drawn by them. It is possible that Weidenmann is referring to this experimental figure here.

results in obscuring the reference of the horizon, the Eskimo artist takes liberties with right side up and upside down' (Dondis 1973: 12). Dondis does not reproduce an example of Eskimo art or refer to anthropological research that has described such art; but the images she refers to apparently use different codes of reference to vertical and horizontal planes, and would treat space in fundamentally different ways from western art. Dondis' remarks about Eskimo art are significant to the extent that they appear in her *Primer of Visual Literacy* (1973), which remains a standard work in the field of graphic design, so it is not inconceivable that she has influenced perceptions about the art of exotic peoples (cf. Weidenmann's reference to Eskimos above). By linking environment to perception, and regarding representation as a direct reflection of perception, Dondis' reasoning has affinities with the linguistic determinism of the myth of the many Eskimo words for snow (Boas 1911; Whorf 1940), which has been questioned among others by Martin (1986) and Pullum (1991).

In a study of representational conventions that differ substantially from contemporary western ones, Hagen combines an overview of Euclidian geometry with a Gibsonian model of visual perception and applies them to artistic codes that rely on different geometries of perspective (Hagen 1986). In direct perceptionist models of picture perception, the nature of the visual information derived via optical geometry from pictures and from the real world is held to be of the same kind. According to Hagen, different types of geometries are present in the 'natural perspective geometry' of picture perception, western single vanishing-point linear perspective being only one of them (*op. cit*.: 9 ff.). Amongst the representational geometries Hagen discusses is medieval Japanese yamato-e art, which was based on a geometric projection known as 'Affine' in which parallel lines do not converge but remain parallel (*op. cit*. 141 ff.; the drawing in Fig. 22 imitates the main features of this style). She also discusses Native American art from the northwest coast of the USA, based on parallel projections in which the figures of animals depicted on hats, boxes etc. are split, flattened, spread out and decoratively rearranged to fill the surface space available (*op. cit.:* 169 ff.). In ancient Egyptian art, which she classifies as being two-dimensional and based on Metric geometry (planes and projection are both parallel), human beings were depicted from multiple station points (that is, as if viewed from different angles simultaneously), with heads and feet in profile and bodies seen straight on. For direct perceptionists this mode of representation is particularly compatible with their model of perception, according to which 'perception is primarily dependent on pickup not of static single structures in the light, but of structural invariances across views changing with motion' (*op. cit*.: 17).

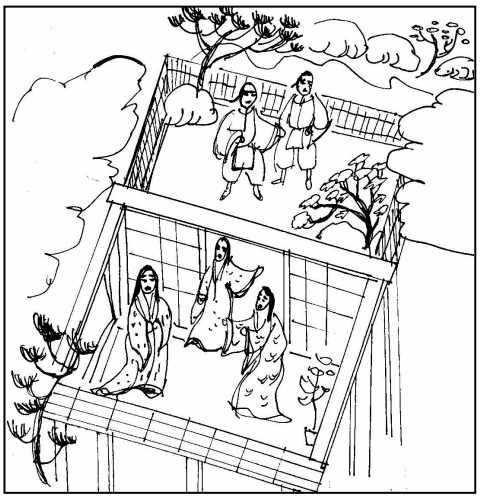


Figure 22: drawing in imitation of medieval Japanese art, using affine projection and high station point.

4.3 Research on perception in other cultures

As noted in 4.1, Weidenmann cites lack of familiarity with codes of representation as a possible reason for language learners not understanding pictures, but mentions research involving images used in health education campaigns in developing countries rather than images in FLT materials to demonstrate the problem. It is not uncommon for research on picture comprehension in non-western cultures to be transferred to picture comprehension in intercultural settings in general, and such research has given rise to a number of erroneous ideas about the ability of non-western people to understand representational techniques such as linear perspective. According to Dondis,

> The individual who grows up in the modern Western world is conditioned to the techniques of perspective which present a synthetic, three-dimensional world through both painting and photography, media that are, in fact, flat and two-dimensional. An aborigine has to learn to decode the synthetic representation of dimension through perspective in a photograph. He has to learn the convention; he cannot see it naturally. (*loc. cit.*.)

As with the Eskimo example, Dondis does not give the source of her example. Accounts of the alleged inability of people in extremely isolated communities to perceive perspective in photographs or drawings have however been explained in terms of the fact that the subjects were utterly unacquainted with paper, and when given photographs and drawings on sheets of paper, did not realize that they bore images (Serpell & Deregowski, 1980, 158).

This, together with other re-examinations of research that concluded subjects were unable to understand visual information, have suggested that such findings may not be reliable for a range of reasons. An example is a study which focussed on 'The perception of three

dimensions in pictorial material by sub-cultural groups in southern Africa', in which the perception of the depth cues relative size, occlusion and linear perspective was investigated in groups of subjects that included primary school children and labourers (black and white) as well as groups of black subjects with different educational attainments, from illiterate mineworkers to teachers (Hudson 1960: 185). The subjects were presented with 11 pictures, each containing 'the representation of the appropriate depth cues in a standard scene' (*ibid*.: 202); one of the two sets of drawings is reproduced in Fig. 23. The original caption was "FIGURE 1. HORIZONTAL PICTORIAL SPACE".

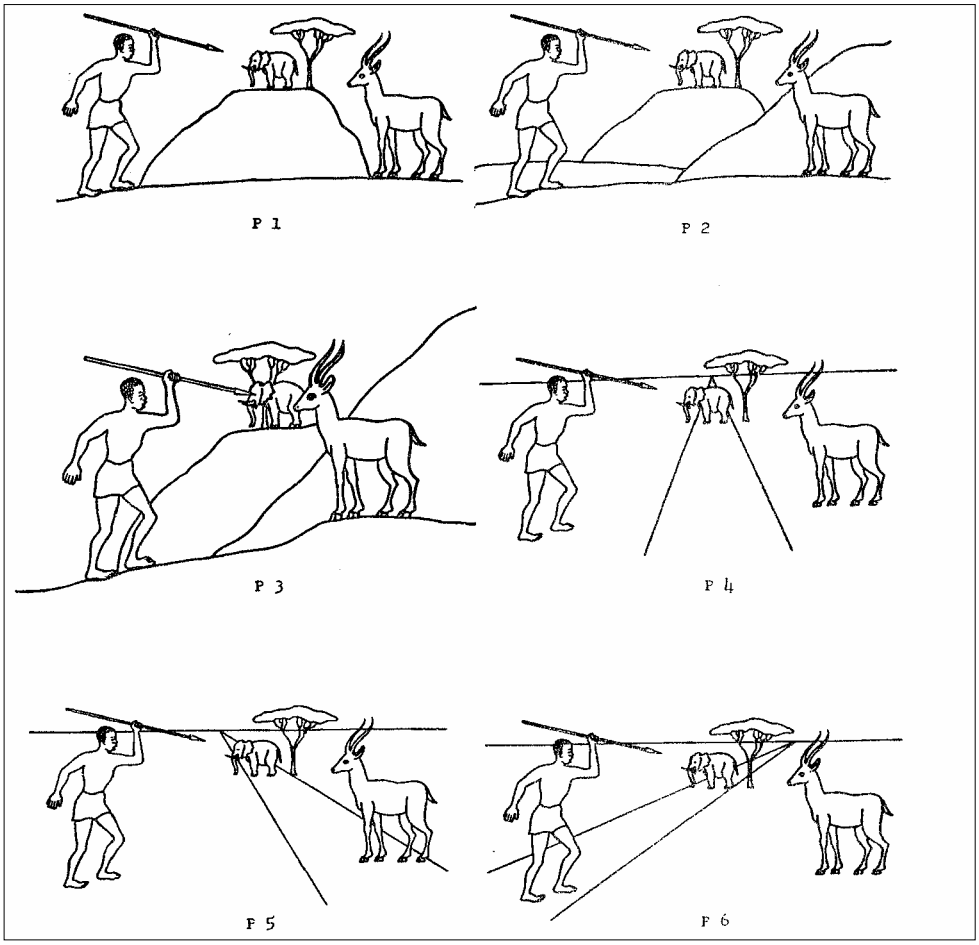


Figure 23: Hudson 1960: 186. Reprinted by kind permission of Taylor & Francis Ltd., http:///www.informaworld.com

The pictures were accompanied by the questions 'What do you see? What is the man doing? Which is nearer, the man, elephant or antelope?' (*ibid*.:189). On the basis of the 'not unexpected' (*ibid*.:205) results, Hudson asserted that for 'illiterate and isolated sub-cultures in Africa' it was 'fairly safe to conclude […] that 2D perception was characteristic' (*ibid*.: 207). The Hudson Pictorial Depth Perception Test was published and used in numerous other

investigations, in original or derived form, to test the 2D versus 3D abilities of test-subjects of various provenances: amongst others, South African forestry workers, Ghanaian and Ugandan children, Zambian schoolboys and domestic servants, American children of different ethnic origins and Vietnamese and American adults (cf. Hagen & Jones, 1978). The test produced some peculiar hypotheses. For example, the South African researcher DuToit wrote that perhaps the black subjects he had tested 'do not automatically *look for* depth. They do not "select out" depth because their language does not suggest or require them to think along those lines' (DuToit 1966: 59, original emphasis).

There have been many critical responses to Hudson's findings: Jahoda & McGurk (1974), for example, found that only 72% of the educated Scottish adults they tested gave '3D' responses. Since this result cannot be attributed to unfamiliarity with the pictorial conventions, it must be due to the test's having 'faults of either design or procedure or both[,] which leave its validity open to serious question' (Hagen & Jones 1978: 191). According to Hagen & Jones, what Hudson tested was 'pictorial depth perception in geometrically inaccurate, texture-free outline drawings' (*ibid*.: 183). In pictures four, five and six, they observe that, apart from lacking the visual information normally provided by texture gradient, the horizon *line,* in the sense of the artist's eye-level, is also the actual horizon, depicted here as a featureless horizontal strip of the kind only seen when looking at the sea (*ibid*.:182). Hagen & Jones go on to comment that the linear perspective information in pictures four to six 'was apparently generated with a complete disregard for the laws of perspective' (*ibid*.:187). To illustrate their point, they computed the sizes of the elephant and tree in picture four if placed on the same horizontal plane as the hunter and antelope; the resulting image shows a tree only one-third higher than they are, and an elephant about the size of a donkey. Pictures one to three, which are designed to test perception of occlusion and relative size, are described by Hagen & Jones as depicting 'a bonsai tree and the world's smallest adult elephant' (*op. cit*.:185-6); depth cues like shading and the use of thinner or incomplete lines to indicate distance are also entirely absent.

Technically, then, the pictures are deeply flawed, and the scene they depict, though allegedly depicting a normal scene from traditional African life, is puzzling in many respects, not least because the notion of 'hunting' suggests unsuspecting animals being stalked by hunters or else running away from them, not facing them motionlessly. Hudson reports that some of the black graduate teachers tested hesitated for up to an hour per picture before responding, and 'appealed for guidance in their perceptual choice' (*op. cit*.: 203). He attributed this to a lack of understanding of depth cues rather than to their bafflement at the materials.

5 Discussion and implications

The focus in the first part of the chapter on the way that pictures transmit information by means of depth cues and tones is not meant primarily to identify problems language learners may have in understanding such visual information; the problems of picture understanding in the language classroom referred to in the meagre research on the subject is not of this kind. It is intended rather as a way of focussing closely on visuals and the affordances of visuals, and it uses visuals to do this, since visual information cannot be adequately conveyed in words. It is all too easy not to attend carefully to pictures, and this is demonstrated by the Hudson pictorial depth test. As a piece of empirical psychological research, the original study cannot be criticized for lack of organization, sample size or psychometric rigour, and Hudson was able to publish the results in a major international journal. However, relying as it did almost exclusively on visual materials designed to test the understanding of pictorial cues, the pictures were surely of paramount importance for its validity, reliability and credibility, and yet the drawings themselves, as Hagen & Jones demonstrate, are imprecisely executed and poorly suited to their purpose. If the test concerned perspective, why did the many researchers who used it not protest that its elements had not been drawn in perspective? The example suggests that research results or anecdotal reports of divergent interpretations of visual information - by people in developing countries as well as by language learners - may result from visual information that has been poorly conveyed, and that problems of interpretation start at the level of encoding and not decoding.

The review of representational techniques in this chapter emphasizes the relationship between universals of human perception and techniques used to produce realistic representations by recreating similar effects. If one accepts that perceptual processes are the same for all human beings, the failure to understand depth-cues in a picture must result not from an inability to perceive depth-cues, but *an inability to perceive the representation as representing depth cues*. If the depth cues are represented with great skill (by an accomplished landscape painter for example) they are likely to be understood, provided the painting is understood to be a representation that will reveal a scene at all. If they are not understood or mystify the subjects, as in the Hudson test, the problem is one not of perception but of representation. This too seems to be the problem faced by the learners Hewings refers to in his study. If they saw a young man as an old one (see Fig. 21) it was partly due to culturally specific signifiers such as the man's beard, and partly because the no less culturally-specific drawing, executed in a style typical of a particular time and place, provided misleading visual

information about the lines and shadows on the man's face. Nevertheless, in real life, even in the unfamiliar UK environment, the learners are unlikely to have assumed that a young man was an old one, because far more perceptual information would have been available. The artist did not provide sufficient or appropriate visual cues for the learner to identify the man as young. This is not a criticism of the artist, who could not know or anticipate all the misunderstandings of visual information that might arise with the learners from different cultures and educational backgrounds. Hewings comments that 'Difficulties of interpretation are fairly unpredictable', and suggests that teachers check 'rapidly and informally' on picture interpretation prior to using pictures in language practice tasks, since it is a mistake to assume learners will automatically know how to 'make sense of information which is presented in a form other than text' (Hewings 1991: 243). Research such as Hudson's assumed that there was a straightforward relationship of signifier (depth-cue) to signified (illusion of depth) and that the understanding of such signifiers should be tested by isolating them from other depth cues. Visual information has less precise meanings than language however, as Hewings points out, and if a specific meaning is intended, this should, as he suggests, be clarified by means of language.

The relationship of culture and the understanding of visual information is complex. The lifeworlds of the language learners referred to explicitly and implicitly throughout this thesis are shaped by highly visualized global media, and there seems to be little possibility that there are individuals amongst them who do not know what paper is or have had no contact with single vanishing-point perspective. Although various images reproduced in this chapter do not follow the technical rules used by professional artists in 'western' culture to create realistic pictures, none of these images is incomprehensible, so conformity with convention is not essential for viewers to understand what an image shows. There is a difference however between a) finding that a picture does not conform to one's cultural expectations, b) interpreting a picture in a way not intended by the illustrator and c) not understanding a picture at all; and these appear to be conflated when possible problems of picture understanding in the language classroom are conceived in terms of problems of understanding pictures on the fundamental level of representational codes and visualization systems.

CHAPTER III
THE AFFORDANCES OF INSTRUCTIONAL VISUALS: THEORETICAL APPROACHES AND RESEARCH FINDINGS

1 Introduction

Do visuals enhance the understanding and learning of verbal information in instructional contexts, and more specifically, in the context of language learning? And if they do have beneficial effects on comprehension and learning, are these always present, or only in particular contexts and under certain conditions? What does research suggest about using visuals effectively in instruction? And: as a preliminary to exploring these questions, it is also necessary to consider what theory and research have established about the ways in which visual and verbal information is processed. Are the processing operations unrelated, separate but related, or are they of exactly the same nature?

Most of the findings reviewed in this chapter come from empirical research conducted in the field of cognitive psychology. The point at which 'cognitive psychology' became an established term is usually traced to the publication of the book of that title by Neisser in 1967, which makes it a much younger field than visual perception, although the borders between the two are blurred. In general terms however visual perception can be said to refer to early visual uptake and visual cognition to the latter stages of processing, storing and retrieving visual information. It will become clear that the information processing approaches described here embrace a particular model of perception, a top-down one. But since the concern here is with applied, experimental cognitive psychology, and more specifically findings that pertain to the effects of visuals on memory and learning, the question of which model of perception is most valid will not arise.

2 Approaches to instructional visuals and research domains: an overview

2.1 Research since the 1960s

For over four decades, ever-clearer insights into the affordances of visuals in instructional contexts have accumulated on the basis of numerous studies which have addressed the effects and potential functions of visuals in learning and teaching. This research has been carried out predominantly by educational psychologists and has typically addressed 'reading to learn' by schoolchildren or students. Reading to learn is characterized by Carney & Levin as 'the

processing of - which includes perceiving, understanding and remembering - text information' (Carney & Levin 2002: 6). In general, inquiries into learning with visuals have been conceived with the aim of providing practical guidance for the design and more effective use of school textbooks and other paper-based materials. Since the early 1990s, much research in this area has also been directed at optimizing the use of visuals in multimedia instruction, and particularly in e-learning.

The effects of instructional visuals have been studied in a large range of contexts. In compiling a bibliography of literature on static illustrations and animated graphics Anglin, Vaez and Cunningham catalogued '2,235 primary research studies, reviews, books, conceptual papers, and magazine articles' related to pictures and knowledge acquisition (2004: 872). Even after rejecting those which used but did not focus primarily on pictures, or which were methodologically flawed, they identified 168 studies which qualified for inclusion in their review. Just how many individual studies have been carried out in the field of instructional illustrations and graphics can also be gauged from the number of overview articles and anthologies that have been published since the 1970s. Among the most comprehensive are Levie & Lentz' article 'Effects of text illustrations: A review of research' (1982); the two-volume anthology *The psychology of illustration* edited by Willows & Houghton (1987), Volume One addressing 'Basic Research' and Volume Two 'Instructional Issues'; Mandl & Levin's anthology *Knowledge acquisition from text and pictures* (1989); Braden's essay on 'Visual Literacy' (1996); Carney & Levin's article 'Pictorial illustrations still improve students' learning from text' (2002), in which they principally review research conducted in the 1990s; Moore, Burton & Myers' overview of the 'theoretical and research foundations of multimedia', (2004) and the comprehensive bibliographic review of approaches to the visual by Anglin et al. referred to earlier, which, like the Moore, Burton & Myers article, is a chapter in Jonassen's *Handbook of Research on Educational Communication and Technology* (2nd edition, 2004). The most recent major overview is *The Cambridge Handbook of Multimedia Learning* (November 2005), edited by Richard Mayer, who has been one of the central researchers in the field since the 1980s. The immense volume of research indicates how encouraging the results of the studies have been overall, and the great potential researchers ascribe to instructional visuals. This body of research is by not confined to academic journals, but is drawn on intensively in practical guidelines for producing instructional graphics, and so has a significant effect on instructional design.

3 Information processing and the role of visual information in learning

The kind of learning tasks envisaged in the literature on learning with visuals invariably involve understanding and remembering facts, processes, causal chains or relationships. This focus on the learning of factual information has meant a corresponding interest in the ways pictures facilitate understanding and in the mnemonic properties of pictures. Research that demonstrates the phenomenon of picture superiority effect and some theories that explain or make use of it - dual coding theory, cue summation theory, cognitive load theory and the notion of multiple external representations, amongst others - will be outlined in this section. Some of these concepts are more closely interlinked and more compatible than others. They are nonetheless all based on the same general model of human cognition, the information processing approach (or information processing view, as it is often referred to). Using the analogy of information processing in computers, this approach conceives of learning as the process of transferring information from working memory (WM) to long-term memory (LTM) for future retrieval and use. Accounts of human information processing in the literature on media and learning usually espouse the assumption that verbal and visual information is processed in two separate, dedicated but interacting channels in working memory (see Mayer & Moreno 2003: 44-45). These assumptions about the way human memory operates will be described in more detail in this section.

3.1 The Picture Superiority Effect

Experiments in the 1960s and first half of the 1970s demonstrated in picture recognition experiments that memory for pictures is immense, persistent and highly accurate (cf. for example Shepard 1967, Nickerson 1968 and Standing 1973). In one study, Standing, Conezio and Haber (1970) asked subjects to look at 2,560 photographs for 10 seconds each. After three days, the subjects were given a recognition test in which they were asked to say which of two pictures they had seen before: they were able to do so with an accuracy rate of 93%. In a subsequent experiment, Standing (1973) showed subjects 10,000 photographs. After a two-day delay, the subjects had a recognition accuracy rate of 66%. As part of an investigation into how well pictures were remembered over yet longer periods of time, Nickerson (1968) tested the recognition accuracy rate of 200 photographs one year after subjects had been asked to look at them. The recognition accuracy rate lay at 63%, indicating that memory for pictures only decreases to a relatively small extent over long periods. Shepard (1967) and subsequent researchers have also shown that memory for pictures is superior to memory for written text or

audio information. In Shepard's 1967 experiment, subjects were tested for recognition accuracy directly after being shown 600 sentences, words or pictures. The recognition accuracy rate for pictures and sentences was highest (98% and 90% respectively), while the recognition accuracy rate for words was 88%. Paivio (1971) tested recognition memory of pictures, abstract words and concrete words, and found that pictures were remembered best, followed by concrete words. As regards free recall rather than recognition (i.e. asking 'what did you see' rather than 'did you see this'), Paivio et al. (1968) found that subjects were able to recall pictures and objects they had been shown better than words. The essential finding of these studies, that pictures are remembered better than words, is known as the picture superiority effect. In the decades since this research was undertaken, there have been some studies which failed to find the effect in certain contexts and in relation to specific research questions (e.g. Weldon & Coyote, 1996). Indeed, in Weldon and Coyote's article the authors' 'findings argue against dual-coding and some common-code[5] accounts of conceptual attribute processing, urging reexamination of the assumption that pictures confer privileged access to long-term knowledge' (Amrhein, McDaniel, & Waddill 2002: 843). Nevertheless, since the 1970s there have been innumerable other studies which have recorded a picture superiority effect, and its existence is generally assumed to have been adequately demonstrated. The question then is what mechanisms underlie it?

3.2 Dual Coding Theory

The picture superiority effect is explained by Paivio as resulting from a double coding of information that takes place whenever pictures are viewed. According to his 'dual coding theory' (DCT) '[c]ognition is served by two modality-specific systems that are […] differentially specialized for representing and processing information concerning nonverbal objects, events, and language' (Paivio 1991: 258). In essence, the theory postulates that human beings have two separate, albeit interconnected, cognitive systems. One represents, processes and stores verbal input, while the other represents, processes and stores visual and other kinds of non-verbal input (olfactory, auditory and haptic input for example) and self-engendered mental images. The representational units in these two systems are conceived of as analogous to the kind of input each encodes, rather than as abstract proposition-like entities. This means the units are organized differently in the respective systems, reflecting the characteristics of the modalities each is equipped to deal with. The verbal units, which Paivio calls 'logogens', have language-like attributes in that they are hierarchical, associative and sequential in their

[5] Common code theories hold that visual and verbal information is not processed in separate systems.

organization, whereas the 'imagens', the image-representing units, are holistic; all parts of the whole are simultaneously present, as they are in pictures. Paivio posits three possible levels of processing: on the first, so-called 'representational' processing occurs in the system dedicated to the kind of input being received. On the second level, this initial processing may give rise to further 'referential' processing, which occurs when one system activates the other. That is, a given logogen (for instance, the verbal-system unit that would represent the word 'chaffinch') might activate the non-verbal system, and produce a mental image of a chaffinch. The third level is 'associative' processing, which may occur when associated representations are activated within in the same system. For example, when an individual hears the word 'leopard', their verbal system might activate the names of other wild cats they associate with leopards ('cheetah', 'jaguar'). DCT accounts for the picture superiority effect by asserting that there is a 'mnemonic superiority of the image code over the verbal code' (*ibid.:* 265), because 'concrete sensory stimuli which can be verbalized, *will* be verbalized. Concrete words which can be imaged, *may* be imaged. Thus visuals are decoded into words automatically and stored in *two* channels' (Croft & Burton 1995: 146, original emphasis). According to DCT, then, a viewer who sees a picture of a snake automatically activates the word 'snake' stored in the verbal memory system, together perhaps with other words ('serpent', 'scales', 'green mamba'). If a person reads 'snake', this concrete word is also likely to activate the non-verbal system, so that they picture a snake. But if they read an abstract word such as 'discourse', it is unlikely to activate an image in the non-verbal system. It is this dual (and thus more intensive) encoding in two separate systems, the theory asserts, that accounts for pictures, followed by concrete words, being far more often recognized than abstract words in recognition tests.

In postulating more intensive processing and thus stronger mnemonic effects when input is processed in both the verbal and non-verbal systems, DCT would predict that instructional material in verbal form, whether audio or print, should be remembered better if accompanied by appropriate visuals. In fact, Paivio tested this in a study which focused on recall of items which had been presented successively in the following combinations: a picture followed by the same picture, a word followed by the same word or a picture followed by the word for the item shown in the picture (Paivio 1975). He found that the picture-word condition did indeed show the highest rate of recall. Not only is memory for pictures better than memory for words and text, but experimental evidence has shown it is accessed more quickly. This is explained by DCT in terms of the different organization of information in the respective systems. Since non-verbal representations are accessed immediately and in their entirety, and

not sequentially, as representations of language have to be, recognition and recall of pictures is faster.

The DCT, though well-established as a major approach to explaining the effects of visuals (cf. Marks 1997: 432), is by no means uncontroversial. One question which arises is how the theory accounts for stimuli which cannot easily be assigned to one or the other system (music or calligraphy for instance). Thomas notes that 'it seems obvious to some commentators (e.g., Kintsch 1977; Flanagan 1984) that Paivio, through focusing too much on *visual* imagery, has counted wrongly, and that if there is an imagery code at all, there must be one for each of the senses: a visual imagery code, an auditory one, an olfactory one, and so on' (Thomas 2005: section 4.2.2). Finally, DCT is rejected outright by those researchers holding a 'propositionalist' or 'single-code' position in the so-called imagery debate. The best-known proponent of this position is Pylyshyn, whose assertion is, in essence, that there are no such things as pictures in the mind or memory (e.g. Pylyshyn 1981, 2003). Pylyshyn and others who embrace a so-called 'common coding' view hold that all kinds of input, whether verbal or non-verbal, is encoded in memory in the form of abstract propositions or 'mentalese', which is different from both natural language and real pictures. Proponents of a common code model of memory account for apparent picture superiority by arguing that, in the experiments that display the effect, visual information was probably processed more completely, thus yielding more propositions to be stored (cf. Rieber 1994: 114).

3.3 Cue Summation Theory

Like the DCT, Cue Summation Theory (CST) would also predict that a combination of related verbal and visual material will have better learning outcomes than the same verbal material presented in isolation, albeit on the basis of a different model of information processing. Cognitive cues, the central concept in CST theory, can be conceived of as items of perceptual information. If recognized and attended to by an individual in the initial processing of sensory information, these cues activate knowledge held in long-term memory and initiate further processing in working memory (cf. Moore, Burton & Myers 2004: 981). Cue summation theory's basic tenet is that the greater the number of cognitive cues, the greater the effect on memory processes and hence on learning.

> When cues from different modalities (or different cues within the same modality) are used simultaneously, they may either facilitate or interfere with each other. When cues elicit the same responses simultaneously, or different responses in the proper succession, they should summate to yield increased effectiveness. When the cues elicit incompatible responses, they should produce conflict and interference. (N. Miller 1957: 78)

Severin, reviewing the contradictory results of research dating back to before World War II on the effects of using one or two channels to present information, questioned the assumption of cue summation theory in its purest form that the greater the number of cues and the greater the realism of those cues, the better the learner will understand and learn the material. His more cautious conclusion was that 'multiple-channel communications appear to be superior to single-channel communications when relevant cues are summated across channels, neither is superior when redundant between channels, and are inferior when irrelevant cues are combined (presumably because irrelevant cues cause interference between them)' (Severin 1967: 397).

In their review of approximately 60 years' worth of research that has investigated the effects of multiple cues on learning, Moore et al. (*op. cit.*: 984ff.) are able only to document very mixed evidence, made all the more inconclusive in some cases by questionable research designs, the range and incompatibility of variables considered and failure to consider realistic learning scenarios ('In educational practices, we seldom deliver unrelated or contradictory messages through multiple channels', amongst others [*ibid*.: 986]). The question is then why CST, though hardly novel and far from conclusive, has attracted renewed interest in recent years. The answer is linked to the claims made for multimedia learning, a field that has seen enormous growth in the computer era. Computer technology makes it possible to deliver instructional material interactively via multiple channels, using verbal and audio text (alone or in combination with one another) and also combined, simultaneously or in alternation, with single and multiple static images, animations, video clips, re-representations of visual material and so on. That is, multimedia can provide multiple cues in numerous combinations, and CST plainly offers an attractive theoretical model for anyone propounding the beneficial learning effects of multimedia. Moore et al. however, deliver a damning appraisal of 'multimedia research', starting with the observation that 'educators and the technology industry cannot decide exactly what the concept of multimedia includes' (Moore et al. *op. cit.*: 994). They go on to criticize the way evaluation of products for practical purposes and true research have been conflated, adding that very few of the 'hundreds of reports and studies' about the implementation of multi/hypermedia are experimental studies (*ibid.:* 996). The 'most prevalent sources' of current guidelines for the development of multimedia programs, they claim, are 'assumption, intuition and (apparently) common sense' (Moore et al. *op. cit.*: 997); they also criticize the 'fundamental methodological flaws' that, they assert, characterize studies comparing learning outcomes from

multimedia instruction and normal classroom instruction. Their conclusion is this: 'After reflection on an extensive review of the literature, there appears to be little useful research on multimedia […]. Quite frankly, with few exceptions there is *NOT* a body of research on the design, use, and value of multimedia systems' (*ibid*., their emphasis). From this account, it appears that CST's claims have not, or not yet, been corroborated by recent research on multimedia in learning.

3.4 Cognitive Load Theory

Cognitive load theory (CLT) established itself as a major theory in the area of instructional design in the 1990s, mainly on the basis of work carried out by Australian and Dutch researchers. The numbers of new studies documented in current research literature suggest that work within the cognitive load framework has intensified in the new millennium.

3.4.1 The structure of human memory

A specific model of human cognitive architecture, based on Baddeley's (e.g. 1992, 1998) account of working memory, provides the fundamental underpinning to the assumptions of CLT; the following brief summary of this model is based principally on the summaries of this model in Cooper 1998; Mayer & Moreno 2003: 44; Clark & Lyons 2004: 54-55. The terminology and degree of detail differ slightly from one explanation to the next in the CLT literature, but in essence the components are:

- *Sensory memory*, in which initial processing of sense stimuli ('perception') takes place. This is the memory mode which takes the first step in recognizing and sorting information from the constant flood of sense data. Sensory memory is short-lived, and although it registers all the information supplied by the senses, if the data cannot be categorized in between half a second and three seconds, no further processing of the stimuli takes place and they are lost to memory. This is significant as regards the use of visual materials in teaching, since it means that a viewer will simply break off the processing effort after a few seconds if they cannot make out what a picture is supposed to show.

- *Working memory* (WM), known as 'short-term memory' in some accounts, where conscious thinking takes place. In learning, WM selects information from incoming sensory data for further processing, first attending to it, constructing models of it, activating relevant and related knowledge structures stored in long term memory and finally integrating the new information into those structures. The memory model used in

CLT espouses Paivio's dual coding hypothesis; processing is conceived as taking place in separate channels for verbal and visual information, with re-encoding in the other system possible at any point. There are different intensities of processing, however. According to Mayer & Moreno, for learning to take place, there must be 'a substantial amount of cognitive processing […] . These processes include paying attention to presented material, mentally organizing the presented material into a coherent structure, and integrating the presented material with existing knowledge' (Mayer & Moreno 2003: 44): indeed, this basic structure of selection, organization and integration is central to Mayer's Cognitive Theory of Multimedia Learning (cf. for example Mayer 2001, Mayer & Moreno 2002: 91 ff.). This too is relevant as regards visual materials in foreign language learning. As we shall see in the discussion of both Schnotz's and Weidenmann's work, insufficient processing of 'easy' pictures could be the reason why instructional visuals fail to provide the effective support for learning that, in terms of the theories discussed here, they should. The most significant feature of WM from the point of view of cognitive load theory is its limited capacity. G. Miller's 1956 article offered the well-known estimate that only 'seven, plus or minus two' items or 'chunks' of information can be processed at any one time; subsequent research has suggested the number might be even lower (Miller 1956: 81). It is suggested in the CLT literature that this limited processing capacity can be increased somewhat by combining visual and auditory information, since this means that both the visual and verbal channels are used to full capacity without 'stealing' processing resources from one another.

- *Long-term memory* (LTM), where knowledge is stored. Theoretically, there is no limit to the amount of knowledge that can be stored, or to how long it can be stored for; but individuals are not conscious of the knowledge in LTM unless it is activated by impulses from working memory.

3.4.2 Schemas

As stated above, the limited capacity of WM and the implications that this has for learning lie at the core of CLT. Obviously, effective learning cannot take place if WM is required to process more than a few units of information. But if its processing resources are so limited, how are any of the complex cognitive processes that WM deals with - creative thinking and problem-solving for example - possible? According to the memory model used in CLT, the elements processed

in WM usually take the form of schemas stored in LTM: schemas are 'cognitive constructs that incorporate multiple elements of information into a single element with a specific function' (Paas, Renkl & Sweller 2003: 2); Sweller & Chandler define a schema somewhat differently as 'a cognitive construct that organizes information according to the manner in which it will be dealt' (Sweller & Chandler 1994: 186). Although not all cognitive scientists would regard the terms as synonymous, schemas are sometimes referred to as mental models, which aptly captures their tendency to be structured as hierarchies or networks, or as representations of processes, procedures or acquired skills (cf. Mayer & Moreno 2003: 43). They change easily, becoming more complex as knowledge and experience accrue. Schemas for the same phenomenon may be radically different from individual to individual, depending on their knowledge of the phenomenon: in the case of great expertise in a specific domain, 'schemas represent experts' knowledge in the domain and allow experts to categorize multiple elements of related information as a single, higher level element'; thus 'acquired schemas, held in long term memory, allow experts to avoid processing overwhelming amounts of information and effectively reduce the burden on limited capacity working memory' (Kalyuga, Ayres, Chandler & Sweller 2003: 24).

A language learning example of schema formation would be, for example, the case of a beginner producing a grammatically and idiomatically correct utterance in a language they are learning. The learner has acquired enough vocabulary, understood the rules of syntax, learnt the rules governing morphology, etc. sufficiently well to produce this correct utterance, though it requires considerable concentration and cognitive resources to marshal all the necessary elements in WM. This is an example of 'controlled processing' (Kalyuga et al. *op. cit.*: 23). Once the learner has been studying the language for some time, however, these schemas will have become automated, and they will be able to produce the same utterance effortlessly, since '[a]utomatic processing of schemas requires minimal working memory resources and allows problem solving to proceed with minimal effort' (*ibid.*). Automatic processing is an indication that successful learning has taken place. Indeed, according to Kalyuga et al., 'CLT [...] is based on the assumption that schema construction and automation are the major goals of instruction' (*ibid.*). Clearly - to stay with the language learning example - the more schemas for various domains of the target language the learner forms and automates, the more cognitive resources are made available for processing new and more complex knowledge, building on the schemas already held in LTM.

3.4.3 Visuals and CLT

As already noted, WM capacity may be slightly extended by using the visual and auditory verbal channels to full capacity. However, visuals can also have a negative influence on learning if they impose 'extraneous cognitive load'. This is cognitive load 'imposed purely because of the design and organization of the learning materials rather than the intrinsic nature of the task' (Sweller & Chandler 1994: 192). An example of this in a coursebook for language learning might be the inclusion of 'decorational' graphics, i.e. pictures that contribute nothing to the task but have been included to fill up space or to 'motivate' the learner. Extraneous cognitive load would also be imposed by visuals that exerted a 'split-attention effect' (*ibid*.) by requiring learners to read text and attend to visual information essential for understanding the text on another part of the page, then to mentally integrate the information. A further kind of extraneous cognitive load is produced by the 'redundancy effect' (*ibid*.: 193). This might occur in FLT if text perfectly comprehensible to the learner is accompanied by tautological illustrations that simply echo the text content without providing additional information needed to complete the task. In the CLT literature, redundancy effect has been found when self-explanatory graphics have been made more difficult to process by superfluous text (*ibid.*). Recent CLT research has moreover found strong evidence for a phenomenon related to the redundancy effect and known as the 'expertise reversal effect'. In their review of research literature, Kalyuga et al. conclude that while a novice learner might find that visuals plus text are useful for schema formation, an advanced learner, using the same mixed mode materials, would tend to learn the content *less* efficiently than they would if given the visual or the verbal information only, since they are slowed down and distracted by having to process what is - for them - redundant information in a mixed mode presentation (Kalyuga et al. *op. cit*.: 2003).

So far, it is predominantly the negative effects that visuals might have by imposing extraneous cognitive load that have been considered. But visuals can also provide 'germane cognitive load', which enhances learning by harnessing cognitive resources for schema formation and automation (Paas et al., *op. cit*.: 2). This is particularly true of visuals when they 'communicate relationships among content objects more efficiently than can be communicated by words alone' (Clark & Lyons 2004: 130). Familiar examples of visuals that help to build schemas in language learning are word-trees, spider diagrams and other mind-map-like techniques for learning vocabulary and showing the semantic or morphological relationships between words. However, research does not appear to have addressed the role of visuals in reducing or increasing cognitive load in language learning to any significant degree so far.

3.5 Multiple External Representations

External Representation is a broadly-conceived notion in cognitive science, and of particular significance for research concerning distributed cognition. A well-known definition is found in Zhang & Norman (1994):

> Internal representations are in the mind, as propositions, productions, schemas, mental images, connectionist networks, or other forms. External representations are in the world, as physical symbols (e.g., written symbols, beads of abacuses, etc.) or as external rules, constraints, or relations embedded in physical configurations (e.g., spatial relations of written digits, visual and spatial layouts of diagrams, physical constraints in abacuses, etc.). (Zhang & Norman 1994: 89)

According to Zhang & Norman, external representations have mnemonic effects, as well as providing 'information that can be directly perceived and used without being formulated explicitly' (*ibid.*: 116); in addition they can 'anchor and structure cognitive behaviour' as well as 'change the nature of a task' by giving us 'access to knowledge and skills that are unavailable from internal representations' (*ibid.*: 117).

As noted in the discussion of cue summation theory, multimedia software now makes it possible to present information in a variety of modes and formats in one place and at one time, thus enabling instructional designers to offer a range of external representations simultaneously or successively as well as separately, contiguously or in integrated formats. The notion of multiple external representations (MERs) is frequently encountered in the field of multimedia learning with computers, although Ainsworth (2006) defines MERs more broadly. She regards research from the 1980s on the mnemonic functions of pictures in combination with text as '[e]arly research on learning with MERs', but adds that the remit of MER research has now expanded to include 'an extensive variety of multi-representational systems formed from combinations of representations such as diagrams, equations, tables, text, graphs, animations, sound, video, and dynamic simulations' (Ainsworth 2006: 5-6). The questions are when, how and in what constellations MERs are beneficial to learners, or whether they are beneficial at all. Research on instructional uses of MERs has focused overwhelmingly on mathematics, natural sciences and technical subjects. In a rare paper with a language learning orientation, Chun & Plass (1997) discuss multimedia aids to L2 reading comprehension and suggest a research agenda for multimedia and language learning. They stress that rather than aiming to establish whether multimedia language learning is effective per se, such research should investigate how the instructional materials best support cognitive functions in ways

appropriate to specific kinds of learning tasks. Given the adaptive potential of multimedia instruction and the flexibility and adaptability to individual learning needs of multimedia as such, they can, the authors argue, be harnessed to offer highly differentiated materials that would meet the needs of learners with different levels of prior knowledge, cognitive styles, ages and so forth. However, in illustrating the 'design of information presentation […] based on the cognitive processes that this information aids', it is pointed out that 'while for vocabulary acquisition a picture may be a good choice in depicting an individual word that represents an object, for an advance organizer, a video may be a preferable choice to aid the integration of information into an existing mental model of the subject matter' (*ibid*.: 73). This seems clear even without taking mental model formation into account, and also begs the question of when and how teaching practitioners would create appropriate videos as advance organizers for each reading comprehension task. Nevertheless, in approaching multimedia in foreign language instruction in terms of what sort of verbal or visual support is appropriate to the respective task and learner, rather than trying to discern 'effects', this research agenda is a welcome impulse.

Ainsworth (1999, 2006) proposes a general functional typology of MERs and raises a number of issues related to their use in instructional settings. Some of these issues will be listed here, and their their relevance to FLT assessed.

● *Functions*. In her functional typology of MERs, Ainsworth (1999, 3ff.) posits three major functions. Firstly, MERs *complement* each other by giving different but complementary information. They also support processing and alleviate cognitive load in different - and complementary - ways, and so facilitate learning. Secondly, one ER may *constrain* another, as when a familiar representation is used in combination with a less familiar one so as to guide the learner in interpreting it, or when a relatively specific representation (like a picture) constrains the understanding of a relatively ambiguous one (like a text). Thirdly, MERs can, where appropriate, help learners to *construct* deeper, more abstract understandings which they can more easily transfer and relate to other representations.

● *Understanding representations.* Like Chun & Plass, Ainsworth emphasizes that 'it is increasingly recognised that the issue is not whether MERs are effective'; instead, the focus is on 'the circumstances that influence the effectiveness of MERs' (Ainsworth 2006: 1). Late in the day, then, it has become clear that the aim of research should not be to discover *which kind* of representations 'work', but to discover *how* to make representations work. Although Ainsworth is writing about graphs when she asserts that '[l]earners must know how a representation

encodes and presents information' (*ibid.*: 4), this principle holds just as true for representational graphics and the specific representational conventions they follow.

● *Cognitive styles*. In recent years, the assumption that individuals tend to be divided into 'visualizers' or 'verbalizers' as regards their preferred learning styles has become widespread; Ainsworth takes a sceptical position vis à vis the claim that representations in a learner's preferred cognitive style will have positive effects. She comments that even if learners are allowed to choose 'their' kind of representation, '[t]here is limited evidence that this can improve learning' (*ibid*.: 7), and goes on to cite a number of research results which, taken overall, present a confused and contradictory picture of external representations and cognitive style. I will not consider the issue of cognitive style in relation to visuals in language learning either, not only on account of the inconclusive research findings, but also on the grounds that it cannot be separated from numerous other complex variables that affect learners' responses.

● *Relating representations.* Ainsworth refers here primarily to studies involving school-children studying mathematics or science subjects, and comes to the sobering conclusion that learners frequently fail to relate representations to one another. This in turn means that the complementary, constraining and constructing functions of MERs are not realized. Translated to a language learning context, a failure to relate representations occurs for example when a coursebook illustration is provided as support for a task, but is regarded as purely decorative and so ignored by the learner.

It should be noted in conclusion that Ainsworth readily concedes that MERs often fail to fulfil their potential, and proposes possible reasons for this. She ends her 2006 article with an outline of a 'design heuristics', in which she proposes that instructional design should also be guided by the kinds of functions (complementary, constraining or constructive) MERs are intended to fulfil in a specific learning context, an awareness of the kinds of cognitive tasks they impose upon learners and the ways in which they can support these tasks (Ainsworth 2006: 15 f.).

Is Ainsworth's MER approach applicable to the area of visuals in foreign language learning? The numerous studies upon which Ainsworth's argumentation is based were, as noted earlier, carried out almost exclusively in the context of science, mathematics and technical subjects. As a result, these findings and recommendations can only be applied with caution, and with a certain amount of awkwardness, to the field of visuals in FLT; quite a number of them are not applicable in a language learning context at all. MERs and their affordances in language learning with multimedia is an area still awaiting comprehensive investigation.

3.6 Schnotz' Integrative Model of text and picture comprehension

Schnotz's model (e.g. 1999, 2005) is rooted in the same information-processing, constructivist assumptions as the others discussed in this section. Although similar in some respects to cognitive load and MER approaches, it also draws on DCT and traditional semiotic categories, as well as - crucially - on Weidenmann's work on picture processing from the 1980s (see below). Schnotz conceives of learning as an active, constructive activity in which the learner selects and combines information from external representations into integrated internal representations in response to the demands of the learning task. The focus is less on managing cognitive load than on factors that may influence the effectiveness of learning with text and pictures. Schnotz postulates a complex processing model which is reminiscent of DCT but which differs explicitly from the latter in significant ways. In the DCT, the logogens and imagens are described having completely different structures that reflect the kinds of input that engender them. Similarly, in Schnotz' model, external representations in the form of text and pictures are presumed to be processed as differently constituted internal representations: 'descriptive' representations in the case of text and 'depictive' representations in the case of pictures and diagrams. Descriptive representation is conceived, with reference to the Peircian sign triad, as having symbol-like characteristics: the form is arbitrary, and the connection between sign and referent are based on shared convention, with relationships between elements being established by a rule-system. Depictive representation, in Peircian terms, is icon-like: the internal representation is analogous to the external one in structure, and relationships within the representation are given by its intrinsic structure. Schnotz rejects the DCT's premise that mnemonic benefits derive from a combination of verbal and visual material due to the information being doubly, that is, additively, coded. He also dismisses the assumption that visual input is automatically encoded in the verbal as well as the visual system. The integrative model postulates that text and pictures are subject to multiple processing on many levels, in the course of which a descriptive external representation will be represented in depictive form (as a mental model), and a depictive external representation will be processed in a descriptive representation (in propositional form). These complementary representations may be *combined* (rather than added to one another) into an internal representation derived from the external representations, so amalgamating descriptive and depictive features.

In an experiment referred to frequently in the literature on the integrated model, Schnotz gave 60 university students a self-regulated learning task, asking them to study instructional material about time differences on earth (cf. for example Schnotz & Bannert 1999). The experiment included a text-only treatment and two further treatments, using the text plus a

picture: a more complex picture for the one treatment and a less complex one for the other. Despite their differing complexity, the pictures supplied the same information. The materials were given in hypertext form; by registering electronically how often the subjects called up what kind of information and administering a final test on the materials studied, Schnotz was able to draw conclusions about how effectively the students had learnt the material, and relate this to their choice of learning media and the intensity with which they had processed the respective materials. On the basis of the study he concludes that a simple picture may produce superficial processing, resulting in the viewer believing they have understood it, although they have not. A more demanding picture however may trigger more careful and intensive processing. A further conclusion from the study is that an inappropriate visual might make it more difficult, not easier, to combine information into an effective schema.

One strength of this work is that it focuses explicitly on visuals *per se*, acknowledging how different one graphic or illustration can be from another. Schnotz emphasizes that the nature of the specific visual and the specific text used for a learning task has to be taken into account before predictions can be made about possible effects of the picture. He also stresses that pictures which are inappropriately matched to the kind of task they are intended for may have a deleterious effect on text comprehension, because they may result in superficial processing or deficient picture comprehension. And he vehemently rejects the claim implicit - in his view - in DCT that pictures added to instructional text used in self-study will automatically improve understanding and memory: 'im Rahmen eines selbstgesteuerten Lernens mit Texten [führt] die Bereitstellung von Bildern als zusätzliche Informationsquelle nicht einfach zur Addition eines weiteren kognitiven Verarbeitungsprozesses' (Schnotz & Bannert 1999: 233). Another defining aspect of Schnotz's approach is his scepticism as to whether design alone can ensure effective processing. Unlike the other approaches discussed so far, Schnotz's emphasizes that the success of learning with text and pictures is largely dependent on the kind of processing both receive. In this regard Schnotz & Bannert are pessimistic, arguing that '[d]ie metakognitive Verarbeitungsregulation ist sowohl beim Text- als auch beim Bildverstehen häufig mangelhaft, da Individuen inadäquate Verstehensstandards anwenden' (*ibid*. 223). They add that this applies particularly to the comprehension of pictures, because unlike text, whose linear structure guides processing, there is little external support for the processing of pictures. '*Es gibt keine klaren Verarbeitungsvorschriften und Verstehenskriterien, und dementsprechend unterschätzen Lernende häufig den Informationsgehalt von Bildern* […] . Beim Wissenserwerb mit Bildern ist die Gefahr einer Verstehensillusion demnach größer als beim Wissenserwerb mit Texten: Man merkt eher, daß man einen Text nicht versteht, als daß man ein Bild nicht

versteht' (*ibid*., my emphasis). In speaking here of the metacognitive regulation of processing, the authors are referring to the learner's *subjective* estimate of the processing effort that will be needed. This too they regard this as a central factor affecting processing:

> Ein wesentlicher Gesichtspunkt für die Nutzung von Text und Bild beim Wissenserwerb dürfte der Aspekt der kognitiven Ökonomie sein, wonach der Lernende den Konstruktions- und Nutzungsaufwand der zu konstruierenden mentalen Repräsentationen möglichst niedrig hält, indem er versucht, mit wenig Aufwand eine Wissensstruktur zu konstruieren, die es erlaubt, aktuelle oder antizipierte Anforderungen auf einfache Weise zu bewältigen. (Schnotz & Bannert 1999: 223)

It is crucial to note, the authors point out, that learners are economical with their cognitive resources when constructing and using mental representations. They go on to argue that the cognitive effort required to construct a mental model from a *text* is likely to be higher than that required for a *picture* with the equivalent informational content, since in constructing a mental model of information from text, there is a switch from a symbolic form of representation to an analog one. In creating a mental model from visual information, less effort should be required, since the information is already presented in analog form (*ibid.*).

3.7 Comments

A paradigm shift away from trying to discover the *effects* of visuals and towards the question of how to make sure they are *effective* is discernible in the CLT and MER literature when it is compared to picture-text research in the 1980s. The approaches reviewed above suggest factors to consider when designing MERs, and the ways in which appropriate visual information can assist the formation of mental models. However, the responsibility for making the instructional materials work properly seems, in these approaches, to lie principally with the instructional designers. The pragmatic strategy of explaining to learners and teachers how the different elements of the materials are intended to be used together, and to what instructional ends - the strategy, in other words, of giving them explicit processing instructions and rationales - does not seem to feature to any great extent. Although there is an orientation in all the newer literature reviewed here towards contructivist theories of learning (indicated for instance in references to 'scaffolding' and 'fading' in relation to cognitive load management: cf. for example van Merriënboer, Kirschner & Kester 2003: 5), only Schnotz suggests that appropriate processing by the learner is just as important as design considerations and explicitly places emphasis on the learner as an active agent in the construction of knowledge, selecting and combining information from external representations and deciding how much

cognitive effort to invest in the learning process. Schnotz and his collaborators stress that poor learning outcomes may result if picture information is processed too superficially and too economically; this can be prevented if learners receive training and guidance in how to learn with pictures. Although most of the approaches reviewed so far have been of limited or indirect relevance to FLT, Schnotz et al.'s views on the effective use of visuals in instruction seem to be not only entirely applicable but also of considerable significance for the field of foreign language learning and teaching.

4. Research on visuals in instruction.

4.1 Caveats

4.1.1 Domains of knowledge addressed by research

One problem with evidence from research on learning with visuals is that it has tended to concentrate on technical and scientific domains, so that its applicability to others, including FLT, is questionable. De Westelinck , Valcke, De Craene & Kirschner (2005: 561) reviewed a number of recent studies reported in the literature on learning with visual representations, and listed the topics the subjects were asked to learn about in the experiments: pumps, brakes, lightning, generators, lungs, soldering, a chemistry experiment, ecology, machine functions, vitamins and minerals, meteorology, geographical time differences, a training program for experimental research, an introduction to instructional design, financial decision making and first order logic. The experiments reported in Chandler & Sweller (1991) were conducted with trade apprentices learning basic electrical engineering and high school students learning about blood circulation, and Ainsworth, reviewing research on MERs, refers to 'empirical work conducted in domains as a (*sic*) varied as mathematics, physics, biology and alchemy' (Ainsworth 2006: 2). In the same article, De Westelinck et al. report the results of a study in which they used Mayer's cognitive theory to investigate the effects of MERs in teaching a social science topic to university students. The results showed neither a reduction of cognitive load nor a positive learning effect from visuals. One general conclusion the research team draws in summing up is that the design of MERs has to be adapted to the specific knowledge domain the instruction concerns, and the kind of learning it requires (de Westelinck et al. *op. cit.*). In considering the conclusions formulated on the basis of this research and the guidelines derived from it, it has to be borne in mind that the studies it draws on were mainly conducted in areas of science and technology instruction, and the tasks in the experiments have typically involved learning specific, concrete facts, structures and processes.

4.1.2 Treatment of visuals in research and research articles

In their overview of research, apart from noting some psychometric weaknesses, Anglin et al. criticize above all deficiencies of a more practical nature: for instance, '[i]n many studies, it was not possible to identify the role or function of the visual illustrations in the instructional treatments', and go on to comment that they 'feel it is critically important to determine, in advance of conducting research, the particular functions of the visual illustrations' (Anglin et al. *op. cit.*: 874). A related point is made in the discussion of animated graphics: they observe that 'in many of the studies it was not indicated if it was determined that there was a need for external visuals, static or animated. Perhaps reading text alone is adequate. In addition, many of the investigators did not provide a rationale for why motion is needed […]. Text or text plus static graphics may be the optimal treatment is motion is not required' (*ibid*.: 877).

In the research on the effects of visuals in learning which I have been reviewing, it is striking that the visuals themselves are often not actually reproduced in the published articles. This tendency is also mentioned by Carney & Levin, who observe that 'it is ironic that one often reads research articles focusing on the effects of text-accompanying illustrations without encountering even a single illustration of the illustration used in the research' (Carney & Levin 2002: 11).

4.2 Do visuals support learning? Verdicts based on empirical evidence

4.2.1 Positive verdicts

Overall, researchers express a cautious optimism about the supportive role visuals play in instructional settings. Anglin et al. reviewed 90 studies (involving more than 13,500 subjects) which investigated the learning of prose with and without the addition of static pictures. They reported that 'in the 118 experiments included in the 90 studies, 102 significant effects for treatments including text and visual illustrations vs. text only were identified' (Anglin et al. *op. cit.*: 874). On the strength of these statistics, they comment that 'the results of the "box score" summary indicate that static visuals can have a positive effect on the acquisition of knowledge by students' (*ibid.*). Their conclusion to the section reviewing 'Static Pictures and Knowledge Acquisition' (*ibid.* 872 ff.) is that 'static visual illustrations can facilitate the acquisition of knowledge when they are presented with text materials' (*ibid.* 876).

As regards animated visuals, Mayer & Moreno conducted four experiments to ascertain whether 'multimedia presentations…are more likely to lead to meaningful learning than single-medium presentations' (Mayer & Moreno 2002: 92), and were able to report that the addition of an animated pictorial explanation to a narrated explanation 'resulted in a substantial improvement in learners' problem-solving transfer performance […]. In short, we have

consistent evidence for the multimedia principle that words and pictures are better for promoting learner understanding than are words alone' (*ibid*.: 94). Mayer (1989), summing up the results of some of his earlier studies, also concludes that '[i]llustrations may help readers build useful mental models' (Mayer 1989: 240). Carney & Levin write in the abstract of a review article assessing research in the 1990s, that '[r]esearch conducted primarily during the 1970s and 1980s supported the assertion that carefully constructed text illustrations generally enhance learners' performance on a variety of text-dependent cognitive outcomes. Research conducted throughout the 1990s *still* strongly supports that assertion' (Carney & Levin 2002: 5, original emphasis). It will be noted that even the most optimistic pronouncements are carefully hedged and qualified. Indeed, studies over the past decade have only served to reinforce Rieber's 'first principle of the design of instructional graphics', which states that '[t]here are times when pictures can aid learning, times when pictures do not aid learning but do no harm, and times when pictures do not aid learning and are distracting' (Rieber 1994: 15). For their part, Mayer & Moreno, despite the optimistic conclusions they arrive at on the basis of their own research, conclude their article with a warning that using 'animation (and other visual forms of presentation) is not a magical panacea that automatically creates understanding. Indeed, the worldwide web and commercial software are replete with examples of glitzy animations that dazzle the eyes, but it is fair to ask whether or not they promote learner understanding that empowers the mind' (Mayer & Moreno 2002: 97-98).

4.2.2. Negative verdicts

In a review headed 'Animated Pictures and Knowledge Acquisition', Anglin et al. found 42 studies that qualified for inclusion, and identified 21 in which animation produced significant effects (Anglin et al. *op. cit.*: 876ff.). After remarking on problems of methodology, research design and sufficient information on the treatments in the studies reviewed, and the mixed results presented by reviews of research in the 1990s, they observe that on the basis of the '"box score" results only, one could conclude that the use of animated graphics does not facilitate learning' (ibid.: 877), and add that 'it is apparent that we still know very little about the effect of animated visual displays on student learning' (ibid.: 878).

Admittedly, Anglin et al. were focussing experimental evidence of learning effects with *animated* visuals. A widely-quoted study by Weidenmann (1989) investigated the effects of static pictures. One of the hypotheses tested by Weidenmann was that pictures will have an insignificant effect on learning and understanding if the learners undervalue their information content. The hypothesis was strongly confirmed in the experiment, adding weight to Weidenmann's contention that pictures are frequently perceived as 'easy' media which do not

require careful and attentive processing. The implication of this is that no matter how well-designed instructional visuals are, they may not automatically produce the predicted learning effects if the learners receive no guidance to their use.

Tang conducted studies in Canada on the use of visuals in various subjects by 7th grade immigrant children whose first languages were not English, and found that the children tended to dismiss the numerous visuals in their textbooks as irrelevant decorations. She notes that 'unless the teacher or the assignment required them to study, write about, or reproduce them', most of the children failed to engage with the pictures or graphics at all (Tang 1991: 34). Only once it had been explained that the pictures and graphics were a valid source of information and they had been given specific instructions to attend to them did they begin to utilize them somewhat more effectively. But even after they had been shown how to use them, only a negligible number of test papers examined showed an improvement in comprehension that was traceable to pictorial information. As Tang writes in the abstract of her article, "Without teacher guidance, students could not successfully extract information from graphics, or use graphics to represent knowledge, or recognize graphics as an alternative way of communicating knowledge. They perceived the function of graphics to be decorative, and their general attitude towards graphics was negative" (ibid: 29). The argument that this could have been due to cultural differences in picture understanding was substantially weakened by a further study in which Tang examined secondary school textbooks from Japan, Mexico, Hong Kong and Canada and established that, in terms of form and graphic conventions, the illustrations were extremely similar or identical (Tang 1994). She concludes that migrant children, hampered at school by their incomplete mastery of English, could be greatly helped by familiar graphics. But she stresses that since the textbooks she examined seldom gave explicit directions, which she terms 'directive reference', on using the pictures, teachers would have to train pupils to attend to the visuals.

In the mid-1990s, Griffin and various collaborators conducted a series of cross-cultural studies in which they investigated people's understanding of common signs, icons, symbols and graphics (such as those used for instance in street signs or in clip-art). Though not focusing on visuals in classroom contexts, the studies are of interest firstly because they suggest that people from different cultures interpreted the signs differently and secondly because Griffin discovered that these supposedly 'easy' and 'universal' visual media were often found confusing, and frequently misinterpreted or misunderstood. Most significantly of all, he concluded that this was due to lack of adequate processing: he noted that the subjects 'often do not look at the visual in great detail. Rather they take a superficial look […] and then make a

determination of the meaning. Visual experts should not rely on symbols to convey in-depth meaning or ideas which are critical to an outcome. Symbols do not convey accurate meanings' (Griffin 1994: 44).

From these verdicts, the general impression is that static visuals have been shown to support learning in some contexts, but that they can never be assumed to fulfil supportive functions automatically and that directions that explain their intentions and guide their use are essential.

4.3 Functional taxonomies

There is now an overall consensus that instructional visuals are best classified in terms of function, not form, although this was not always the case. Mayer & Moreno (2002) note that the goal of the 'classical tradition of media research' was to 'determine whether students learn better with one medium compared to another': an enterprise now regarded as 'largely fruitless' (Mayer & Moreno 2002: 88). Now, Moreno and Mayer continue, '[t]he consensus among media researchers is that animation may or may not promote learning, depending on how it is used […]. Instead of asking, 'does animation improve learning?' we ask 'when and how does animation affect learning?" (*ibid.*: 88). The question can just as well be paraphrased as 'when and how do static pictures affect learning from text?'. Recent experimental evidence that reinforces the current position that form as such has little influence on the success of learning outcomes has been provided for example by Michas & Berry (2000), who used different modes of presentation to instruct learners how to bandage a wrist. They found that presentations a) with line drawings plus text and b) with video were the most effective, and produced better learning results than text only, video stills and line drawings without text. It is particularly interesting that the video stills, which showed something 'real', were not as effective as simple drawings for this purpose.

A number of functional taxonomies of visual representations have been proposed, each with somewhat different categories derived from the authors' specific theoretical framework. Nevertheless, the taxonomies overlap to a large extent, and in many cases researchers use a different name for approximately the same function. I review some of the better-known taxonomies below, not primarily in order to compare or assess them, but to give an impression of the spectrum of picture functions proposed by researchers.

4.3.1 General functional taxonomies

- According to Duchastel (1978), pictures in text have *attentional, retentional* and *explicative* functions. The explicative function is further sub-divided by Duchastel & Waller (1979) into the following functions: *descriptive* (what something looks like),

*expressive (*includes affective factors), *constructional* (part/whole relations*), functional* (organization or process)*, logico-mathematical (*graphs and other mathematical representations*), algorithmic* (options for actions*)* and *data-display* (various ways of representing data visually); cf. Anglin et al., *op. cit*.: 875.)

- Levin (1981) and Carney & Levin (2002) identify five functions of pictures in processing prose: *decorational, representational, organizational, interpretational* and *transformational. Decorational* pictures are those with minimal or no relationship to the text content, included from aesthetic motives: Carney & Levin's example is a text describing a hiking trail illustrated with a picture of a pine tree (Carney & Levin 2002: 7). *Representational* pictures are 'normal' illustrations, and depict what is in the text. *Organizational* pictures 'provide a useful structural framework for the text content' (*ibid*.); Carney & Levin's examples are an illustrated map or a step-by-step pictorial guide to cardiopulmonary resuscitation. *Interpretational* pictures support the comprehension of complex processes or difficult text; the authors warn however that interpretational pictures, unless very well and carefully designed, may considerably increase cognitive load and lead to even greater confusion rather than clarifying complex concepts. The fifth category, *transformational* pictures, are visuals used specifically for mnemonic purposes. This category is clearly relevant to foreign language learning, since a number of visually-based mnemonic techniques have been proposed for the FLT domain. One example is the keyword method (see Pressley, Levin & Delaney, 1982; McDaniel, Pressley & Dunay, 1987) of associating new lexical items in the target language acoustically with items in the L1, and creating an image (mentally or on paper) which combines both words. Another is the classical loci-mnemonic, in which mental images of places support retention. A realization of this in vocabulary learning is to link vocabulary associated with different areas of activity (education, shopping) to mental or physical pictures of places (schools, shops etc.). Sperber (1991) has, to give a third example, proposed a system for learning the genders of German nouns by mentally associating a visually conspicuous noun of each gender - his suggestions are *'Löwe', 'Ballerina'* and *'Flugzeug'* - with any new word learnt: thus *'das Mädchen*' might generate a picture of a little girl piloting a Boeing, *'der Käse*' one of a lion eating cheese, and so on; these kinds of images can also be provided by the material's designers rather than generated mentally by the learner.

Using the five-function typology described here, Levin, Anglin & Carney (1987) conducted a meta-analysis of empirical studies to compare the effect sizes of learning from text with and without pictures. While the effect size for decorational pictures was negligible, representational, organizational and interpretational pictures had clearly discernible positive effects, and transformational pictures showed considerable increases in learning.

- Levie & Lentz (1982) view instructional visuals as fulfilling the following four functions: *attentional, affective*, *cognitive* (that is, when visual representations facilitate comprehension and retention: these are the functions which the CLT and MER literature foregrounds) and *compensatory.* The compensatory function comes into play for learners with poor reading skills: in a language-learning context, it could just as well operate for learners with a low level of proficiency.

- Alesandrini (1984) proposes three broad functional categories to reflect the ways meaning is conveyed by visuals: *representational, analogical* and *arbitrary* (or *logical*). This typology has been widely used, for example by Rieber (1994) and by Weidenmann, who applied it to the field of German as a foreign language. Representational pictures ('Abbilder'), according to Weidenmann, give learners the impression they are seeing 'einen Ausschnitt der realen Welt' (Weidenmann 1991: 12). Analogical pictures act as visual metaphors: 'Bei Analogie-Bildern wird in der Regel ein Abbild dazu benutzt, etwas Nicht-Anschauliches oder schwer zu Visualisierendes sinnfällig zu machen' (*ibid*.: 13). In language teaching materials, analogical pictures are typically used to give visual expression to grammatical or lexical relationships; in the same article, Weidenmann warns that analogical pictures may easily confuse rather than clarify, and illustrates this with examples in which the visual metaphors required extensive knowledge of the target culture, or were simply obscure. As examples of logical/analytical pictures, Weidenmann lists 'Flußdiagramme, Netzwerkdarstellungen, Kurven, Graphen usw.' (*ibid*.: 14); these correspond to Levin's 'interpretational' category. But as he notes, such visualizations are rare in the area of foreign language learning. If they do occur, then as 'schematische Darstellungen, in denen Begriffe durch Pfeile oder Linien miteinander verknüpft, also in einer räumlichen Ordnung, dargestellt werden' (*ibid*.:14-15).

- Levin & Mayer (1993) suggest that pictures perform seven kinds of functions with specific regard to understanding and learning from prose: by directing and focusing the reader's attention, they make text more *concentrated*, *compact, concise, concrete, coherent* and *comprehensible* as well as promoting *correspondences* between the text and prior knowledge, and helping the learner to encode the text (Levin & Mayer 1993: 95 ff.).

- Peeck (1993) concludes on the basis of a review of research that pictures may perform such functions as focusing, clarifying and helping to build mental models, but also notes that motivational claims are often made for them: they are accredited with functions like setting the mood, making things more fun, awakening curiosity and creating interest. But while this 'sounds quite plausible, educational research has not come up with much evidence in support of these claims' (Peeck 1993: 117).

- Ainsworth (1999) focuses on the potential functions of MERs as such rather than classifying types of MERs according to their functions. To reiterate, the three main functions identified in her typology are: to *complement, constrain* and *construct*.

- Finally, Clark & Lyons, in their practical guide to using visuals in training materials, provide the following typology of seven 'communication functions of graphics', an adaptation of Levin's typology of functions (Clark & Lyons 2004: 15). The new functions they have added are in bold type: *decorative* (for 'aesthetic appeal or humor'); *representational*; ***mnemonic*** (labelled 'transformational' by Levin); *organizational*; ***relational*** (graphics like pie charts or graphs which show 'quantitative relationships among two or more variables'), *transformational* (which Clark and Lyons have reclassified as showing 'changes in objects over time or space'; an example would be a computer animation of the moon's orbit of the earth, showing its phases) and *interpretive*, which in their typology is a graphic used to '[i]llustrate a theory, principle, or cause-and-effect relationships'(*ibid*.).

Of these taxonomies, Clark and Lyons' modified version of Levin's typology seems to offer the most practical tool for analysing the functions of visuals in a field such as FLT, since it is more differentiated than most of the others and focusses on practical functions rather than more

abstract ones related to cognitive processing. I explore its applicability to language learning materials in the coursebook analysis in chapter IV.

While not conceived primarily as a typology, the findings from Pettersson's 1998 study on 'image functions in information design' are illuminating. Rune Pettersson, a major researcher on the efficacy of visual and visual-verbal information, collected and analysed the 'explanatory verbs' used in 169 statements about the aims and functions of still pictures from literature on instructional design, visual literacy and visual communication from the 1970s to the late 1990s (Pettersson 1998, 1ff.). These verbs provide an overview of the most important functions of visuals according to the literature surveyed, even if these perceptions were not, according to Pettersson, supported by much evidence (*ibid*.). He found that the most frequent verbs were collocated with 'attention', viz.: 'attract, gain, get, hold and maintain' (*ibid.:* 3). Also frequently used were: 'facilitate, provide, persuade, create (an interest in), illustrate, clarify, motivate, present and reinforce (information)' (*ibid*.). While Pettersson did not differentiate between articles on instructional visuals and visuals in contexts such as media and advertising, it is nevertheless noticeable that functions related to attracting attention and maintaining interest predominate, while there is little reference to providing information or supporting learning processes.

4.3.2 Functions of visuals as perceived by users and producers

4.3.2.1 Functions of visuals as perceived by users

Pettersson's research, which has spanned several decades, has focussed above all on what users make of (predominantly) visual information. In the 1989 study, using the the verb count method referred to in the last section, he compared what experts in instructional design and visual communication believed about the functions of visuals with learners' – i.e. users' – beliefs. The learners were 82 students at Stockholm University, who recorded what they thought their teachers used visuals for. Many of the verbs overlapped with those on the experts' list, although the most frequent in this case were 'show' and 'explain'. Functions mentioned by the students but not the experts were: 'complete, describe, document, elucidate, inspire, mediate' (Pettersson 1998: 5). In a similar study, Pettersson elicited the views of another group of users: 40 teachers at Swedish junior high schools. This group 'only mentioned cognitive and pedagogical uses' (*ibid*.), and their answers overlapped with the student group's to a large extent. A number of words and expressions that did not occur in the literature review (i.e. the experts' perspective) appeared in the teachers' data. These were: 'context, deepening, describe, elucidate the evolution, give a background, give a break, give a perspective, inspire

to writing (*sic*) stories, minimize abstractions, one picture says more than a thousand words' (*ibid*.)

4.3.2.2 Functions of visuals as perceived by producers

Since the teachers Pettersson questioned focussed on cognitive and pedagogical functions of visuals, how important are these to the editors, art directors and designers employed by the publishers of teaching materials? Research in Sweden and Canada has, according to Pettersson, revealed that for them '(1) *procurement time*, (2) *availability*, and (3) *image clarity*' (*ibid*.: 7, Pettersson's italics) are of primary importance in selecting visuals for textbooks and reference books. Among the picture functions they named in interviews are: 'stimulating the reader, having a life of their own, providing breathing space, attracting buyers' and 'increasing the price of the book' (*ibid*: 6). The kind of questions picture editors ask are, according to a list compiled by Pettersson,

- Does the picture depict the right thing?
- Is the presentation of the subject satisfactory?
- Is the picture technically acceptable?
- Is the picture aesthetically satisfactory?
- Is the picture 'flexible,' i.e., will it work with different formats?
- Will the picture fit into a given area?
- Will the picture fit in with the other pictures on the same page? (*ibid*.:7)

These offer revealing insights into the functions of visuals from the publisher's perspective. Only the first question views the picture as a vehicle for information, related to the text or the instructional goals. The last three are concerned with layout, while the remaining questions are to do with meeting graphic design criteria. The danger here, I would argue, is that the more technically and aesthetically 'satisfactory' and 'acceptable' pictures are, the more likely they are to be treated by learner in the same way as the slick, commercial images they are familiar with from the media and advertising. Such images may not be perceived as instructional messages and may not trigger deep and attentive processing in the same way that unusual or even unprofessional pictures might.

4.3.3 A typology of picture functions in foreign language teaching

The research referred to so far does not focus on foreign language teaching and learning, and much of it cannot be applied directly to this domain. Indeed, functional taxonomies with specific reference to FLT are rare, according to Sturm, who has compiled a typology of practical uses of pictures in the foreign language classroom, which I translate, paraphrase and elaborate on here (cf. Sturm 1991: 7-9).

- Semantization: representational pictures used to clarify the meanings of individual words or of a piece of text. [6]
- Visualization of language structures: logical pictures (see above) may, if a structure lends itself to this treatment, make it easier to understand and remember.
- Impulses for producing texts: these texts can be oral or written and take the form of role-play; free and guided dialogues; associative, speculative or analytical comments; gap-filling exercises; memorization exercises; descriptions or comparisons of the pictures.
- Elucidation of learning procedures: organizational pictograms and symbols to indicate the type of exercise or activity intended (arrows, pointing fingers, little pens or highlighters in the margins, silhouettes of two or three heads indicating pair-work or group-work, etc.) ; coursebook 'mascots' are also ubiquitous: little cartoon figures which provide comments and explanations.
- Checking comprehension: learners can for example produce pictures on the basis of textual 'input'.
- Testing: many of the picture functions described here for teaching apply just as well to tests.
- Organization: used as advance organizers, pictures can facilitate text comprehension by showing situations and sequences of events, setting the scene and supplying details not mentioned in the text. They can also be used in a variety of matching tasks.
- Decoration: purely decorative pictures do not support learning in any way.

Sturm provides a condensed and slightly altered list of functions in Kast & Neuner's guide to evaluating coursebooks for German as a Foreign Language (cf. Sturm 1994: 86). Here he lists the five basic functions of visuals ('Bilder') as

- Cultural background information ('landeskundliche Informationen')
- Providing the basis for exercises ('Übungsanlaß')
- Explaining grammatical structures ('Verdeutlichung von grammatischen Strukturen')
- Aids to memory ('Merkhilfe')
- Decorations without any clear contribution to learning and teaching ('Dekoration ohne didaktische Zielsetzung'; *ibid*.)

[6] I will use 'semantization', an anglified form of the German *Semantisierung*, to refer to this function in discussing specific functions of visuals in FLT.

With regard to this last putative function, Sturm is particularly scathing: if the pictures in a coursebook cannot be defined in terms of their contribution to language learning, he states, they are superfluous. There is no evidence from research, he continues, that they increase motivation, or have any effect whatsoever (cf. too the findings by Levin et al. 1987). Indeed, he postulates that they might actually have a negative effect, 'da sie die Bereitschaft des Lerners, sich mit Bildern im Unterricht zu befassen, auch mit didaktisch sinnvollen, generell beeinträchtigen' (Sturm 1991: 9).

4.4 How to use visuals: guidance derived from research

4.4.1 General principles for using visuals

By way of summing up the lessons learnt from the research reviewed in their article, Levin, Anglin & Carney (1987: 73-77) and Carney & Levin (2002: 8-9) developed a set of humorously-formulated 'Commandments' for using pictures in prose. Among those most relevant for language teaching are Commandments 1-3:

> 1. Pictures shalt (*sic*) be judiciously applied to text, to remember it wholly.
> 2. Pictures shalt honor the text. That is, the picture needs to correspond to the text. As we have seen, purely decorational pictures do not improve students' learning of text content.
> 3. Pictures shalt not bear false fitness to the text. Conflicting pictures are most likely not helpful and may even hinder learning.
>
> Carney & Levin (2002: 8-9)

Commandment 5 ('Pictures shalt not be used with text cravin' for images') warns against supplying redundant images to accompany a text that 'directly elicits useful mental images' and, elaborating on Commandment 6 ('Pictures shalt not be prepared in vain'), the authors comment that 'Pictures are intended as text supplements rather than as text substitutes' (*ibid*.). Transferred to language learning materials, the latter principle is a vital one, since learners may have the illusion of understanding L2 input when in fact the picture has offered too *much* support and rendered language processing superfluous. In their 2002 article, Carney & Levin compiled 'ten tenets for teachers' partly based on the Commandments and partly revised to offer guidance to users of multimedia visuals for instruction (Carney & Levin 2002: 20-21). Some of the new additions relevant to FLT are summarised here:

- Pictures are particularly helpful with complex text; they can help form mental models of complex processes.
- For maximum benefits, instruct the learners to do something with the picture.
- In computer-based instruction (CBI), avoid separating picture and text on the screen: they should be contiguous or integrated with one another.

- Even design which takes cognizance of cognitive processes in learning 'may turn out to be functionally useless unless the learner perceives the illustrated content or process in the intended manner' (21).
- Teachers should learn how to create mnemonic pictures, and use them more often.

Levie and Lentz's conclusions from their extensive review of research literature suggested, like the Second Commandment, that 'the addition of pictorial embellishments will not enhance the learning of information in the text' (225). They also noted that learners 'may fail to make effective use of complex illustrations unless they are prompted to do so' (Levie & Lentz 1982: 226). Possible problems with complex illustrations were also identified by Dwyer in his research. The results of the series of studies Dwyer carried out suggest, according to Rieber, that

> pictures facilitate learning for adults under certain conditions. For example, people need sufficient time to scan and interpret visuals with highly realistic details. Richly detailed visuals require the learner to attend to and systematically scan the visual in search of essential learning cues. If insufficient time is given, students may actually choose to ignore the visuals and attend to the more familiar, printed text. When lessons are externally paced [i.e. not self-regulated, as in e-learning/CBI, P. S.], the most effective visuals are those that usually contain relatively small amounts of visual detail. (Rieber 1994: 147)

Dwyer found that realism did not automatically increase the effectiveness of visuals; both a lack of realism and an excessive amount of it could be detrimental. Rieber notes furthermore that 'Dwyer's research indicates that when learners are confronted with visuals containing too much information and too little time they frequently choose to either ignore visuals or attend to wrong or inappropriate information in the visual' (*ibid*.).

4.4.2 Attentive processing and processing instructions

Various researchers have considered why instructional visuals may not have positive effects on learning, and have offered guidelines for more productive processing of visuals in learning contexts.

Salomon warns that visuals do not automatically and effortlessly provide learners with mental models: 'For a visual to serve as a supplantor of learners' own task-relevant images, it must be processed in a less-than-casual way; it must be mindfully attended to, intentionally elaborated upon and committed to memory, much like what is required when lecture notes are taken' (Salomon 1989: 78). Tang (1994) shares the view that the meanings of instructional visuals have to be carefully attended to and worked out. As mentioned above, Tang found that

immigrant children were loath to use the visuals in their schoolbooks, even though these could have helped compensate for their language deficits, and concludes her article by proposing ways in which teachers could intervene to get children to make better use of visuals. In an online article, she criticizes the 'lack of directive reference to the illustrations' in the books she examined and suggests that teachers should

> help students to form the habit of referring to illustrations in textbooks and instructional materials regardless of whether they are directly referred to the in the text. They should draw students' attention to the illustrations, discuss examples from textbooks and from everyday reading, and give students guidance on how to read text and illustrations […]. Teachers have to discuss the illustrations, captions, and accompanying questions with the students and give specific instructions and practice on (*sic*) how to read, interpret, and use different kinds of graphics. (Tang 1994: 191)

Although Tang is speaking of young teenagers learning content subjects at school, certain aspects of the strategies she proposes (drawing attention to illustrations, discussing them and giving specific instructions for their use) could be equally well applied in the adult foreign language classroom. Her criticism of the lack of directive reference to illustrations is of direct relevance to FLT and will be returned to in the three empirical studies presented in the next three chapters.

Peeck suggests that children's visual literacy could be developed more systematically by including the comprehension of pictures and graphics in the teaching of reading comprehension, so that they 'would also learn to see illustrations as legitimate and potentially valuable sources of information' (Peeck 1993: 233). However, Peeck issues the warning that '[m]erely asking or telling learners also to pay attention to pictures in illustrated text is unlikely to induce more, or more intensive, picture inspection than what would otherwise occur on the basis of the nature of the text, pictures, learner characteristics, and their interaction', and points out that studies which compared 'intentional attention' to 'incidental attention' to visuals did not suggest that the instructions had had much influence on the picture's effectiveness (*ibid.*). The reason, he suggests, is that learners need more specific guidance on using the pictures. Peeck reports an experiment in which university students in three conditions (text only, text plus pictures without processing instructions, text plus pictures plus instructions to think what information the pictures showed, and how) studied a text about rat colonies. The plus-instruction group remembered the illustrated parts of the text far better than the other two groups, and 'also indicated the illustrations significantly more often as the source of their responses' (*ibid.*: 234). Although various other studies reviewed by Peeck indicate the efficacy

of specific processing instructions, he concedes that there is a vast difference between laboratory studies and more normal educational settings. Finally, he proposes the following hierarchy of 'instructional interventions', progressing from a small 'possible effect on picture processing' to a large one: 'Ask or tell student to pay attention to illustrations; Tell student what to observe in illustration in *general*; Tell student what to observe in a *particular* picture; Tell student to do something with illustration (compare, trace, locate, label, complete) *without* controllable product; [The same], but *with* controllable product […]' (*ibid.*: 235, original emphasis and punctuation).

Finally, Weidenmann documents an experiment in which 'good pictures' failed to produce the effects predicted by the information-processing approach to instructional visuals, and explores possible reasons for the failure (Weidenmann 1989). This study is frequently cited to demonstrate that despite strong evidence of the beneficial effects of visuals in learning from text, some studies have produced negative results. Yet, on (re-) reading the article, one is struck by Weidenmann's pronouncedly *pro*-picture stance, and by the fact that the article's message is not that the effects of pictures are overrated, but that they cannot realize their potential at all if they are not processed adequately. It is also striking that, although discernible in Schnotz's work, the central ideas in this well-known article do not appear to have found their way into mainstream thinking on visual representations in instruction. Weidenmann stated explicitly that his experiment was an exploratory study meant to raise questions for future research, but despite the vehemence of his arguments, there has been no subsequent shift - either in research or in instructional materials as such - towards a stronger concern with *explicit* picture-processing guidance. As noted before, the CLT and MER approaches tend to concentrate their research efforts on design and not on processing by learners. However, it is Weidenmann's writing about instructional visuals that has played the biggest role in developing the questions addressed in this thesis: and so a brief summary of them is presented here.

In a critique of the frequently cited taxonomies of picture types and functions developed by Levin, Duchastel & Waller and Levie & Lentz, Weidenmann objects that they by no means address all the possible interactions between the four variables *learner, task, text material* and *pictorial material*. He comments that 'pictures are always regarded as servants of the text: they have to represent it, organize it, explain it, help remember it, or compensate for its weaknesses' (Weidenmann 1989: 159); they are viewed as being there to help the learner attend to, understand and remember the text, rather than the text supporting understanding of the picture. And finally, 'the learning tasks in the empirical studies focus on the information conveyed in the text […] and exclude picture-only information. The functional model is heavily text-biased' (*ibid.*:

160). Weidenmann contends that a model which regarded pictures as equally valid sources of information would include these questions:

> What functions does the text serve for the picture? Does the text contain information which is relevant to the content of the picture, because the former interprets, explains, selects, clarifies, etc., the latter? […] What functions does the picture serve for the learning task? Is it essential or irrelevant […]? […] How does the learner use the picture? Is (s)he able to 'read' the picture? Is (s)he motivated to process the picture seriously in order to extract a maximum amount of information from it? […] How does the learner perceive the task? How does this perception influence the learner's processing of the material? (*ibid*.)

The hypothesis underlying the study reported in the 1989 article was not that informational pictures added to informational text would have beneficial effects. Weidenmann's hypotheses were firstly, 'Under conditions which raise the likelihood of an undervaluation of pictorial informativeness by the learner, the picture effect on understanding and recall of information will be markedly less than is usually observed in experimental studies' and secondly, 'Under these conditions, the usual picture effect can be restored with a specific instruction which increases the perceived informativeness of the picture by the learner, and which stimulates more intensive processing' (*ibid*.: 163).

Weidenmann argues that the very features of picture processing that are supposed to make instructional visuals such an efficient aid to building mental models, the fact that they can be decoded easily and (almost) instantaneously, may account for their not being processed adequately at all (*ibid*.: 162). He believes that researchers have tended to 'take it for granted that learners use the pictures as effectively as the designers of the learning material would have hoped', perhaps as a result of the 'wide-spread naïve conception' that pictures are easy to understand and that processing them requires little mental effort (*ibid*.: 161). The belief that they are faced with an easy task when they view an instructional visual leads people to process pictures superficially. Not only is text perceived as the proper vehicle for serious information, but its very nature enforces a different kind of encoding; a sequential 'mindful semantic processing' ((*ibid*.: 162). Pictures by contrast are processed with great speed and economy, and in a holistic manner: and this, Weidenmann maintains, is part of the problem in using them as vehicles of information. They are not perceived as informative because they are easy to decode; their potential to supply information may be undervalued 'because the subjective ease of encoding them at a superficial level may lead the learner to the illusion of a full understanding. As a consequence, the subject may stop the information processing after only a short glance' (*ibid*.: 163). This problem is exacerbated if they are combined with text, since

learners tend to concentrate their limited cognitive resources on the medium 'that is perceived as the more informative' (*ibid*.). To counteract this tendency, Weidenmann suggests that specific - as opposed to global - instructions to pay closer attention to the picture might ensure a deeper and more effective processing.

In the study which tested the hypotheses documented earlier, it emerged that the group with text plus pictures and picture-oriented instructions (which drew attention to the salient information contained in the pictures) performed significantly better in a subsequent test than the other four treatments, none of which had picture oriented instructions. Representational pictures, two photographs illustrating a short social psychology text, were used in the study. In discussing the outcome, Weidenmann remarks that representative pictures in particular may be perceived as non-informative and processed too superficially. Since most of the visuals in language learning materials are representational pictures, this implies that particular attention should be paid to appropriate processing in the FLT domain.

5 Discussion and implications

The current position regarding learning with visuals is that enough experimental evidence has accumulated to confirm that they do support learning, but that research has also shown that this will only happen if certain conditions are met. At present, researchers are exploring what these conditions are. Some of these avenues are of more relevance for mathematics and science teaching than FLT; however, the points made by Schnotz, Weidenmann, Tang, Levin and others about pictures' potential being wasted due to undervaluation and hasty processing, the need for explicit guidance and processing instructions, and for a general raising of awareness that instructional visuals require different and more attentive processing than pictures in other contexts are of direct relevance to the users and producers of materials for FLT. The central implications for the foreign language classroom that have emerged from this review of research are summarized here:

- unless visuals are perceived as important aids to learning and processed attentively, their potential as supports to learning cannot be realized;
- the choice and deployment of visuals has to be guided by a clear conception of their role in supporting learning;
- visuals used for purely decorational, motivational or aesthetic purposes should be avoided;

- the special instructional functions of visuals should be made explicit, and directive instructions supplied where necessary, to prevent their being ignored or undervalued;
- it may not be sufficient to rely on the form of visuals and instructional design alone to guide efficient processing;
- producers of instructional materials, teachers and the learners themselves can help to create the right conditions for the effective use of visuals.

CHAPTER IV
FUNCTIONS OF VISUALS IN MATERIALS FOR FOREIGN LANGUAGE TEACHING: A STUDY

1. Introduction: Aims, selection, method

1.1 Aims

The central aim of this chapter is to consider what the affordances and actual functions of visuals in the specific area of FLT are, given that most empirical research on visuals in instruction has been carried out in the domains of natural science and technical subjects. As noted previously, a study conducted in the domain of social science on the basis of a general theory of multimedia learning failed to discern any learning effects from visuals, and the authors concluded that different domains of knowledge and different disciplines require visuals appropriately tailored to their specific teaching methods and learning goals (de Westelinck et al. 2005). As a basis for exploring how and whether visuals in FLT are designed to meet language learning goals, the visuals in a number of FLT coursebooks were selected and analysed to see what functions they fulfilled, seemed to fulfil or were said to fulfil. How were they intended to support the learning of new material in the foreign language and the consolidation of language skills? How effectively, in terms of various criteria related to learning with visuals and the aims and goals of FLT, might they provide such support? The distinction between 'functions' and 'affordances' I make here is that a function is something that a visual does, whether intended or not, and an affordance is an action possibility, a potential function only, and consists in the relationship between the visual and its users. Since this relationship depends on the way the visual is processed and used, guidance from the producers of FLT materials that make the intended functions of visuals apparent (by general or specific processing instructions for instance, or simply in terms of the content and positioning of the visuals) can enhance positive affordances. For this reason, the analysis also examines the guidance provided for the use of the visuals in the materials.

A parallel aim of the chapter is to consider how a functional typology of visuals in FLT might be constituted. It has become clear that none of the more prominent work on general principles of learning with pictures has addressed visuals in the domain of FLT, and the analytical categories this literature proposes do not seem entirely applicable or relevant to materials for foreign language learners. To explore whether this impression is justified, in

analysing the sample of visuals, I apply a well-known general functional typology of instructional graphics as well as existing typologies of functions of visuals in FLT. But where they do not seem fully applicable, suggestions for further categories or alterations to existing ones are made, thus generating possible criteria for an extended typology of FLT visuals.

Finally, since the coursebooks analysed here were selected from those named by the teachers who responded to the questionnaire discussed in the chapter V, an additional aim of this chapter is to provide a fuller context for teachers' views.

1.2 Selection

While I have attempted to include all the coursebooks most frequently mentioned in the questionnaire data (see chapter V, 3.2.4), their inclusion also depended on their availability and on the foreign languages taught with them: since I am unable to read Polish or Russian for example, coursebooks for those languages had to be excluded from the study, even though they were mentioned several times. The teachers questioned were working in adult education, and most of the materials have been specifically designed for language courses in German Volkshochschulen. Such materials typically consist of a series of one to four coursebooks, starting with a book for beginners and going on to intermediate level. The teachers questioned in the study only specified the series they used, and not specific coursebooks and levels. For this analysis, coursebooks at A2, B1 or B2 levels on the Common European Framework of Reference for Languages were selected. Beginners' books were not analysed, since many beginners' activities are not representative of what language learners do in the language classroom once they have a basic command of a language. In all, sixteen coursebooks were selected for this analysis, some of them different books from the same series. Half of them are materials for courses in German as a Foreign Language, so as to reflect the preponderance of GFL teachers amongst the questionnaire respondents, and another four are for English courses, reflecting the next most common language taught by the respondents. In alphabetical order, with title, year of publication, first-named author (if more than two), publisher and level according to the CEF, the coursebooks were:

Caminos Neu 2 *Lehr- und Arbeitsbuch Spanisch.* (2005). Görrissen, M., et al., Klett, A2.

Delfin *Lehrwerk für Deutsch als Fremdsprache* (2002). Aufderstraße, H., et al., Hueber, B1.

em *[sic]* ***Hauptkurs***. *Deutsch als Fremdsprache für die Mittelstufe* (1997). Perlmann-Balme, M., et al., Hueber, early B2.

English Elements *Refresher B1* (2004). Morrison, S., & Roth, A., Hueber, B1.

Facettes 2 *Ein Französischkurs, Lehr- und Arbeitsbuch.* (1999). Bloumentzweig, A. Hueber, A2.

Moment mal! 2 *Lehrwerk für Deutsch als Fremdsprache, Lehrbuch 2.* (1997). Müller, M., et al., Langenscheidt, A2, early B1.

Moment mal! 3 *Lehrwerk für Deutsch als Fremdsprache, Lehrbuch 3 (1998).* Gick, C., et al., Langenscheidt, B1.

New Cambridge English Course 3 *Teacher 3, intermediate (1992.).* Swan, M. & Walter, C., Cambridge University Press, B1.

On the Move 3 *Teacher's Book (2001).* Cunningham, C., Klett, early A2.

On the Move 4 *Teacher's Book (2002).* Cunningham, C., Klett, advanced A2.

Pont neuF 2 *Französich für Erwachsene (1998).* Kosch, J., et al. Klett, B1.

Taal totaal *Niederländisch für Fortgeschrittene (2000).* Fox; S & van Keulen, S., Hueber, B1.

Tangram 2B *Deutsch als Fremdsprache, Lehrerbuch (2002).* Dallapiazza, R-M., et al., Hueber, B1.

Themen 2 aktuell *Kursbuch (2003).* Aufderstraße, H., et al., Hueber, A2.

Themen 3 aktuell[7]***,*** *Zertifikatsband, Kursbuch (2004)* Perlmann-Balme, M., et al., Hueber, B1.

Themen neu, *Zertifikatsband, Kursbuch (2002)* Perlmann-Balme, M., et al., Hueber, B1

In each case, the accompanying instructions to the teacher, usually contained in a separate Teacher's Book, were also examined to ascertain what kind of guidance the teachers were given in using the visuals (the list here shows only the learner's book in each case, insofar as the teacher's guide and coursebook were not available in a single volume). The books will be referred to in the remainder of the chapter as ***Caminos***, ***Delfin, em, Elements, Facettes, MM! 2, MM! 3, NCEC 3, OtM3, OtM4, Pont neuF, Taal totaal, Tangram, Themen 2 akt., Themen 3 akt.,*** and ***Themen neu.***

1.3 Method

1.3.1 Sample

Pages were selected for analysis from each of the coursebooks in the same way. To start with, the first two to four pages of the first unit, the ones likely to have the most impact on the book's users, were examined to see how visuals were used there, as this is where the user is introduced to the book's general approach to visuals and alerted to any particularities of this approach. After this, every twentieth page was sampled to see if visual elements were present. As the first unit often started on page five or later, the next page examined was page 25, and

[7] Themen 3 aktuell, Zertifikatsband, is essentially the same book as Themen neu, Zertifikatsband. It was included for the express reason that, according to the publishers' website, '**Themen aktuell** ist die aktualisierte und optisch völlig überarbeitete Ausgabe von *Themen neu*. **Themen aktuell** bietet durchgehend neue Zeichnungen und Fotos in einem modernen Layout' (Max Hueber Verlag, 2006). None of the pages in the sample contained new material, however. The drawings and photographs were the same as in the older edition, but enlarged or differently laid-out.

after that 45, 65, 85 and so forth. Only pages within teaching units were examined; glossaries and reference materials at the ends of the books were excluded. This yielded a sample of about seven to eight pages per book, enough to form an overall impression of the kinds of visuals referred to in the teachers' questionnaire. By selecting pages strictly by page number and not simply picking a few that had a strong visual element, it was possible to test the claim made throughout this thesis that materials for language teaching contain great numbers of pictures. And indeed, as explained in more detail under 'Findings', fewer than 30% of the pages examined did not contain photographs, illustrations or visuals of some other kind, excluding pictograms, geometrical forms enclosing verbal elements, symbols like arrows or speech bubbles and decorative elements such as frames, borders or areas of colour. Merely counting visuals is unenlightening, however, in view of the wide range of picture types, realizations and instructional potential. Collages, often using mixed media, are common in such materials for instance; and although they are rich sources of visual information, they present a problem of quantification. Are they to be regarded as one visual or as many? And is it possible to count the pictures that constitute them at all? The solution adopted here was to view collages as well as sequential visual narrative forms like comic-strips or photo-novellas as 'visual units' and count them as single 'visuals'. Nevertheless, there is a considerable qualitative difference between a full-page, full-colour photo-collage, and a stamp-sized drawing of a smirking kangaroo used as a space-filler. Thus a second count was made of 'large visuals', defined as those that took up approximately half the page or more and thus supplanted verbal text as the main focus of attention on the page.

1.3.2 Classification according to function

The pictures thus randomly selected were examined to see how they related to the language learning task or activity at hand, and then classified according to two of the typologies described in chapter III. This had the dual function of assessing the pictures' functions whilst also testing the respective typology's relevance as regards these particular materials. If certain kinds of functions not covered by the typologies seemed to be occurring repeatedly, new categories were proposed. Thus this part of the analysis also provided an empirical basis on which to generate additions to or elaborations on the existing typologies.

The first instrument used to analyse each picture or graphic was the taxonomy of 'communication functions of graphics' proposed by Clark & Lyons (2004) as a practical guide and checklist for designers and producers of instructional materials. Their taxonomy is based on that of Carney & Levin (2002), which in turn derives from categories first developed by Levin at the start of the 1980s.

Clark & Lyons' categories of graphics according to 'communication function' are:

1) '***decorative***' (when used for example to '[a]dd aesthetic appeal or humor');
2) '***representational***' (used to '[d]epict an object in a realistic fashion');
3) '***mnemonic***' (a graphic that can '[p]rovide retrieval cues for factual information';
4) '***organizational***' (to '[s]how qualitative relationships among *(sic)* two or more variables', as is done with various kinds of maps);
5) '***relational***' (to '[s]how quantitative relationships among two or more variables' , e.g. graphs or charts);
6) '***transformational***' (to '[s]how changes in objects over time or space, e.g. 'an animation of the weather cycle' or 'a video showing how to operate equipment');
7) '***interpretive***' (to 'illustrate a theory, principle, or cause-and-effect relationships').(Clark & Lyons 2004: 15)

The second typology has been developed from schemes proposed by Sturm (1990: 307-322; 1991: 7; 1994: 86) to classify visuals ('Bilder' in the original German) according to their practical uses in the foreign language classroom: this is a translation, amalgamation and elaboration of Sturm's categories, which were more fully discussed in the previous chapter.

1) ***Semantization***: representational pictures used primarily to convey the meanings of individual words or of a piece of text.
2) ***Visualization of language structures, explaining grammatical structures***: logical pictures, often providing visual metaphors to help learners understand and remember a specific structure.
3) ***Mnemonic function***: identical to that described by Clark & Lyons; often not clearly separable from the two previous categories.
4) ***Impulses for producing texts***: oral or written texts in the form of role-play, dialogues, discussion and comment, descriptions or comparisons: the texts may be completely open or strongly guided, as in gap-filling activities.
5) ***Elucidation of learning procedures***: organizational pictograms and symbols; coursebook mascots which comment on textual or visual input, or highlight important rules or exceptions.
6) ***Product of comprehension***: pictures learners produce on the basis of input.
7) ***Testing***
8) ***Organization, basis for exercises***: advance organizers for text comprehension showing the situational, non-verbal context or important content details; pictures used in matching tasks of all kinds; pictures in a variety of exercises.
9) ***Cultural background***
10) ***Decoration:*** purely decorative pictures do not support learning in any way.

1.3.3 Directions for use

Did the materials chosen for this study contain guidance for the use of the visuals, as the findings from research on learning with visuals suggest they should? To explore this question, any specific instructions for using the individual pictures or graphics in the sample were noted verbatim on the analysis sheets. There were two categories of instructions: those in the coursebook and addressed directly to the learner, and those in the teacher's book. Any general advice or information found in the introduction to the teacher's book or the coursebook was also noted. Of particular interest here were how far the production team elucidated their approach to visuals in terms of language learning functions and goals, whether they viewed them as an integral part of these goals or not, and the amount of general guidance they provided for the teachers as well as for the learners.

1.3.4 Illustrator(s)

The extent to which a coursebook's production team has focussed on the visual components of their product, and the degree to which the visuals have been integrated into their conceptual thinking from the outset can be gauged to some degree by looking at the status accorded to the illustrator(s) responsible for artwork created especially for the book, and at their provenance. Status is indicated for example by whether the illustrators' names are on the front cover with the authors' names or in small print towards the end of the title page. The illustrators' provenance is a detail of particular interest, since the teachers' responses to the questionnaire indicated strong agreement that it is important for the illustrator of a coursebook to have a good knowledge of the country or countries where the target language is spoken (cf. Chapter IV, 4.3). Inferences about the illustrators' nationality and/or first language were drawn from their names as well as the places they work from and any other relevant information on their websites or the title pages of coursebooks. Naturally, these details cannot indicate whether they know the typical environments of the target language well or have researched the countries in question thoroughly. Nevertheless, the underlying assumption I make is that 'native illustrators' are capable of offering - perhaps unconsciously - a bonus of authentic cultural information in their artwork which 'non-natives' may not offer: if the illustrator appears not to be a 'native', it is worth examining the illustrations to see whether they have been kept particularly bland and lacking in detail, or whether they contain culturally inappropriate visual information.

1.3.5 Data sheets

Information was gathered by recording data on two analysis sheets which were designed to provide a systematic framework for the evaluation of the coursebooks and the visuals. The first sheet, filled in for each new coursebook examined, contained the following categories:

- *course-book*
- *language*
- *year of publication*
- *level/addressees*
- *general instructions in coursebook?*
- *general instructions in teachers' book?*
- *further comments*
- *name of illustrator(s), nationality (or nationalities), credited how and where?[i.e. did the illustrator's name appear on the front cover or amongst other information on the title page, and if so, how far down? Was there any additional information about her or his contribution?]*

The second analysis sheet was used to record data about every page included in the study, coursebook by coursebook: the categories were

- *page no.*
- *VISUAL PRESENT? What?*
- *related to what exercise etc.?*
- *communicative function (Clark & Lyons)*
- *FLT materials-related function (Sturm)*
- *other functions*
- *instructions for use in coursebook (quote)*
- *instructions for use in teacher's book (quote)*
- *further comments*

2. Findings

2.1 Presence and density of visuals

As predicted, even with a sampling method that only selected a handful of visuals per book, the density of visuals was high. The 119 coursebook pages examined yielded a total of 199 visuals or visual units which met the criteria for inclusion in the count. In all, only 32 pages had none; most of these pages were devoted to systematic overviews of grammar. 34 large visuals or visual units, that is, visuals which dominated the page on which they appeared, were counted

2.2 Functions

2.2.1 Applicability of the typologies and count of functions identified

As explained above, one of the central undertakings of the analysis was to consider how, if at all, each picture or graphic could be classified according to two pre-existing functional typologies. Some time before all the visuals in the sample had been processed, it had already become clear that Clark & Lyons' 'communication functions of graphics' were largely irrelevant for the visuals in the foreign language coursebooks under consideration. The only categories in their typology to which visuals were frequently assigned were 'representational' (noted 56 times) and 'decorative' (30 times). While the findings about 'decorative' visuals are of interest,

since they indicate that a fairly large proportion of visual elements were not used for purposeful instructional ends, the finding that there are numerous representational visuals is both unremarkable and uninformative. The real question is what role they play in FLT-specific activities and how they support language learning goals; and the typology provides no insight into these. Applied uncritically, Clark and Lyons' categories might even misrepresent visuals with great potential value for the language classroom. For example, cartoons and comic strips, in their capacity of authentic texts from the target culture, may provide extremely useful language input embedded in a visualized situational context that conveys rich cultural background information. However, such visuals are not accommodated by Clark and Lyons' typology, unless under the heading of 'decorative'. As regards the other categories in this typology, only six visuals in the sample were categorized as 'organizational', three as 'interpretive', two as 'mnemonic' and one each as 'relational' and 'transformational'.

The FLT-specific typology based on Sturm's categories did prove largely applicable: two broad categories, 'impulses for producing texts', which was taken to include prompts for speaking, and 'organization/basis for exercises' were the most common functions identified (43 and 41 instances respectively). The next most common was 'decoration' (27), which overlapped largely with Clark & Lyons' 'decorative' function. 24 visuals were identified as clearly aimed at providing cultural background and 23 as primarily intended for 'semantization'. Nine visuals were assigned to the category 'elucidation of learning procedures'. For reasons that are not altogether transparent, Sturm himself assigns coursebook mascots to this category as well (cf. Sturm 1991: 9). Two mascots, Miam the croissant in Pont neuF and Olivia the olive in Caminos, appeared in the sample: both are cartoon-like figures used sporadically to explain specific points relating to language and culture. There were only four instances of visualization of language structures, and these were often minimal; an example is the visual metaphor of locomotives (complements) pulling carriages (adjuncts) to illustrate the positions of complements and adjuncts in modal constructions in German (cf. MM!3: 45).

2.2.2 Additional functional categories

A third column, 'other', was provided on the analysis sheets for functions of visuals that could not be comfortably allocated to either of the pre-existing typologies. It soon became clear that a number of functions were being recorded under 'other', and that some were recurring regularly. On the basis of these data, a number of additional categories emerged. It should be noted that Sturm mentions many of these functions in his doctoral thesis and the articles from which his typological categories are drawn, but they are not distinctly specified in his typologies. While some of the additional categories I identified are new, others are simply finer distinctions of

existing categories, designed to focus more closely on functions that emerged from the analysis. They are introduced here.

1) *Raising cultural or intercultural awareness*

Although *Landeskunde* did not appear in Sturm's earlier typology, it is on included in the 1994 list. The new functional category 'raising cultural or intercultural awareness' is viewed as distinct from 'cultural background' (in the sense of photographs or illustrations of the target culture provided as information). The visuals in this new category are ones that encourage comparison between cultural phenomena in the learner's own and the target culture. An example is a reading comprehension task in which 'Des Français parlent de leur maison' (Pont NeuF: 25). Four people 'speak' about their homes in four texts superimposed on a large photograph of a house. As each text describes very different living situations and philosophies, the photograph can be regarded as a fifth text. It shows part of an ordinary house and a sunny garden, both typically French: the house has shutters and curtained windows with divided panes rather than the large single pane typical of German windows. There is wisteria forming a canopy over the open French windows that lead straight into the garden and water-pipes running up the wall instead of concealed under the plaster in the tidier German fashion. At the side of a gravel walk, plants are growing in pots of various shapes and sizes and on the lawn in the foreground there is a deck-chair with a straw hat on it. The visually-conveyed message is that what a French person understands by 'la maison' may differ in significant respects from what a German understands by 'das Haus'; the picture serves to trigger intercultural reflections on homes and lifestyles, against which background the texts can be processed with deeper understanding.

2) *Contextualization*

Particularly in sequences where new language and structures are introduced, information about the overall situation and the surroundings, the actors and the nature of the interaction, their proxemic distance, posture, gesture and facial expression is essential. One example is a photograph, the first of the six, showing a person whose statement on sport begins as follows: 'Unser Fan-Club ist bei jedem Spiel dabei. Wir feuern unsere Mannschaft an und singen im Stadion' (MM! 3: 6). The speaker does not mention the sport, but one would assume it was football if the photograph did not show he is standing in front of an ice-hockey stadium. This creates a tension between the expectations aroused by the text and the visual information, which results in more attentive processing of both and may, ideally, elicit spontaneous comment. The photograph shows a young man or youth; he is dressed in full fan regalia, and the viewer learns what such regalia looks like; there are other people in the photograph, all

men, crowding eagerly around the ticket office; they are about to go into the stadium to watch a match, and the speaker's words are spoken in anticipation of it. In other words, the photograph contains a wealth of additional information that serves to contextualize the text.

Effective contextualization requires careful thought and cooperation between the photo-editor or illustrator and the authors. Both good and bad examples are provided by a strongly visual-reliant listening exercise in Facettes (8). The learners look at six cartoon-like drawings of people talking, read what one person in each picture says, and then listen to the responses of other people shown in the pictures. The task is to match the responses to the appropriate pictures and utterances. The first picture is a drawing of a man and a woman in the aisle of a train. The man asks, 'On se connaît, non?' (Haven't we met before?); the woman goes on to say where they met. The situation of boarding a train and meeting an acquaintance is a believable context for the exchange. Merely showing two people at a party or in a shop would not have contextualized the situation of a chance meeting and the pragmatic force of the utterance as clearly as this does. However, some of the utterances the illustrator has been required to contextualize simply do not lend themselves to visual support. For example, for a dialogue which starts with one woman asking another: 'Tu te souviens du prof de yoga?' (Do you remember the yoga teacher?) the speakers are shown chatting in a tea-room. It is hard to imagine a context that would have supplied helpful visual information to support this utterance, and the authors seem not to have given any thought to the task of the illustrator. Finally, there are two examples from the exercise in which the illustrations fail to contextualize exchanges adequately. The first shows two women in a clothes-shop (Fig. 1). One is telling the other, 'Je me marie en décembre et je m'installe à Grenoble' (I'm getting married in December and moving to Grenoble).

Figure 1: Bloumentzweig et al. 1999: 8. Reproduced by kind permission of Hueber Verlag.

According to the transcript in the teacher's book (11), the other woman responds, 'Tu t'maries! Ça, c'est une bonne nouvelle!' (You're getting married! That's wonderful news!) Peculiarly, the women are drawn with their backs to one another during this exchange, which appears to take place whilst both continue to examine items of clothing with identical complacent smiles on their closed mouths. Whilst a clothes-shop is an appropriate setting for female acquaintances to meet by chance and exchange news, the illustrator[8] provided no visual information to contextualize the speech act of congratulating someone. Another illustration on the page shows a woman in high heels saying to a man who is barbecuing chops (Fig. 2), 'On se fait la bise?' ('faire la bise' refers to kisses of greeting on alternating cheeks).

Figure 2: *ibid*. Reproduced by kind permission of Hueber Verlag.

There is nothing in the picture to suggest arrival or leave-taking however, and the pragmatic force of her suggestion is not supported by it in any way. Like the 'bonne nouvelle' illustration, it is a visual non-sequitur, and to this extent both illustrations impose extraneous cognitive load by including details and depicting scenes not motivated by the cultural background, the utterances or the task. Although neither exchange would be easy to contextualize visually, the striking dissonance between these illustrations and the textual information suggests that the authors may have chosen pictures from the illustrator's portfolio rather than commissioning then especially for the exercise.

3) *Humour*

As in advertising and packaging, there is a tendency in language teaching materials to use images that have the stylistic features of humorous visual or verbal-visual genres like cartoons

[8] Two illustrators are credited in Facettes: Daniela Eisenreich and Martin Guhl. The style of these illustrations differs clearly from Guhl's (cf. section 3), and so are assumed to be Eisenreich's.

or comic strips, even when these images do not in accompany or convey messages that are intrinsically humorous in any way. (The two coursebook mascots referred to above are cases in point.) As a result, learners are schooled not to expect amusing content when they encounter cartoon-style drawings and adjust their processing strategies accordingly. When a genuinely funny visual is used, it may be able to achieve its intended functions - buoying up classroom spirits, eliciting spontaneous comment, provoking discussion on intercultural aspects of humour - only if the coursebook's users are made aware that it really is there primarily to be funny

4) *Authentic visual-verbal texts*

Such texts are often comic-strips or cartoons from the target culture. They carry additional cultural information about graphic styles (cartoon and comic conventions tend to differ subtly from one culture to another), provoke intercultural reflection on styles of humour and familiarize learners with a cultural artefact that forms part of the shared everyday cultural knowledge of members of the target culture. They also frequently provide samples of authentic, often colloquial, language, whilst showing its situational context and non-verbal features. They also, if judiciously chosen, entertain and intrigue the learners, and so invite close and careful processing which promotes language learning. Examples in the sample were a 2-frame strip by Claire Brétécher in Pont neuF (45), and a full-page comic strip featuring Leo Verdura, the vegetarian lion, in Caminos (45). Other kinds of authentic visual-verbal texts encountered in the sample were graffiti (e.g. on the Berlin Wall, Themen 2 akt.: 105), newspaper advertisements and photographs of scenes including text in the form of street-signs, shop-signs, notices, slogans and logos on clothing, newspaper headlines, certificates, stamps, post-boxes and advertising in various forms.

5) 'Food for thought'

Coursebooks are normally structured around themes, with each new unit or chapter focussing on a different area of experience with its specific lexis, its discourse types and the areas of grammar particularly associated with it. Several of the coursebooks examined started each new chapter with a large visual unit, often a collage, designed to introduce the theme and activate vocabulary. In Caminos for example, there is 'una página introductoria', always consisting of visuals, at the start of each unit. Its intended function in the language classroom is clearly explained in the teacher's book: 'A través de elementos visuales como fotos o dibujos, se despierta el interés del alumno hacia lo que va a aprender a lo largo de la unidad y se activan conocimientos previos sobre el tema' (Caminos, Guía didáctica: 4). Pont neuF, which, like Caminos, is published by Klett, uses the same technique and has an almost identical statement in its teacher's book. It explains that 'la page d'accroche', the first page in each unit, has a

'fonction double de préparation aux thèmes qui vont être abordés et d'incitation à réactiver l'acquis. Elle est là en quelque sort pour planter un décor, présenter les différentes facettes de la leçon et donner envie aux apprenants de s'intéresser aux sujets annoncés'. By means of these collages of images and texts, 'L'apprenant est invité à prendre connaissance des documents, à les interpréter et à les compléter selon sa perception individuelle' (Pont NeuF, Guide pédagogique: 5). The final sentence in particular reveals a strong awareness of the affordances of good FLT visuals: they allow learners to bring their individual ideas, beliefs and knowledge of the world to bear in interpreting and completing the meanings of visuals. For where text, especially the simplified input necessary at this level, tends to be literal and prescriptive, rich and varied visual input that invites complex and sophisticated reflection can compensate greatly for the frustration felt by adult learners whose knowledge and competences are not called upon by the simple language they are restricted to. The new category has been called 'food for thought' to emphasize the ability of visuals in this category to provide intellectual nourishment and stimulation for adult learners that compensate for the linguistic limitations imposed by the FL classroom. In this analysis, the 'food for thought' category was used for any visuals, no matter how small or modest, that fulfilled this kind of function.

6) ***Elicitation of language***

The notion of the learner completing the visuals raises a key issue related to their function in the communicative language classroom. In relation to 'didactic picture stories' for language teaching, I have argued that:

> Wenn die kommunikative Kompetenz als übergeordnetes Lernziel anzusehen ist, so heißt das für den Einsatz von Bildgeschichten im FSU prinzipiell, daß sie **immer zu sprachlichem Handeln (im aller weitesten Sinne) auffordern und einladen sollen.** Das erreichen Bildgeschichten, wenn sie - auf welche Weise auch immer - unvollständig sind, wenn sie Leerstellen haben, die eine **sprachliche** Ergänzung verlangen, und wenn sie anhand von Verfahren der Irritation und Verfremdung oder durch affektbesetzte und/oder rätselhafte Darstellungen zu einer sprachlichen Reaktion anregen […]. (Skorge 1993: 127, original emphasis)

The use of visual materials with inbuilt gaps or puzzles which the learner is prompted to bridge or solve by using (the target!) language holds good as a general principle for any visuals in FLT materials, insofar as they are intended primarily as a basis for producing language. The 'elicitation of language' category is viewed as a refinement of the existing category 'impulses for producing texts'. The suggestion here is to use the category 'impulses for producing texts' for the cases where instructions are needed to explain how to use pictures to perform a task or

activity ('look at the pictures and write down three differences between them' for example), and 'elicitation' for those cases where the need for verbal completion or comment is self-evident. An example is the photograph in New Cambridge English Course 3 (105) of a woman wearing a shoe on her head, a belt around her neck, sunglasses on one wrist and a scarf around the other.

7) *Addressing the learner*

It has already been noted that it is unclear why mascots should be assigned to the category 'elucidation of learning procedures', where they were originally placed. The mascots in the sample, Olivia the olive and Miam the croissant, are used mainly to explain points related to culture, language and usage, and they usually address their remarks directly to the learner. More frequently however, the reader is addressed by human representatives of the target culture rather than by talking food. The impression of a personal encounter is created mainly by visual means, often using photographs of people looking straight at the camera and accompanied by text in the first person. For example, at the start of Caminos, a dark-haired, smiling young woman, fashionably but not too formally dressed, looks directly at the reader and introduces herself: 'Me llamo Marisela Álvarez' (Caminos: 6). Marisela goes on to talk about her name, names in her family and Spanish names in general. Apart from prompting reflection on intercultural differences in naming conventions and acting as advance organizer for the speaking task which follows, the text and above all the photograph carry a number of less overt messages: Marisela is a confident young European whose physical features are clearly Iberian, but otherwise her clothes, accessories and bearing are no different from those of her German counterparts and invite identification on the part of the learner group targeted by the book. Similarly, a text on 'Hispanos en los Estados Unidos' (*op.cit*.: 85) is accompanied by a photograph of a self-possessed young Latina dressed in jeans and a bandana, tokens of her U.S. American identity. She too is looking directly at the reader, and the suggestion is that this is a personal encounter with a representative of the Hispanophone population of the USA. In MM! 3 (6), six personal statements on sport are accompanied by photographs of the people making them. Most of the speakers seem to be looking directly at the reader, so that one encounters not only widely different attitudes to sport, but also the individuals who hold them; from their appearance and surroundings, the viewer learns more about them and their widely different life-styles and life-situations. As in the other two examples in which personal encounters with representatives of the target culture are staged, the underlying message is that these ordinary people from the target culture are individuals like oneself, approachable, articulate and eager to exchange intercultural views.

8) *Grammar focus*

Some visuals in FLT materials are chosen or created to support work on a specific area of grammar or usage. Visuals may do this in a wide variety of ways: they may depict a situation in which speakers would be likely to use a given structure, or provide prompts for practising it in various contexts, or offer visual information to be compared, contrasted or commented on using specific grammatical phenomena. In one instance from the sample, six German reflexive verbs (sich zunicken, sich umarmen etc.) are introduced together with six small photographs, each showing two people performing one of the actions (Themen neu: 8). The visuals also have a semanticizing function and possibly a mnemonic one as well, as the learners are asked to match the verbs and photographs. The grammar focus is paramount though: the pictures show above all that the 'sich' is related to the fact that all the verbs designate actions performed simultaneously and mutually between two or more people. The grammar focus function, though incorporated into the wider area of visuals as a basis for exercises by Sturm, is one of particular importance in FLT materials, and thus warrants its own category.

9) Guiding and aiding comprehension

Although visuals may be used to test comprehension (for instance when learners are asked to put pictures into the correct chronological order or to match pictures and short texts), they are far more frequently used to support reading or listening comprehension by providing essential information about context, participants and situation. These functions are included by Sturm under 'organization', but are of especial significance in the language classroom, and so this function too has been put in a separate category.

10) Space-filler

This is a further subdivision of the 'decoration' function, which both Clark & Lyons and Sturm regard as redundant and potentially detrimental, since it encourages superficial processing of instructional visuals in general. I would propose the 'decorative' label for visuals not added as an afterthought, but planned in from the beginning for aesthetic purposes. To make the distinction clearer, first consider an example of a decorative visual from unit one, exercise one, of Elements. A large, coloured picture depicts a group of elegantly-dressed men and women … doing what? Several are holding bits of paper, and one has a pen, so it may be related to the instructions on the page: 'a) By now you'll have heard the names of all the people in your English course. Write down as many of them as you can remember on a note pad' and 'b) Compare your list with a partner' (*sic*; Elements: 8*)*. The puzzling thing is that the people are apparently dressed for a high-level business-meeting or cocktail party, and they appear to be out of doors, in front of a building: they are standing on flagstones and there is foliage in the

lower right-hand corner, but no chairs or tables. The teacher's notes contain no reference to this gathering, although it presumably depicts people comparing their lists of names, as the Volkshochschule course members have been asked to do. But since it depicts an activity that is going on in the classroom anyway, the visual is redundant as a source of information and so its main function must be decorative.

A space-filler differs from a decorative visual in that it has not been planned in from the outset, but commissioned after the text layout has been completed because the editors think there is too much empty space on the page.[9] An example of a space-filler is found in the same Elements coursebook, where a grammar exercise on 'much' and 'many' includes an illustration of a wallet with some coins floating nearby and folded banknotes protruding from its interior. To the illustrator's credit, she has sketched a few faint lines which suggest Queen Elizabeth's crowned head on one of the banknotes, thus providing valuable cultural background information. The graphic, approximately 6x3cm in size, accompanies an exercise in which the learners are instructed to ascertain 'Who's extravagant?' by asking their fellow learners, 'How much money do you spend on: sport/your hobbies? a week?' (*sic*; *op. cit*.: 25).

Further examples of space fillers are a listening comprehension exercise in OtM 3 in which the excerpts heard have to be matched to statements such as 'She's an employee' and 'She's unemployed' (OtM: 88). These short sentences take up only the left-hand side of the page, and in the space left on the right there is a photograph of a woman emitting a speech-bubble containing the text 'I'm a freelancer'. The woman is well-groomed, business-like and busy; she is sitting at a computer and although there are blurred shapes in the background, it is not clear where she is. The picture contains no information about the meaning or implications of being a 'freelancer', other than that freelancers are busy and use computers. A final example of a space-filler accompanies an exercise in Elements in which students are asked to read a letter and talk about what one can do on holiday in Australia (Elements: 59). Below this, in a second step, they are asked to read the letter again and fill in a diary for the trip. As these instructions take up very little space, a drawing of a smiling comic-strip kangaroo has been included to the left of them. The drawing unquestionably balances the composition of the page and adds visual appeal, but these are design considerations, and not instructional ones. .

11) 'Vizyools'

In analogy to the term 'muzak', a brand name which has come to signify the kind of featureless instrumental music played in hotel lobbies and on taxiing planes, I suggest the term 'vizyools'

[9] I base this assertion on personal experience as a freelance illustrator.

for pictures which have been taken out of their proper context and deprived of their intended meaning, or which have been designed on purpose to be soothingly meaningless. An example from the sample is a photograph of a bathroom in the English coursebook OtM 4, which accompanies a text, *in German*, on the British origins of modern plumbing (25). Since the picture shows a generic western bathroom without any distinguishing features, it cannot have been included to encourage intercultural reflection. The text it flanks is not especially short, so the bathroom picture cannot be there to fill space alone: hence it has been classified as a 'vizyool'. The difference between a vizyool and a decorative visual is that the latter is supposed to motivate the learner by virtue of its aesthetic appeal or humour, whilst the former is intentionally bland. The difference between a vizyool and a space-filler is that space has to be created to accommodate a vizyool, rather than the vizyool being used to fill space.

2.3 Directions for Use

2.3.1 General directions

The introductions to each teacher's book and each coursebook were examined to ascertain if there was any general guidance on how to use visual materials in accordance with the production team's approach and their vision of the role of visual materials in the course. Of the books in the sample, only Delfin provides a manifesto on the use of visuals which explains how they are integrated into the overall approach and the specific goals they are designed to fulfil in the classroom. One of the 'Besondere Charakteristika von Delfin' is the 'Funktionale Verwendung von Bildelementen: Die Zeichnungen geben Verstehenshilfen bei allgemeinen Themen, Fotos sind immer an eine konkrete Situation gekoppelt, das heißt, sie gibt es immer bei den Hörverstehenstexten und bei bestimmten Textsorten (z.B: Reportagen). Die Bildelemente haben immer etwas mit dem Verstehen der Inhalte zu tun und können über die einzelnen Übungen hinaus vielfältig weiterverwendet werden' (Delfin, Lehrerhandbuch: 9) The visual elements have well-defined and well-considered functions, but the introduction also points out that 'die Fotos, die Zeichnungen und die Texte' -note the order in which these are listed - 'viele Anregungen für Unterrichtsaktivitäten enthalten, die über die eigentlichen Aufgabenstellungen hinausgehen und so für einen anregenden und individuellen Unterrichtsverlauf sorgen' (*op. cit*.: 13); that is, the importance of visuals as impulses for freer activities in the language classroom is acknowledged as well. In addition to outlining the overall approach, the introduction to the teacher's book explains the role of visuals in specific kinds of language work. At the start of each chapter for instance, where new materials are introduced, the drawings support the understanding of the situation and the language materials; in this phase, '***Die Zeichnungen*** […]dienen dazu, neues Vokabular zu semantisieren, die situative

Einbettung der Sätze/Texte zu zeigen und so auch die verwendeten grammatischen Strukturen deutlich zu machen' (15, original emphasis). The learners start this phase by looking at transparencies showing the visuals on their own without text. This activates relevant language but also allows them to bring their knowledge of the world to bear on the topic. Enlarged or isolated images of elements taken from the drawings are used in this phase to focus attention on them for further activities. Having given visual materials this central role in their coursebook, the Delfin authors point out that the learners need to be equipped to deal with them, and urge the teacher to build up an '***Inventar an Redemitteln für die Kommentierung*** von Zeichnungen, Abbildungen, Situationen' (*op. cit*.: 16, original emphasis) that grows lesson by lesson. Curiously, although the foreword of coursebook itself explains the overall structure and concept of the book, the learners are not alerted to this probably unfamiliar treatment of visuals. Nevertheless, the explicit and detailed explanations of the visual concept in the teacher's book is exemplary, since it focusses the teacher's attention on specific, concrete and comprehensible functions that the visuals are intended to play as no other coursebook in the sample does.

The use of visuals in MM! 2 and 3 is also productive and well-considered; visuals provide important support for language learning tasks and activities, although neither the teacher's books nor the coursebooks provide an explicit overview of the intended functions of visuals in their introductions. Nevertheless, they do explain the use of visuals in specific areas. For example, the criteria for the presentation of grammar are described as 'Verstehbarkeit, Behaltbarkeit und Anwendbarkeit - durch anschauliche Darstellung anhand konkreter Beispiele' (MM! 3, teacher's book: 37); this approach evidently draws on research in the field of educational psychology and is illustrated with an example of an interpretive graphic from the book.

Other coursebooks also mention specific functions of visuals in their introductions, rather than formulating a comprehensive approach: for example, in Tangram the teacher receives this guidance: 'Und den etwas anderen Sprechanlass zur Wiederholung und Zusammenfassung? Den finden Sie am Ende jeder Lektion im Kursbuch in Form eines **Cartoons**' (Lehrerbuch 2B: III, original emphasis). Notice here how both the bold type and the suggestion that the cartoon is an out-of-the-ordinary basis for language practice reinforce the idea that visuals are not viewed as a normal or closely-integrated part of the course.

The introduction to Taal totaal gives a theoretically-grounded explanation of its overall approach, citing the CEF: 'in plaats van het leren van woordenschat en grammatica zoals vroeger, leer je tegenwoordig je taalhandelingen in 'scenario's', dus in verbindingen tussen

context en cotext' (De Europese Talencertificaten, Certificaat Nederlands, Leerdoelen en testformaat, quoted in Taal totaal, Docentenhandleidung: 9). The author goes on to explain that 'Scenario's kunnen naast verbale communicatie ook niet-verbale communicatie (bijv. gebaren, mimiek) bevatten' (Translation: Instead of teaching vocabulary and grammar as done earlier, today one teaches speech acts in 'scenarios', i.e. in associations between context and cotext […]. In addition to verbal communication, scenarios can also include non-verbal communication [e.g. gestures and facial expression]). Without being referred to explicitly, visuals are strongly implicated in this approach. It is disappointing then to discover for example that the drawing on page seven of a scene in which a crowd of adults are gathered in a flat celebrating 'een typisch Nedelandse verjaardag' (Taal totaal, Docentenhandleidung: 14; see Fig. 3), includes no details that would distinguish the event from a typical German birthday party. In addition, although the essential role of gesture and facial expression in scenarios has been emphasized, all 15 people in the scene have identical happy smiles and black-dot cartoon eyes (which means that the expressive potential of the eyes cannot be realized).

Figure 3: Fox & van Keulen 2000: 8. Reproduced by kind permission of Hueber Verlag.

Two men on the left, Remco and Gerrit, are, for example, depicted grinning broadly at one another as they conduct a conversation that begins with the following exchange:

'Remco: En, hoe gaat dit met je?

Gerrit: Pffffff, nou ja, het gaat zo z'n gangetje.

Remco: Dat klinkt niet echt vrolijk.' (*op. cit*.: 18; loose translation: R: So how's it going then? G: mmmph, oh well, chugging along, I suppose. R: That doesn't sound too good.) From the transcript of this recorded material we learn that both of them are worried about specific problems (Gerrit is overworked and Remco is unemployed), which they proceed to discuss at some length. At no point do they say anything that would warrant the beaming smiles they have been given in the illustration. Rather than helping to place the dialogue in context by means of non-verbal cues, their facial expressions are inappropriate and confusing. Thus while the coursebook's author embraces the CEF's guidelines in theory, they were not realized in this illustration. Indeed, since the illustrator (Bernd Ofczarek) is German, the question also arises as to whether he was sufficiently well briefed on the content and communicative intentions of the listening text.

2.3.2 Specific instructions

In this section, examples of effective instructions to the users of individual pictures and graphics will be presented by way of illustration. As a general finding however, it must be stated that the coursebooks in this sample do not normally provide directions for the use of visuals, either in the teacher's book or the coursebook. The data contained 30 instances of explicit instructions in the coursebooks, and 38 instances in the teacher's books (recall that data were gathered about nearly 200 visuals). This count includes simple instructions such as 'Look at the cartoons. Tell other students what you think about them. Find out which are the most and least popular cartoons. Useful expressions: I don't see the joke [etc.]' (NCEC 3: 25) as well as detailed instructions such as 'KT [i.e. Kursteilnehmer/innen] müssen zunächst erkennen, welche Personen unzufrieden sind und welche nicht, KL [i.e. Kursleiter] fragt deshalb: *Welche Personen sind zufrieden, welche nicht?,* danach gibt er zwei Beispiele vor: *Die Krankenschwester: Sie ist zufrieden, obwohl sie nachts arbeiten muss., Der Junge: Er ist unzufrieden, weil er nach Hause gehen will.;* Übung als Kettenübung mündlich (evtl. in Einzelarbeit schriftlich vorbereiten lassen)' (Themen akt. 2, Lehrerhandbuch: 16). This example refers to an exercise using eight small cartoon-style drawings of happy or unhappy people under the heading 'Zufrieden oder unzufrieden?' (Themen akt. 2, Kursbuch: 25); phrases such as 'nach Hause gehen wollen' are provided together with sentence patterns below the drawings, so there is added textual support for processing them.

While it would be absurd if every visual were accompanied by a pedantic instruction to look at the picture and say what it shows, there were a number of cases in the sample in which explicit instructions about the intended functions would have enhanced the effectiveness of the visuals, as well as instances where it would have been advisable to ask what the pictures

showed before doing the exercise (cf. in this regard the findings in chapter VI, which demonstrate that picture interpretations in the language classroom may diverge widely). The meanings of the eight little drawings from Themen aktuell 2 just referred to, for example, are not all self-evident. For a start, what one person sees as a vintage Rolls Royce in front of a mansion (indices of wealth) in the first picture might be interpreted by another as an old car in front of a tenement building (indices of poverty). But except where the task in question made deliberate use of ambiguous pictures and focussed on negotiating their meanings (cf. the discussion of em that follows), the sample did not include any explicit instructions that suggested the participants should decide what pictures meant before performing a task based on them.

The pages sampled from em provided several examples of good processing instructions. The first reading comprehension exercise in the book begins with a large photograph of a solemn Native American in an elaborate headdress; it is part of an authentic text, an advertisement. The instructions in the coursebook request the learners to look at the picture and say whether they would like to meet the person. It continues with these questions: 'Handelt es sich um einen Mann oder eine Frau? Woran erkennen Sie das? Wie alt ist die Person? Wofür könnte dieses Foto Werbung machen?' (em:11). Especially since the person's gender is not clear, the task requires close attention to the photograph and makes productive use of it to elicit comments and discussion. The information in the teacher's book clarifies the aims of the questions: 'Wichtig ist, dass die TN [i.e. Teilnehmer/innen] für die Merkmale verschiedener Textsorten sensibilisiert werden. Die assoziative Bedeutung von Bildern in der Werbung soll deutlich gemacht werden' (em, Lehrerhandbuch: 16). In a section on learner types in the same coursebook, cartoon-style drawings are used effectively in a matching exercise to semantize the terms 'der haptische Lerner, der audio-visuelle Lerner' etc. (em: 25). The teacher's book explains what each cartoon is supposed to depict, ensuring at the same time that the teacher knows what the terms mean: this for example is the commentary for a picture of a man holding a book labelled 'Deutsch' and touching an apple at the same time: 'Abbildung 2, der Mann, der Buch und Obst gleichzeitig in der Hand hält, soll den haptischen Lerner symbolisieren. Er kann erst wirklich "begreifen", wenn er die Dinge, um die es geht, auch einmal mit den Händen berühren, also "begreifen" darf' (em, Lehrerhandbuch: 21). Text is used here to clarify the intended meaning of a picture in a case where the concept cannot be conveyed unambiguously by purely visual means, and in so doing provides 'information which is relevant to the content of the picture, because [the text] interprets, explains, selects, clarifies, etc., [the picture]', as Weidenmann (1989: 160) emphasizes it should. Cases in which a verbal

explanation supported the understanding of a visual were exceptionally rare among the data, however.

These two examples from em demonstrate well-considered uses of visuals in stimulating activities. However, as in several other coursebooks, this serious focus on visuals vanishes abruptly as soon as the activity in question does not centre on a visual. For instance, the first unit of em begins with instructions for two ice-breaker activities for the first meeting, both based entirely on verbal interaction between the participants (9). The instructions for these activities appear underneath a photograph of three good-looking young people sitting in the sunshine and having a conversation (there is nothing whatsoever in the picture to suggest that they are at the first meeting of a language course, and thus identification figures for the book's users). Above the photograph, the theme of this first unit, 'Menschen', appears in fat capitals. As the photograph has no connection with the classroom activities, has the picture of the three people been included in case the learners have not encountered any 'Menschen' before? Or are these three young people aliens in disguise? After all, the introduction to the teacher's book tells us this: 'Jede Lektion beginnt mit einem Foto als Sprech- oder Schreibanlass, was einen spielerischen Einstieg ins Lektionsthema möglich macht. Dabei ergeben sich *meist viele verschiedene Deutungen des Bildes*. Die Vieldeutigkeit ist gewollt, denn auf diese Weise entstehen interessante und immer wieder aktuelle Sprechanlässe' (em: 7, my italics). The photographs that introduce the subsequent chapters do indeed have rich potential for eliciting comment and discussion; but this one does not. Could it be that, since the instructions for the ice-breaker activities did not take up much space, someone whose priorities were design and not instruction added the photograph of the 'Menschen', a decorative visual without any language-learning function, to make the opening page more attractive? It is unfortunate, given the authors' unusual appreciation of the affordances of visuals in the language classroom and the very specific role played by ambiguous images in their overall concept, that the first large visual the learner encounters seems to signal that, in this book, large photographs are nothing but meaningless decoration.

An example of effective guidance in the use of visuals with a grammar focus is provided in an exercise in Facettes 2. The instructions in the coursebook are: 'Pourquoi ont-ils changé de vie? Regardez les illustrations <<avant/maintenant>> et imaginez ce qui s'est passé entre-temps' (Facettes 2: 45; translation: Why did they change their lives? Look at the 'before and after' illustrations and imagine what happened in between). There follow two three-frame picture-stories, each with the middle frame missing. At the start of each, the protagonists are shown doing their original job. Further guidance is provided by a caption under each: 'Il était

psychothérapeute'; 'Elle était hôtesse au sol' (he was a psychotherapist; she was a ground hostess [for an airline, we learn from the picture]). Particularly in the case of the woman, the caption and the picture are essential complements to each other's meanings; neither would be completely clear on its own. The middle frame contains only a large question mark, and the final one shows what the protagonists are doing now, again with a caption: in the woman's case it is 'Elle dirige un atelier de décoration florale' (she runs a floral arrangement studio); once more the text and image complement each other productively. Although the captions have been included primarily for the contrast in tenses, the exercise is a further example of using text to serve the picture.

Finally, in MM! 2, an unusual graphic is used in a section on age and ageing. It is a symbolic drawing (one of the few in the sample that could be classified as 'interpretive' according to the Clark & Lyons typology) by a 70-year-old woman, who has called her picture 'Verständigungsversuche' (MM!2: 25). The untutored sketch shows a steep hill or curve with stick figures going up one side and down the other, with arrows, wavy lines and hearts in the middle. The coursebook gives these instructions for an initial speaking task: 'Eine Zeichnung verstehen. Was ist das? Was sehen Sie?' (*ibid.*). The artist explains the symbolic meaning of her picture in the accompanying text. Further instructions to the learner are 'Lesen Sie den Text und vergleichen Sie mit der Zeichnung (*sic*). Hat die Frau Recht?'(*ibid*.). Lastly, there is this instruction to the learner: 'Bilder entwerfen. Was für eine Beziehung haben Sie zu älteren oder zu jüngeren Menschen? Zeichnen Sie oder schreiben Sie' (*ibid*.). The sketch, which is clearly authentic and not an artist's imitation of an untutored drawing, is so unlike other coursebook illustrations and so puzzling, that a viewer would automatically seek clarification from the text. As one reads the explanation, one returns to the picture, examining it closely to make sense of the features described. In other words, text and visual interact to make the woman's views clear, although text plays the supporting role. This is another of the few instances in the sample in which Weidenmann's vision of a functional model in which text serves pictures as much as pictures serve text finds expression.

3 Illustrators

In the materials analysed, the status of the illustrators differed greatly from one coursebook to the next. In the case of MM! 2 and 3, the illustrator Theo Scherling, who has had a major influence on GFL coursebook illustration since the original Deutsch Aktiv series appeared in the 1970s, is listed on the front covers as one of the authors, and credited on the title pages as being responsible for the 'Visuelles Konzept, Gestaltung und Illustrationen'. The Moment mal!

series provides evidence of how effectively visuals can be used if the team of authors includes an expert in the area. The other coursebook in the sample conspicuous for its well-conceived visuals is Delfin (cf. 2.3.1). Interestingly, this was the only other series in which the credits (on the first inside page, if not the cover) give equal prominence to the authors and the illustrator, Frauke Fährmann. It is also interesting to note that both Fährmann and Scherling have styles which do not appear as slick and professional as those of other illustrators such as Bernhard Ofczarek, whose work will be discussed presently. Fährmann's style uses features of drawings produced by children and young teenagers, with disproportionately large heads, over-long limbs, a seemingly immature grasp of perspective (cf., for example, the illustration of the racecourse in Delfin: 105). The naivety is only feigned, however, as the illustrations are skilfully composed and the disproportionate elements chosen to highlight visual information that supports the language-learning activities. The awkward and apparently clumsy pictures is evidence of a sophisticated understanding of effective instructional visuals. The very fact that Scherling's and Fährmann's illustrations are not easily-digestible, that they do not resemble images on packaging, in advertisements and in magazines, that they are complicated and detailed and their meanings are not always immediately accessible means that the viewer cannot process them hastily and superficially. Instead, learners and teachers have to look at these images carefully and take time to establish their relevance to the task at hand. By enforcing attentive processing, the illustrations increase their potential for supporting the learning activities.

Two other illustrators' names appeared several times in the sample. Martin Guhl is credited as illustrator in all three of the Themen coursebooks examined, as well as in Facettes and in em. Guhl is a professional cartoonist based in Switzerland. He is apparently multilingual; his website is in English and contains sample cartoons in both German and French on a variety of topics and in varying styles. He works for a wide range of clients and produces made-to-order cartoons on various subjects; there is no evidence that he was part of the teams that did the conceptual planning of the coursebooks. In some coursebooks (e.g. Facettes) his contributions are credited to the cartoon agency Cartoon-Caricature-Contor in Munich, which suggests they may not have been specially commissioned for the coursebook at all, but selected from an archive. Guhl's illustrations are accomplished and versatile, but do not always challenge the viewer and run the risk of being processed too superficially or ignored.

Bernhard Ofczarek, who is based in Cologne, is credited as the illustrator of Tangram and as one of the illustrators of Taal totaal. He has worked on other projects in the German FLT branch, notably a comic-book for teenage learners of German. His contemporary comic

style is visually very appealing and technically of a high quality, but like Guhl's may not always provide enough of a processing challenge to support learning effectively.

Of the non-GFL coursebooks, only two had illustrators from the target culture: the authors of New Cambridge English Course, a CUP publication produced in the UK, credit a number of illustrators, all of whom have English-sounding names and can be assumed to be 'native drawers'. On the title pages Swan and Walters pay tribute to the illustrators 'for their talent and their willingness to work to an exacting brief': this is the only book in the sample where the illustrators are thanked in this way, and where there is an implication that the authors supervised the illustrators. Of the coursebook series produced specifically for adult German learners of other languages, Pont NeuF is the only one in the sample where the visual elements have been provided from within the target culture. Its illustrations are credited to Thierry Duchesne, Agence Delcourt, Paris and its layout to Patrick Deiller, Paris. The authors evidently believed that it is important that visuals should be produced by illustrators and designers from the target culture, and this standpoint is strongly corroborated by the teachers whose views are reported in the next chapter. Apart from the GFL coursebooks, all the other coursebooks from the German adult education sector were illustrated by people who, going by their names and the places they are based in, are not 'native illustrators'. Taal totaal is illustrated by Bernhard Ofczarek (Cologne) and Katja Gehrmann (Hamburg); Facettes by Daniela Eisenreich (Munich), Martin Guhl and Hans van Arkel; On the Move by Beate Klauder; Caminos by Franziska Rosentreter and Marlene Pohle, and English Elements by Reinhard Wendlinger (Munich). However, as stated earlier, the assumption that they are not from the target culture is mere inference based on the illustrators' names and the locations of their studios. These minimal facts are not evidence that they are unfamiliar with the cultures concerned or that they did not do extensive research for their illustrations.

4 Discussion, implications, proposals

4.1 Reflections on the analysis

Although there were numerous visuals in all the coursebooks examined, the overall approach to them differed strikingly from one book to another. In some of the course materials (Delfin, Pont NeuF, MM!, NCEC and Caminos for example) visual elements play a prominent, well-integrated role in the basic instructional design. In others, such as Elements and OtM, the visuals did not appear to be integrated into the general approach at all. Some coursebooks appeared from the teacher's guide to have an enlightened approach to visuals, but failed to

implement it consistently (examples from Taal totaal and em are cited in 2.3.1 and 2.3.2). The discrepancies in approach seem unrelated to the publisher: Taal totaal, em and Elements are all published by Hueber, but so is Delfin, whose teacher's guide contained an explicit manifesto on the use of visuals in the coursebook. The currency or otherwise of the coursebook also did not seem a significant factor; NCEC, published in 1992 and the oldest book in the sample, makes exemplary instructional use of visuals.

But is it surprising that there are such extreme discrepancies in the coursebooks' treatment of visuals? Are the books not widely different in other respects as well? Yes, they are; but nevertheless, in all of them, one encounters a familiar set of core premises about language teaching that reflect a shared consensus on basic principles in contemporary FLT. However, no corresponding consensus on a set of essential principles for dealing with visuals in FLT materials can be discerned. To be sure, many of the authors do use graphics productively: but in general this seems to emerge in an unreflected way from an expert understanding of effective foreign language learning and teaching, rather than from familiarity with guidelines for the effective use of pictures derived from research. This would account for the lack of consistency and absence of shared principles in the use of visual materials.

A final point for reflection is that in many of the materials here, the traditional division of labour between authors and illustrators is apparent. Authors, it seems, continue to see linguistic phenomena and language acquisition as their area of expertise and to regard visuals as peripheral to FLT. Illustrators seem not to receive instruction on the intended instructional effects of their illustrations, but are merely asked to draw this or that, and are seldom included in the conceptual planning of coursebooks. Although introductions to teacher's books may mention that visuals have mnemonic properties or appeal to certain cognitive types, there seems to be little awareness of a key point made in all major strands of current research on instructional visuals: namely, that the presence of a visual does not guarantee a learning effect unless it is used effectively, and for that its intended function in the learning task has to be clearly conceived and communicated.

4.2 Principles for using instructional visuals

By way of summing up, I have attempted to combine some of the principles for the effective use of instructional visuals from general research with Sturm's discussions of visuals in FLT and their functions in the light of some insights that emerged from the analysis of coursebook visuals above.

1) Visuals are serious sources of information that contribute as much to language learning as text.

2) Each visual used should have an identifiable, transparent function which is an integral part of the task or activity in question.
3) There is no evidence from research that visuals motivate learners, so motivation alone may not be a sufficient reason to include an otherwise functionless visual.
4) Illustrators should be thoroughly briefed on the content and language-learning goals of texts and activities they are illustrating, especially if they do not understand the target language, to avoid inappropriate contextualization.
5) If authors and editors choose pictorial materials from commercial archives, or if teachers cut out pictures or download clip-art, they should avoid items that are only approximately relevant.
6) If the intended use of a visual is not self-evident, the teacher's book and/or coursebook should supply instructions.
7) If a task or exercise depends on a specific understanding of a visual whose meaning is not self-evident, the teacher's and/or learner's book should make this meaning clear by interpreting, explaining, selecting or clarifying the content of the picture by means of text (cf. Weidenmann 1989: 160).
8) Visuals included as food for thought or for similar more global purposes not specific to a particular task or area of language should be labelled as such, and guidance given on how to use them, or they may be dismissed as decorative and not attended to at all.
9) Since research suggests that visuals are interpreted differently and often too superficially, and since individual levels of visual literacy may differ greatly, the materials should constantly guide the users towards thoughtful processing, by

- using visuals that are not too slick and professional, i.e. not reminiscent of the images on packaging, in advertisements etc. that viewers are accustomed to bracketing out to save cognitive effort
- using visuals that require careful looking, such as (maybe only ostensibly) untutored drawings or complex, intriguing, affective or puzzling visuals
- setting tasks or questions in the materials that guide picture comprehension and encourage careful processing (e.g. who is this? is the person a man or a woman? how do you know? where are the people? what are they doing? why do you think so?).
- setting tasks or questions that help users discover whether they are seeing the same thing

10) The overall approach to visuals in a set of materials should be made explicit to the learner in the general instructions. In coursebook series, the overall concept of the role of visuals should be explained in the introduction to each teacher's guide and general guidelines provided for their use.
11) By having a clear, explicit policy on visuals and applying it consistently, a set of materials should train the users to adopt a purposeful processing style for all the visuals in it.
12) Visuals included only on the basis of aesthetic, layout or design criteria do not contribute to language learning and teaching.

4.3 Revised typology

In a second phase of summing up, I present a proposal for a typology of visuals in coursebooks for adult learners which amalgamates the functions of FLT visuals listed in existing typologies and those generated on the basis of the coursebook analysis. The categories, which are formulated and then presented in graphic form, have been loosely assigned to four interconnected, interacting and overlapping areas: language focus, context focus, mind and culture focus, user focus. There is also a fifth 'dysfunctional' category, 'decoration'. Naturally, a given visual may perform a number of different functions at the same time. I view the typology purely as a basis for discussion, and its categories and their positioning on the graphic at the end of the chapter as open to alteration and relocation. Some hybrid functions have been assigned to more than one category and placed between the poles on the graphic. Since visuals are assumed to have mnemonic potential at all times as a result of dual or integrative coding, the mnemonic function is not assigned to any one focus but shown on the graphic as omnipresent.

4.3.1 Language focus

The ***language focus*** includes three main sub-categories of functional categories: presentation functions, production and practice functions and reception functions.

1) ***Presentation:*** functions that visuals may perform in presenting language are for example

- ***semantization***
- ***activation of prior knowledge*** of the target language or of other languages
- ***visualizing structures or concepts*** with 'interpretive' or 'transformational' graphics in terms of Clark and Lyons' categories (cf. 1.2.3): e.g. tense axes, visuals associated with grammatical gender, visual aids to understanding syntactic patterns, circles of different sizes to symbolize word-stress

- ***contextualizing structures***: e.g. pictures of pairs of people doing the actions described by reflexive verbs, drawings to visualize distinctions between active and passive voice
- ***authentic visual-verbal texts*** (see 4.3.3 for examples)

2) ***Production and practice:***

- ***elicitation of language*** (in the sense of free and spontaneous reactions to visual impulses): e.g. pairs of learners are given a collage of puzzling images and asked to discuss what they think it depicts
- ***impulses for text production*** (guided speaking or writing exercises based on or incorporating information from visuals): e.g. learners are given several pictures of unacceptable or criminal behaviour plus essential vocabulary and asked to write down the penalties they think each kind should incur
- ***grammar focus*** (visuals especially designed to elicit and practise specific structures): e.g. 'then and now' pictures of the same people or places as a basis for practising past and present tense forms; pictures used to practise degrees of comparison; practise in using adjectives, especially those which have to be declined, by means of precise descriptions of similarly dressed people or similar objects; and many, many others

3) ***Reception:*** visuals may support reading and listening comprehension in all their manifestations by

- ***aiding comprehension***
- ***guiding comprehension***
- ***checking comprehension***

4.3.2 Content focus

Visuals that offer ***contextualization*** provide a vital situational frame for language. They 'bring the world into the classroom' by showing exchanges taking place between actors in a physical environment that displays features specific to the target culture. Such visuals can offer a wealth of non-verbal information about the actors'

- ***age, status and roles*** by showing their physical appearance, clothing, actions and the setting of the interaction
- ***relationships and attitudes*** to one another by showing proxemic distance, posture, gesture and facial expression, as well as providing
- ***pragmatic cues*** by presenting information that serves to clarify their communicative intentions.

Visuals with that focus on context may have the specific function of providing

- ***cultural background knowledge*** by including photographs and illustrations of phenomena from everyday life in the target culture (e.g. homes, shops, social gatherings, street-scenes, postpoxes, stamps)

4.3.3 Mind and culture focus

Visuals with a ***mind and culture*** focus stimulate thought and invite reflection, particularly along intercultural lines. 'Culture' is understood here in a broad sense in contrast to 'context', which is the immediate setting in which language presented by teaching materials is located. Functions in this area include:

providing

- ***authentic visual-verbal texts*** such as shop-signs, advertising and packaging, pages from magazines and newspapers, hand-written and drawn documents by members of the target culture, comic strips and cartoons
- ***humour*** such as textless cartoons or comic-strips from the target culture, humorous drawings or photographs, stills from humorous films or TV shows in the target culture
- ***food for thought*** e.g. intriguing or puzzling collages, ambiguous photographs, illustrations, photo-novellas or picture stories with processing instructions that deepen the ambiguity and encourage debate; sophisticated visuals which offer intellectual nourishment that can compensate for the restrictions imposed by necessarily simple L2 input and output
- ***cultural background*** by including photographs and illustrations to accompany text about well-known or 'exotic' phenomena associated with the target culture (famous buildings or paintings, events, rituals, landscapes, natural phenomena) as well as phenomena from everyday life (e.g. farms, factories, homes, shops, stamps etc.)

promoting

- ***intercultural awareness*** by means of images that invite reflection on similarities and differences between the L1 and L2 cultures

and activating

- ***knowledge of the world*** and so allowing learners to personalize their learning by applying their individual expertise, intelligence, complex views and knowledge to a topic or issue dealt with in the materials.

4.3.4 User focus

Visuals with a user focus are those whose foremost function is to help learners and teachers use the materials effectively. Visuals of this type have the functions of

- ***signalling task types*** with pictograms or symbols (e.g.for listening, reading, speaking, writing, pair-work, group-work, individual work, whole class etc.)
- ***alerting*** users to the need for attentive processing by means of symbols, special frames or boxes that signal for example 'rule', 'exception', 'false cognate', 'pay special attention', etc.
- ***elucidating learning procedures or classroom activities*** by means, for example, of: sketches of spidergrams or boxes of vocabulary cards to suggest learning techniques; drawings that illustrate how a classroom activity (role-play, interview) should be carried out; symbols for 'rule', 'exception' or 'pay special attention'
- ***addressing the learner*** with mascots or photographs of representatives of the target culture who 'speak' directly to the learner in a personal, engaging manner
- ***acting as advance organizers***, particularly for comprehension tasks

4.3.5 Decoration

Decorative visuals do not perform any function that manifestly supports language learning: the producers of the materials have not understood the affordances of visuals in FLT properly if an analysis on the basis of this typology reveals many visuals with decorative functions only. Such functions are:

- ***Decoration:*** possibly quite large and elaborate visuals, often redundant, planned from the outset to fulfil a purely aesthetic function (e.g. a large colour picture of two 'talking heads' without any contextualizing background, used to illustrate an exercise in which learners are asked to talk to each other)
- ***Space-filler:*** a visual which does not support the language learning task or activity in any way; included to fill up blank space on a page
- ***Vizyool:*** similar to 'decoration' function, in that page-space is budgeted for the vizyool; but instead of fulfilling an overtly aesthetic function, vizyools are bland, neutral and devoid of information which might support learning or offer cultural insight (e.g. a text about outdoor life accompanied by a sketch of a generic pine tree).

The typology is shown in graphic form on the next page.

A FUNCTIONAL TYPOLOGY OF VISUALS IN FLT MATERIALS

LANGUAGE FOCUS

presentation:
semantization
activating prior knowledge
visualizing structures
visualizing concepts
contextualizing structures

production and practice:
elicitation of language (free)
impulses for text production (guided)
grammar focus

reception:
aiding comprehension
guiding comprehension
checking comprehension

mnemonic effects

USER FOCUS

signalling task types
alerting (attentive processing needed)
elucidating learning procedures
elucidating classroom activities
addressing the learner
advance organizer

mnemonic effects

mnemonic effects

authentic visual-verbal texts

humour
food for thought
intercultural awareness
activating knowledge of the world

contextualization by showing:
age, status, roles
relationships, attitudes
pragmatic cues

MIND AND CULTURE FOCUS

cultural background information

CONTEXT FOCUS

CHAPTER V
LANGUAGE TEACHERS' PERCEPTIONS OF THE AFFORDANCES OF VISUALS: A STUDY

1 Origins of the study

Even if the information-processing effects of visuals in language learning have yet to be thoroughly investigated, the producers of coursebooks for language learning have long since accepted that they can only compete on the market if their products are lavishly illustrated in full colour. But what do the illustrations afford the language teacher, and to what extent do they support language teaching and learning? The study described in this chapter investigates the affordances of pictures in teaching materials from the teacher's point of view, using data from a questionnaire administered to 71 foreign language teachers working in adult education. In the introduction I explained that various questions had occurred to me over the years regarding pictures and graphics in teaching materials and in the FL classroom in general, and these questions and observations, together with the findings from general research on instructional visuals, were the basis from which the questionnaire grew. Did other teachers for instance have the impression that visuals in their coursebooks sometimes did not seem related to the language-learning goals of specific exercises? Did they find that there were seldom instructions on the use of visuals, and did it bother them? How much use did they find the visuals in their books, and what did they actually do with them? Did teachers use other visuals not provided by the coursebooks; and if so, from what sources, for what purposes and to what effects? How interested were they in the visuals in their teaching materials? What did they believe, or what had they noticed pictures could (or could not) achieve? Despite the prominence of visual elements in teaching materials, I had never received any instruction during my studies or in further training on how to use them to best effect for language teaching. Again, had other teachers fared differently? And if they had, what kind of training had they received? So as to gain a broad overview of teachers' views and gather data which might indicate overall trends, the instrument chosen for the study was a questionnaire, conceived as a mass interview with an emphasis on teachers' practices and experiences, rather than on attitudes alone. In view of these aims and the relatively small sample, it was clear from the outset that descriptive and not inferential statistical procedures would be followed, and that the findings, though suggesting possible tendencies, would not be generalizable to any population.

2 Design and methodology

Most of the procedures described in this chapter are based on Dörnyei's guide to constructing questionnaires in second language research (Dörnyei 2003). Initial steps in designing the questionnaire

involved deciding whom it would target, what it should explore, how it would be administered and, bearing these factors in mind, how it should be designed.

2.1 Target group and implications for the design of the questionnaire

The questionnaire was aimed at freelance language teachers teaching adult learners in German Volkshochschulen and commercial language schools. One advantage of this choice was that I had extensive experience of this teaching context, which helped in the practical organization of the study and guided the design of the questionnaire. Another advantage is that coursebooks and other materials aimed at adult learners taking courses at their own expense and in their free time are particularly rich in visuals, since the producers place a high priority on appealing design and entertaining content. A further advantage was that unlike school-teachers, who have to undergo prescribed training and qualification procedures, freelance teachers have very different levels of teaching experience, general education and formal training, which promised to provide an interesting and possibly revealing mix of perspectives. Also of interest was the wide range of languages taught. At the same time however, the diversity of the target group's L1s was a potential drawback. The questionnaire was in German, but I anticipated a relatively large proportion of NNS among the respondents, including some who understood little German: thus the items had to be formulated as simply as possible. Initially an English language version of the questionnaire was developed as well for those respondents who understood English better than German, but for psychometric purposes this version would have had to be treated as a different instrument and its findings analysed separately, and so it was abandoned. Where possible I administered the questionnaire in person so as to respond to language questions or other queries.

2.1.2 Constructing and piloting the questionnaire

The first step in constructing the questionnaire was to consider how best to gather data related to the questions formulated in section one. After deciding on the format, an item bank of just over one hundred items was constructed. Compiling the item bank and then reformulating, amalgamating and selecting items served to clarify what information the questionnaire could and should elicit and how best to go about it. A mix of elicitation formats were used: this was necessitated by the kinds of information being sought, but also made the questionnaire more varied, a factor which would, I hoped, help to engage and maintain the respondents' interest. The individual sections were designed to obtain data about:

Section 1: ***respondents' beliefs in general about the usefulness and affordances of pictures in FLT materials***

Section 2: ***opinions about the clarity of the intended functions of the visuals in the coursebook and support from the producers in using them***

Section 3: ***the extent of the respondents' awareness of visual elements in teaching materials***

Section 4: ***whether and for what reasons the respondents use pictures other than those provided by the coursebook***

Section 5: ***the respondents' opinions about the functions of pictures in specific areas of FLT***

Section 6: ***the sources of pictures the respondents use***

'The coursebook' was defined at the top of each page of the questionnaire as being any coursebook that the respondent knows well ('Im Folgenden bedeutet "das Lehrwerk" ein beliebiges Lehrwerk, das Sie gut kennen'). For those teachers who used several different books this caused difficulties, and on occasion respondents wrote remarks such as 'hängt vom Lehrwerk ab' ('it depends on the coursebook') in the margin.

The scales in Sections 1-3 were designed as summative (also known as 'multi-item') scales, in that they were intended to assess attitudes or opinions by means of 'a cluster of several differently worded items that focus on the same target' ('Dörnyei, *op. cit*.: 33). This meant that the data could be checked for internal consistency as well as for frequencies, variabilities and central tendencies, the statistics most commonly used in descriptive research (cf. Seliger & Shohamy 1989: 211 ff.). Each scale contained six items focussing on the issue being investigated; some key items in these scales were also intended to be analysed on their own. Sections 4-6 could not be summed, since they were designed to obtain information about different uses of visuals or different kinds of visuals. These sections were designed to be analysed in terms of descriptive statistics only.

In Sections 1-5, responses to statements were indicated on six-point Likert scales using three different kinds of response categories, depending on the statement made in the respective item. The response categories are shown below.

1: ***stimme vollkommen zu*** **2:** ***stimme stark zu*** **3:** ***stimme zu*** **4:** ***lehne ab*** **5:** ***lehne stark ab*** **6:** ***lehne vollkommen ab***

1: ***trifft vollkommen zu*** **2:** ***trifft stark zu*** **3:** ***trifft zu*** **4:** ***trifft nur zum Teil zu*** **5:** ***trifft nur sehr bedingt zu*** **6:** ***trifft überhaupt nicht zu***

1: ***fast immer*** **2:** ***sehr oft*** **3:** ***oft*** **4:** ***manchmal*** **5:** ***selten*** **6:** ***nie***

Had the study been using inferential statistics and required strong statistical results (a high Cronbach alpha, or statistical significance), it could have been objected that the three different scales of response options were not actually comparable; but given its descriptive nature, they can be justified on the grounds that they were needed to obtain particular types of information. Initially, the questionnaire used classical five-point Likert scales, which meant respondents could take a neutral middle position. With an even number of response options however, respondents who keep to the middle of the scale are always forced to express a slightly more positive or negative view. Brown (2000: 18-19) notes that

some respondents resist this kind of coercion. Referring in his online Q&A service to his experiences with four-step Likert scales at the University of Hawai'i he comments:

> I have found that most students will pick 2 or 3, but they are at least expressing some opinion, one way or the other. However, even so, I have found a few students so prone to selecting the neutral answer that they circle the space between the 2 and the 3. I have therefore had to code some of the answers as 2.5. Nonetheless, using an even number of options forced the majority of students to go one way or the other.
> Unfortunately, by doing that I may have been forcing students to have an opinion who really did not. (Brown *ibid*.)

There were two similar instances in my data in which respondents refused to commit themselves to a response and placed a cross between boxes three and four. These responses were entered as '3.5' on the data spreadsheet, although ultimately they were treated as missing data.

In accordance with established questionnaire-design practice (cf. Dörnyei *op.cit*.: 55-56), roughly a fifth of the items were formulated to express a negative opinion without using negation (e.g. Bilder lenken vom Sprachenlernen ab; Die Bilder helfen mir als Lehrer/in wenig; Das Lehrwerk wäre auch ohne Bilder genauso effektiv). As Dörnyei points out, direct negation should be avoided because it causes logical problems in choosing response options. Does a negative response to a negated statement mean assent or dissent, for instance? The purpose of formulating some questionnaire items with negative effect is to promote attentive reading of the statements and to stop so-called acquiescent respondents always crossing the positive side of the rating scales[10] without reflecting on the item. The scales used in this survey were coded as follows: 1 for the first response on the left (usually the most positive) through to 6 for the last response on the right (usually the most negative). The responses to the negatively formulated items were reversed before analysis. Missing data was coded as '.'

In Scale 6, 'sources of pictures', the respondents were asked to put a cross beside any statement which applied to them. There were also open questions on sources of pictures and on uses of pictures which respondents could answer with a brief written statement if they wished. In all, the questionnaire contained 43 items divided among six sections. In item 44 the respondents were asked whether they had ever had formal instruction on how to use pictures effectively in FLT, and invited to indicate what they had learnt and how in a written answer. As this question required a written answer and did not fit into any of the other sections, it appeared on its own at the end of the numbered questions. Further factual information about the respondent elicited at the end of the questionnaire was: title of the coursebook/s used regularly by the respondent, level/s taught with the book/s, approximate

[10] Dörnyei (*op. cit.:* 36) notes that it is confusing that the term 'scale' is used in reference both to 'multi-item scales', groups of items designed to obtain reliable data about the same thing by means of differently-expressed statements, and to 'rating scales', which are provided so the respondents can choose from a series of responses to the statement made in the item.

number of hours taught a week, approximate number of years the respondent has been teaching a foreign language, the respondent's L1 and the respondent's gender. Finally, the respondents were invited to add any comments they liked on the topic 'Bilder im Unterrricht'. The questionnaire fitted onto four A4 pages, and was presented in the form of a booklet printed on a folded A3 sheet (see Appendix.) The items for Sections 1, 2, 3 and 5 all had the same format of statements with six response options. Sections 4 (items 25-31) and 6 (items 32-44) concentrated on information about specific aspects of using pictures and so appeared as units. The questionnaire was printed on coloured paper (yellow, orange, green or blue) to focus the respondents' attention on visual sensations and dispel associations with bureaucracy.

Piloting took several forms. An early draft of the questionnaire was administered to a linguistically mixed group of ten participants in a *Basisqualifikation* seminar for newly recruited language teachers at local Volkshochschulen. As some of the respondents rightly noted on the sheets, they had too little teaching experience to make fully qualified observations, but nonetheless their feedback and answering patterns helped greatly in detecting ambiguous or linguistically challenging items. It was also due to their tendency to choose the middle response in the original five-step Likert scales that the rating scales were changed to six-step ones. A revised version was subsequently piloted with freelance language teachers (*Lehrbeauftragte*) at the University of Bielefeld. This time the questionnaire was not administered in person, but was left in their office with envelopes, chocolate and a covering letter explaining the project and giving details for returning completed questionnaires. The low return rate (five of a possible ten to fourteen) added to the conviction that it was best to administer the questionnaire in person and have the respondents fill it in on the spot. Despite the low return rate, those who did fill out the questionnaire made a number of helpful observations and suggestions which led to further changes. Finally, significant modifications resulted from consultations with academics at the University of Bielefeld, in particular Professors John Walmsley and Paul Lennon (Fachdidaktik, Anglistik/British and American Studies) and Dr Dirk Martinke (Psychology).

3 Administration and sample

3.1 Administration

Initially, the questionnaire was to be administered at different institutions as the first part of a workshop on drawing in the language classroom, but although three workshops were finally held, they did not all materialize as planned. The first was scheduled for an afternoon in the middle of the week, and many teachers were unable to attend. The nine participants who did come were highly motivated and had a special interest in visuals. While this made for an enjoyable workshop, it also meant that the participants were atypical and that there was a danger that their data could not be regarded as representative;

indeed, the situation had to be regarded as a case of what Dörnyei calls 'respondent self-selection', with the attendant danger that 'the resulting sample will not be similar to the population' (*op. cit*.: 75). This was a weakness of the workshop idea which only became apparent once it was underway. Some of the participants took away extra questionnaires to give to other freelance teachers they knew, so the workshop gave rise to a modest amount of snowball sampling.

The language school Tandem Bielefeld distributed questionnaires to approximately ten teachers, and a staff-member administered further questionnaires to a small number of German-speaking colleagues at an international Tandem conference in Paris in autumn 2005. When I did not administer the questionnaire in person, each booklet was accompanied by a stamped, self-addressed envelope for the completed questionnaire and a letter explaining the purpose of the study and thanking the respondent for their cooperation. By far the largest portion of the sample was obtained at the VHS Bielefeld at the twice-yearly planning meeting which all the freelance language teachers are supposed to attend. The negative aspect of this from the point of view of good surveying practice was that the participants were not informed in advance or asked if they would like to participate. The positive aspect was that, unlike the voluntary participants in the first VHS workshop, they represented a true cross-section of VHS teachers, and not only those with a strong interest in visuals.

3.2 Sample

3.2.1 Gender

In total 71 questionnaires were returned. 55 of the respondents, over three-quarters, were women and 16 were men. In view of the low number of men, no attempt was made to analyse their data separately to identify possible gender-related differences, since this would have been meaningless in statistical terms. The gender variables were coded, contrary to usual practice, 1 for women and 2 for men. For the spreadsheet and notes on the coding, reversal of items etc. see Appendix A.

3.2.2 Respondents' L1s

The L1s of the teachers were coded for 1 German L1, 2 for other L1s than German, and 3 for multilinguals with German as one of their languages. One bilingual gave two languages other than German (Dutch and French) as her L1s. One respondent did not supply an answer.

The respondents' reported L1s were: German (36), other languages (30), multilingual with German as one language (2), multingual in languages other than German (1).

The other languages were: Spanish (8), French (5), Russian (4), Polish (3), English (3), Dutch (2); and Japanese, Greek, Brazilian Portuguese and Italian (one of each). Two bilinguals gave their languages as Spanish and German, one as French and Dutch, and one as Dutch and Business English; it emerged later that these were teaching areas, and the respondent's L1 was Flemish.

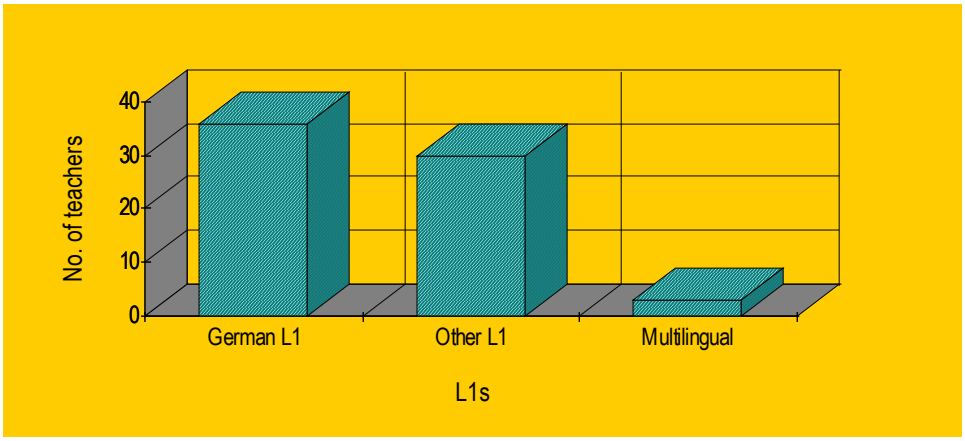


Figure 1: teachers' L1s

The respondents' languages are recorded in detail to show what proportion of the respondents were not NS of German, the language of the questionnaire, as these respondents may not have understood all the items properly. It was not feasible to assess NNS respondents' levels of proficiency in German by means of questionnaire items, since asking them to assess their proficiency level themselves would have been both patronising and unreliable. Merely stating the number of years spent in Germany is not a reliable indicator of language proficiency either, and nor are details of formal instruction in German. On the basis of purely informal background knowledge, it can be stated that many of the NNS in the VHS Bielefeld group have lived in Germany for decades and have very high levels of proficiency. Nevertheless, the question of whether all the respondents understood everything on the questionnaire remains unanswered, and is an admitted weakness of the study. But as the questionnaire was administered at workshops or planning meetings held in German, it seems reasonable to assume that those attending understood at least enough German to follow the proceedings, and would have understood the questionnaire reasonably well. However, the respondents' understanding German was in itself no guarantee of reliable answers. Some responses to the prompt 'Meine Muttersprache ist …' were obviously mistakes, such as in the case where the respondent's L1s were given as Dutch and Business English. This respondent, whose identity was revealed by the combination of teaching subjects, is completely proficient in German. Since I had met many of the teachers at planning meetings in the past and knew their backgrounds, I noticed that some who do not teach their own L1s appeared to have entered their teaching languages instead of their L1s on the questionnaires. Two trilingual teachers (identifiable by their teaching subjects) gave their L1s as German only. Given the number of inaccuracies that became apparent by chance in the responses to this item, it seems probable that the responses provided by crossing boxes on the rating scales may not have always been fully reliable either.

3.2.3 Respondents' teaching experience

The respondents were asked to name the coursebook or coursebooks they used regularly, and, as a followup question, what levels they taught with it or them. Of those who answered, 11 indicated that they taught beginners only, five that they taught lower intermediate levels ('leicht fortgeschrittene') only, two that they taught advanced levels only, and 44 that they taught more than one level. In the next item, they were asked to indicate how many hours a week they normally taught: Of those who answered, 15 indicated they taught for less than four hours a week, 25 between four and ten and 26 over ten.

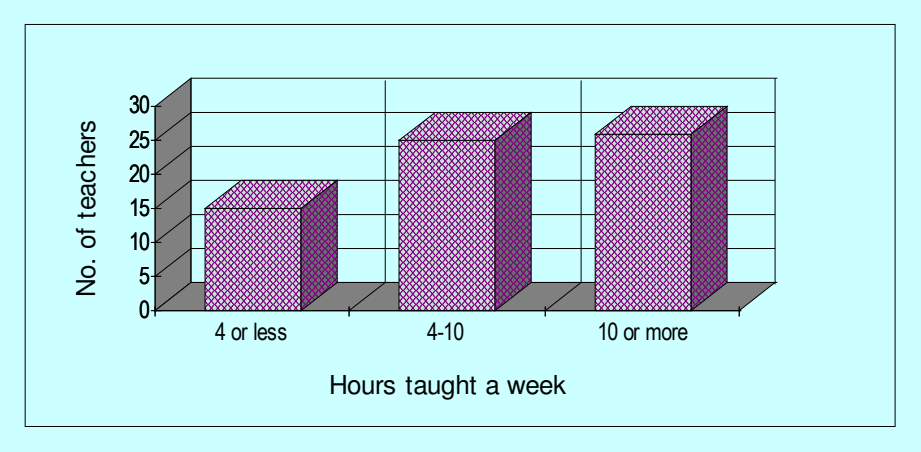


Figure 2: Hours taught a week

Lastly, the respondents were asked how long they had been teaching a foreign language.

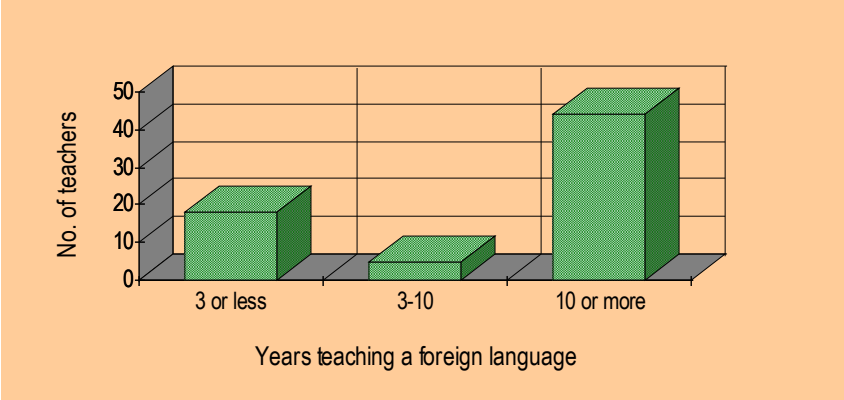


Figure 3: Years teaching a foreign language

Of the 67 who responded to this item, 18 had been teaching for less than three years, five between three and ten years and 44 for over ten years. Thus over 65% of those who answered can be considered very experienced teachers. All those respondents who usually, according to their responses, taught more than one level, more than four hours a week and had been teaching for over ten years were categorized as 'highly experienced' and their data compared with the 'less experienced' group's data in selected areas to see if different tendencies emerged.

3.2.4 Coursebooks

Since much of the questionnaire focussed on respondents' views on the visuals in the coursebooks they used for teaching, it was important to ascertain what materials their responses applied to. In the final section of the questionnaire, they were asked to specify which coursebooks they use regularly in their adult education classes. Note that these data apply to the coursebook *series* and not to specific books in the series. Apart from the coursebooks for German as a Foreign Language, the great majority of these are target-group specific coursebooks aimed at adult learners in Germany: most are published by Hueber. The most frequently-mentioned coursebook series was **Tangram** (German), which was named 16 times, twice as often as the next most frequent, **Caminos** (Spanish), which was mentioned eight times. The German coursebooks **em** and **Themen** and the English coursebook **On the Move** all had seven mentions. There were five mentions each of **Delfin** (German), and **Facettes** (French). **Unterwegs** (German) and **Taal Vitaal** (Dutch) both had four mentions. **The New Cambridge English Course** and **Witam** (Polish) were both mentioned three times. There were two mentions each of the following: **Auf neuen Wegen, Berliner Platz, Pluspunkt, Schritte** and **Moment Mal** (German); **Elements, New Headway** and **Sterling Silver** (English); **Spotkania** (Polish); **Taal Totaal** (Dutch); **Espresso** (Italian); **Kljutschi** (Russian).

There was one mention each of:

Neugriechisch für Anfänger;
Avenida Brasil;
Paso a Paso, Bien Mirada, Spanisch aktiv, El Nuevo Curso and **Intercambio (**Spanish**);**
Couleurs de France, A Bientôt, Parlons Affaires;
Tala svenska, Lehrbuch der schwedischen Sprache;
Mellem Linjerne, Dänisch Neu and **Under Overfladen (**Danish**);**
Ny i Norge (Norwegian) **;**
Miteinander leben, Stufen; Passwort;
Network Conversation, The new Refresher, PASS B.E.C. Higher, Play the Role, Progress to First Certificate, Business Basics and **Technical English for Beginners.**

3.2.5 Institutions and qualifications

The teachers were not asked to indicate which institution they worked in, since freelancers often work at several schools, using the same materials. However, as noted above, approximately 50 of the respondents filled in the questionnaire at events for freelance teachers at the Volkshochschule Bielefeld, and so constitute a large part of the sample. Although no data was gathered about teachers' formal qualifications, all language teachers at Volkshochschulen in North Rhine-Westphalia are required to complete a 'Basic Qualification", a series of practically-orientated seminars on language teaching methods and related issues, during their first semesters of teaching, so again the majority of the respondents had had some basic professional training.

4 Statistical analysis of the data

The questionnaire items were designed to ascertain how many teachers subscribed strongly or less so to a given view, or asserted that they did or did not do certain things, as well as what tendencies were most typical in the sample, and the extent to which strongly differing tendencies were expressed. As indicated above, the data were analysed in terms of descriptive statistics: the frequency with which each response option was chosen for each item was computed and the frequencies compared, both in terms of actual numbers and percentages. The frequency counts are also shown graphically on histograms. Central tendencies were detected by calculating the mean, mode and the median. As a further indication of central tendency, the range (of numbers between the minimum and maximum number) was found, as well as the minimum and maximum numbers themselves. The mean, median, mode, range, minimum and maximum are all numbers between one and six, since these were the numbers used to code the Likert scales. Finally, variabilities in the data were measured by calculating the standard deviation and the variance, which measure the spread of the responses and so reflect the degree of diversity in the opinions and practices indicated. Low standard deviation and variance indicate a high level of consensus among the respondents. The software used was SPSS version 11.0.

In addition to the responses of all the respondents, data from those categorized as experienced teachers were analysed separately for comparison with the entire sample. Respondents were, as noted above, classed as experienced teachers if they had been teaching for 10 years or longer, on more than one level and more than four hours a week. 27 of the 71 respondents were classified as experienced teachers.

The statistics for each scale are shown in graphic form, as histograms. Curves have been drawn on each histogram so that it is easily visible whether the distribution for the respective item is skewed or approximately normal. In these data, a skewed curve suggests that the majority of the teachers have subscribed in great numbers to a particular view, either positive or negative, whereas a normal one suggests a relatively neutral response, with the majority choosing responses in the middle of the scale.

4.1 Section 1: respondents' beliefs in general about the usefulness and affordances of pictures in FLT materials.

***Item 3*: Bilder lenken vom Sprachenlernen ab.**

The values for this item have been reversed: i.e. 1 means that the respondent rejects the proposition that pictures present a distraction from language learning, and 6 means they agree with it. ***Frequency***: **1**: 24 (34.3%), **2**: 11 (15.7%), **3**: 33 (47.1%), **4**: 2 (2.9%). 1 value missing. The statement is clearly rejected: the two options that would indicate strong agreement were not chosen by anyone, yielding a

range (the difference between the largest and smallest values, here four minus one) of only three. It is interesting that 24 respondents vehemently rejected it, only 11 strongly rejected it, but the majority (33) rejected it in as neutral as possible a fashion. This seems to suggest a division amongst the respondents: a third are strong believers in the positive role of visuals, while nearly half only indicate that visuals are not detrimental to language learning. A distribution of this kind is regarded as showing that the item differentiated well between different attitudes held by respondents in the sample. The 27 experienced teachers displayed the same trends even more markedly, with frequencies of 10 (37%), 3 (11.1%), 13 (48.1%) and 1(3.7%) for response options 1, 2, 3 and 4 respectively.

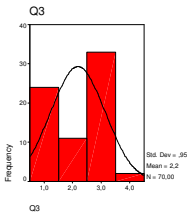


Figure 4a: item 3, all respondents

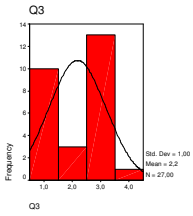


Figure 4b: item 3, experienced teachers

Item 7: **Es ist wichtig, dass Sprachlehrwerke für Erwachsene Bilder haben.**

Frequency: **1**: 24 (34.8%), **2**: 21 (30.4%), **3:** 23 (33.3%), **4**: 0; **5**: 1 (1.4%). 2 values missing.

The outlier who chose response 5 is a respondent who stated that pictures were not necessary in coursebooks for adult language learners in the open question at the end of the questionnaire. The other teachers in the sample showed clear agreement that coursebooks for adults should have pictures. The experienced teachers agreed even more strongly: **1**: 11 (42.3%), **2**: 10 (38.5%), **3:** 5 (19.2%); **4, 5** and **6,** the negative response options, were not chosen by any of them.

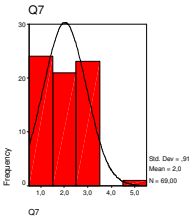


Figure 5a: item 7, all respondents

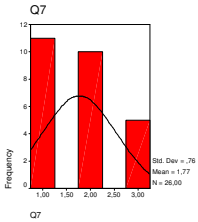


Figure 5b: item 7, experienced teachers

Item 9: **Das Lehrwerk wäre auch *ohne* Bilder genauso effektiv**

The values for this item have been reversed. Frequency: **1**: 23 (32.4%), **2**: 17 (23.9%), **3:** 26 (36.6%), **4:** 3 (4.2%); **5**: 0, **6**:1 (1.4%). No values missing. The histogram affirms that the great majority of the respondents, more than 92%, believe the pictures enhance the coursebook's effectiveness. Nevertheless three respondents respond that the coursebook would be as effective without the pictures,

and the outlier asserts emphatically that the book would be as effective without pictures: however, the outlier is from a respondent whose erratic response patterns suggest his data is not reliable (see Appendix A, spreadsheet, respondent F55). The experienced teachers as a group chose only positive responses and a greater percentage agreed fully with the statement: their frequencies are: **1**: 12 (44.4%); **2**: 7 (25.9); **3**: 8 (29.6%).

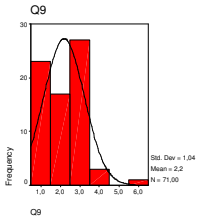


Figure 6a: item 9, all respondents

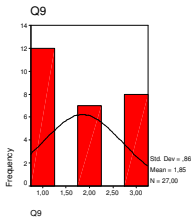


Figure 6b: item 9, experienced teachers

***Item 11*: Bilder sind motivierend**

Frequency: **1**: 21 (30.4%), **2**: 22 (31.9%), **3**: 22 (31.9%), **4**: 4 (5.8%). 2 values missing.

The distribution for item 11 is very similar to that of item 7, and together these items suggest a strong consensus among the respondents that the pictures are motivating for adult learners. Item 11 is a key item with regard to teachers' attitudes to pictures and how they perceive their role in the classroom. The claim that pictures have a motivating effect is encountered in advertising materials for coursebooks, and although it is unclear from research what motivation is, how it can be measured or how pictures contribute to it, these responses confirm that the teachers questioned perceive such an effect.

The experienced teachers responses did not reflect quite such strong agreement; a clear majority (46.2%) chose the second response option (strongly agree). 34.6% chose the first option (fully agree), and 19.2% the third option (agree). No-one from this group chose a negative response option.

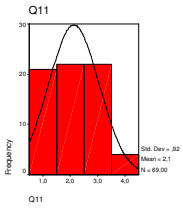


Figure 7a: item 11, all respondents

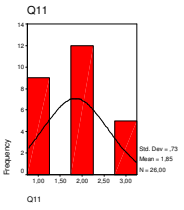


Figure 7b: item 11, experienced teachers

***Item 19*: Bilder sind eben so wichtig wie Textmaterial in Sprachlehrwerken**

Frequency: **1**: 7 (10.1%); **2**: 15 (21.7%); **3**: 27 (39.1%); **4**: 17 (24.6%); **5:** 1 (1.4%); **6**: 2 (2.9). 2 values missing. There is little strong support for this statement. The majority of respondents chose responses on either side of the mid-point, yielding a roughly normal distribution, though more opted for the

response 'stimme zu' than 'lehne ab'; still, in comparison to the four items already analysed, which focussed on the merits of pictures per se, far greater reservations are apparent. The item could be criticized on the grounds that 'wichtig' is too imprecise a quality, and that the responses merely reflect a desire to keep to the middle ground out of uncertainty how to respond. Nevertheless, the ambivalence expressed by these responses is in keeping with findings by researchers such as Tang, Weidenmann and Schnotz, which suggest that users of instructional materials tend to focus on text alone for serious information or input. The experienced teachers had a similar response pattern: **1**: 4 (5.6%); **2**: 6 (23.1%) **3**: 9 (34.6%); **4**: 6 (23.1%) and **5**: 1 (3.8%). The histogram for this group is somewhat more weighted towards the agreement side, however.

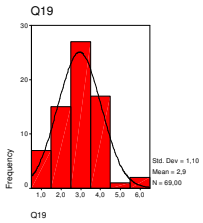


Figure 8a: item 19, all respondents

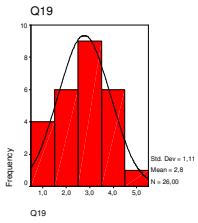


Figure 8b: item 19, experienced teachers

***Item 21*: Die Bilder im Lehrwerk helfen mir als Lehrer/in wenig**

*The values for this item have been reversed.*Frequency: **1**: 22 (31.9%); **2**: 18 (26.1%); **3**: 19 (27.5%); **4**: 7 (10.1%); **5:** 2 (2.9%); **6**: 1 (1.4). 2 values missing. In sum, the answers on the positive side of the rating scale make up over 85% of all the responses, and so constitute a strong affirmation by the teachers that the pictures in their coursebooks help them substantially in the classroom. Strongly affirmative responses were even more frequent among the experienced teachers than in the group as a whole: over 38% expressed full agreement and over 88% chose a positive response. The frequencies for this group in percentages were: **1**: 38.5%); **2**: 30.8%; **3**: 19.2%; **4**: 7.7%; **5:** 3.8%; none rejected the statement categorically.

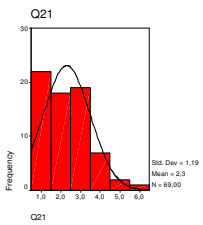


Figure 9a: item 21, all respondents

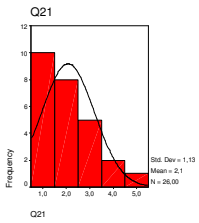


Figure 9b: item 21, experienced teachers

4.1.1 Comments on Section 1

Section 1 was designed as a summative scale, which made it possible to estimate the reliability of the data elicited by measuring whether the individual teachers' responses were consistent with one another across the six items. The measurements obtained also have implications for the validity of the scale: a relatively high degree of consistency indicates that all the items in the scale measured the same thing (cf. Dörnyei *op. cit*.: 110-111). The internal consistency reliability was estimated with Cronbach alpha, a tool frequently used in second language acquisition research. According to Brown,

> Cronbach alpha is used to estimate the proportion of variance that is systematic or consistent in a set of test scores. It can range from 00.0 (if no variance is consistent) to 1.00 (if all variance is consistent) with all values between 00.0 and 1.00 also being possible. For example, if the Cronbach alpha for a set of scores turns out to be .90, you can interpret that as meaning that the test is 90% reliable, and by extension that it is 10% unreliable (100% - 90% = 10%).
> (Brown 2002: 16)

A Cronbach alpha of .70 or higher is generally regarded as indicating reliable internal consistency, since it indicates a high degree of intercorrelation between responses to the different items on the scales. If the Cronbach alpha is lower than .60, the scale will not normally be regarded as reliable (cf. Dörnyei *op. cit*.: 112). The Cronbach alpha for the summative scale in Section 1 is .7565, which suggests that the scale was able to measure the teachers' beliefs about the usefulness and affordances of pictures in their coursebook materials consistently, and that the data are reliable. The Cronbach alpha for the group of experienced teachers is .7326, indicating internal consistency for these measurements as well.

4.2 Section 2: opinions about the clarity of the intended functions of the visuals in the coursebook and support from the producers in using them

***Item 4*: Ich habe den Eindruck, dass die Autoren des Lehrwerks gut überlegt haben, was die Bilder im Lehrwerk zum Unterricht beitragen sollen**

Frequency: **1**: 5 (7.2%), **2**: 12 (17.4%), **3**: 45 (63.4%), **4**: 6 (8.5%), **5**: 0, **6**: 1 (1.4%). 2 values missing. Although most respondents concurred with the statement, the histogram shows that the great majority did so without much conviction, choosing the 'stimme zu' option. Indeed, one respondent placed a cross between boxes 3 and 4. The experienced teachers as a subgroup had a similar response pattern to the group as a whole, with the overall tendencies being still more pronounced. **1**: 3.8%, **2**: 11.5%, **3**: 80.8%, **4**: 0, **5**: 0, **6**: 3.8%. Only four out of the 26 experienced teachers (15.4%) gave a strongly positive response ('stimme vollkommen zu' or 'stimme stark zu'), whereas nearly 81% chose merely 'stimme zu'. On the other hand, with the exception of one extreme outlier, no-one from this group recorded a negative response.

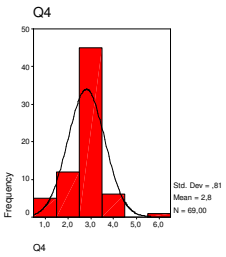


Figure 11a: item 4, all respondents

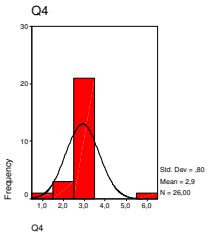


Figure 11b: item 4, experienced teachers

***Item 6*: Das Lehrerhandbuch soll genaue Hinweise geben, wie man die Bilder in den Übungen einsetzen soll.**

The values for this item have been reversed. Frequency: **1**: 0, **2**: 0, **3:** 10 (14.5%), **4:** 37 (53.6%); **5**: 16 (23.2%), **6**:6 (8.5%). 2 values missing. Since such instructions were found very rarely in the coursebooks reviewed in chapter IV, this item was of special interest. Strong agreement from the teachers would suggest that pictures might afford more in the classroom with explicit guidance for their use from the producers of materials. The item presented a technical problem however, since it did not fit easily into any of the scales. In the end the item was accommodated in Section 2, as part of a summative scale to measure opinions about support from the producers in using the visuals in the coursebook. However, since the respondents are asked to agree or disagree with a statement about what should happen rather than what does happen, it was unclear whether positive answers ought to be viewed as a positive or negative evaluation of the support for picture use from the coursebook's producers. That is, would reversing the scale mean better or worse internal consistency for the scale as a whole? Finally the values were reversed, on the premise that agreement with the statement implied criticism of current practice. As the histogram shows, 85.5% of the responses agreed with the statement, though due to the reversal of values they are shown here as values 4, 5 and 6. No-one chose 1 or 2, which would have implied a rejection of the statement, and additionally the data have a relatively low standard deviation of .816, which indicates a high degree of consensus.

The frequencies in percentages for the experienced teachers were: **1**: 0, **2**: 0, **3:** 11.5%, **4:** 50%; **5**: 30.8%, **6**:7.7%, which yields a very similar histogram to that of the group as a whole, except that position 5 (expressing 'strongly agree', in this case) was chosen more often by the experienced group.

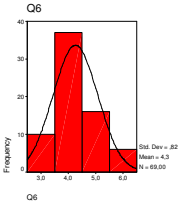


Figure 12a: item 6, all respondents

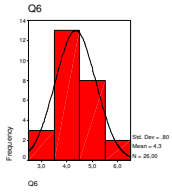


Figure 12b: item 6, experienced teachers

***Item 12*: Viele der Bilder im Lehrwerk sind nur eingesetzt worden um Lücken zu füllen.**

The values for this item have been reversed. Frequency: **1**: 5 (7.4%), **2**: 10 (14.7%), **3**: 42 (61.8%), **4**: 9 (13.2%), **5**: 1 (1.5%), **6**: 1 (1.5%). 3 values missing. The majority of respondents reject this assertion, a result which corresponds to the findings in chapter IV, where the coursebook analysis suggested that pictures were only infrequently used to fill in spaces. Only 11 teachers in total agree with it. The experienced teachers have a similar pattern, with these percentages: **1**:4.2%, **2**: 12.5%, **3**: 75%, **4**: 4.2%, **5**: 4.2, **6**: 0. Although the statement was rejected, the histograms show a pronounced preference for the least emphatic negative response.

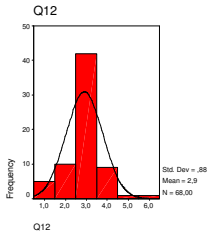


Figure 13a: item 12, all respondents

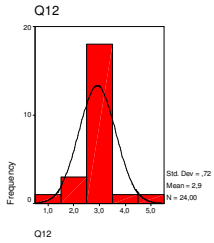


Figure 13b: item 12, experienced teachers

***Item 14*: Die Bilder im Lehrwerk bieten mir gute Anregungen für die Gestaltung des Unterrichts.**

Frequency: **1**: 4 (5.7%), **2**: 14 (20%), **3**: 44 (62.9%), **4**: 5 (7.1%), **5**: 3 (4.3%), **6**: 0. 1 value missing. The distribution of values for item 14 is similar to that of item 12, and the histogram shows that most of the teachers agree neutrally ('stimme zu') that the pictures provide good impulses for their lessons. None of the experienced teachers disagreed with the statement. The frequencies in percentages for this group are: **1**: 7.7%, **2**: 23.1%, **3**: 69.2%, **4**:0, **5**: 0, **6**: 0.

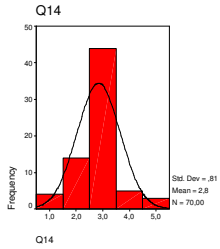


Figure 14a: item 14, all respondents

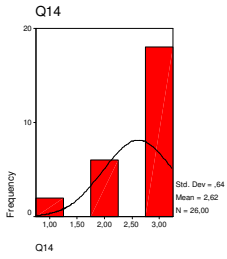


Figure 14b: item 14, experienced teachers

***Item 16*: Es ist nicht immer klar, wie die Bilder im Lehrwerk den Lernprozess unterstützen sollen.**

The values for this item have been reversed. Frequency: **1**: 3 (4.4%), **2**: 1 (1.5%), **3**: 25 (36.8%), **4**: 34 (50%), **5**: 3 (4.4%), **6**: 2 (2.9%). 3 values missing. Since the values have been reversed, the data here refer to the premise that it is always clear how the pictures in the coursebook are meant to support the learning process. As with the other items in this scale, the responses are concentrated in the middle,

yielding a roughly normal distribution. Nevertheless, the neutrally negative responses outweigh the neutrally positive ones, and the teachers' majority verdict is in fact that the functions of the pictures in the learning process are not always clear. The experienced teachers indicate this even more decidedly. The frequencies in percentages for this group are: **1**: 4.2%, **2**: 4.2%, **3**: 29.2%, **4**: 54.2%, **5**: 4.2%, **6**:4.2%.

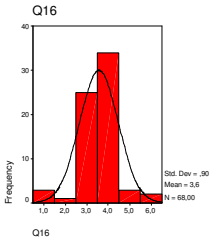


Figure 15: item 16, all respondents

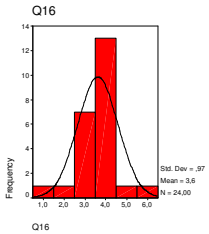


Figure 15: item 16, experienced teachers

***Item 23*: Ich weiß ohne Anleitung, wie die Bilder im Lehrwerk im Unterricht eingesetzt werden sollen**

Frequency: **1**: 7 (10.3%), **2**: 10 (14.7%), **3**: 15 (22.1%), **4**: 31 (45.6%), **5**: 3 (4.4%), **6**: 2 (2.9%).
3 values missing. Although 25% of the respondents agree strongly or fully with the statement, the total numbers of responses on the agree side and the disagree side of the rating scale are again almost equally distributed (32:36). On balance, the respondents who state that they do not know without instructions how the pictures in the coursebook are meant to be used are in the majority. The profile of the experienced teachers differed from the overall profile for item 23. The frequencies in percentages were: **1**: 16%, **2**: 16%, **3**: 28%, **4**: 40%, **5**: 0, **6**: 0; i.e. there were 60% on the 'agree' side in total as opposed to 40% who chose 'disagree'. None of this group strongly or fully disagreed.

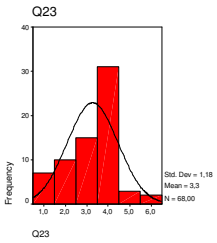


Figure16a: item 23, all respondents

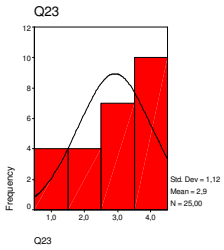


Figure16b: item 23, experienced teachers

4.2.1 Comments on Section 2

The Cronbach alpha for the summative scale used in Section 2 is .6034, and so reflects only a moderate degree of internal consistency; however, as noted above, item 6 fitted awkwardly into the scale, but was retained at the risk of low reliability because it elicited crucial information. And indeed, the

statistical analysis showed that a somewhat higher Cronbach alpha (.6266) would have been obtained if item 6 had been deleted, but also if item 23 had been deleted (.6452): thus these two items created the greatest amount of variance. The alpha for the group of experienced teachers is .6457, which indicates greater internal consistency among this group, possibly because they have clearer expectations of the materials they use. What are the implications of the responses to Section 2? Although the histograms for all the items display very nearly normal distributions and there is no clear dominance of positive and negative responses, if items 6, 16 and 23 are considered together, on balance the respondents seem to feel that the intended language teaching functions of the pictures in the coursebooks are not fully apparent. Item 4 is a key question, closely related to the thesis's central question about the affordances of visuals in materials for FLT, and while the responses to this item do not reflect dissatisfaction with the coursebook visuals, they do suggest that the teachers in the sample are not strongly convinced that the pictures in their coursebooks have been included on the basis of teaching needs and goals either.

4.3 Section 3: the extent of the respondents' awareness of visual elements in teaching materials

***Item 1*: Ich gucke die Bilder auf der Seite als erstes an, wenn ich das Lehrwerk aufmache.**

Frequency: **1**: 10 (14.3%), **2**: 24 (34.3%), **3**: 15 (21.4%), **4**: 20 (28.6%), **5**: 1 (1.4%), **6**: 0. 1 value missing. Although in total 70% of the responses fall on the positive side of the scale, 21 respondents report that they only sometimes look at the pictures on the page first when they open the coursebook. The division suggested by the histogram, with responses concentrated above all at 'sehr oft' and 'manchmal' with a noticeable dip at 'oft' (option 3), may reflect differences in the respondents' cognitive styles, or simply in their attitudes to pictures: some individuals are less interested in them than others, and one aim of this scale was to explore whether such differences could be discerned. The histogram suggests that they could. 10 of the 28 experienced teachers chose 'manchmal', making this the most frequent response in their group. Possibly this reflects the desire of busy teachers to get down to business when they prepare or begin a lesson, although their concentrating on the text when opening the book would also mean that they regard pictures as decorative, not central to the instructional goals. The frequencies for this group were: **1**: 25%, **2**: 25%, **3**: 14.3%, **4**: 35%, **5**: 0, **6**: 0.

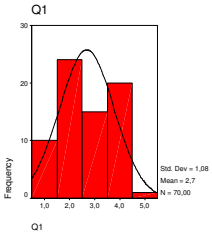


Figure 18a: item 1, all respondents

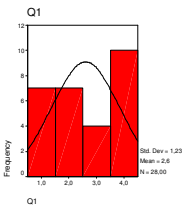


Figure 18b: item 1, experienced teachers

***Item 8*: Mir fällt es schon auf, wenn die Illustratorin/Illustrator etwas nicht sehr gut gezeichnet hat.**

Frequency: **1**: 16 (22.9%), **2**: 17 (24.3%), **3**: 24 (34.3%), **4**: 10 (14.3%), **5**: 3 (4.3%), **6**: 0. 1 value missing. As over 81% of the responses express varying intensities of agreement and no-one wholly rejected the statement, the teachers clearly do pay attention to the quality of the illustrations. Admittedly, 'etwas nicht sehr gut gezeichnet hat' is a vague formulation, and there is no way of knowing whether the respondents understood it to refer to the illustrator's cultural knowledge, sensitivity to instructional goals or artistic skills as such. The experienced teachers asserted more vehemently that they noticed if something had not been drawn well: the frequencies were: **1**: 32.1%, **2**: 17.9%, **3**: 32.1%, **4**: 10.7%), **5**: 7.1%, **6**: 0 The histogram for this subgroup has high frequencies at 1 and 3 and a significant dip at 2, which suggests a division between teachers who are strongly aware of the illustrations and those for whom they are of relatively little consequence.

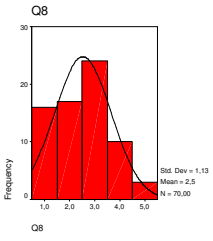


Figure19a: item 8, all respondents

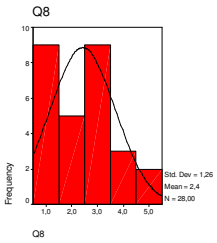


Figure19b: item 8, experienced teachers

***Item 10*: Ich kann mich an ein Bild aus dem Kapitel, das wir im Moment durchnehmen, erinnern.**

Frequency: **1**: 20 (28.2%), **2**: 21 (30%), **3**: 21 (30%), **4**: 4 (5.7%), **5**: 4 (5.7%), **6**: 0.

1 value missing. From the responses to this item, it is clear that the teachers both notice and remember the pictures in their materials. The experienced teachers, some of whom may have taught the same chapters numerous times, affirmed even more strongly that the statement applied to them. The statistics for this group were: **1**: 35.7%, **2**: 28.6%, **3**: 28.6%, **4**: 7.1%, **5**: 0 **6**: 0

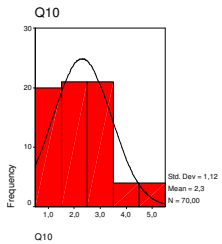


Figure 20a: item 8, all respondents

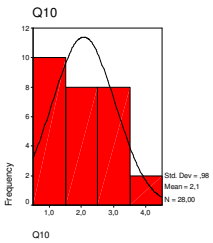


Figure 20b: item 8, experienced teachers

***Item 15*: Es ist wichtig, dass die Illustratorin/der Illustrator eines Fremdsprachenlehrwerks die Länder, wo die Sprache gesprochen wird, gut kennt.**

Frequency: **1**: 19 (27.1%), **2**: 22 (31.4%), **3**: 15 (21.4%), **4**: 11 (15.7%), **5**: 3 (4.3%), **6**: 0. 1 value missing. 80% of the teachers agreed that it is important for the illustrator to be familiar with the country or countries where the language is spoken; over 50% underlined their view by expressing strong or full agreement (response options 2 and 1). This item explores by implication how important the teachers think pictures are as vehicles of the cultural knowledge needed to contextualize language. The high rate of positive responses is an indicator that the teachers in the sample view the pictures in terms of language-teaching considerations such as pragmatic and cultural competence, and not merely as decorative or motivational. The experienced teacher group responded as follows: **1**: 39.3%, **2**: 25%, **3**: 10.7%, **4**: 21.4%, **5**: 3.6%, **6**: 0. That is, the largest number chose the option 'stimme vollkommen zu', although the spread is relatively wide (the standard deviation for the subgroup's data is 1.295; for the group as a whole it is 1.172) and a quarter of this group have rejected the statement. In all, 14 respondents, 7 of them experienced teachers, believe it is not important for illustrators to be familiar with the country or countries where the language is spoken. This might express a disregard for pictures and belief that they are not bearers of relevant information in the language classroom, but could equally well reflect the view that if illustrators research their subject-matter properly they can produce culturally accurate illustrations even if they do not know the country concerned at first hand.

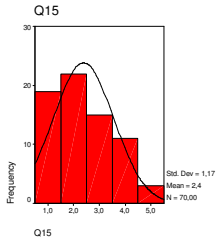


Figure 21a: item 15, all respondents

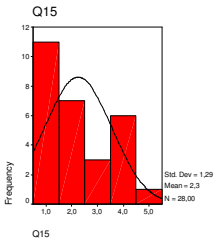


Figure 21a: item 15, experienced teachers

***Item 17*: Ich gehe im Unterricht auf Karikaturen oder Comics auf der Lehrwerkseite ein, auch wenn sie nicht Teil einer Übung sind**

Frequency: **1**: 3 (4.3%), **2**: 7 (10%), **3**: 29 (41.4%), **4**: 18 (25.7%), **5**: 10 (14.3%) **6**: 3 (4.3%). 1 value missing. The response pattern for item 17 differs markedly from those of the previous items in the scale, and is evidence that the teachers gave considered and differentiated responses to the statements. Very few respondents strongly affirmed the statement; the most frequent choice was 3 ('oft') followed by 4 ('manchmal'), with 13 teachers choosing the options 'selten' and 'nie'. The significance of these responses would depend on the individual coursebook and the types of comics or cartoons included, but the results do suggest that about half the teachers tend to ignore visual materials which have no obvious function related to verbal materials. Although the experienced teachers opted to a large degree

for the neutral 'oft' response near the middle, the histogram shows that their response pattern was more equally balanced. The frequencies for this group were: **1**: 7.1% **2**: 14.3%, **3**: 46.4%, **4**: 21.4%), **5**: 7.1% **6**: 3.6%).

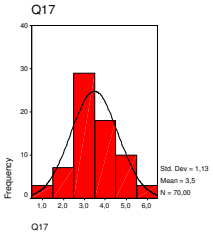


Figure 22a: item 17, all respondents

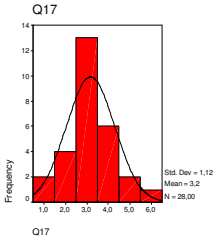


Figure 22b: item 17, experienced teachers

***Item 20*: Wenn ich die Illustrationen im Lehrwerk nicht mag, wird meine gesamte Einstellung zum Lehrwerk negativ beeinflusst**

Frequency: **1**: 7 (10%), **2**: 10 (14.1%), **3**: 20 (28.6%), **4**: 17 (24.3%), **5**: 11 (15.7%) **6**: 5 (7.1%). 1 value missing. Of all the items in the Section 3 scale, this has the least relevance to language teaching concerns; it was included to explore whether there were strong differences in the levels of awareness of visuals amongst the teachers questioned. The data display a normal distribution, with skewness of only .001, as one might expect for a variable focussing on personal preferences rather than experience or observations. The experienced teachers' profile differed noticeably. The frequencies for options 1, 2 and 3 on the 'agreement' side of the scale were very similar, although the most frequently chosen response overall was 4, 'lehne ab' (disagree). The percentages were: **1**: 17.9%, **2**: 21.4%, **3**: 17.9%, **4**: 25%, **5**: 10.7% **6**: 7.1%. The patterns shown on the histograms give the general impression that the experienced teachers feel more strongly about the coursebook illustrations than the group as a whole, possibly because they use them more intensively and may have repeated the same units many times.

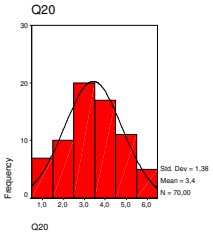


Figure 23a: item 20, all respondents

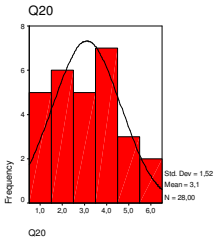


Figure 23b: item 20, experienced teachers

4.3.1 Comments on Section 3

Awareness of visual elements in teaching materials is a complex area to investigate, and the data obtained from a single six-item scale can at best only suggest tendencies. The items were open to interpretation and although the responses offered useful insights, the degree of correlation across items

was expected to be low from the outset. The Cronbach alpha for whole group across all six items was .4854, and so the responses cannot be considered to display internal consistency. It is interesting to note that item 15, the one most directly connected to FLT considerations, had the most disruptive effect on the internal consistency of the scale. But even if this item was deleted, the Cronbach alpha would still only be .5198. The Cronbach alpha for the group of experienced teachers was .6042, which indicates somewhat greater reliability and shows that the experienced teachers were more consistent in their response patterns for this scale than the group as a whole. Overall the responses to Section 3 suggest that the teachers who took part in the study are well aware of the pictures in the coursebooks and, as the responses to items 15 and 17 indicate, view the visuals primarily in terms of their relevance and affordances for language teaching.

4.4 Section 4: Whether and for what teaching purposes the respondents use pictures other than those provided by the coursebook

The items were formulated as follows:

Ich bringe Bilder mit in den Unterricht oder zeichne eigene Bilder…

25)….damit die Lernenden über sie sprechen können

26)….damit die Lernenden über sie schreiben können

27)….als Grundlage für Grammatikübungen oder -erklärungen

28)…um Sprachlernspiele zu spielen

29) Aus anderen Gründen (welche?) ----------

30) Ich sammle Bilder, die ich eventuell in meinem Unterricht benutzen könnte

31) Ich zeichne spontan Bilder im Unterricht

The response options were: 1: fast immer, 2: sehr oft, 3: oft, 4: manchmal, 5: selten, 6: nie.

4.4.1 Items 25-28

Of the four activities named, additional visuals were reported to be used most often for language learning games: 42.6% of the responses to item 28 were on the left half of the rating scale ('fast immer' to 'oft'). By comparison, 39.7% of all responses were on the left half of the rating scale for item 25 (Speaking), 26.5% for item 26 (Writing) and only 14.9% for item 27. The most common response for all the activities was 'manchmal', except in the case of grammar, for which the response option 'selten' was chosen conspicuously often.

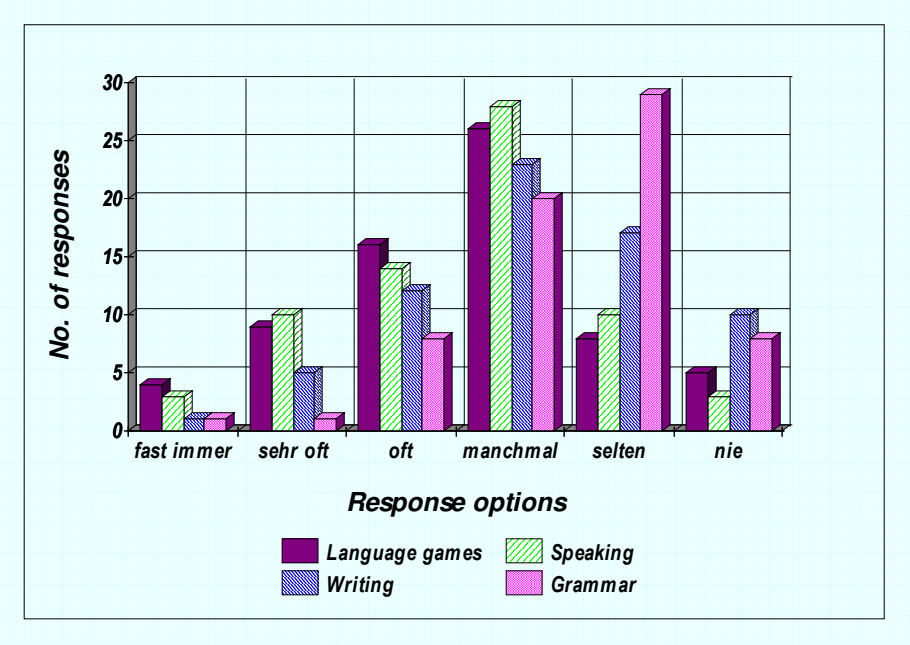


Figure 24: items 25-28

Ten teachers chose 'nie (never)' in response to item 26 (Writing), and one teacher noted in the margin that there is little free writing in courses for beginners, the level targeted by the majority of courses in adult education. The data suggest that if teachers do use additional, non-coursebook visuals in their classes, it is for language production activities typical of the communicative language classroom (speaking, writing, playing games).

4.4.2 Items 29-31

22 respondents noted other purposes for which they brought pictures to class or drew them on the board in response to item 29. Explaining or introducing vocabulary was the purpose cited most often (nine mentions), and two respondents emphasized that they frequently used pictures for this purpose. There were four mentions of using visuals for entertainment, humour or to create a more relaxed atmosphere. Two mentions each were made of the following uses: at the first meeting of a new class as ice-breakers or as a basis for class-members to introduce one another; in role-play as a basis for roles or to establish the situation; from aesthetic and affective considerations, to make the lesson more colourful ('damit der Unterricht bunter wird!' [F48] and to make it more attractive ('um den Unterricht schöner zu gestalten' [F44]). Single mentions were made of using pictures for the following: before-and-after descriptions (essentially a grammar-focused activity); drawing time-axes to teach tenses; to get people thinking ('Denkanstoß'); as a basis for descriptions of places and households; cultural background information; aids for oral presentations; exam preparation; and to create a common starting-point for all the participants. The functions the respondents mentioned can be grouped as follows:

1) specific language-teaching functions, such as explaining vocabulary and grammar

2) eliciting or augmenting language production

3) decoration, fun.

As regards items 30 and 31, 50% of the respondents chose responses on the positive side of the scale for item 30 ('ich sammle Bilder, die ich eventuell in meinem Unterricht benutzen könnte'). However, over 30% chose the response 'manchmal' (response number 4), which is on the right and thus technically negative side of the rating scale. Only two teachers indicated that they never collect pictures for possible use in class. The frequency statistics for item 31 were: **1**: 6 (8.8%), **2**:13 (19.1%), **3**: 15 (22.1%), **4**: 22 (32.4%), **5**: 10 (14.7%), **6**: 2 (2.9). 3 values missing. As can be seen from the histogram for item 31('ich zeichne spontan Bilder im Unterricht'), less than half the teachers draw pictures spontaneously in class: only 39.7% chose responses on the positive side of the scale, and the response crossed most often was 'selten' (option 5); this was chosen by over 30% of the respondents. On the other hand, only 5 of the 68 teachers who responded said that they never drew pictures spontaneously in class. The frequencies for Item 31 were: **1**: 5 (7.4%), **2**:9 (13.2%), **3**: 13 (19.1%), **4**: 15 (22.1%), **5**: 21 (30.9%), **6**: 5 (7.4). 3 values missing.

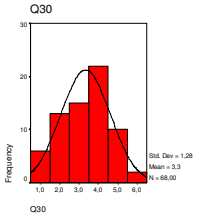


Figure 25: frequencies for item 30

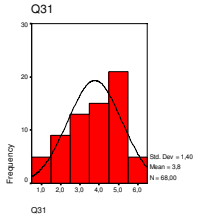


Figure 26: frequencies for item 31

4.4.3 Comments on Section 4

The overall impression from Section 4 is that almost all the teachers regard the use of supplemental pictures as an established feature of their teaching, albeit not a central one. As each item in the section concerned a different aspect of additional visual materials in the classroom, they could not be treated as comprising a summative scale. Nevertheless, the section as a whole distinguishes between teachers who regard visuals as an essential part of their teaching and those for whom they play a more peripheral role. The distinction is visible in the response patterns, since teachers whose methods are less picture-focussed are unlikely to collect or create additional pictures, and so choose the options 'selten' and 'nie', while those who regard them as central choose options between 'fast immer' and 'oft'.

4.5 Section 5: opinions about the functions of pictures in specific domains of FLT

In the questionnaire the items for Section 5 are mixed in with the items from Sections 1-3, but unlike these sections cannot be treated as a summative scale, since each item addresses a different aspect of language teaching. The items are:

Item 2: Kleine Piktogramme wie  sind eine wichtige Hilfe für Lehrwerkbenutzer[11]

Item 5: Bilder sind eine wichtige Unterstützung bei der Vermittlung neuer Vokabeln

Item 13: Bilder sind eine wichtige Unterstützung bei der Vermittlung von landeskundlichen Informationen

Item 18: Bilder sind eine wichtige Unterstützung bei der Vermittlung neuer Grammatik-Themen

Item 22: Bilder sind eine wichtige Unterstützung beim Lesen und Hören unbekannter Texte.

Item 24: Ich finde es effektiver, wenn Sprachregeln mit Hilfe von Bildern (z.B. mit kleinen Figuren) erklärt werden

The mean ratings for Section 5 were on the positive side of the rating scales for all the items, which indicates that most of the teachers questioned feel pictures have important supporting functions in the language classroom. The cultural background function, Item 13, was considered most important. 98.6% of the respondents chose a positive response to this item, and it had the highest mean (1.89) as well as a low standard deviation (.808), indicating a high rate of consensus. The lowest mean (3.09) was for item 18 (grammar), and here too there was a high degree of consensus (standard deviation .864), indicating that pictures were thought only moderately useful for teaching new grammar. The teachers considered support for reading or listening comprehension (item 22) the second most important function. 94.1% of the respondents responded positively to the item, although the majority chose the response option 3, 'stimme zu'. The third most important supportive function was in the area of vocabulary (item 5), which had 92% positive responses overall. Pictograms (item 2) and graphics used to elucidate rules (item 24) were viewed as equally important in terms of total positive responses (81.4% and 81.2% respectively) with respective means of 2.70 and 2.84, and thus neutral in tendency.

[11] The spanner pictogram is from Görrissen et al. (1996: *passim*). The pointing and reading pictograms are from Goodacre et al. (1988: *passim*).

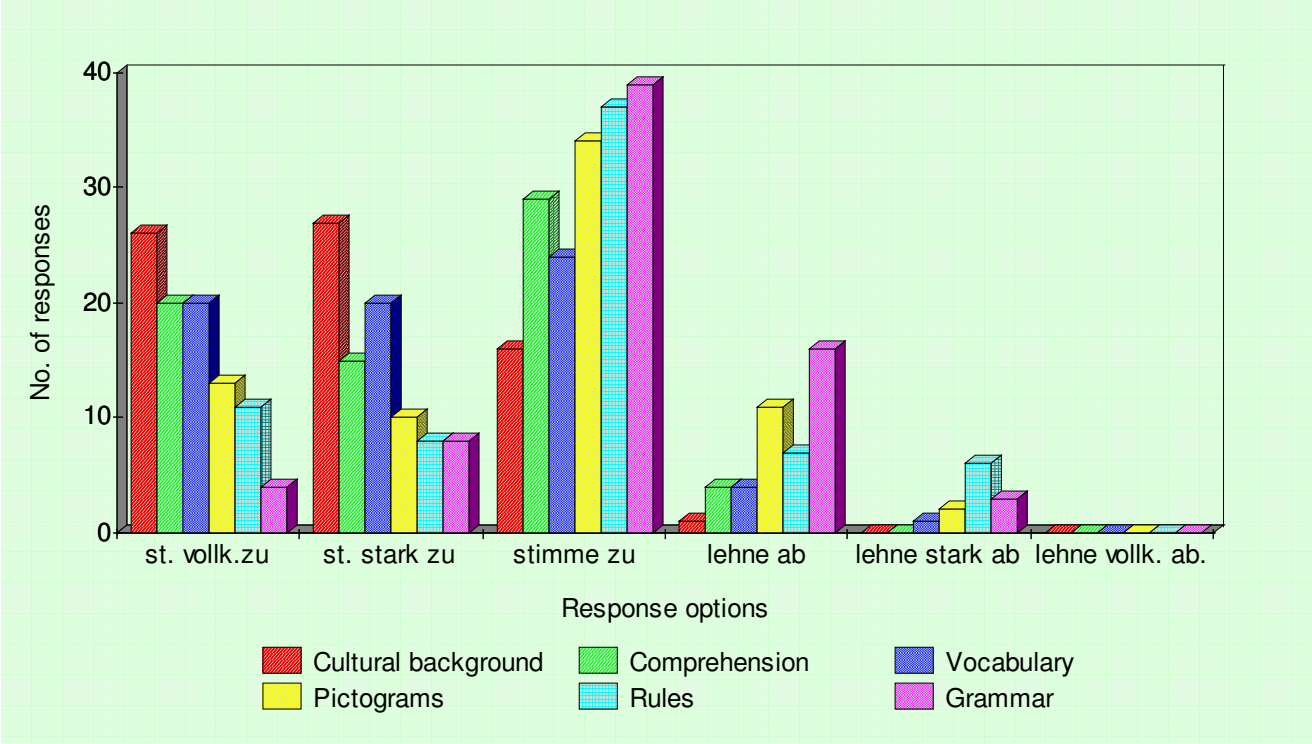


Figure 27: The relative importance of pictures in different areas

4.5.1 Comments on Section 5

If the teachers' views on the functions of FLT visuals are considered in relation to the functional typology of visuals proposed in the triangular graphic at the end of the previous chapter, the functions considered most important by the teachers (cultural background, comprehension, semantization) map onto the respective focusses placed at the three points of the triangle. Cultural background is located in the 'mind and culture focus' area, comprehension and semantization in the 'language focus' area and, as all three also have contextualizing functions, they can be located in the 'context focus' area as well. Like the analysis of coursebook visuals in the last chapter, the teachers' opinions about the major functions of visuals in FLT underline how different these are from the functions addressed by the non-FLT-specific research on instructional visuals discussed in chapter III. Only in the domains of rules and grammar, which are concerned with systems, processes or regularities, is there some resemblance to the kinds of materials commonly addressed by this research. However, rules and grammar are areas where the teachers consider support from visuals to be unimportant.

4.6 Section 6: the sources of pictures the respondents use

The items were formulated as follows:

In meinem Unterricht benutze ich …

32) ... gar keine Bilder □

33)… nur die Bilder im Lehrwerk □

34)… nur Bilder, die ich selber in den Unterricht bringe □

35)… die Bilder im Lehrwerk sowie auch Bilder, die ich selber in den Unterricht bringe □

36)… Bilder, die ich vom Internet runterlade □

37)… Bilder, die ich kopiere (oder einscanne) □

38)… Bilder, die ich aus Zeitschriften usw. ausschneide □

39)… Bilder, die ich selber zu Hause zeichne □

40)… Bilder, die ich selber am Computer erzeuge □

41)… eigene Photos oder Photomontagen □

42)… Bilder, die ich selber im Unterricht an die Tafel zeichne □

43)… Bilder aus anderen Quellen (welchen?)……

The respondents were told they could cross any items that applied to them. Sources of additional pictures according to frequency of citation were:

Item 38 (pictures cut out of magazines), **46**

Item 37 (photocopied or scanned pictures), **41**

Item 42 (pictures I draw on the board myself in class), **36**

Item 41 (my own photos or photo montages), **23**

Item 36 (photos I download from the internet), **22**

Item 39 (pictures I draw myself at home), **12**

Item 40 (pictures I create myself on the computer), **7**

Item 33 (only the pictures in the coursebook), **2**.

Item 32 (no pictures at all), **0.**

Item 34 (only my own pictures), **0.**

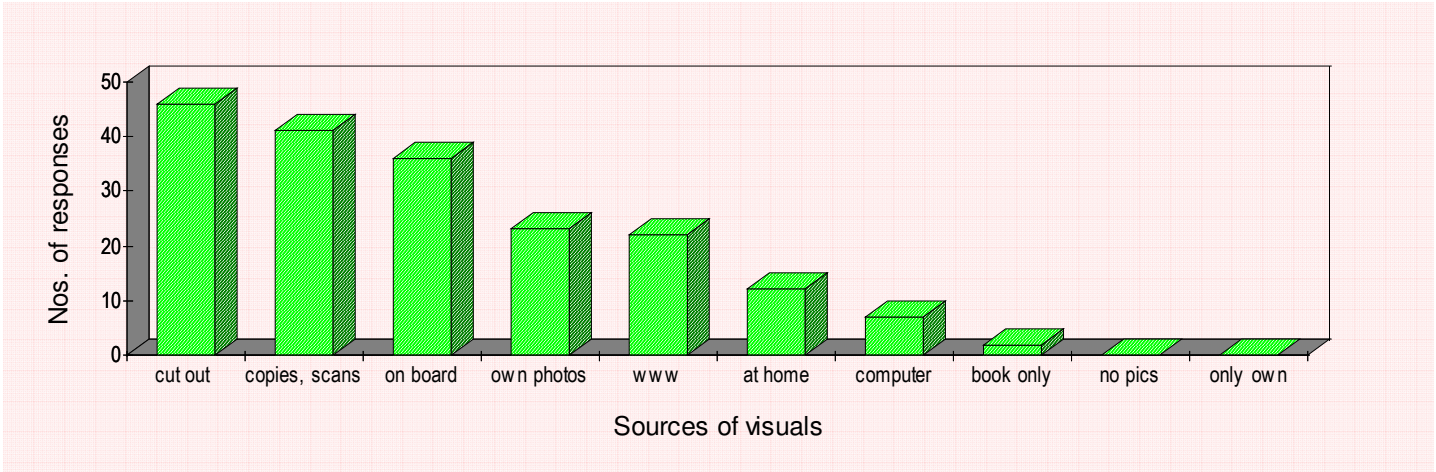


Figure 28: sources of additional pictures by order of frequency

Item 43 invited the teachers to state what other sources of pictures they use in their teaching, in addition to those mentioned in the section. Ten respondents provided additional information, and mentioned these sources: ***other coursebooks*** (3 mentions); ***postcards*** (2 mentions); ***games*** (2 mentions); ***prospectuses, brochures*** (2); ***newspapers*** (2). There were single mentions of: ***books, greeting-cards, children's drawings*** and ***drawings*** commissioned from an acquaintance 'die sehr gut zeichnen kann'. Very specific information was given in these instances: brochures from the travel agent's; advertising supplements for supermarkets or furnishers in newspapers; free postcards; school newspapers, because they provide up-to-date pictures and examples of youth jargon; good older coursebooks, ready-made ('fertige') cards.

4.6.1 Comments on Section 6

Although its primary function was to gather information about sources and types of pictures the teachers use, Section 6 (like Section 4) afforded insight into respondents' overall attitudes to pictures, since teachers who take the trouble to procure, prepare or create their own pictures evidently believe that they play a meaningful role in their teaching. Of the 70 teachers who responded to the items in Section 6, 62 stated that they supplied other pictures to supplement those in their coursebooks. Whatever attitudes they may have expressed in other parts of the questionnaire, this number suggests that the overwhelming majority view pictures as indispensable tools in the language classroom, and that collecting or creating pictures is part of their standard repertoire of teaching practices. This finding is in line with Rieber's comment that '[r]egardless of their effectiveness, graphics (and other visuals) are an integral part of most teaching strategies' (1994: 33).

4.7 Item 44: specialized training in the use of pictures in language teaching

Item 44 was originally conceived as part of Section 3, but in view of its central importance for this study it was placed on its own at the end of the main body of the questionnaire; space was also provided for additional written information. The statement in Item 44 was: 'In meiner Ausbildung oder in Workshops usw. habe ich gezielt gelernt, wie man Bilder im Fremdsprachenunterricht einsetzt, damit sie den Lernprozess effektiv unterstützen'. The response options were: trifft vollkommen zu, trifft stark zu, trifft zu, trifft nur zum Teil zu, trifft nur sehr bedingt zu, trifft überhaupt nicht zu. This was followed by: 'Falls ja, könnten Sie bitte kurz schildern, was Sie gelernt haben, und wie? z.B. 'Uni-Seminar zum Thema X' oder 'Workshop in meiner Sprachschule zum Thema X'.

Although none of the teachers chose the response 'trifft vollkommen zu', 18 chose response 3, 'trifft zu' and four chose response 2, 'trifft stark zu'. These imply that they have received instruction on how to use pictures effectively in FLT. However, eight of the respondents who chose positive responses, five of whom were NNS of German, failed to specify what they had learnt, or in what context. Possibly they did not understand the question, did not read it carefully or could not remember the details

requested. Whatever the reason, since their positive responses were not backed up with more specific information about what and where, they can only be treated with caution. Figure 32 represents the data with the responses as given, and after data-cleaning, with the positive but unsubstantiated values removed.

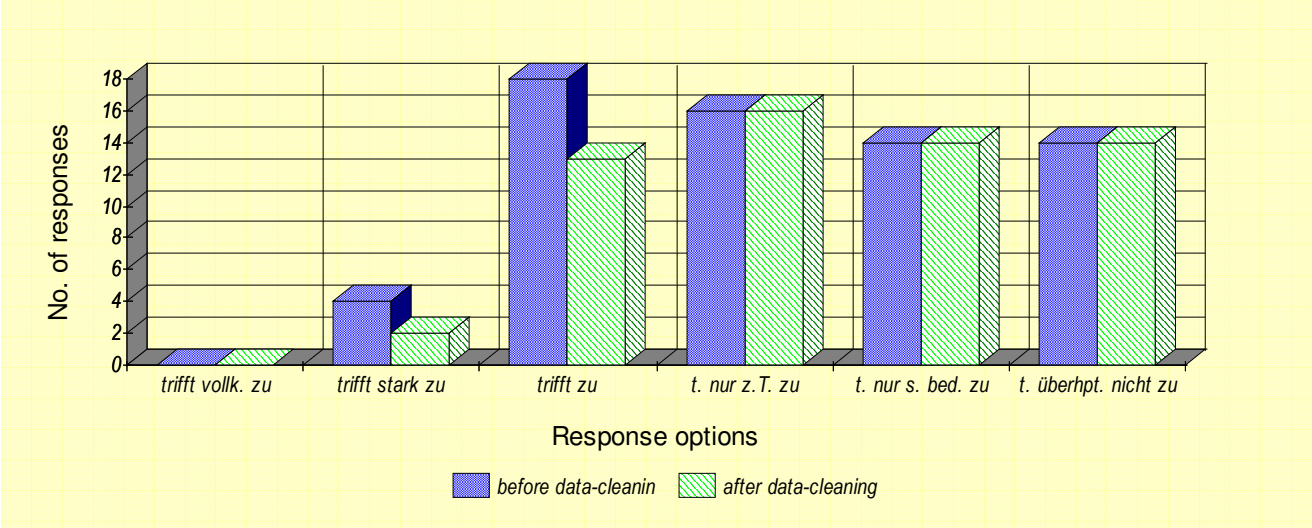


Figure 32: responses to item 44 (training in the use of visuals) before and after data cleaning

The original version presents a more positive picture than the data-cleaned one. Whereas 'trifft zu' is the most frequent response in the original version, in the data-cleaned one it is only the fourth most frequent (13 responses), and only two responses remain at 'trifft stark zu'. In some cases respondents chose a response to the right of centre on the rating scale, but gave details of training in the use of visuals in their written answer. Such responses did not undergo data-cleaning however, since the teachers' judgement that their training in the use of pictures had not been adequate had to be respected. The values for the negative side of the rating scale are: 4: 16, 5: 14, 6: 14. That is, 44 of the 59 teachers (fractionally less than 75%) whose responses were regarded as reliable can be said to assert that they have not had much or have not had any specific training or instruction in the use of visuals.

25 of the respondents provided written responses to item 44. For purposes of analysis, the written responses were divided into the following categories: focussed training (responses that specified university seminars or workshops devoted to visuals); mentions of university seminars or workshops without specifying the topics; mentions of seminars or workshops specifying topics which do not seem directly focussed on visuals; other ways respondents have learnt how to use pictures in foreign language learning.

There were 11 references to workshops on pictures, including some of mine, and four respondents gave specific information about university seminars dedicated to the use of visuals in FLT. A further six said they had attended university seminars on visuals, but did not specify the precise

topics, and three others said the topic had been covered in their 'training', without further specification. Some said they had had specific training, but mentioned topics only obliquely connected with pictures and visualizations. Respondent T6 for example had attended university seminars on 'lebendiger Unterricht' and 'kommunikatives Lernen' as well as workshops on 'Übungen in Spiele' (*sic*). Respondent T13 had attended a university seminar on 'Einsatz alternativer Materialien'. In the context of the seminar, the response suggests, visuals were classified as 'alternative' teaching media rather than core elements of FLT teaching materials. Finally, some teachers described less conventional ways in which they had learnt to use pictures for FLT. These included '…vor allem "learning by doing", besonders in Alphabetisierungkursen/Frauenkursen für Lernungewohnte' (respondent T1); 'andere (*sic*) Fremdsprachenunterricht' (respondent F36); 'Literatur: Mit Bildern lernen, Langensch' (respondent W23; the literature referred to is Scherling & Schuckall 1994, a handbook on using pictures in the GFL classroom).

4.8 General remarks from respondents

25 teachers added a final comment in response to the prompt 'Zum Thema Bilder möchte ich noch Folgendes sagen' at the end of the questionnaire. For the purpose of analysis, the responses have been grouped into different categories. Additional information (e.g. on the coursebook or respondent's L1) has been added in italics where relevant.

4.8.1 Concrete, FLT-specific roles and functions of visuals

Semanticization

W23: Ich zeichne oft, um neue Vokabeln einzuführen. Erwachsene Lerner kopieren die Tafelbilder sehr gern. Mnemotechnisch ist die Verknüpfung zwischen Bild und fremdsprachlichen Begriff ideal. Zeichenkurse sollten zu jedem Sprachstudium (Lehramt) gehören. (*L1 German; Coursebooks Caminos 1 +2, old and new editions*).

F34: Bilder … erklären viel.

Stimuli for language production

F35: Bilder bringen die Teilnehmer dazu, 'echte' Sprachäußerungen zu machen, d.h. da zu sagen, was sie wirklich meinen.

4.8.2 Statements of sympathy or antipathy

M26: Bilder sind sehr interessant und relevant beim heutigen visuell-stark-geprägten Gesellschaft (*sic*; *L1 unknown*).

F34: Bilder sind inspirierend …, lockern die Atmosphäre auf; aber ohne Text schriftlich oder mündlich geht es nicht.

F44: Bilder sind genauso wichtig wie Spiele.

F 48: Sehr wichtig!

F 51: Bilder helfen, den Unterricht interessanter, spannender zu gestalten, motivieren die Teilnehmer, selbständiger zu arbeiten.
F 53: Sie sind unerlässlich und bereichern den Unterricht.
F58: Bunte Farben regen die Sinne an.
F63: Eigene Zeichnungen an der Tafel sorgen für humorige Entspannung, wichtige Lernvoraussetzung.
F70: Meiner Ansicht nach sind Bilder (Zeichnungen, Fotos, Bildkarten, landeskundliche Fotos) gerade in der Grundstufe eine wunderbare Unterstützung u. Hilfe im Unterricht. Ich würde mich sehr darüber freuen, wenn in nächster Zukunft noch mehr Bildmaterial im Internet o. anderweitig zur Verfügung stehen würde! ☺
F47: ☺. (*L1 English, made no other comment than to draw a smiley.*)
F46: Ich finde überhaupt nicht nötig Bilder in Unterricht (*sic*).

4.8.3 Statements related to individual experience and teaching practice

T6: Auch in den Lehrbücher vorhandenes Bildmaterial ist letztlich nicht authentisch. Ich finde es daher wichtig, stets auch 'Alltagsmaterialien' - Werbeprospekte, Zeitungen etc. - in den Unterricht einzubinden.
W20: Ich verwende meistens Fotos, seltener Zeichnungen, aber häufig Comics.
F33: Bilder sind für mich ein wesentlicher Bestandteil des Fremdsprachenunterrichts, insbesondere im Anfängerbereich.
F58: … umständlicher, aber noch besser als Bilder: Objekte in den Unterricht mitbringen.

4.8.4 Comments and critiques related to visuals in materials

T2: Es ware besser wenn die Bilder im Arbeitsheft bunter und lustiger wären. Damit die Schüler mehr motivation haben. (*Coursebooks: Caminos and Bien Mirada; the workbooks for these series have only black-and-white graphics or line drawings.*)
F58: Viele Lehrwerke haben Bilder, für die es keine Arbeitsanweisungen gibt.
M17: In den Lehrwerken sind Bilder nicht immer klar motiviert und stehen bei Tangram z.B. oft isoliert. (*Coursebooks: Tangram, em, Themen, auf neuen Wegen; the comment can also be linked to findings by cognitive load theorists that isolated pictures may produce extraneous cognitive load due to 'split attention effect' [see Ch. III, 2.4.3].*)
T7: Art der Bilder wechselt/verändert sich mit dem Niveau (zunehmend abstrakter). Coursebooks: Tangram +Tangram aktuell, Themen neu aktuell (als Materialzusatz), em-Brückenkurs/Mittelstufe 'Auf neuen Wegen'.
F45: ON THE MOVE enthält zu viele Bilder, bei Erwachsenen dieses Levels genügen wenige. (*Coursebooks: On the Move 1 and 2, which are targeted at CEF level A1, i.e. beginners.*)

5 Discussion and implications

Only two respondents, one of whom has just been quoted, stated that adult learners do not need many pictures. Overall the teachers questioned indicated a strong belief in the usefulness and beneficial effects of pictures and showed a strong awareness and appreciation of them. The information about the pictures they used, the domains they found them most effective in and especially the fact that the great majority invested preparation time in procuring additional visual materials suggest that visuals form an essential part of the teachers' resources. Nevertheless, very few of them have had specialized instruction in the theory and practice of teaching with visuals. The lack of formal training in using visuals is not compensated for by the books' producers, as the responses to Section 2 suggest. The majority of the teachers felt it was not always clear how the pictures in the book were supposed to be used, and indicated that they would welcome more explicit instructions on how the visuals were intended to support the classroom activities.

The respondents perceived visuals as having a wide range of affordances. Some of these, like the mnemonic properties of visuals or their role in eliciting language production in the communicative language classroom were affordances identified on the basis of knowledge about language learning processes and approaches. Other affordances were perceived in relation to teachers' experience with them in specific areas of language teaching (such as listening or speaking) and language learning activities (such as games). On a more general level, humour, fun, inspiration and creating a good atmosphere were cited as affordances of visuals; and indeed the responses to the statement that pictures are motivating (item 11) were amongst the most unanimously positive ones in the whole questionnaire. The strong agreement on the motivational properties of visuals is in direct conflict with findings from research on instructional visuals however, and the item was included in the questionnaire to discover how the view from the classroom compares with positions such as the following:

> Wenn das Bild im Hinblick auf seinen unterrichtlichen Zweck nicht definiert werden kann, ist es in den meisten Fällen auch entbehrlich. […] In der Verlagswerbung oder in den Lehrerhandbüchern wird dann gerne von einem 'Motivationseffekt' gesprochen. Von der Lernpsychologie wird diese Annahme nicht gestützt, nach ihren Erkenntnissen sind Bilder mit rein dekorativem Charakter ohne didaktische Funktion schlicht und einfach wirkungslos.[12] (Sturm 1991: 9)

[12] An example is the examination 87 research reports by Levin, Anglin & Carney (1987) referred to in chapter III. Of the five picture functions analysed in their meta-analysis, what they term the decorational function was the only one that had no discernible effect on learning.

As noted in the previous chapter, Sturm suggests that pictures which are included in materials for no other purpose than motivation may actually have a negative effect, since the learner, finding they make no concrete contribution to the learning task at hand, may cease to regard any of the pictures in the materials as supports to learning, and fail to process them attentively. So are motivation and enjoyment real affordances or perceived affordances only? Does the teachers' conviction that pictures are motivating and entertaining derive from a failure to perceive their affordances as serious sources of information and support for learning? After all, since it is unlikely that many teachers have used commercially-produced materials that are not illustrated, have they ever been in a position to observe a rise in learners' motivation when pictures are added to previously unillustrated material? Nevertheless, the views and intuitions of experienced teachers have to be weighed carefully against findings from artificial learning situations constructed by psychologists for experimental purposes. There has been little research on visuals and their motivational effects on language learning, or on learning of any kind, perhaps because 'the interest and enjoyment effects' have been considered 'too obvious for serious investigation' as Peeck (1993: 117) has suggested. Since the teachers questioned are convinced that visuals have animating and motivating affordances in the language classroom, this is an area that offers scope for future research.

CHAPTER VI

PICTURE INTERPRETATION BY LANGUAGE LEARNERS: A STUDY

1 Introduction

Unless deliberately ambiguous and designed to prompt discussion, the coursebook pictures discussed in Chapter IV were not usually accompanied by explanations or processing instructions, which suggests that they are intended to communicate specific, unambiguous meanings. However, as the anecdotal evidence in the Introduction shows, occasionally divergent interpretations of apparently straightforward pictures do come to light in the language classroom. Hewings notes in his study of Vietnamese refugees' interpretations of coursebook visuals that '[d]ifficulties of interpretation are fairly unpredictable' and that teachers may well erroneously interpret them as language problems (Hewings 1991: 243); in some incidents I observed in the classroom, the learners themselves also seemed to interpret miscommunication resulting from divergent picture interpretation as language problems. The fact that they did not identify picture interpretation as the source of the problem suggested that they were not focussing careful attention on the pictures, a possibility supported by the findings of Weidenmann (1989) and Tang (1994). In their studies appropriate visuals failed to support learning in the ways anticipated, and both authors concluded that the visuals were not attended to very closely by the subjects and were not regarded as sources of significant information. However, Weidenmann and Tang carried out their respective studies in institutional settings and instructional domains very different from those of FLT. Are their findings applicable to the language classroom, and specifically to communicative activities based on visual prompts? Might divergent interpretations in the FLT context also be symptoms of inattentive processing? The divergent interpretations in my classes came to light by chance; but is it possible that different readings of pictures are actually quite common, but simply go unnoticed? Can their causes be detected, and can their potential for disrupting the activities they are meant to facilitate be predicted? This study was conceived to explore some of these questions by examining language learners' interpretations of visuals used as prompts in a speaking activity, in the hope of shedding light on the affordances of visuals for teachers and learners in an interactive, task-based teaching scenario. But before describing the genesis of the study, some general considerations related to research on visuals in FLT contexts have to be addressed.

1.1 Methodology and materials: some considerations

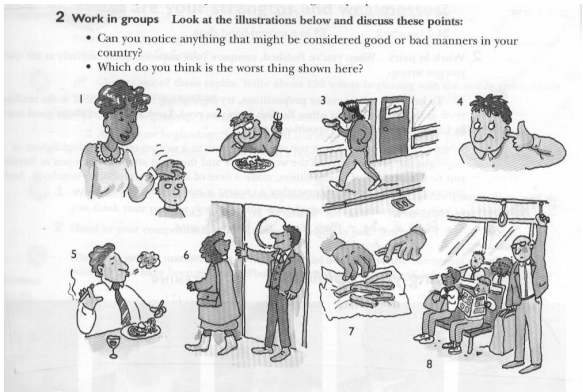
In the absence of studies that specifically address visuals used in skills-development tasks in the language classroom, discussions of visuals in FLT (e.g. Canning-Wilson 2001) tend to cite the beneficial effects of pictures and graphics as demonstrated in research on learning with pictures from the field of cognitive psychology. However, as we have seen in the previous three chapters, the kinds of

instructional goals and the types of visuals typically investigated by cognitive scientists differ significantly from those in the domain of FLT. In a task designed to consolidate language skills, the question is not how visuals facilitate retention and recall of facts, but how effectively the learners are able to use the visuals to practise and develop their skills. This is most emphatically not only a question of the suitability of specific visuals for given tasks. What is crucial for their effective use, as Weidenmann, Schnotz and others have also argued, is that they are perceived as bearers of significant information and processed as carefully as text. Casual observation in the language classroom had led me to suspect that attentive processing is rare, but to approach the issue more systematically, I set out to gather empirical data which would throw light on intermediate and advanced learners' processing, understanding and use of visuals in a classroom activity designed to foster discussion skills. The approach differs fundamentally from the kind found in studies by cognitive psychologists not only in the domain of learning and instructional goals under investigation, but because the questions the study poses grew from classroom experience rather than being a top-down realization of theoretical concepts. A second major difference is that the visuals used were not simple and unambiguous, but challenging to decode and open to interpretation, as effective visuals for the language classroom often are.

2 Background and design of the study

2.1 Genesis of the study

The impulse for this study came from a discussion task in Jones' *New Progress to First Certificate* (1997; henceforth *NPtFC*), and the background was sketched anecdotally in the Introduction. The coursebook is aimed at teenage and adult learners preparing for the Cambridge First Certificate in English examination, and the task is in Unit One, whose overall theme is intercultural communication.



The learners are instructed to work in groups and 'look at the illustrations below and discuss these points: - Can you notice anything that might be considered good or bad manners in your country? - Which do you think is the worst thing shown here?' (Jones 1997: 13; see also Fig. 1).

Figure 1: Discussion task from Jones (1997: 13); artist: Heather Clarke.
Reproduced by kind permission of Cambridge University Press.

The behaviour depicted in the pictures is a mixture of what might be considered bad or good manners in Britain (eating with elbows on the table, a man standing aside to allow a woman to go through a door first, for example) and behaviour that would be innocuous in Britain and other European countries, but highly offensive in other cultural contexts (touching food with the left hand; touching a child on the head). The small, coloured comic-style line-drawings by Heather Clarke seem designed to encourage debate and exchanges of cultural information in multicultural classes; the instructions in the Teacher's Book do not state this explicitly, however. They are as follows: 'Form groups by combining pairs. At the end ask the groups to report on their discussions and deal with any questions on vocabulary that arise. It might be instructive for you to provide an interpretation of the relative politeness of the things shown in Britain or another country you know which your students are less familiar with' (Jones 1996: 28). Note that the teachers' instructions are explicit about leaving the learners to carry out the discussion without the teacher's intervention; and although Jones anticipates lexical queries, the phrase 'the relative politeness of the things shown' suggests that the visuals are assumed to communicate their intended meanings unambiguously, whether the learners regard the manners they depict as good or bad. The only guidance on processing the pictures are these phrases in the Student's Book: 'look at the illustrations' and 'can you notice anything'.

Unusually for a task in a coursebook at upper intermediate level, the input for this activity is entirely visual. Over a period of eight years I did this task with roughly two hundred language learners: as mentioned in the Introduction, occasionally and unexpectedly strongly divergent interpretations came to light (picture six was described as showing a woman being sexually harassed and picture three was interpreted as someone throwing litter in the street, for instance), and I wondered whether such interpretations were in fact quite common, and were not commented on because everyone assumed they were seeing the same thing, and attributed communication problems to poor language skills. If differences in picture interpretation did go unnoticed, might this have broader implications? Might the implication be that the perceived affordances of such pictures differ from their actual affordances? Might they afford the learner more if the possibility of different picture interpretations was anticipated?

To address some of these questions, an experimental study was developed in which learners were asked to do a similar sort of picture-based task, but also record what they believed the pictures to show. As a basis for the study I drew 10 cartoon-style drawings which, like the *NPtFC* task, depict behaviour which may be considered bad or good in specific cultural circles (see Appendix B). As in the original task, learners were given the pictures as a basis for a discussion of good or bad manners or behaviour, but were asked first to write down briefly what each picture showed, and whether they thought the behaviour shown could, in any way, be considered bad. Although the main focus of the

study was the statements about what the pictures showed, the brief written comments on manners or behaviour often yielded additional information about how the learners had interpreted the pictures.

2.2 Authenticity

The decision to design and administer a real classroom task added authenticity to the study in a number of ways. It meant for one thing that learner-language factors that might affect picture interpretation, or appear to affect it, could be detected. It meant for another that instead of setting out to create ambiguous pictures which might have yielded more spectacular data, I undertook the kind of representational task that illustrators of language learning materials normally have: depicting specific, prescribed situations, actions and actors as simply and clearly as possible, primarily with the aims and requirements of the classroom activity in mind. The advantage of using pictures which I drew myself is that I can state with certainty what I intended the pictures to show: using other illustrators' pictures would necessarily have involved interpretation. Some months after drawing the pictures I re-examined them to see if the representational decisions taken at the time of producing them could be traced and verbalized. These reflections, which are documented in 2.3.2 below, provide insights into the strategies of depiction and some of the considerations involved in creating illustrations for the foreign language classroom. In most cases, after collecting the learners' written responses, I and the other teachers who administered the question sheets went on to do the speaking task, and found that the drawings functioned satisfactorily as prompts for extended discussion. The study is thus embedded in a practical language learning activity and the materials have been tested in the classroom.

2.3 Materials for the task

2.3.1 Intercultural background information

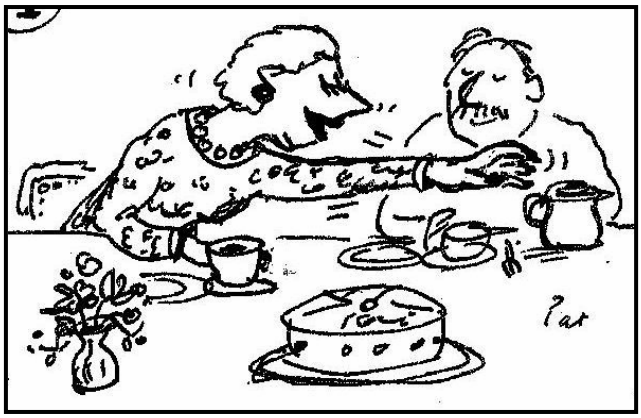
Like the pictures in the *NPtFCE* task, the ten pictures used in the study depict a mix of good and bad manners both familiar and unfamiliar to western learners. Topics for the pictures were gathered from sources such as internet guidelines for international business contacts, advice for exchange students, guides to table etiquette, travel journals and advice for backpackers and, in one case, an article describing an intercultural conversation analysis study. The behaviour to be depicted was selected according to how consistently it was described in the internet sources, and how well it lent itself to depiction in black-and-white line drawings. Exhibit 1 in Appendix B shows the instructions to the teachers doing the task, and explains what aspect of behaviour or etiquette is addressed in each drawing, and which culture it pertains to.

2.3.2 The ten pictures: representational intentions

The representational intentions are stated here for a number of reasons. One is that the intended meanings of the pictures were used as a basis for identifying divergent interpretations when analysing the data. Another is that by verbalizing decisions taken on a non-verbal level in the visual processing

system one gains insight into the representational process. It also becomes possible to detect whether any of the decisions are specifically motivated by factors related to the task and the language classroom and to explore whether there is a difference between drawing pictures for the language classroom and just drawing pictures. A further reason is that a comparison of the intended meanings and the meanings perceived by the learners indicates whether the representational strategies were successful or not, and whether bad drawing was responsible for any divergent interpretations. It should be emphasized that the study does not distinguish between right or wrong interpretations of the pictures, nor was it aimed at testing the respondents' visual literacy or their knowledge of intercultural mores. Each picture is discussed under the following headings: Intended depiction; Good/bad behaviour where; Representation strategies and task-specific considerations.

PICTURE ONE



Intended depiction: The picture shows a middle-aged couple at the tea-table. A woman is stretching across her neighbour for the milk jug instead of asking for it to be passed:

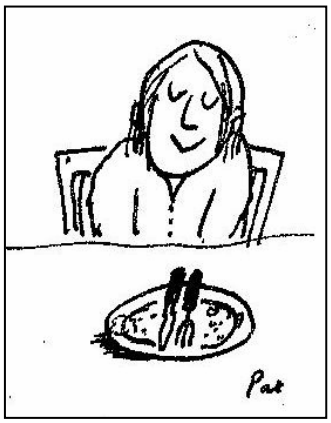
Good/bad behaviour where: The respondents confirmed that stretching for things is regarded as bad table-manners in Britain, Germany, China, and many other countries.

Representation strategies and task-specific considerations: Apart from the leaning body, outstretched hand and right arm on the table for balance, the act of 'stretching' is also indicated by the comic convention of small movement lines around the woman. There are no movement lines around the passive male figure. So that the learners do not simply agree that this is bad behaviour and move onto the next picture, the scene contains a number of puzzling details which provide further impulses for discussion. The woman's behaviour is a slightly uncouth, yet there are various indices of respectability in her appearance: floral dress, conservative necklace and earrings, well-groomed hair, painted fingernails. The table is formally set, with a tea service, flowers and an elaborately-decorated cake. Both people are smiling pleasantly, so possibly the woman is saying 'Excuse me stretching, dear,' while the man pardons her with a smile.

PICTURE 2

Intended depiction: A businesswoman on a city pavement blowing her nose. A businessman looks on uneasily.
Good/bad behaviour where: Guidelines for European business people travelling to South Korea and Japan stress that it is most offensive to blow one's nose loudly in public.
Representation strategies and task-specific considerations: The traffic-light, cars and tall buildings are indices of 'city street'. The cars are shown driving on the left, to suggest it is a British or British colonial city. The indices of 'man' are short hair and tie. The indices of 'woman' are boots, skirt, painted finger-nails, eyelashes, longer hair than the man's, lipstick. The briefcases are indices of 'sophisticated urban professionals', as are the people's clothes: the man is wearing an overcoat and tie, the woman high boots and a narrow business skirt. Depicting 'blowing one's nose' (an action marked in real life primarily by a characteristic sequence of sounds and movements) in a static line-drawing presented problems. In accordance with comic conventions, the outline depicting the woman's nose is filled in with lines to indicate unusual redness. This, together with the thick scarf, suggests a bad cold; the big handkerchief and the droplets of moisture moving outwards at nose level are the indices of the actual nose-blowing. Her left hand is spread and her eyebrows are drawn up in the middle to show the tension and effort of the blowing. However, eyebrows slanted like this conventionally encode 'sad face', so the handkerchief, the droplets and the red nose could be indices of 'crying'. To pre-empt that interpretation, the woman has a smiling mouth. The man's eyes are turned towards the woman, showing he is attending to her nose-blowing, and his mouth is slightly downturned, to indicate that he is disturbed by it. His facial expression is intended to allow leeway for interpretation and invite speculation.

PICTURE 3



Intended depiction: A good girl who has finished everything on her plate, put her knife and fork together neatly, and is waiting with her hands politely folded in her lap for the others to finish.
Good/bad behaviour where: The position of the knife and fork would be considered correct in Britain. Conventions for the placement of knife and

fork after eating differ widely across cultures (see Appendix B, Exhibit 1). There are also different conventions regarding the politeness of cleaning one's plate or leaving food on it; depending on the culture, both might be considered bad manners. American etiquette guides compiled for the task state that it is appropriate to put one's hands in one's lap when not eating, and I was also taught to do this when growing up in South Africa. German etiquette requires both hands on the table when one has finished eating. I did not deliberately set out to depict a violation of the German rule when I drew the picture, although respondents often mentioned it. This demonstrates how illustrators' own cultural norms are unconsciously included in the pictures they draw, providing a cultural bonus of visual information that promotes intercultural awareness.

Representation strategies and task-specific considerations: The main index of 'girl' is the chin-length hair. The indices of 'finished meal' are the crumbs on the plate, the position of the knife and fork, and the girl's hands resting on her lap (as suggested by the position of her arms and shoulders). The girl's expression - small, contented smile and lowered eyes - are intended to indicate satisfaction, both from having enjoyed the meal and from behaving perfectly.

PICTURE 4

Intended depiction: A mother out shopping with her small children. An older woman is patting one of the children, a girl, affectionately on the head while her brother looks on with mingled shyness, envy and resentment.

Good/bad behaviour where: According to the internet sources, touching a person's head is profoundly offensive in south-east Asia.

Representation strategies and task-specific considerations: To suggest that the older woman is not the child's grandmother or another close relative the scene is set on a pavement outside a supermarket. The index for 'pavement' is paving stones, and the supermarket is labelled by a sign above the door; the word 'supermarket' locates the scene in an English-speaking country. A further indicator that the older woman is not well-known to the children is the fact that the boy is hiding shyly behind his mother and looking at her with big eyes. The positioning of the figures, with the mother and children facing away from the woman shows they are passing by, and this is a fleeting incident with a stranger. The older woman has indices of respectability: handbag, well-groomed hair, respectable skirt and shoes. Her age is indicated by her stout figure, her double chin, her glasses, her white hair and her clothes. The indices for a nice little girl are hair in neat bunches, tidy checked skirt, dolly, charming smile and polite responses (her mouth is open to speak). The mother is

younger than the other woman (long hair, jeans, lace-up boots) but is wearing respectable earrings. All the female figures are smiling pleasantly, which indicates that the behaviour is regarded as pleasing.

PICTURE 5

Intended depiction: A youth spitting on the ground.

Good/bad behaviour where: Bad behaviour in Britain, Germany and many other cultures.

Representation strategies and task-specific considerations: Short hair, short padded jacket, tight jeans, hands in pockets are indices of a male youth. The spit and act of spitting, shown from the side for greater clarity, are indicated by drop-shapes in front of movement lines emanating from the youth's pouting lips.

PICTURE 6

Intended depiction: Two men at a football match eating popcorn out of a large carton with their left hands.

Good/bad behaviour where: Touching food or putting it in one's mouth with the left hand is forbidden in Islam and regarded as disgusting in all cultures where the left hand is used for personal hygiene.

Representation strategies and task-specific considerations: Popcorn is one of the few foods westerners normally take from the same receptacle with their hands. The classical setting for popcorn is the cinema, but the salient indices (big screen, projection beams, large audience, darkness) presented representational difficulties in a small picture. A football match seemed another appropriate setting for snack food, and could easily be signified by striped scarves. To explain why they should be reaching for the popcorn with their left hands, one man is drawn holding the popcorn carton in his right hand and the other holding a Coke can in his right hand. The popcorn, in its characteristic carton labelled 'popcorn', is indicated by small scribbled shapes, and its lightness is shown by a few pieces bouncing in the air above the men's hands or falling from the carton.

PICTURE 7

Intended depiction: Two women are smoking cigarettes over coffees in a café. The smoke is bothering a man and a woman having a drink at the next table.

Good/bad behaviour where: The behaviour is only possible in countries that allow smoking in public places. What constitutes bad behaviour here depends less on culture than personal attitudes to smoking: complaining about smoking in venues where it is permitted can be regarded as bad manners, just as molesting other people with cigarette smoke can.

Representation strategies and task-specific considerations: Tablecloths and cups or glasses are indices of 'café'; the broken curly lines are indices of cigarette smoke enveloping all the figures. The couple in the foreground have closed eyes and 'angry' eyebrows. The lines under their eyes and their exaggeratedly extended, down-turned mouths indicate that they are grimacing with displeasure and distaste. To make the picture more ambiguous (in terms of its moral judgement on smoking), and so provoke a discussion of its possible meanings amongst the learners, the smokers have been depicted as attractive, vivacious and relaxed, whilst the non-smoker couple huddles together with sour expressions, the woman's mouth open in complaint.

PICTURE 8

Intended depiction: An inappropriately overdressed foreign male guest having tea, watched closely by his hostess's Labrador. The man is uneasy both because of the dog and the fact that his hostess is sitting with crossed legs and pointing her foot at him, with the sole of her shoe visible.

Good/bad behaviour where: Allowing dogs to come into the house, sit on the furniture, sleep on beds and beg for food, as well as the tendency to treat them like children, is regarded as bizarre and disgusting in many non-western cultures. Pointing a foot at another person or showing them the sole of

the foot or shoe is deeply insulting in Thailand, Malaysia and other cultures in which the foot is considered the most ignoble part of the body.

Representation strategies and task-specific considerations:

The man has been depicted as dark, slightly-built and overdressed to hint at his foreignness without resorting to racial stereotypes. His discomfort is shown in his facial expression: the corners of his mouth are drawn down in distaste and there are wrinkle lines above his eyebrows to suggest they are anxiously raised. His gaze is fixed on the dog, showing that it is the source of his anxiety. His body language reveals his uneasiness about the dog's close proximity: the arm, leg and foot nearest the dog are drawn away from it. The dog has been depicted in a mildly anthropomorphic fashion: it has a friendly, innocent expression, indicated by its smile and big, expectant eyes, fixed on the man. The anthropomorphic depiction is intended to suggest that the dog is treated as if it were a human being in this household, and that it expects nothing but affection from humans. However, it has a doggy, drooling tongue lolling from its mouth (there is a drop shape below the tongue to show that it is salivating), and this is an additional reason for the man's discomfort and disgust. The hostess, blond like the dog and displaying a similar friendly, eager expression, is facing in the same direction as her pet, her posture echoing that of the animal. These details serve to emphasize that the woman and dog belong together and are both unintentionally causing their visitor acute distress. The woman is much more informally dressed than her guest. The saturated black of her shoes makes them prominent objects in the composition. To draw further attention to them there are movement lines at the toe and underneath the shoe to show she waving her foot in her guest's direction, obliging him to look at the sole. There are a number of indications of a British context. The participants are drinking tea (signified by the teacups and the teapot in the background), and sitting in chairs with the cups held in their hands rather than at a table drinking coffee (the standard German situation).

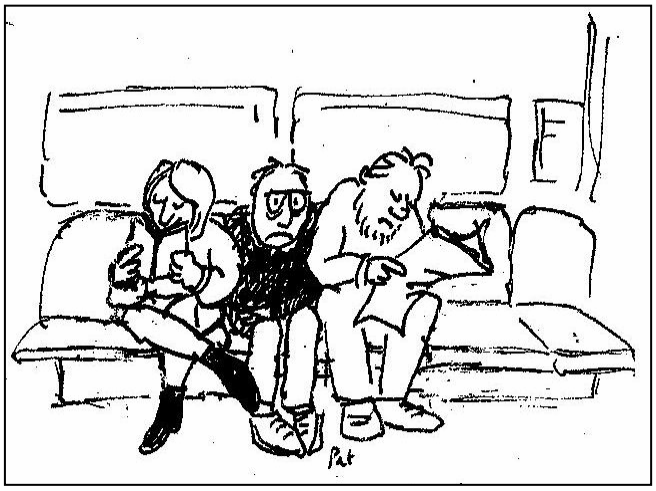
PICTURE 9

Intended depiction: (French) people speaking at the same time

Good/bad behaviour where: bad behaviour in English and German- speaking environments, but a signal of polite enthusiasm France, where overlapping and simultaneous turns are normal features of conversation (cf. Wieland 1991: 103,105,111 and Carroll 1988: 36-37).

Representation strategies and task-specific considerations: As in picture 2, the problem was to represent an acoustic phenomenon, taking place over time, in a static line drawing. All three participants are depicted with wide-open mouths, gesturing hands and with exclamation marks above their heads, a comic convention to indicate animated or loud speech. The cups and the table are indices of a relaxed, informal occasion: these are friends chatting in a café. The woman's elegant grooming and the coffee cups are intended as indices of Frenchness. The participants have very wide, smiling mouths because the original drawing, in which their mouths were open but not smiling, was seen by all the respondents during piloting as showing shouting, angry people.

PICTURE 10



Intended depiction: A man sitting squashed between two other passengers on a bus, train or tram, resentful of their invasion of his personal space.

Good/bad behaviour where: Normal and usually unavoidable when using public transport throughout Africa, Latin America and the Indian subcontinent (see Appendix B, Exhibit 1). Western travellers report that close body contact may occur without any ulterior motive even when the bus is *not* full.

Representation strategies and task-specific considerations: The man in the centre has several indices of anger and discomfort. He has a frown (indicated by a single thick, straight line above both eyes), dark rings signifying worry and gloom under his eyes and a pronouncedly downturned mouth. He is staring straight ahead, suffering in silence rather than protesting. His knees are drawn together and he is hugging himself defensively. The passengers on the right and left are turned away from him. Their expressions are neutral and their downturned eyes show they are engrossed in their reading. This detail is included to show that they are completely indifferent to the man between them and that their invasion of his personal space is not aggressive or sexually motivated. To further discourage the idea that some kind of sexual interest or harassment is involved, none of the participants is especially young or attractive, and it is a man rather than a woman who is being squashed. The background details are deliberately sketchy to encourage speculation about the setting. The seats and push-down windows are calculated to half-suggest a bus or tram, but the people could equally well be in a waiting room or station of some kind.

3. The Study

3.1 Data collection

3.1.1 Procedure

Data was obtained by a procedure of the 'record review' variety (Seliger & Shohamy 1989: 161). In the study, 119 language learners received the two sheets of pictures shown in Exhibit 2 (Appendix B) and were asked to note briefly what each of the ten pictures showed, and then, also briefly, to state whether they thought it could in any way be regarded as bad manners or bad behaviour. This served as preparation for a classroom discussion task. The class members were told that their answers would be used for research, that their responses should be supplied anonymously and that filling out the questionnaires and handing them in was voluntary. Though demographic information about the respondents' country of origin, gender and age was elicited, it was made clear that supplying it was voluntary as well.

The respondents were all taking part in English or German courses, and answered the questions in the respective target language. When the data were examined, what appeared to be idiosyncratic interpretations of the pictures turned out in some cases to be non-divergent interpretations, expressed misleadingly in the target language. But if interlanguage phenomena made the data more difficult to interpret, why was the study not conducted in the respondents' L1s? There are two reasons: one is that data from a mixed nationality group (the DSH class) could only be obtained if responses were gathered in a common L2. The other is, as mentioned in 2.2, that by collecting the data from language learners during the performance of an authentic language practice task, it was possible to focus on aspects of their use and interpretation of the pictures that might or could not have emerged in a different environment.

Exhibit 3 (Appendix B) shows the start and end of the questionnaire sheets used to collect the data. The formulation of the questions and the amount of space available to answer them was the same for each picture.

3.1.2 Rationale for the procedure

The learners were asked to look at each picture and state in one or two sentences (a) what, in their opinion, was happening in the picture, and (b) whether they thought the behaviour of the people could, in any way, be regarded as bad manners or bad behaviour. The responses to part (a) form the backbone of the study. The respondents' statements about good or bad manners are only of interest when they throw further light on the interpretation of the picture.

For purposes of comparison with the main body of data, which highlights the aspect which is normally disregarded - what the learners think the picture shows - a group of 21 adult English learners

at C1-C2 level were given the pictures and the same questionnaire with the instructions and questions for part (a) removed. Their instructions were: 'Please look at these ten pictures and state in one or two sentences whether you think the behaviour of the people can, in any way, be regarded as "bad manners" or as "bad behaviour", and why'. Most of the answers in this control group did give a clear indication of what the respondents believed the pictures to show, as in this response to Picture One: 'Not sure whether [this is bad manners, PS] at all. It might be that the woman asked her partner repeatedly to pass her the kettle, but he ignored it.' (QBO 1).[13] However, of a potential 210 responses (21 respondents and ten pictures), seven were left blank and 18 did not make it clear what the learners believed the picture to show. Some of the latter are given (in full and verbatim) as examples here:

Picture One:

'She probably does this regularly' (QBO 8);

Picture Two:

'? Nothing wrong with that' (QBO 5);

'No, with a handkerchief outside away from the face of the man' (QBO 20);

'He shouldn't stare at her in that particular situation' (QBO 8);

'Of course you can't force anyone but caring for the others makes life in a community so much easier. Therefore, I wouldn't consider the situation in picture 2 bad manners but bad behaviour' (QBO 16).

Picture Three:

'The person sits probably usually like this' (QBO 3).

Picture Four:

'Usual in Russia' (QBO 1).

Picture Five:

'Absolutely inacceptable behaviour, has to use the bin' (QBO 1)

Picture Six:

'The behaviour shown in the picture is not exactly what I would call an elegant performance, but it does no harm to anyone, so just bad manners from my point of view' (QBO 16);

'Everything else is written in Galatas Galatiants 5: 19-26 in the Bible (New Testament) (King James Bible) Envyings to are not nice' (QBO 21).

Picture Nine:

'I think it is bad manners because it may disturb the others who want to sit quietly' (QBO 15).

[13] 'QBO 1' is the code for this class and this respondent.

***Picture Ten**:*

'Normal behaviour in Germany! While sitting in the train remember to bring a book or a diskman!' (QBO 3).

Many of these answers suggest the respondents assumed the pictures had only one possible meaning which was clear to everbody. This is far from the case, as the analysis of the main body of data will show. In the subsequent class discussion though, one could argue, the other learners would have been able to ask for clarification. Possibly; but apart from the Biblical references, these responses do not invite further probing. Indeed, asking 'What do you mean by "this"?' or 'What is "normal behaviour in Germany"?' would violate discourse rules that form part of the respondents' pragmatic competence in both their L1 and L2. Besides, if the respondents both believe that there is only one possible interpretation of a given picture, they will both assume they know what the behaviour shown in the picture is, or what the exophoric referents of deictic terms such as 'it', 'this' or 'that' are. The responses noted above do not appear to have much potential for engendering a fruitful discussion; it would be worth making a broader-based study along the same lines as the one described above, exploring the discourse features of such responses and considering the implications for the classroom.

3.2 Sample

The three groups that made up the sample were dissimilar in terms of their levels of proficiency, institutional settings, target language, types of language course or seminar, language-learning goals, first languages of the participants and of the numbers in each group. However, since the study concerns the interpretations of the pictures, the dissimilarities between the groups were not expected to present problems; and although group-specific differences emerged in the analysis, these appeared to be related to age and group dynamics rather than culture. This does not mean that cultural factors were excluded from consideration in the analysis, but it must be emphasized that the study was not conceived to explore cultural differences in picture interpretation.

GROUP	***LEVEL***	***L1***	***ABBRE-VIATION***	***NUM-BER***
First-year students of English in language practice seminars at Bielefeld University	C1 and above	German	LP	61
Foreign students preparing for German language examination needed to study at Bielefeld University	B2-C1	Various	DSH	25
Adult learners of English in evening classes	A2-B2	German	VHS	33
			TOTAL	***119***

Table 1: Respondents by level and group

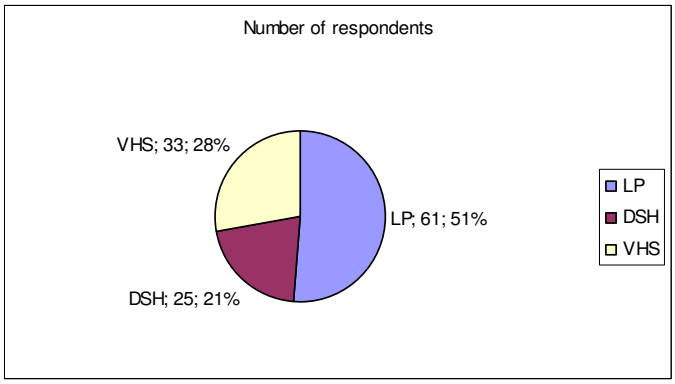


Figure 2: Numbers of respondents by group

While members of the large LP group were able to articulate quite accurately whatever they believed the pictures to show, the DSH and VHS groups were not always in this position: thus their responses offered the chance to explore whether apparently divergent interpretations might be due to avoidance or compensation strategies or other interlanguage phenomena. The levels of proficiency given in Table 1 are based on formal criteria: the levels for the VHS group are taken from the VHS programme, the level of the Deutsche Sprachprüfung für den Hochschulzugang (DSH) from the DAAD website (2005) and the level for the LP group from information on entrance test equivalents given under 'Eignungsprüfung Anglistik' on the University of Bielefeld's British and American Studies website.

The types of language course or seminar and the pressures on the learners were also borne in mind in considering the picture interpretations. The VHS group were adult learners, the majority over 25, and most attending the 90-minute classes once or twice a week after work, so that the courses constituted a free-time activity; they were not under pressure to take or pass tests of any kind. The LP group consisted of students (almost all under 25) taking part in 90-minute weekly language practice seminars (Writing, Speaking) in which they were expected to make rapid progress in improving their language skills: there was assessment in various forms throughout the 15-week semester, and the final grade would appear on their transcript. The DSH course took place daily from 8.30 to 12, and had been running for the good part of a year: the learners needed the examination for admittance to degree courses and, in some cases, for the extension of their student visas as well. The DHS group had single members from Belarus, Bulgaria, Georgia, India, Indonesia, Iran, Iraq, Korea, Kyrgyzstan, Turkey, and one undisclosed country; two from Estonia, Japan, Poland, Serbia and Montenegro and Ukraine respectively and four from Russia. Of these, ten were over and 14 were under 25 years old; one supplied no demographic information. The 'German' groups (LP and VHS) also included a small number of respondents whose first language was not German, but they were proficient in German and highly acculturated.

3.3 Analysis

3.3.1 Method

Each of the 119 answer sheets was numbered with a code for the class in which the data was collected plus an individual number (e.g. 'BW 10' was the tenth answer sheet from the class designated 'BW').

The codes for the VHS group are: R, Abs, JB, FCE; the codes for the LP group are BW and Sp; the code for the DSH group, a single class, is DSH. All 119 sheets were examined picture by picture. As a rough framework for the initial analysis, a results sheet with the following categories was prepared for each picture (here with the salient features for Picture One, based on my representational intentions).

a) Participants from l. to r.: (well-dressed) woman, (passive) man
b) Action: woman stretching for milk jug
c) Feelings, atmosphere: happy, pleasant
d) Setting: tea table
e) Objects, details: milk jug, vase of flowers, teacups, cake
f) Good/bad manners or behaviour: bad - stretching for the milk instead of asking for it to be passed

Below each category was space to keep a tally a) of responses that mentioned these features, and b) those which did not mention them at all. This provided an initial impression of the degree of consensus on the picture's essential meanings, and of whether it had communicated its meaning effectively or not. Divergent interpretations were recorded in brief descriptive phrases on separate sheets together with the codes of respondents who provided the interpretations, often with a verbatim quote. As patterns emerged, for instance the reading of 'crying woman' in Picture Two, these were roughly grouped together or colour-coded. Notes were kept of spontaneous insights during this phase of analysis, which indeed yielded the most fruitful ideas about the data.

When the study was initially conceived, it was with the notion that the data would be analysed along the following lines: mentions of specific, pre-defined picture information (e.g. the gender and approximate age of the people depicted, their actions, their relationships, the setting, objects) would be counted, the majority 'reading' established, and departures from this noted and totted up, with the results displayed in graphic form as charts. Once the data were examined, however, it became clear that they were too complex for selected elements to be identified and counted into pre-determined categories, even if those categories were derived from the responses themselves. Often the most interesting aspect of a response was what it did *not* refer to (see the discussion of Picture Eight), or the choice of words, neither of which would have been recorded in a simple count. Thus although some aspects of the pictures lent themselves to quantification and have been represented as charts, the method used has been for the most part inductive and interpretive; analytical categories have been generated from close analysis of the data in ways similar to those used in content analysis (cf. Seliger & Shohamy 1989: 204-205 on analysing data in qualitative research), and as in ethnographic studies, there is a strong reliance on quotations from the data to illustrate differences in the viewers'

perspectives and throw light on the kinds of interpretative decisions made in the course of processing the visuals. Nevertheless, since in total 140 respondents recorded their responses to ten pictures, yielding 1,400 responses, the study can claim to have a quantitative dimension as well.

The first review revealed a wide range of divergent readings; the notes and the data were examined again and a first attempt to group the different kinds of divergent interpretations was made. This was refined with subsequent re-examination. Finally the categories outlined in 3.3.2 were formulated and used in writing up the results of the analysis to classify types of divergent interpretations (see 3.3.3). In examining the data I will note divergent readings of various kinds, both global ones that affect the response to the picture fundamentally and those related to minor details. Alternative interpretations of small details are of interest here for several reasons. First, they provide insights into the different kinds of divergent interpretations (see 3.3.2), which in turn makes it possible to postulate their causes, and so pre-empt or harness them productively in the classroom. Second, their number and diversity demonstrates that visuals of this kind are by no means a simple, self-explanatory mode of conveying information. Third, they provide evidence that many of the learners did not process the pictures with much care or attention.

3.3.2 Categories of divergent interpretations

Plausible alternative readings: In these cases, the respondents deviated from the intended or majority reading, but their interpretations are justified in terms of the visual information provided - for example, some saw the youth in Picture Five as spitting out chewing gum instead of just spitting - or of their own knowledge and cultural expectations - for example, some respondents saw the action in Picture Nine as 'laughing', not 'talking': the people's mouths are wide open, but there is nothing in the picture to indicate that anyone feels annoyed, so the respondents chose to see the open mouths as indicators of an action that would not constitute bad manners in their own culture.

Inattentive readings: divergent interpretations which result from superficial processing. Picture details that were consciously included to convey specific information are overlooked, not taken into consideration or interpreted in ways that have no support from the other visual information provided. Although the possibility was considered in each case, no evidence could be found that cultural factors may have led to the interpretations finally placed in this category. For example, two respondents (DSH 4 and JB 7) described the readers in Picture Ten as reading newspapers, although the person on the right is holding an object that is much too small and thick to be a conventional newspaper. The likelihood that these two respondents come from cultures where tiny, thick newspapers are the norm and that they have not noticed what western newspapers look like seems remote.

Culturally specific readings: Divergent interpretations did sometimes seem to be the result of cultural differences however: for example, six non-German students stated that the people in Picture One were

having breakfast, whereas all the German respondents were unanimous that it was tea-time or coffee-time. It seems possible that some aspect of the picture triggered associations with breakfast in the non-German respondents, or else that the situation, clothing and objects in the picture lacked some features that characterize tea or coffee-drinking rituals in their cultures of origin. Though not a divergent reading, the fact that none of the respondents mentioned the woman pointing her foot at her guest in Picture Eight, despite her shoes having been given great prominence in the drawing, can also be seen as a culturally specific reading resulting from the absence of taboos on showing the sole of the foot in the respondents' cultures of origin.

Creative readings: creative readings differ from inattentive readings in that specific salient features are processed with care, but then the processing effort breaks off. Viewers believe they have identified the situation and the people involved in it correctly on the basis of the cues they have identified, and go on to supply other features of their reading on the basis of their own pre-existing schemata or scripts.[14] Four respondents stated for example that Picture Six depicts people at the cinema. It seems that these respondents focused on and identified the popcorn, which activated their cinema script, even though other picture details (thick outdoor clothing, striped scarves, absence of darkness) conflict with the reading.

Bogus divergent readings: some readings that appeared divergent turned out not to be so when factors like interlanguage phenomena, learner strategies or dictionary use taken into account. For example, a statement that the woman in Picture One is reaching for a 'milk churn' (Sp 24) was counted as non-divergent, and the respondent confirmed subsequently that she had looked up 'Milchkanne' and found both 'milk jug' and 'milk churn'. A further strange comment on Picture One was: 'It is bad behaviour to take over the foot from other peolple'[15] (JB 5). This response was also categorized as non-divergent. A teacher familiar with the group and with learner language at this level believed it was unlikely that the phrasal verb 'to take over' was meant in its normal sense here. A plausible explanation is that the learner actually meant 'reach over', but not knowing how to express this idiomatically, settled for the verb 'take' in combination with the preposition 'over'. Writing 'foot' for 'food' is a common phonics-related mistake among learners whose L1s have word-final devoicing. The phrase 'from other people' seems to be a literal translation of 'das Essen von anderen Menschen'. What the response was meant to state, if these assumptions are correct, is that it is bad behaviour to reach for something over other people's food: the respondent understood the picture in the sense intended. Other instances in which

[14] Scripts can be described as mental schemata for stereotypical sequences of behaviour or action; the notion of scripts was originally developed by Schank (e.g. 1975, 1977).

[15] This quotation and all the others which follow are given verbatim and retain the spelling and punctuation of the original data.

apparently bizarre readings of the pictures turned out on closer analysis to be non-divergent include the following:

Picture Two:

'A woman in a street needs to snooze her nose' (JB 9). It seems the learner conflated two semantically related items, 'to blow one's nose' and 'to sneeze'.

Picture Four:

'They meeting a person and this person is toughing the head of one child. I think it is not good when this person tough the child on the head' (JB 7). This is an orthographic confusion between 'tough' and 'touch'.

According to JB 9, the girl in Picture Four is holding 'a puppy'. Rather than thinking the girl had a dog in her arms, it seems likely that he associated the German word for doll ('Puppe') with the English word 'puppy'.

Picture Five:

'The boy is spying on the street' (JB 9) is non-divergent; 'spy' is a false cognate with the German verb 'speien'.

'The young man haunt on the street' (FCE 5), is also non-divergent, and can be traced to dictionary use. The learner appears to have looked up or typed in 'spuken' (to haunt) instead of 'spucken' (to spit).

Picture Six:

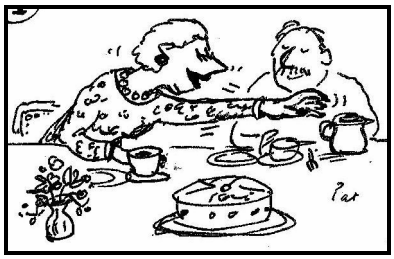
The comment that 'a guy is sitting on a bench and is constipating himself with popcorn' (Sp 3) can probably be attributed to confusion over dictionary entries for the German verb 'stopfen': the respondent seems to have meant 'stuffing himself'.

Intrusive and non-intrusive divergent readings: divergent readings can be classified as 'intrusive' or 'non-intrusive'. Intrusive readings are those which would probably interfere with communication if not shared by the other participants in the 'good or bad manners' discussion task: e.g. Picture Three, divergent reading: the woman is crying. Non-intrusive readings are those which would probably not lead to miscommunication in the discussion task: e.g. Picture One, divergent reading: the woman is reaching for a pot of coffee.

3.3.3 Interpretations

Note that where the nationality of respondents is not given, they are German. All quotations are given verbatim, reproducing the spelling of the original data.

PICTURE ONE



1.1) Overall interpretations

On a global level, most interpretations of the picture corresponded to the meaning it was intended to convey: a woman stretching for something at the table instead of asking for it. 74 of the respondents (62%) stated explicitly that the man and woman were having tea or coffee. Many of those answering in English used the expression 'tea-time', so understood the picture as depicting a situation associated with the target culture. Interestingly, only eight of the DSH group referred explicitly to the scene as showing people having tea or coffee; however, this corresponds to a consistent tendency in this group to concentrate on the atmosphere in the pictures rather than to factual details. 10 respondents, none of them German, mentioned other kinds of meals or settings. Six respondents, from Kazakhstan, Kyrgyzstan, Romania, Russia, Ukraine and one undisclosed country, described the people as having breakfast (see 3.3.2). Two further respondents, from Belarus and Poland, stated that the couple in the picture were having a (midday) meal ('Mittagessen", DSH 6; 'an dem Tisch, während des Essen", DSH 2). An Estonian and a Serbian student said they were in a café and a restaurant respectively.

1.2) Divergent interpretations of picture details

The only element of the picture subject to a significant number of alternative interpretations was the object which the woman is stretching for. The woman's cup contains a dark liquid, her tea or coffee, and the intention was to show her stretching for a milk jug. This object is shown in side view so that the salient features of a jug, the handle and lip, can be seen. Other features selected to encode 'milk jug' were the height and width. The object was explicitly identified as milk or a milk jug by 60 of the respondents, only seven of them from the DSH group. (See Fig. 3.)

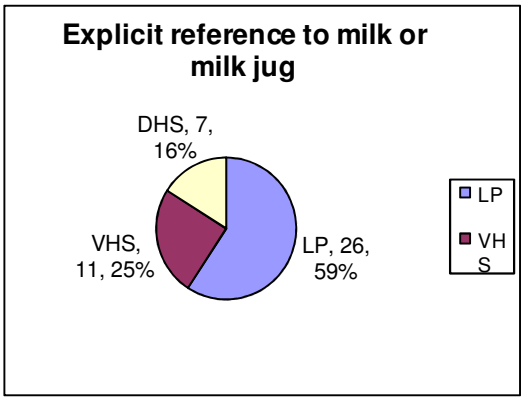


Figure 3: Explicit reference to milk or milk jug

A substantial number of respondents did not see the object as a milk jug (see Fig. 4). 45 of them stated that the woman was reaching for tea or coffee, or for a coffeepot or teapot. This seems to be a case of inattentive reading, since teapots and coffeepots have spouts and lids, and the jug has a lip, not a spout, and no lid. Creative reading is also a possible explanation: there is no teapot or coffeepot in the picture, but as the couple were seen by most respondents as having tea or coffee, a tea or coffeepot would be a likely object to reach for. A cultural explanation is also possible: the jug may have been seen as a Thermos flask of the kind often used to serve coffee or tea in German homes. More unusual descriptions included 'a milk churn' (see 3.3.2) and 'a milk bottle', which might be a slip due to a familiar collocation or else have been used because it was the closest approximation the respondents could offer to 'jug'. Other genuine alternative interpretations were three references to a 'cup/cap (of coffee)', and one each to a 'sugar container' and a mug ('ein Becher'). 9 respondents made no mention of the object.

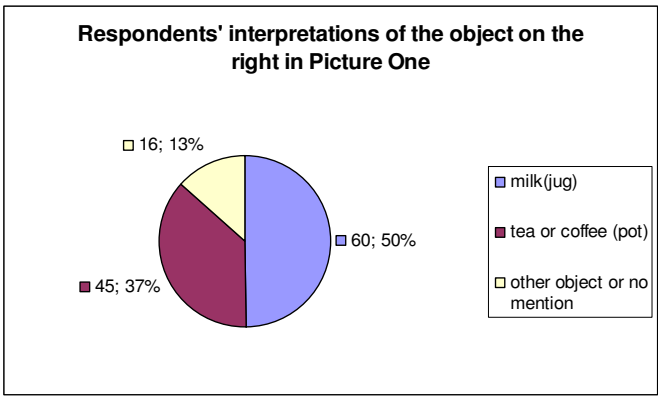


Figure 4.Respondents' interpretations of the object on the right in Picture One.
(The sum of the answers is greater than that of the respondents due to 'either/or' answers.)

One respondent believed the woman was giving the jug/pot to the man, rather than to be reaching for it: 'Die Frau hat zuerst der Kaffee auf ihr tasse ausfühlt und gibt sie ihr freund/man der Kaffee' (DSH 11). This is not an implausible reading; but why did no other respondent propose it? The visual information that bolsters the idea that she is not passing the jug, but stretching for it includes: movement lines around her arm and head symbolizing motion towards the jug; the open hand reaching for the handle; the fact that to depict 'passing something', one would show the object still in the passer's hand; and the senselessness of the woman's stretching to put the jug down on the man's left instead of between them. This divergent reading is revealing in that it forces one to re-examine the details that support the 'reaching' theory instead of the 'passing' one. The fact that so many respondents interpreted this subtle

pictorial information as it was intended is evidence of the generally high level of visual literacy in the sample.

1.3) Sensitive, observant or creative interpretations

A number of respondents commented on the different characters of the protagonists: 'You get the impression the woman talks very much, loud, and likes to talk a lot. The man seems quiet and comfy" (FCE 2); 'Der Mann ist sehr ruhig, aber die Frau ist sehr emozianal' (DSH 7); 'The woman is grapping … in a very hectical way" (BW 35); 'her husband is a lazy man and so both live together with thair habit' (Abs 3). Although the woman's stretching was identified as bad table manners by 74 of the respondents, only a handful commented on the contradiction between the respectable appearance of the couple and their bad manners. This suggests efficient but superficial processing of the picture by most of the respondents; the interpretive effort was broken off once an instance of 'bad manners' had been identified, and further visual information ignored. However, one respondent (Sp 13) suggested that the woman was excusing herself as she stretched, and added that in German she might be saying 'Ich lange hier mal rüber'. Others commented 'this can be interpreted as bad manners, though this would be very formal' (Sp 17) and observed that the woman's manners were 'not too bad, especially if he's her husband, but not "politeful"' (Sp 5).

1.4) Further comments

The discussion of Picture One has concentrated on a close analysis of interpretations of one object. There is no disputing that the coffee-pot/milk-jug debate is trivial, both in the context of the task and in terms of what it might reveal about visuals in the language classroom. This close analysis has been made to show how diverse interpretations of picture details may be, and how superficially they are often processed. The lengthy discussion, quantification and graphic representation of interpretations demonstrate how such an approach might be implemented, but also show why it would not be particularly fruitful and why a more selective interpretative approach is taken to the other pictures.

PICTURE 2

2..1) Overall interpretations

The picture was intended to depict a woman blowing her nose violently in public, which is considered bad manners in East Asian countries. The central meaning of this picture was not clear however. 56

respondents stated that the woman was crying, and 49 believed that she had a cold, or that she was sneezing or sniffing or else blowing or wiping her nose.

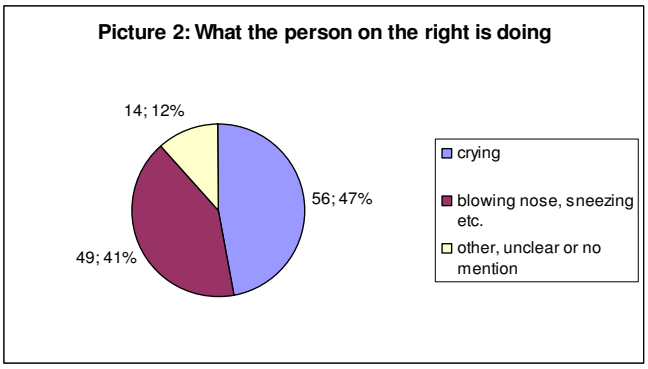


Figure 5: What the person on the right is doing

The features handkerchief, moisture droplets and sad eyebrows were enough to activate the mental schema 'crying' in over half the respondents, despite the woman's smile. Of the 105 who opted for either crying or nose-blowing, the LP group was divided fairly equally with 31(crying) to 25 (blowing nose), the VHS group was strongly in favour of the 'bad cold' interpretation (17 blowing nose to 7 crying) and the DHS group was strongly in favour of the crying version (18 crying to 7 blowing nose).

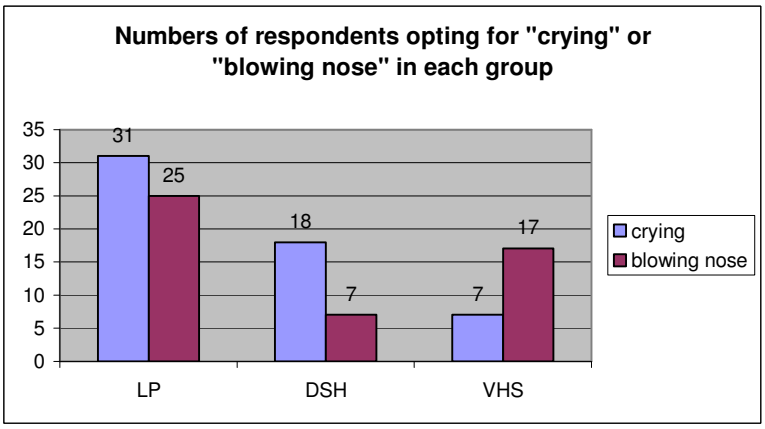


Figure 6

Although one cannot extrapolate from such low numbers, the antitheses are striking. The group with older and more settled members, the VHS respondents, tended strongly towards the less dramatic interpretation while the DSH group, whose members were mostly under twenty-five and were living in a foreign country and under pressure to pass the DSH examination - which would determine their future plans to a significant extent - tended to view the picture as depicting emotion and drama.

There were a small number of alternative interpretations of the overall situation. One respondent wrote 'She's holding her stomach. It seems she's feeling real pain' (Sp 3). Another noted,

'She seems to be in a quite emotional stage [state] - maybe she's just arrived home from a journey, or deserted her boyfriend, or is just [paining?] on the way to hospital to deliver her baby (just in case, she was pregnant)…' (BW 1). Both respondents read the woman's left hand with its flexed fingers as clutching her stomach, and the second read the thick winter jacket as a possible pregnant belly. A third respondent stated that the woman was 'dressed mainly in black' and that it seemed that she was either coming from or leaving for a funeral (BW 35). The reference to a journey or to the woman's being on her way to a funeral result apparently from her large briefcase being given the plausible alternative reading of 'suitcase'. One creative reading stated that 'two women are very angry [because] they have lost [i.e. missed] their plane for the holiday. They use slang words' (JB 8). It is possible that the cars drawn to help encode 'busy city sidewalk' activated this respondent's mental schema for 'aircraft'; it is unclear what element of the picture suggests the people are swearing. The travel motif also appeared in these explanations for the woman's tears. 'A woman, standing at a crossroad, wants to leave town, She's very upset and cries and takes snuff [sniffs?PS] into her handkerchief. Her husband is also upset. He shows a sad face. Both pictured persons are obviously in a bad manner due to the situation of departure' (BW 29). 'Diese Frau weint wegen etwas! Wahrscheinlich hat niemand sie abgeholt' (DSH 16). 'Eine Frau weint auf der Straße, weil sie mit irgendjemand verabschiedet hat' (DSH 23).

2.2) Divergent interpretations of picture details

There were a number of divergent interpretations relating to the people in the picture. According to four respondents (2 LP, 2 VHS) the picture showed two women; according to another (LP), it showed two men, and two further respondents (1 LP, 1 VHS) referred to the nose-blower as 'he'. These readings were confined to the German groups and cannot be attributed to exotic ways of seeing. Two respondents (DSH and LP) said the pair was a married couple, without stating grounds for this interpretation. A number of other respondents stated explicitly that the two did not know one another, for example: 'Ich glaube, dass es kein Verhältniss zwischen die beiden gibt' (DSH 23); 'Man muss nicht alle Leute vor allem Unbekannte auf der Straße trösten' (DSH 18). As regards the setting, 58 respondents made some reference to a street, a city or waiting at a traffic-light, and 53 made no reference at all to the environment. One person (VHS group) stated that they were waiting for a bus, which may be due to a plausible reading of the traffic-light as a bus-stop sign.

Interpretations of the man's facial expression differed widely, but were determined above all by whether the respondents saw the woman as crying or blowing her nose. The respondents who opted for crying described the man as 'indifferent', 'unkindly or uncomprehending', 'sceptical', 'bored', 'irritated' (probably meaning 'confused') and 'pitiful' (i.e. showing pity); he is also described as 'stearing at her angrily'. Those who thought she was sneezing or blowing her nose interpreted the man's reaction as 'afraid of contracting a disease' (FCE 6), 'disgusted' and 'disconcerted'. Four DSH respondents

described the man as being '(ganz) traurig', though it is questionable whether they really saw him as sad or simply lacked the lexical resources to describe whatever feeling they actually detected.

2.3) Sensitive, observant or creative interpretations

One respondent related her interpretation of the man's emotions not to the situation ('Die Frau weint'), but to purely visual evidence: 'Der Mann hat Angst, weil seine Augen so groß sind und er erschrock ist' (DSH 13). No-one commented on the cars' driving on the left, nor on the fact that the people were warmly dressed, a detail that was intended to support the idea that the woman had a bad cold. One respondent did respond to the indices of 'smartly-dressed people' and observed, 'An der Seite der Straße steht eine Frau, sie weint. Die ist etwa schik angezogen' (DHS 9). Sensitive readings of the visual information as such were rare. The majority of the respondents decided that the woman was crying and apparently broke off the processing effort to invest their cognitive resources in the creative effort of finding reasons for the woman's tears.

2.4) Further comments

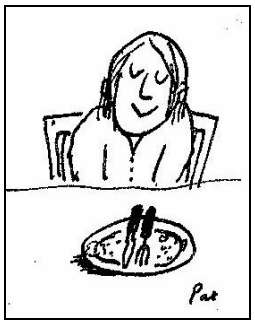
The responses collected here indicate that, in this case, divergent interpretations could have led to confusing non-sequiturs. As an example, consider the following scenario, in which statements taken verbatim from the data have been juxtaposed:

> *Teacher:* **Please look at Picture 2 and discuss with your neighbour whether you think this could in any way be considered bad manners or bad behaviour.**
>
> *BW3 looks at picture, thinks to herself:* ***A man and a woman stand next to each other at a street. The woman sneezes into her tissue.*** *Turns to BW4 and asks,* **Do you think this is bad manners?**
>
> *BW4:* **Maybe it is a bad behaviour of the man who doesn't make any attempt to help the woman. He just looks over to her and doesn't show any pity. The woman feels being left alone.**

One reason for the conflicting interpretations was that unlike Picture One, Picture Two addressed rules of behaviour that were exotic to most of the respondents. Three Asian students did indeed identify the bad behaviour as anticipated: 'A woman is blowing [her nose] on the street when another passer-by is passing. Some of the nasal mucus are sprayed out. It will never happen in China. We don't think it's good behaviour' (BW 34). A Japanese respondent commented that the behaviour was 'nicht schlecht. (aber nicht würdevoll oder stolz zu schnäuzen)' (DSH 25), and a Kyrgyz respondent wrote, 'die Frau

schneuzt sich öffentlich obwohl es für anderen Menschen nicht angenehm ist, das zu sehen. Ja, das ist ein schlechtes Benehmen, es sieht schrecklich aus' (DSH 14). Only one German respondent recognized loud public nose-blowing as violating other cultures' rules of behaviour: 'not bad manners in Germany, but it is elsewhere' (FCE 1).

PICTURE 3



3.0) Prior observations

Picture Three was intended to portray good manners, but the majority of the learners were convinced they were looking for examples of bad manners or behaviour only, which led to some inventive interpretations of the pictorial information. The following responses suggest the respondents felt uneasy about their conclusions, but nevertheless continued to assume that all the pictures must necessarily depict bad behaviour: 'I can't interprete the situation exactly, because I just see this extract. Maybe the child doesn't want to clean the dishes…' (BW 22); 'I think it is neither bad manners nor bad behaviour, because I cannot see, what is wrong with his behaviour' (BW 26); '? That he hold his hands under the table? (very old fashioned)' (Sp 2); 'I do not know, why it should be a bad behaviour to eat up' (Sp 4); 'I don't see why this [not finishing everything on one's plate] should be bad manners' (Sp 22); 'In diesem Bild sehe ich kein schlechtes Benehmen sondern gutes Benehmen' (DSH 8). Three respondents (two LP, one VHS) wrote nothing at all for Picture 3. Two other respondents stated outright that they did not understand it: 'Ich kann nicht übers Benehmen sagen, weil ich das Bild nicht verstanden haben' (DSH 14) and 'Ich habe keine Meinung weil diese Bild viele Bedeutungen hat' (DSH 22). BW 5 simply wrote '?' in response to *What's happening?* and 'I don't see any bad behaviour or manner that this picture might express' in response to *Bad behaviour?* These comments show that the respondents were unable to detach the first task (describing what they see) from the second one (expressing an opinion about the behaviour shown). The respondents quoted above believed the task was to identify bad manners, and if they could not detect any, they concluded that they had failed to understand the picture properly. This suggests that the respondents' understanding of what the task required aroused expectations about what they would see. They did not approach the pictures neutrally; instead their processing was steered from the outset by the aims of the activity as they understood them.

3.1) Overall interpretations

Overall, Picture 3 offered more scope for alternative readings than anticipated. While the basic scenario of a person sitting at a table after having finished a meal was referred to directly or indirectly by 86 respondents, six others stated that the individual was very tired or sleeping, and five that he or she was (day) dreaming. These are plausible readings, as the girl's eyes are shut. However, of the 24 people and one dog depicted in the ten pictures, 14 have their eyes shut, and this is the only one where respondents have understood this to encode 'sleeping'. In one instance, a respondent (from Iran) stated that the person was praying: 'Ein Junge möchte essen und vor dem Essen betet er' (DSH 8). Two more respondents also believed that the meal has not yet begun: 'A little child is going to have lunche' (R 1); 'A young boy is waiting for in a restaurant for his meal' (JB 8). In view of the detritus on the plate and the position of the knife and fork, these seem to be inattentive readings. Several respondents saw a plate with food on it: 'There's a boy sitting in front of a not yet empty plate, seemingly done eating …' (BW 19); 'A girl is sitting at the table, in front of a plate with some food on it' (BW 20); 'Sie hat ihr Teller nicht sauber gemacht. Es gibt noch etwas im Teller' (DSH 11); 'Das Kind will nicht essen. Das Kind will nicht nämlich dieses Gericht essen' (DSH 3); 'The man isn't eating his meal. He's a daydreamer (R 4); 'The child sit for dinner. The child don't eat enough' (JB 4). In these cases the tiny dots and circles that were intended to be read as crumbs and smears on the plate, indices that the girl had eaten up all her food, were interpreted as uneaten food, a relatively plausible reading.

3.2) Divergent interpretations of picture details

As the answers quoted in the previous section suggest, there were a range of different readings of the age and gender of the person in the picture (see Fig. 6). Hair-length is the only indicator that it is a girl; the squarish face suggests a boy, so this is a plausible reading. As the table comes up to the person's chest, references to an adult seem to result from inattentive readings. The various readings are summarized in Figure 6.

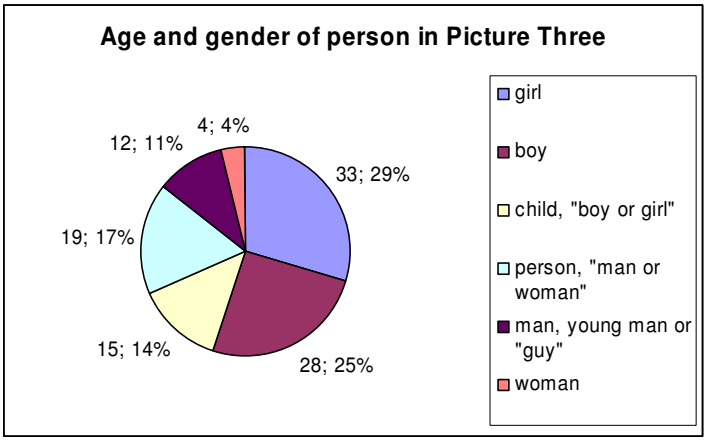


Figure 6: Age and gender of individual in Picture Three

The girl's facial expression was generally understood to express satisfaction, as in this account of the picture: 'Girl sitting in front of an empty plate, looking full and satisfied' (BW 8). A puzzling inference drawn by two respondents (one Kyrgyz, one of unknown nationality) was that the person was still hungry: 'Ein Mädchen ist fertig mit dem Essen, aber sie ist vieleicht noch nicht sat und sie sagt es nicht, dass sie noch Hunger hat' (DSH 14); 'I have ate lunch, but I'm nevertheless very hungry' (Abs 7). A possible explanation is that in some cultures guests are supposed to leave a little food on the plate, since a clean plate implies that the host has not given them enough to eat (see Appendix B, Exhibit 1). It is conceivable that the respondents with the 'still hungry' reading took the empty plate as a signal that the person wants to eat more. Nevertheless, this reading is difficult to reconcile with the person's broad smile.

As noted in 2.3.2, the taboo against putting one's hands under the table in some European cultures had not been considered when drawing the picture. 22 respondents from the VHS and LP groups and one from the DSH group gave responses in this vein: 'A child is sitting at the table after her meal is finished - she's got her hands under the table. Definitely bad manners - you can't see what she's doing down there - never good!' (Sp 5). 29 respondents from the VHS and LP groups referred explicitly, either with approval or disapproval, to the position of the knife and fork. Only three of the DSH respondents mentioned the placement of the cutlery.

3.3) Sensitive, observant or creative interpretations

None of the LP students said that the person was sleeping or dreaming; members of this group read her downcast eyes as indicating satisfaction, contentment or shyness. Some respondents, such as this one, understood the picture exactly as it was intended: 'Picture 3 shows a young girl who has just finished her lunch. Now she is sitting satisfied at the table. She is waiting for her mother to tell her: Thank you, it was very delicious' (FCE 7, Estonia). This is a welcome antithesis to descriptions such as 'A sleeping man sits at the table after dinner' (A 2).

PICTURE 4

4.1) Overall interpretations

There was a high level of consensus on the protagonists and setting of Picture 4; 50 members of the LP group, 18 of the DSH group and 29 of the VHS group interpreted the four people as anticipated. Six respondents (four LP, two VHS) identified the doll as a baby, a non-intrusive divergent reading. A more frequent divergence was to see the older woman as the children's grandmother (three VHS, eight LP, three DSH). As discussed in 2.3.2, the setting of a pavement in front of a supermarket and especially the boy's behaviour (hiding shyly from a stranger) were intended as indices of 'a stranger'. However, the 'grandmother' reading is fairly plausible, and is based on the woman's age and her affectionate treatment of the girl. Where respondents interpreted the older woman as a stranger or acquaintance, the boy's reaction was mentioned in passing, if at all and interpreted as shyness, fear or disappointment. Where respondents saw the older woman as the grandmother, the boy's reaction was foregrounded and interpreted as jealousy, sadness and hurt feelings. In this reading, the adults were condemned for ignoring him and this was identified as the bad behaviour shown in the picture. Thus this reading would be intrusive in a subsequent discussion.

As Figure 7 shows, 55 of the LP respondents and 27 of the VHS respondents described the actions and interactions in the picture (the woman patting the girl's head, and in some cases the reactions of the girl, the mother, and/or the boy), but only ten of the DSH respondents did so.

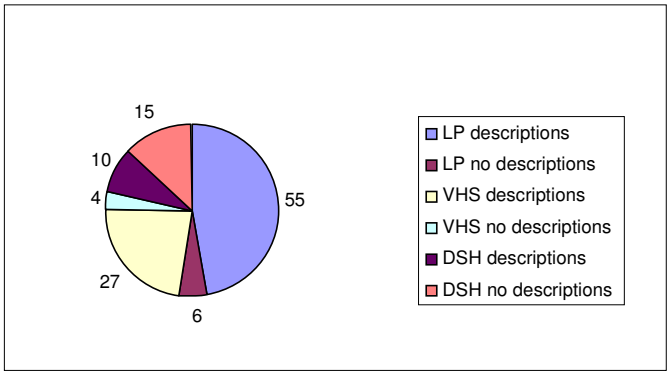


Figure 7: Number of descriptions of the actions and interactions in the picture, by group.

In general, concrete details were sparse in the DHS group's responses, although once again this group was noticeably responsive to the atmosphere of the picture, with 17 respondents alluding to it. Conversely, the VHS group, which had 27 matter-of-fact descriptions of the woman patting the girl's head, only had eleven mentions of a friendly, positive atmosphere, and 22 responses where the

atmosphere was not mentioned. This contrast is shown in Fig. 8.

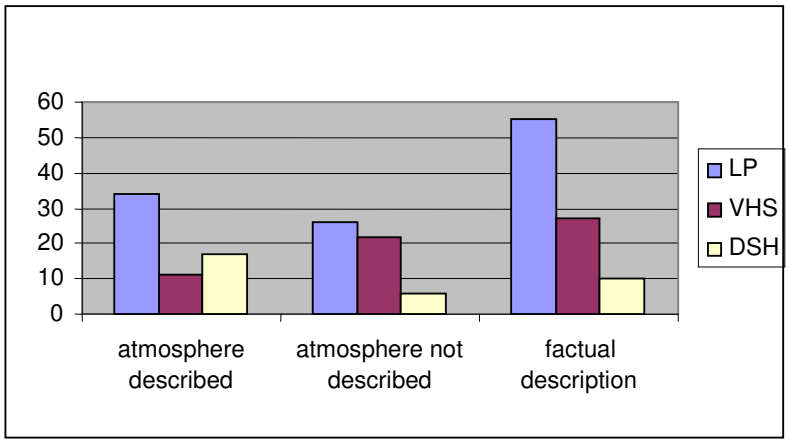


Figure 8: Focus on atmosphere or fact

(due to unintelligible responses, numbers do not correspond to the total number in the group)

4.2) Divergent interpretations of picture details

Apart from the 'grandmother' interpretations, other non-intrusive divergent interpretations included two references to the doll as a 'teddy' (R 5, JB 8) as a result of inattentive reading and/or poor drawing, one as a 'puppy' (JB 9) and one as a 'puppet' (BW 8); the last two were not classified as divergent, since they are interferences from German 'Puppe', doll.

4.3) Sensitive, observant or creative interpretations

Several LP respondents who identified the old woman as a stranger felt it was not right for her to touch the child's head, but observed that the mother approved: for example, b) 'Normally I'd say the old woman should not touch/pad [i.e. pat] the child's head just like that. But in this case the padded child does not look unhappy or fearful (the mother doesn't either) - so it's okay' (BW 17); a)'An elderly woman touches the head of a little girl. b) No problem, because the girl and her mother don't seem to be bothered' (BW 21). These were observant readings that noted the approbation expressed by the direction of the mother's gaze (down at her daughter), and her indulgent smile at what she sees. The respondents adjusted their decisions about 'bad behaviour' in accordance with this visual information.

One creative reading was: 'A little family stands in front of a supermarket. Then an old woman comes and asks the little girl if she lost her doll, because she had found one. The little girl is happy, because she had lost her doll, but she don't thanks the old [woman]' (Sp 12). It is unclear what might suggest that the girl does not say thank you. A second creative reading was: 'In my opinion it is not okay to greet only the sweet little girl. But you can't see in the picture what happends afterwards, maybe the old lady will greet the little boy as well. Or maybe she doesn't see him because he kind of hides behind his mother (and the old lady is wearing glasses!)' (Sp 22).

As will be discussed in 4.4, the respondents from the sub-C1 groups did not or could not attempt such differentiated accounts of the picture. However, the DSH group was highly receptive to the pleasantness of the scene, as the following responses show: 'Die Oma freut sich über die Kinder' (DSH 3, Ukraine); 'Zwei Frauen und zwei Kinder sind auf der Bild 4. Eine Frau lobt ein Mädchen. Das Mädchen ist sehr froh' (DSH 13, Russia); 'Eine Familie hat mit einer alte Frau betroffen. Das Mädchen hat eine Puppe (wie kleine Mutter). Die alte Frau sagt: 'Braves Mädchen, kümmerst du über deine Tochter…"(DSH 4, Russia); 'Eine frohe Familie möchen im Supermarkt einkaufen. draußen treffen sie eine alte Dame, die vielleicht ihre Bekannte oder Nachbarin ist. die alte Dame benimmt sehr nett und freundlich mit Kindern' (DSH 8, Iran); 'Eine alte Frau zeigt ihre Liebe zu einem Kind' (DSH 10, Turkey); a) 'Auf dem Bild ist die Mutter mit zwei Kinder und eine fremde Frau, die sehr nett und freundlich ist. Sie sagt ihre Meinung über die Kindern. b) Ich finde diese Situation ganz nett, und freundlich. Menschen sollen mehr mit einander unterhalten' (DSH 17, Estonia); 'Freundschaf' (DSH 22, Serbia; this is the entire response). In all, 15 of the DSH group stated that the behaviour in the picture was good. Only three respondents from the DSH group disapproved of patting an unknown child's head.

4.4) Further comments

Describing the actions and emotions depicted in Picture Four presented more of a challenge to the respondents' linguistic resources than the previous pictures. Members of the LP group, who have a wider lexical range and better control of language than the other groups, were able to produce apt, perceptive descriptions such as: 'Granny is *patting* girl on the head *approvingly*. Mother seems to like it. Second child is *closed out*, feels *uncomfortable/sad/dismayed*, *obviously* not liking the situation' (BW 1). Lexical items unlikely to be available to learners at B2 level and below have been italicized here. Compare this to some of the more detailed descriptions from the groups at B2 level or below: 'The old woman pats the little girl on her head. I think she's happy to see her' (JB 1); 'Eine durchgehende unbekannte Frau, der wahscheinlich, das Kind gefallen hat, lobt dieses Kind' (DSH 6); 'There are four persons in the picture, two women and two children. The older woman has got a bag in her right hand. She is touching the girl's head. The girl is smiling and she is' ['carring', crossed out]' (R 9; the description ends in mid-sentence, the respondent apparently finding herself unable to describe what she sees).

Few of the sub-C1 respondents attempt an account of the emotional elements of the picture comparable to BW 1's. In the descriptions just cited, and in most of the others, there are no references to the boy's reaction, for instance. Is this because of hasty processing? Or is it because the respondents did not have the linguistic resources to express what they saw? And does this imply that some learners *adapt their interpretations of pictures to fit their linguistic resources*, that is, do they see what they are able to say, rather than struggling to express complex perceptions with language inadequate to the task? Conversely, do they see the situation with all its subtle nuances, but, on realizing they will not be

able to express it in the target language, strategically devise a reading that they can cope with in terms of language skills? Among these data there were also isolated cases in which respondents did succeed in communicating sophisticated readings with relatively limited linguistic resources. For example: 'Im Supermarkt. Hier ist eine Muter mit zwei Kinder. eine Mädchen und ein Junge. Da kommt eine Oma zu der Mädchen und sagt etwas schönes zu ihr, hat sie angefasst. Die Mädchen freut sich, aber der Junge ist deswegen einversüchtig, der ist traurig' (DSH 9); 'A young lady and her children are standing in front of the supermarket. A older lady past the way [i.e. passes by] and say Oh, What a nice girl. The son is a little bit sad, because the old lady didn't see him' (R 10). These were exceptions, however.

PICTURE 5

5.1) Overall interpretations

There were only minimal divergences from the intended central meaning: a male person spitting. A single respondent (JB 8) saw him as whistling, a plausible reading (see 5.3); another (R 10) said he was coughing, which is difficult to reconcile with the youth's pursed lips and may be a bogus divergent reading: the respondent retrieved the verb 'cough', but not 'spit' from her mental lexicon and settled on the former as semantically close enough. Another idiosyncratic reading states that the person spitting is 'a middle-aged man' (F 4).

5.2) Divergent interpretations of picture details

Several respondents, perhaps to make the picture less unsavoury, suggested he was spitting 'something' out: one specified that it was chewing gum (F 6), and two others (BW 7 and Sp 9) remarked that spitting was only excusable if one had an insect in one's mouth: 'unless a fly flew into the oral cavity and the man was about to choke, he should stopp spitting in public' (BW 7).

5.3) Sensitive, observant or creative interpretations

One respondent wrote: 'a chiniese man spit on the street' (JB 4); apparently the youth's slightly slanted closed eyes elicited this reading. One other creative reading gave the picture a more appealing gloss: 'A young men is whistling. He has arranged a date by mobil' (JB 8): however, this is a somewhat inattentive reading, since to signify 'whistling' one would draw the head at a different angle (raised, tilted back) and the expression would be happier and less defiant.

PICTURE 6

6.1) Overall interpretations

The bad behaviour the picture aims to show is eating with the left hand: only one respondent, from Indonesia, noticed this: 'Der Jung nehmt den popcorn mit dem linken Hand' (DHS 11); this respondent condemned what she saw as bad behaviour in Picture One for the same reason, commenting that the woman had just passed her husband the coffee with her left hand. This appears to be an unusually attentive picture reading, and it would be interesting to explore whether learners from cultures with this taboo are generally so alert to this visual detail. The most common divergence, a non-intrusive one, was to perceive the people in the picture as 'two boys', or even as 'children': 'they are just children and they are having fun' (FCE 7). 23 respondents gave this reading, and another signalled ambivalence about his interpretation by writing, 'Two boys (men) are sitting on a bank' (JB 9). Describing the pair as 'boys' seems to be an inattentive reading, since the man on the left is balding and fairly stout. It is possible that the men's behaviour (guzzling popcorn from a giant carton) is associated with youngsters in these respondents' minds, and activated a schema for 'boys' which overrode details that may have contradicted this reading.

6.2) Divergent interpretations of picture details

The men were frequently described as sitting on a 'bank', a bogus divergence resulting from a common interference. In section 2.3.2 I outlined problems of representation as the reason showing people eating popcorn at a sports event and not at the cinema. And indeed, the most common association with the striped scarves, outdoor clothes and junk food was football, with 16 explicit references. One respondent believed that the pair was 'on the sport stand at a snooker play' (JB 5). Although this seems to be a creative reading at first glance, it is more likely that the words 'snooker' and 'soccer' were confused. In this case, it is a bogus divergence. 'Play" is a common confusion between German 'spielen' (to play) and 'ein Spiel' (a game). Curiously, four respondents did state that the men were at the cinema, as mentioned in 3.3.2. a)'The two men are eating popcorn, possibly while watching a film." b) 'Bad manners, one could disturb the others, who may actually be going to great lengths to ignore the noise of popcorn chewing and juice sipping" (Sp 8); 'Two young mans are sitting in the cinema and have a drink and sharing the popcorn" (Sp 12); 'Two boys are sitting in the cinema, sharing a bowl of popcorn" (JB

3); 'Two man sit in a cinema. They eat popcorn and drink cola" (JB 4). As noted above, this seems to be a creative reading in which the respondents focused exclusively on the popcorn and built their reading from this initial processing, excluding further (contradictory) evidence.

Finally, an example of a non-intrusive alternative reading of a minor detail is given in this response: 'In this picture are to (*sic*) people eating popcorn and drink coke. The coke and the popcorn spills' (FCE 3): the notion that the Coke is spilling might be a purely creative reading, but a more likely explanation is that the respondent saw the line intended to encode 'drinking straw' as spilling Coke, even though nothing could spill, in reality, from a can held at that angle: this is thus an inattentive reading or a genuine misreading of this element of the picture.

6.3) Sensitive, observant or creative interpretations

For two of the respondents, the scarves signified head-colds: 'The two men look sick because of the scarves. Maybe they have a cold or some other bacteria infection and change bacterias while eating the popcorn out of one package. It is not very hygienic' (BW 4) and 'Both of them wear scarves, so I suppose them to have a cold' BW 30. This respondent adds that eating popcorn out of the same bucket is 'a bad manner if you do it with germans, with russiangermans its OK': however, a Belarussian respondent wrote "Zwei Kumpeln essen Popkorn. Einer nimmt Popkorn aus der Becher seines Freundes. Das ist völlig taktlos. Und nicht hygienisch' (DSH 6, Belarus) and a Russian respondent wrote: 'Zwei Männer essen Popcorn. Eigentlich sie nicht essen, sondern fressen. …Ich mag kein Popcorn, und solches Verhalten von Männer. Für mich personlich ist dieses Bild schlecht' (DSH 4, Russia). In another case the scarves triggered an association with football hooliganism: 'Zwei Männer essen Popcorn und trinken Kola. Wahrscheinlich sind sie Fanatiker einer Mannschaft auf dem Fussballspiel. Wenn ihre Mannschaft verliert, dann fangen sie wahrscheinlich Unordnungen in der Stadt an' (DSH 3, Ukraine).

6.4) Further comments

Only 16 answers mentioned enjoyment or pleasure, as for example in: 'Ein Mann ist sein Popkon mit ihrem Nachbar in der Stadion. Das ist für türkische Leute sehr angenehm, weil es von unserer Kultur ist' (DSH 10, Turkey). Either the drawing does not communicate the men's feelings, or once again the respondents were fixated upon identifying the bad behaviour, and so emphasized negative aspects of the situation they saw.

PICTURE SEVEN

7.1) Overall interpretations

There was almost complete agreement on the setting, the participants, the actions and reactions and the attitudes depicted.

7.2) Divergent interpretations of picture details

One inattentive reading related to the participants was: 'Im Bild kann man sehen, dass ein Man und eine Frau rauchen" (DSH 1). There was also a reference to 'zwei Paaren. Eine Paar rauch sehr stark und andere rauchen nicht' (DSH 7, country of origin unknown). Two respondents referred to 'two girls' smoking, one adding that 'the man and the woman don't like the smoke when they are drinking coffee' (R 6), which suggests the smokers are seen as significantly younger. The reference to 'coffee' is further evidence of an inattentive reading in this case, since the people are clearly holding glasses. Three other respondents (one DSH, two VHS) stated that the man and woman are drinking coffee, and a fourth wrote that 'the people on one table are eating the other two are smoking' (Sp 5). 'On one table' is a bogus divergence derived from a German interference, but the reference to their eating is surely an inattentive reading.

7.3) Sensitive, observant or creative interpretations

Two readings attributed the couple's grimaces to excessive noise as well as smoke: 'Two woman smoke a lot of cigarettes and they natter. The couple at the next table sit in the smoke. They have big ear from the natter' (JB 4); 'Four person are sitting in a restaurant two of this people are smoking and talking very loud. The other two people don't like the smoke and the noises' (JB 6). There were numerous references to the couple's anger, annoyance and disgust in the LP group. More interpretative readings of their facial expressions included 'the others can hardly breathe because of [the smoke]' (Sp 8) and 'a man and a woman can't stand the smoke' (Sp 9).

The DSH students, whose members often emphasized their approval of pleasant and harmonious scenes in other pictures, were conspicuously reticent about the emotions and atmosphere in this picture: there was only one direct reference to them: 'Zwei Frauen rauchen und andere Menschen ärgern sich' (DSH 17). Since learners at this level could be expected to know expressions such as 'wütend sein' or 'sich ärgern', the failure to comment on the couple's annoyance seems due less to a lack of visual literacy or language resources than to a desire to avoid unpleasantness.

PICTURE EIGHT

8.1) Overall interpretations

The presence of a dog in the home as well as the woman's pointing her foot at the man and showing him the sole of her shoe would be offensive in some cultures. None of the respondents (including those from India and Indonesia) remarked on the foot, but nine, some of them German, commented that dogs did not belong in the house. The roles of the man (guest) and the woman (hostess and owner of the dog) were directly or indirectly alluded to by most respondents. There were only a handful of alternative readings of the roles: one variant was to see the two people as husband and wife, as in 'a couple is having tea' (Sp 21) or 'an older couple having tea' (R 2). The other variant was to see the man as the host: 'A woman has a cup of tea with a man. She has brought her dog with her. The man is afraid of the dog' (Sp 6); '…Die Frau hat einen Hund Der Hund stört den Mann. Solches Verhalten ist sehr schlecht, wenn jemand seinen Hund mitbringt und die andere Leute stört' (DSH 21). The interesting question in this case is not so much why these two students saw the woman as the guest, but why so many others understood that the woman was the hostess. Three respondents had strongly divergent overall interpretations:

a) 'Ein Familienabend vieleicht, ein Mann ist traurig. Es kann sein, dass er ein Gast ist' (DSH 20, Russia). The expressions 'vielleicht' and 'es kann sein' show that the respondent has doubts about her reading. Her first hypothesis is that the people are members of a family. The second sentence seems to explain that he is sad because he is a guest, but is in fact a new hypothesis, namely that the man is not a member of the family but a guest. Seeing the man as 'traurig' is a divergent interpretation, though it may be bogus; possibly the respondent did not have the lexical resources to describe the feelings she actually saw. Cultural factors seem to account for a social ritual that involves tea and biscuits being described as taking place in the evening. Note that there is no mention whatsoever of the dog in this account.

b) 'Eine Familie beim Abendessen. Die Frau redet ohne Pause. Der Mann wollte sie unterbrechen, konnte aber nicht' (DSH 3, Ukraine). As in (a), the participants are seen as a family, and the event is described explicitly as an evening meal. The (male) respondent offers a creative reading to explain the man's disgruntled expression: the woman is not giving him a chance to talk. Again, there is no mention of the dog.

c) 'Eine Ehepaar sitzt zu Hause und unterhaltet sich miteinander. Der Hund schaut auf den Mann. Der Mann ignoriert die Frau'. This is a curious reading, since it is sensitive enough to note that the man is not looking at the woman as she speaks to him, but does not offer an explanation for the man’s unhappy expression or consider why the dog might have been included in the tableau. To this extent, it is a good example of a creative reading as defined in 3.3.2. The student decided initially that the picture depicts a married couple having a conversation. Several elements which she notices

subsequently (the dog, the direction of the man's gaze) do not fit in well with this reading, but instead of scrapping her original interpretation she deals with them in terms of the logic it imposes. If this is the man's own house, he cannot be afraid of the dog, and so his looking at the dog interpreted as ignoring the woman.

8.2) Divergent interpretations of picture details

Two references to the social event as an evening meal have already been mentioned. Another respondent wrote, 'A man and a woman are having dinner, and there is a dog sitting between them' (Sp 19, Poland). Most other answers mentioned tea or coffee. The object in the centre of the table is a generic teapot, so references to coffee or supper (even given that a supper-table in Russia may resemble a British tea-table) are inattentive readings. Nevertheless, 26 respondents said the people were having 'coffee' and seven said they were having tea *or* coffee. One respondent felt the dog was the one being treated badly in the picture: '…der Mann und die Frau trinken Kaffee und der Hund guckt den Mann. Er will auch was essen, aber die geben ihm nicht. Wir müssen uns auch um unseren Tieren kümmern' (DSH 8, Iran). This appears to be an inattentive reading of both the dog's and the man's expressions but also a creative reading: in initial processing, the respondent seems to have fixed her attention on the begging dog rather than the man, and tried to create a reading of 'bad behaviour' from that perspective.

8.3) Sensitive, observant or creative interpretations

The following alternative interpretation of the participants' roles is a perceptive one, because it explains the visitor's formal clothes and his unease. 'It's tea time at Miss Miller. Her visitor is Miss Miller's new boyfriend. He is a little bit afraid and nervous because of Miss Miller's big dog' (R 10).

8.4) Further comments

The majority of respondents exhibited a clear understanding of the situation, especially the man's fear and anxiety and the woman's insensitivity. Few appeared to think about the picture deeply enough to want to suggest an explanation for the man's behaviour however, despite the fact that it would be considered odd in western, dog-loving cultures. One exception was a comment that the owner's not removing the dog was 'bad behaviour, because you have to accept it if someone is scared even if you can't understand' (BW 21). Two respondents suggested that the man was cynophobic: 'Die Frau merkt nicht, dass der man einen Hund Angst hat" (DHS 11) and 'I think the woman has to accept that the man is afraid of dogs and should bring the dog into another room. So in this case it could be a bad behaviour, but I thing (*sic*) the man is too scarer (*sic*) and should work on this problem' (BW 22).

The three divergent readings examined in detail in 8.1 deserve further comment, as they offer some insight into the origins of such interpretations. All three students start off with the premise that the people are a married couple. This makes it difficult firstly to explain the man's unease, since he cannot

be afraid of his own dog, and secondly to explain the role of the dog at all, despite the fact that it is literally the centre of the picture. Two learners who saw the man and woman as a married couple simply ignored the dog, as we saw above. Was it because it took so much creative effort to explain the couple's behaviour and reactions that they overlooked the dog? Did they deliberately ignore it because it spoilt the logic of their interpretation of the picture? Or did they assume it did not add anything to the meaning of the picture, and had been added with humorous intent? The last possibility raises the question of whether visuals are treated as sources of serious information in the foreign language classroom once again. If the learners had perceived the picture as a meaningful visual narrative, in which each item had been selected and positioned to play a part in the story, surely they would have asked themselves why a dog had been drawn in the middle and what its contribution to the visual text might be.

PICTURE NINE

9.1 Overall interpretations

The picture appeared to be the most difficult of the nine to decode: five respondents wrote nothing at all, and five others stated that they did not understand it or elements of it: 'Sorry, but I don't know what's happening' (BW 21); 'I can't recognize what they are doing… Are they laughing?' (BW 3);[16] 'I don't really understand what is happening on the picture. I can see three person who are having coffee and talking to eachother in a very ? loud voice' (FCE 7, Estonian); 'We see three people, who are sitting at a table and they all are having an open mouth. Maybe they are singing or talking about somethings at the same time. Over their heads exclamation marks are painted. I don't know what that mean' (R 2, Russian). 'Two women and a man …are having a pretty lively conversation. The woman on the left and the man are doing something with their hands. (but I don't know what they are doing)' (Sp 17). In these four cases, respondents stated that they were uncertain what signifiers such as the exclamation marks or the gesturing hands were supposed to mean. As with pictures 3, 4 and 6, confusion also arose when respondents perceived the scene as agreeable and happy, yet believed they should be detecting some kind of bad behaviour: for example, a)'A woman and a two man are sitting at a table drinking some tea

[16] I have often been asked by language learners what pictures in coursebooks are supposed to show. This is interesting because it means my authority in the domain of language has been transferred to visuals, and also because it suggests that some learners are treating the visuals as if they had specific meanings which they ought to learn, like the visuals in science and technology subjects.

or coffee. Their mouths are open and they seem to have fun.' b) 'I don't know why having fun together should be bad behaviour. Maybe I don't understand this picture in the right way' (Sp 22).

50 respondents explicitly mentioned interrupting or talking at the same time as an example of bad manners. 14 respondents described the activity shown in the picture as chatting, talking, talking loudly or having a discussion; 14 said the people were laughing or joking and three said they were singing. All these are plausible readings. Several mentioned talking and drinking tea or coffee, but, strangely, two mentioned drinking tea or coffee but not talking or laughing. Most respondents used expressions like 'they're having fun', 'they're in the pub' or 'three friends are having a good time' rather than naming the people's specific actions.

9.2) Divergent interpretations of picture details

The mouths of the trio were the only picture details subject to significant alternative interpretations. These alternative readings influenced the overall understanding of the picture in each case. For example: 'One woman and two men have a discussion about politic. Every person means [i.e. thinks] that the own oppinion is the right one" (R 10) and 'Three persons are sitting at the table and drinking tea. Everyone has another opinion. Therefore they cry themselves on [a literal translation of 'sich anschreien']' (Sp 12). In these cases, the respondents did not read the mouths as 'happy' but saw three people trying to shout each other down in an argument; this is partly an inattentive and partly a creative reading. A third respondent wrote, a)'Three people are *maybe* shouting at each other, *but they aren't looking angry*" b) It isn't very polite to shout at each other, *but it depends* on the situation and the relationship between these people. *It could be seen as* a bad manner" (BW 22, my italics to emphasize qualifying expressions). In the initial processing, this student activated her mental schema for 'shouting at each other', a reading which she herself questions almost immediately: as her processing effort proceeds, she realizes that the people have happy expressions, and her entire answer signals ambivalence about her reading. Significantly however, like the respondents who started from the premise that the people in Picture Eight are a married couple, she does not make a radical revision of her reading, but simply qualifies her comments. This irresolute response provides valuable insights into this language-learner's processing of the picture, and also demonstrates once again how reluctant viewers are to abandon their initial schema or script, even when it makes less and less sense as they process further details of the picture.

9.3) Sensitive, observant or creative interpretations

Two further irresolute, but in this case, sensitive, responses are worthy of note: a)'Two men and a woman are sitting on a table [i.e. at a table] and having a cup of tea/coffee. They all are talking at the same time.' b) 'They *seem to be* lucky [i.e. happy] in their conversation *but the question is* if they are *really* having a conversation because they are all taking [i.e. talking] at the same time, so they can't

understand each other' (Sp 6, my italics to emphasize expressions of uncertainty). From the situation and the people's facial expressions, the respondent infers that they are having a conversation, and that they are happy ('lucky' is an interference from German 'glücklich'). However, her reading conflicts with her German cultural conditioning: she knows one cannot converse properly if everyone speaks at once, and she knows that people are not happy if this rule is violated. Her uncertainty arises from a sensitive reading of the picture that pinpoints the intercultural differences it was intended to depict (the students did not know at this point that the task concerned intercultural comparisons). A similar ambivalence can be detected in this response: a) 'Three people are sitting together, drink some coffee and have a talk. Problematically all of them talk at the same time.' b) 'Maybe it's *kind of* bad manners. *Normally* you are educated to wait until others stop talking before you say something yourself' (JB 3, my italics to emphasize expressions of uncertainty). Other creative interpretations of the picture included:

a) 'Three people, two men and a woman, are having tea and are sitting at a table. Obviously they are talking all at the same time and noone is interested in the opinion of the other one. This is also an example for bad manners *because they seem to behave regularly like this*' (BW 35, my italics). This student has sought an explanation for the fact that the speakers look happy, despite being impolite to one another: it is established behaviour in their circle.

b) 'Two men and a woman are having a cup of coffee. It seems as if the woman is talking about something funny, because all three of them are laughing. All three of them are having fun, so there's no bad behaviour because everybody knows what the woman is talking about; she doesn't talk about insiders that just one man knows, she includes both of the men' (BW 15). This is a sensitive reading, alert to subtle visual cues. The respondent has found a culturally acceptable explanation for the open mouths: the woman is telling an amusing story, and the men are laughing. She has used details such as the woman's direct gaze at the man opposite and her proffering gesture to construct her reading. The men can plausibly be seen as more passive because neither is looking directly at anyone else.

c) 'Drei Freunde (Kollegen) haben eine Idee. (haben eine Losung eines Problems gefunden)' (DSH 3). This reading provides a culturally acceptable explanation for the simultaneously open, grinning mouths and punctuation marks that fits so well that it has great potential for causing miscommunication.

d) One respondent wrote her idea of the sound track to the picture: 'I'm, no I'm, no, we are the champions' (Abs 7), which indicates she views the people as singing, as being in high spirits, and as having a strong sense of solidarity.

Finally, there were two alternative readings of the drawings of the mouths. (a) 'Two people are eating and speaking at the same time.' (b) 'Definitely a sign of bad manners. One should not try to do both, the result may be quite disgusting!' (Sp 8, Romania), and (a) 'A group of people are talking aloud with their mouths full of food.' (b) 'It depends on the culture. In china it's not a bad thing. It's also not a

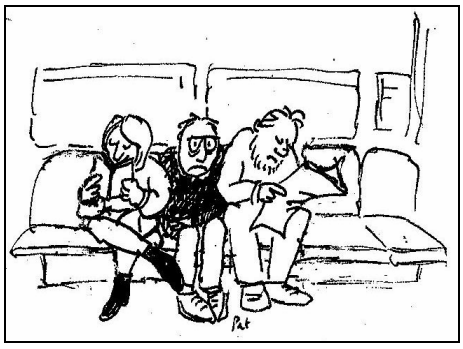
good thing' (BW 34, China). In a black-and-white line-drawing, there is no reason why a mouth-area filled in with black should necessarily mean 'open, empty mouth' rather than 'full mouth'. Nevertheless, these were the only respondents to propose this reading. One detail that militates against it is the absence of plates, eating utensils and food (unless the fuzzy cup the man on the right is holding is interpreted as food). But is it just an inattentive reading, or are more complex interpretational issues involved? Let us assume that, like many others, these two respondents were convinced they were going to find some instance of bad manners in this picture and were on the lookout for one. If they have different conversational turn-taking rules from the other respondents, that is, if they consider it normal themselves to talk at the same time (or consider it normal for English-speaking people to talk at the same time), then talking at the same time could not constitute the bad manners they were trying to find: and this influenced their reading of the visual information. If black mouths could not be open mouths, because three open mouths, i.e. people talking at the same time, would not constitute bad behaviour, black mouths must be full mouths, and the people's bad behaviour was talking with their mouths full. In other words, if this hypothesis is right, the reading was adjusted to fit the requirements of the language-classroom task the respondents had been asked to perform.

9.4) Further comments

While 33 of the 61 LP respondents and 14 of the 33 VHS respondents identified the scene as demonstrating bad manners (talking at the same time or not listening to the others), only five of the 25 DSH respondents did so. It was noted in the discussion of Picture 7 that the DSH group appeared reluctant to comment on a situation they perceived as unpleasant. In the case of Picture 9 this group's answers differed noticeably again: they stated repeatedly that the behaviour was not bad but good, and many added approving comments, for example:

'Drei Menschen, die quachen. Es ist Abend. Sie haben lange Zeit einandere nicht gesehen. Sie haben viel Themen für Reden. Sehr gut' (DSH 4, Russia); 'Drei Menschen an einem Tisch Diskutieren. Da ist ein Mann und eine Frau verheiratet oder haben eine Beziehung. Das ist eine schöne Atmosfehrie' (DSH 10, Turkey); 'Alle sind Unternehmungslustig. Sitzen und Spaß haben' (DSH 16, Serbia); 'Menschen sitzen und unterhalten mit einander. Sehr lustig und freundlich. Klasse! super!' (DSH 17, Estonia); 'Die Leute trinken zusammen, feiern, amusieren sich gut, vielleicht singen, sprechen laut. kein schlechtes Verhalten, es ist schön sich zu entspannen und Spaß zu haben' (DSH 18, Poland); 'eine Kneippe. Nicht so schlecht. Das ist ganz normal in diese Situation' (DSH 22, Serbia); 'Drei Menschen quatschen ein bisschen laut aber sie sind bestimmt gut freunden. Gar nicht schlecht' (DSH 23, Japan)

PICTURE TEN



10.1) Overall interpretations

The great majority of answers said the person in the middle was being squashed by his neighbours, and was upset at the invasion of his personal space: (60 LP, 16 DSH, 25 VHS). A less frequent reading saw him as bored and miserable because he was being ignored. Some of the responses quoted below contain words and expressions that qualify the accounts or indicate indecision in some way; these have been italicized. In these cases the respondents, having settled in their initial processing for implausible readings, seem to start questioning their hypotheses as they notice details that conflict with their interpretations.

'Three people are sitting on a bank [i.e. bench]. The woman reads a book, the elder man reads a newspaper, and the man in the middle is sad about it. He is bored, because nobody speaks to him' (Abs 1);

'Zwei Menschen reagieren auf das dritter Person nicht. Sie beschäftigen sich mit dem Lesen und dritte Person sitz alleine' (DSH 17, Estonia)

'Picture 10 shows three persons in a train. Two of them are reading, the woman a book and the man a newspaper. But the third person is just sitting between the two readers and he doesn't look happy. *But why? If* they all belong together he is obviously bored. I think that *when [*i.e. *if]* they decided to travel together they should also have a nice time together and they shouldn't let the old man be bored' (FCE 7, Estonia);

'Einsamkeit. Langweilich. sehr schlecht. Das ist eine unglaubliche Situation aber wir treffen uns mit das jeden Tag' (DSH 22, Serbia).

'Der Straßenbahn oder Metro. Zwei Menschen lesen die Zeitungen, für dritten Mensch ist es langweilig' (DSH 4, Russia).

'Drei Personen sind auf dem Sofa. Eine langweilig sich. Das ist ein schlechtes Benehmen, weil die Persone sich für die dritte Person nicht interessieren (DSH 10, Turkey).

'Three persons sit in a train (*or s.th. like that?*). The two on the sides both read whereas the one that sits inbetween them *does not look* very happy. *If* they know each other, it is impolite to read instead

of talking. *If* they do not know each other*, I do not see why* reading should be regarded as bad behaviour' (BW 17).

These respondents offered both readings:

'…there are two people sitting on a bank in a train *or* a kind of holding area. They are very lost in a book and a newspaper and have a third guy sitting very close between them without reading something. The guy in the middle feels very queasy, because he is like caught between them. It's a bad manner, because the other people ignore him on the one side [i.e. hand] and crowd him on the other side [i.e. hand] ' (FCE 2).

'Three people are sitting next to each other in a train. As they are sitting very close to each other, the person in the middle *seems* unhappy with the unwanted attention. *Possibly though* as the person in the middle is the only one who isn't reading he *might* also just be bored' (BW 19).

Two respondents offered no explanation for why the middle person looked angry; indeed, the second does not mention him at all: 'Drei Menschen sitzen auf der U-Bahn[. Z]wei lesen, und ein sitzt mit bösem Gesicht. Das ist normales Benehmen' (DSH 7, no country given) and 'Drei Menschen sitzen im Straßenbahn. Die Frau liest das Buch. Der Mann liest ein Zeitschrift. Das ist normal. Ich sehe so was jeden Tag!' (DSH 24, Russia). Rather than inattentive readings, these answers may be due to haste to complete the questionnaire or a strategy to avoid having to describe a situation the respondents do not feel they have the linguistic resources to articulate. The references to normality might also be meant ironically in both cases.

A fourth alternative which occurred only once was: 'Three persons are sitting in the train or subway. Although there are some seats free, the person in the middle sits between the others. [Bad manners or bad behaviour?] *Difficult to say*. It's not forbidden to sit in the middle between two people. But *it can be seen as* bad manner or bad behaviour' (BW 12, Romania, my italics to emphasize phrases that show the respondent is becoming uneasy with his reading). In this reading, the man is not a passive victim but has chosen a seat between the others - although the only reason the respondent gives for this odd decision is that 'it's not forbidden'. Like the other alternative readings just cited, this respondent sees someone sitting on a seat with another person on each side, and not someone being squashed by the people on either side of him, as the majority do. Since this fourth account does not explain or even take cognizance of the man's expression, the picture seems to have been inattentively processed, however.

10.2) Divergent interpretations of picture details

The setting is deliberately vague, and invites the learners to complete the picture's meaning by determining the place and situation. 88 respondents said, as anticipated, that the people were on a train, bus or tram or else in a waiting room. One alternative reading located the participants on a 'park

bench' (R 1) and another saw them as being 'in the last row' (JB 4), but did not say what of. There were nine mentions of a sofa or couch, although its location was not specified. This is an inattentive reading, to the extent that it gives no thought to the script of the situation: sofas are usually found in private homes, and if the scene is taking place in someone's living-room, an elaborate narrative would be needed to explain the roles and interactions shown. The descriptions of the setting, especially those of the LP group (whose members have greater pragmatic flexibility) often contained hedging devices, words or expressions which reflected the fact that they had had to construct their reading with some effort and were not maintaining that it was the right one . They locate the three people 'in a waiting room (*I suppose)*' (Sp 24); 'in a bus *or something like that*' (JB7); 'a public bus *or* subway *or something similar*" (FCE 1); 'on a bench *or something*' (Sp 18); 'in a tube(?) (an underground) *or* on a sofa' (Sp 22). However, in one case there was no ambivalence: they were '*obviously* at a station or airport ' (BW 35; all the italics are mine).

There were a small number of divergent readings of the participants: 'There are three people ; … in the middle or [i.e. of] the two readers *a boy* is cowerd [kauert] because he has no place to sit' (R 1); '…they shouldn't let *the old man* be bored" (FCE 7); '…the *old man* in the middle is pretty cramped" (Sp 9); '*Three men* are sitting in a waiting-room" (Sp 24); '…the man in the middle needn't be restricted by *the other men*" (Sp 4).

Whilst reading the person in the middle as an old man or even as a boy is fairly plausible, reading the figure on the left as a man suggests an inattentive reading. Two respondents said that both people are reading newspapers; these are given as examples of inattentive readings in 3.3.2.

Most respondents (70) made no mention of the feelings of the man in the middle; but his facial expression and body language were interpreted in fairly diverse ways by those who did. 14 saw him as sad or unhappy, eight as angry or bad-tempered, seven as bored, four as frightened, 'anxious' or worried, two said he felt 'bad' or 'schlecht' and two that he felt 'gestört'. There were single references to his feeling 'oppressed and ignored' (BW 8), disappointed ('entauscht', DSH 8), lonely ('Einsamkeit', DSH 22), shy or introverted ('sehr zurückhalten', DSH 12), 'frustrated' (FCE 4), 'queasy' (FCE 2) or 'very 'crazy'' (BW 13). There were a further 12 references to his feeling 'uncomfortable', although this might be physical rather than, or as well as, psychological.

10.3) Sensitive, observant or creative interpretations

Recall that at the point where the learners noted these views, there had been no explicit reference to intercultural comparisons. Several German respondents nevertheless observed that the scene was unlikely or abnormal in some way: 'If they don't know each other it is strange to sit so close together when it is not necessary' (JB 3); 'quite unrealistic situation' (BW 7); '…I think that does not happen very often, when there is enough space' (BW 27); 'Bad behaviour, but it wouldn't happen in Germany' (BW

30); '… it's weird [and?] unusual [that?] people in a tube or anything like that sit so near to each other. I think I don't understand the picture in the right way' (Sp 22). Rather than misunderstanding the picture, however, these respondents offer sensitive readings by noting that the scene presents a cultural anomaly.

Another small cluster of responses expressed incomprehension and even annoyance at the man's apathy: 'If this picture is in a tube (an underground) I can't see bad behaviour. The man in the middle can easily move to another place.' (Sp 22); 'Wenn der Mann, der nicht liest, nicht da sitzen will, kann es irgendwo gehen.' (DSH 23, Japan); '[It is] bad behaviour because the two on the outsides do not care about the man in the middle who lookes like a prisoner. But the bad behaviour is actually related to him because [he] does not dare to get out of this situation.' (BW 20); 'vielleicht geht es hier um Einstellung der nebensitzenden Personen, die auf diesen Mann nicht reagieren und gleichgültig weiter lesen, aber dieser Mann gibt keine - Ich brauch Hilfe - Signale.' (DSH 18, Poland); 'It's bad manner of the two person who sit next to him. But I don't understand why that person in the middle don't stand up.'(Abs 4). The man's inexplicable failure to assert himself is singled out here as a disturbing factor. These too are sensitive readings, since respondents have clearly sought to understand the picture in terms of the overall logic of the situation.

4 Discussion and implications

4.1 Findings on initial questions

Did the study reveal generally inattentive processing? No. In general the pictures were processed with just enough attention to perform the task, and were by and large understood as intended. Only in the case of Picture Two was the majority reading not the intended one, but this was due to a misleading drawing rather than careless processing. Although the analysis did reveal a number of inattentive readings, none of the respondents appeared, from this data, to have genuinely low visual literacy or culturally-determined problems in understanding the pictures.

Did the study suggest that these pictures were regarded as important sources of information and subjected to the kind of careful reading written text is? No. There are many examples of divergent interpretations where respondents' initial readings are at odds with other picture details, but rather than 're-reading' the essential elements, they construct illogical readings on the basis of their first impressions. There were very few or no mentions at all of many informative picture details (the people's clothes in Pictures One, Two, Eight and Nine for example). What I have called 'creative readings' are also evidence of breaking off the processing as soon as sufficient information has been gathered to construct a reading.

How common were divergent readings, and what were their implications for the successful performance of the task? While there was a solid core of consensus on the pictures' overall meaning in all cases but that of Picture Two, the respondents did interpret the pictures' meanings in sometimes quite widely differing ways, suggesting that the divergent readings that actually come to light in the classroom represent only a small percentage of the true number. Divergent readings frequently go unnoticed, since the learners' and teacher's attention is trained on the verbal, and not the visual, and the pictures themselves are rarely discussed. From the responses collected in both the main study and from the control group (see 3.1.2), it seems likely that some of the 140 learners questioned would have experienced faulty or failed communication if they had discussed 'bad manners' on the basis of their picture interpretations without first taking the unusual step of stating explicitly what they saw. A common attitude to picture interpretation in FLT circles seems to be that while it is obvious that picture interpretations will sometimes differ, these differences will automatically lead to a productive negotiation of meaning. Thus it is of great importance to note that many of the responses to the discussion question about bad manners were formulated in ways that did not make divergent readings apparent, and even more importantly, from the point of view of discourse structure, they did not *invite* query or dissent. They would simply have seemed indefinably peculiar to someone who had arrived at a different reading.

Since the original task was to discuss manners, not pictures, there is no guarantee either that learners doing pair-work would, on hearing a peculiar statement about manners, have questioned what their partner had seen. For that reason, I would argue that, contrary to what was done in the coursebook task which generated the idea for the study, it was not sufficient to present learners and teachers with interesting visual input, unaccompanied by instructions on how to use it effectively for the task. More generally, on this evidence it is doubtful whether divergent picture interpretations will always automatically lead to a useful exchange of views in the target language. Such discussions need to be guided by instructions about using the pictures in the learners' materials and in the teachers' book, just as much as exercises based on text do. These are some of the central insights the study yielded in response to the questions posed at the start. I will turn now to further points of interest that emerged from the analysis.

4.2 Further findings

4.2.1 Cultural differences?

In Hewings' 1991 study of picture interpretations by Vietnamese refugees learning English, cultural factors were shown in some cases to lead to profound misunderstandings of the pictures.[17] However, despite the fact that at least 35 of the respondents (not all provided demographic data) in my own study were not of German nationality, cultural factors did not appear to play any role in the understanding of the visual information. Indeed, some of the wildest interpretations came from German respondents (as in JB 8's assertion that Picture Two shows two women at an airport, swearing because they have missed their plane, for example). It is true that the teatime scenes depicted in Picture One and Picture Eight were referred to as other meals by too many foreign students for it to be a coincidence: but this is a difference in cultural meanings attached to particular rituals, not a culturally-motivated difference in decoding the objects, people and setting in the picture. In a classroom discussion, moreover, these different definitions of the meal would be clearly discernable, and could lead to an interesting exchange of intercultural information. It was noted several times in the analysis that the responses of the DSH group were markedly different from those of the 'German' groups. They focussed consistently on the atmosphere and emotions in the pictures, especially if perceived as positive, but were low on factual detail. This tendency could not be detected in the non-German respondents in the other groups. Apart from factors such as age, life-situation or language resources these more emotional responses could be related to course-type: the DSH group had been together for 16 hours a week for months and were accustomed to expressing open and personal opinions, whereas the others were together for 90 minutes a week for 15 weeks, and their more factual, impersonal responses reflected this.

4.2.2 Effects of the task on processing

The language classroom context influenced the treatment of the visuals significantly; many processing phenomena discussed here would have been absent if the pictures had been shown to respondents without any specific pedagogic context or task in mind, and their comments noted in their L1. As most of the respondents decided the task required them to find some instance of bad manners in each picture,

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[17] Hewings' study is referred to in chapter II. Predictably, the Vietnamese refugees misunderstood the intended meanings of the illustrations far more often than the learners - most of whom were university students from European countries or the former USSR - in my Bielefeld study. Hewings' conclusions in summing up nevertheless coincide in many respects with points made about pictures in this study: he comments that we tend to assume other people see the same thing as we do; that teachers assume learners will automatically know how to 'make sense of information which is presented in a form other than text' (Hewings 1991: 243); and that once a specific interpretation of a picture has been arrived at, it is difficult to see it differently. He also observes that 'Difficulties of interpretation are fairly unpredictable' and that teachers may well erroneously interpret them as language problems; and he concludes by suggesting that teachers check 'rapidly and informally' on picture interpretation prior to using them in language practice tasks (*ibid*.).

these task-specific effects are especially evident when their reading failed to reveal any obvious bad manners or behaviour. Picture Two for example, according to the majority of the respondents, showed a crying woman. Since this suggested no obvious bad manners or behaviour, they were compelled to seek them in other elements of the picture. Many decided finally that the bad behaviour must be the man's failure to help the woman, and described him as looking on with cold indifference. Those who thought the woman was sneezing or blowing her nose identified that as the bad manners, and so read the man's expression as one of distaste or anxiety about germs. The study examines several other examples where respondents clung to their initial reading of the actions and relationships in the picture, and produced increasingly inventive readings as they sought to reconcile their initial interpretation with the perceived task.

4.2.3 Effects of L2 competence

It was noticeable that most members of the groups at B2 level and below were restricted in what they were able to express about the more challenging pictures. In the discussion of Picture Four for example, it was observed that most members of the sub-C1 groups did not try to describe the little boy's emotions or the reasons for them. This suggests that the aspects of the pictures selected for comment and description are to some extent circumscribed by learners' linguistic resources. It was also suggested that, if strongly focussed on the task, the learners may only 'see' what their linguistic resources will enable them to describe. The effects of language level on the use of the pictures is worthy of further investigation, perhaps by interviewing learners.

4.3 Conclusion

The study is exploratory and descriptive; its findings cannot be extended to other visuals, other language learning activities and other learners. It makes no claim either to having identified a hitherto unknown phenomenon. However, where the study does claim to be original is in eliciting statements of what the learners actually believe the pictures to show, establishing the core meanings that emerged in this sample, and, above all, examining divergences from the core meanings. From this analysis, general categories of types of divergences are derived, and the wider implications for the use of visuals in practising and consolidating productive skills considered. The point made by Weidenmann in the article referred to at the start of the chapter, that visuals often fail to support learning as effectively as they might could because they are not regarded as a fully-fledged informational mode that requires the same careful processing as verbal text , is borne out by the findings. While there is plenty of evidence of efficient and economical processing, truly attentive readings were rare.

CONCLUSION

1 Review and summing up

This exploration of the affordances of visuals in FLT set out, as explorations do, without knowing what the route mapped out would lead to, and faced with uncertainties from the outset. One immediate challenge was to arrive at a working definition of 'affordances', a concept whose precise, or even approximate, meaning is the subject of considerable debate at present. There is also no consensus on what to call the phenomena I opted to describe as 'visuals', nor is there agreement on what exactly they are. In fact, it emerged that there is no theory of visuals at all: they are dealt with in a wide range of different disciplines in such diverse ways that there was little choice but to settle on a particular area and hope that it would offer useful insights. Perceptual psychology, a field with a long history of experimental research, seemed to offer a solid basis for exploring visuals more closely, but it soon became apparent that there is also no consensus on how human perception functions, given the profound and unbridgeable schism between direct perceptionist and constructivist accounts of how we see. Despite the lack of a single unified theory, it seemed that on the level of empirical research the field of perceptual psychology might offer insights into the effects of culture and environment on representational techniques and the perception of pictorial information, but here too there was little clarity. Research on cultural differences in the perception of depth and perspective in pictures carried out in the 1960s has been discredited by subsequent research which has attacked both its methodology and ideology. It appears that an image does not necessarily have to be created in accordance with a particular set of conventions in order for us to understand what it is intended to depict, and that the factors that influence differences in picture perception, cross-culturally and individually, are diffuse and difficult to identify.

With regard to the more specific question of whether and how visual information supports learning, it seemed reasonable to expect clearer answers from the large body of research on the topic that exists in the area of cognitive psychology. Although the verdict from this field is that, on balance, static visuals have been shown to have positive effects on learning, the authors reviewed are careful to point out that research has produced a large number of ambivalent and negative results as well. There is increasing evidence that the success of visual support for learning depends less on the nature of the visual information than on attentive processing: this evidence comes above all from research in which visuals were found to have no effect on learning outcomes because the role of the pictures or graphics as serious sources of information was not understood by the learners, and they were not

effectively processed. Thus, although research in this area offers principles for using visuals in learning more effectively, it cannot provide hard and fast rules that guarantee learning benefits. It is also uncertain how much relevance findings from this research have for the area of foreign language teaching, in view of the fact that most of it has been carried out in the domains of science and technology education; there is only a little research on visuals used in the teaching of more discursive material in areas such as psychology and social science, and this research has not been able to discern positive learning effects from visuals.

Having concluded the overview of theory and research that made up the first half of the thesis, my overall conclusion was that at best visuals could be said to afford support for learning sometimes, in certain domains and under certain conditions, if perceived as informative and processed properly. At this half-way point, the focus of my inquiry changed to concentrate more closely - by means of empirical research of my own - on visuals in materials for FLT. In this phase too open questions rather than definitive answers predominated.

In the first empirical study, which explored the affordances of visuals in coursebooks for learners of various languages in adult education courses in Germany, it was not possible to discern any common basic set of principles regarding visuals. The approach differed greatly from book to book; only two included their visual elements fully in the overall conception of the materials and provided clear guidance for their use. It is clear from research on instructional visuals that instructional goals should guide design; yet in the visuals examined design and instruction often appeared to coexist rather than to have a well-integrated unity of purpose, which suggests that findings from research have not had a major impact on some producers. Ultimately, coursebooks which had a generally sophisticated approach to FLT seemed to have a sophisticated approach to visuals; there was no evidence that newer coursebooks are more receptive to recent research on instructional visuals. One of the more detailed general functional taxonomies of functions of instructional visuals discussed in the literature review was used to analyse the coursebook visuals, but proved to be largely irrelevant. This added substance to the impression that the general functional categories developed by research on visuals in technical and scientific domains of knowledge are only partially applicable to FLT. Existing functional typologies of FLT visuals were also used for the analysis, but some of kinds of visuals in the sample seemed to perform functions not covered or covered too generally by these typologies, and so additional categories were proposed.

Even though the coursebook study offers a mixed picture of the affordances of visuals in the coursebooks examined, the second empirical study, which presented the views of teachers who use the books, suggested that overall, the visuals in the books afford them useful

and entertaining material for the classroom. Seventy-one teachers answered a questionnaire designed to gather data about their awareness of the visual elements in their teaching materials, their use of visuals, the importance they attach to visuals in their teaching in general and their opinions about their functions and affordances. Data was also gathered about whether they find it clear what functions the visual components of their coursebooks are intended to fulfil, whether they believe the coursebooks provide enough guidance to the use of visuals and whether they have received any kind of formal training in using visuals. The responses showed that the teachers questioned are very positively disposed towards visuals in general, and many of them use additional visual materials in their classes. Conversely, very few have had any training in the use of visuals in FLT and most felt the materials they used did not provide sufficient guidance on the intended uses of their visual elements. One open question then is why, if practitioners use pictures so intensively, do pictures not receive more attention from coursebook producers in the form of directive reference and overall principles for use, and why are pictures only dealt with in passing, if at all, in teacher training? A further open question is this: since it was very clear from the data that the teachers regard the motivational and 'fun' functions of visuals as central, how does this square with the researchers' failure to detect any learning benefits from such visuals? Do teachers associate pictures with fun and motivation because they fail to perceive them as serious informational resources, or have they, the practitioners in the field, intuitively locked onto an effect that cognitive psychologists have failed to acknowledge or identify?

The final empirical study was an experiment prompted by my own classroom observations of highly divergent and unforeseen picture interpretations - interpretations which, moreover, could not be explained in terms of low visual literacy or failure to understand basic western representational conventions. In this study, I examined data from 119 language learners whom I had asked to look at ten pictures and state briefly in writing what they believed each one to show. Once again, questions remain open: although a great many non-disruptive divergent interpretations were noted, the most obvious sources of divergent interpretations were unclear representations. Apart from unclear representations however, it was not possible to identify reasons for divergent interpretations with any clarity. No individual respondent offered consistently odd interpretations, which might have indicated low visual literacy, and there was no evidence whatsoever that any of the respondents did not understand basic representational techniques. There were occasional major divergent interpretations, but the reasons for these could not be ascertained. In this study at least they seemed to have no connection whatsoever with culture of origin, although the interpretation of certain events, such

as mealtime rituals, was affected on occasion by cultural expectations. However, even though a few respondents who saw a scene intended to depict teatime as depicting suppertime, there was nothing to suggest they had seen different things from other respondents in the picture; the alternative reading was on the level of cultural knowledge, not lack of familiarity with representational conventions. The study did indicate that the amount of attentiveness with which individual respondents processed visual information differed considerably, but that in general the pictures appeared to have been processed rapidly and superficially. It also indicated that processing was affected by the perceived nature of the task, that divergent interpretations could not be predicted and that once respondents had decided upon a particular interpretation, they tried to accommodate conflicting details rather than revise their interpretations. To sum up, the study suggested that divergent interpretations are more prevalent than I had assumed; but rather than laying bare the causes, its findings emphasize instead how complex the causes may be.

2 Key insights

On balance then, neither the theory and research findings reviewed nor the empirical research conducted provide definitive answers as to what the affordances of visuals in materials for FLT are, but such an answer was not anticipated. The term affordances in itself, as I have used it here, implies something contingent upon factors such as context, processing strategies and the perception of visuals as sources of information, and so such answers as can be given are conditional ones. Nevertheless, a number of key insights have emerged and will be summarized briefly.

Picture interpretation:

Human perception is essentially the same across cultures; divergent perceptions of pictorial representations do no seem to result from an inability to understand basic pictorial information (depth cues, modelling of form) or from fundamentally different representational techniques, especially in this era of globalization where few language learners, and certainly very few in the specific context of adult learners in Germany, will be unfamiliar with western representational techniques. Hewings' study of Vietnamese refugees (cf. Hewings 1991) and my picture interpretation study seem to suggest that misunderstandings or divergent interpretations of visuals result from cultural expectations related to people's appearance or to social rituals for instance, or else from inattentive readings of pictorial information rather than fundamental problems of picture comprehension.

Awareness of visuals:

A failure by producers to pay serious attention to visuals emerged from the analysis of coursebook visuals, for instance in cases where inappropriate illustrations were juxtaposed with text, and a similar lack of attention was apparent in the picture interpretation study, where superficial processing occasionally led to illogical readings. In the study of Vietnamese learners referred to above, Hewings does not mention the part that the style and content of the illustrations he used in his study may have played in the learners' misinterpretations of the visual information. In my own study however, divergent interpretations could in some instances clearly be traced to a poor representational effort or to the fact that the information I had attempted to convey (a person blowing her nose or friends talking at the same time) did not lend itself to pictorial representation. In these cases the study did not reveal the learners' inability to understand visual information, but my inability to encode it effectively. I believe this possibility is not considered often enough in research on and with visuals. Could this be because some researchers from fields unrelated to graphic design and illustration, even if they are studying the perception or effects of visuals, feel that visuals are not their province? This could explain why they pay them little attention, often do not include the visuals they have used in their research articles, are uncritical of the quality of the visuals and even base a considerable amount of research on pictures which are technically flawed and not suitable for the tests they are used in (cf. the critique of the Hudson Depth Perception Test by Hagen & Jones 1978).

Processing:

Research by Tang, Schnotz, Weidenmann as well as my own picture interpretation study suggests that pictures, even in an instructional context, are not processed as carefully as text and are not regarded as equally valid sources of information. Although a profound change in learning and learning materials is anticipated as multiple representations in various modes - rather than language alone - become the means of communicating information, this revolution in the use of visuals and other kinds of non-verbal external representations will apparently require changes in processing habits as well as a greater awareness of the affordances of such representations by producers of materials.

3 Directions for future research

In the introduction, I anticipated that this investigation would raise more questions than it answered; and indeed a number of directions for future research have emerged. First, there is considerable scope for research on visuals in the classroom, including areas such as

- the effects of visuals on learning in FLT (either with an emphasis on language structures or on thematic areas);
- the motivational effects of visuals in FLT;
- the role of intercultural factors in picture interpretation in the foreign language classroom;
- the effects of processing instructions on the effective use of visuals in communicative tasks in the foreign language classroom;
- the effects on learning if the intended functions of all the visuals in a given set of FLT materials are consistently verbalized and made overt over a certain period, and how the teachers and learners experience such an intense focus on visuals.

The picture interpretation study presented in the final chapter could be adapted in various ways: for example it could be used in a cross-cultural comparison with equally-sized groups of learners from two or three different cultures, possibly in different countries, recording their views of what the pictures show. It could also be administered to two groups of equal size, one of which states what the pictures show and whether they consider it bad manners, and another which only states whether the behaviour shown is bad manners: this would throw some light on the kinds of miscommunication that may arise if divergent interpretations are not made overt.

A second area of research that presents itself is one that focusses on making instructional visuals and their affordances part of teacher training. This might take the form of a pilot programme that experimented with ways of integrating theoretical knowledge and practical instruction in the use of visuals into the training or further training of foreign language teachers; this could include courses on drawing on the board in the classroom and creating visual materials for the classroom. Such a programme could be accompanied by research and documentation, as well as by studies to discover the effects of such training in the classroom. Further teacher-centred research might explore the kind of data collected by my questionnaire in more depth by means of interviews with teachers on their perceptions of the affordances of visuals, the ways they use them and their ideas about how they should be deployed in teaching materials.

A third area of research might focus on producers and include interviews with editors and authors about their perceptions of the affordances and functions of visuals as well as interviews with illustrators and designers to discover the degree to which they are integrated into the production process and whether they are given a clear idea of the intended affordances and instructional goals of their illustrations, their strategies for dealing, in terms of

representational technique, with FLT-specific factors like intercultural considerations and the role played by illustrations in semanticizing the text.

4 Key implications

The affordances of visuals in materials for FLT, in the sense of real affordances, offers that exist but may not be known, are considerable. Visuals have, among many other affordances, the potential to aid language learning by reducing cognitive load, to provide mnemonic support, contextualize language input on various levels, clarify learning procedures, visualize grammatical structures, facilitate comprehension, stimulate language production and, if teachers rather than research psychologists are to be believed, motivate learners and make teaching and learning more fun. The empirical studies presented in the thesis also identified visuals which afforded miscommunication, confusion, misunderstandings and sometimes nothing more than a fleeting, purposeless visual stimulus.

If the harbingers of a brave new cognitive world of multiple representations are right, then FLT too will rely increasingly in future on visual components that carry a full informational load, and visuals will come to be regarded by producers of FLT materials and the teachers and learners who use them as being no less important than speech and writing. At present however, visuals, though omnipresent, do not have this status. The studies presented above suggest that most of the producers of the materials examined did not have a clear conception of their instructional affordances and frequently used them in ways that could not be traced to specific language-learning objectives. The teachers questioned are enthusiastic about visuals and use them intensively, but few have been given a solid theoretical and practical grounding in how to use them effectively in the language classroom. The groups of learners asked to interpret the pictures they were going to use in a discussion task performed the task efficiently but, as the lack of attention to detail suggested, for the most part superficially.

It is unlikely that a radical change in the perceptions of visuals and their affordances in instruction will take place overnight, so rather than wait until a generation that has been better trained to use them has been raised, the most pragmatic solution is - as has been suggested both explicitly and implicitly in the research literature - to provide guidance to the processing of visuals *in FLT materials themselves*. Here the onus is above all on producers of FLT materials: authors, editors, designers and illustrators or web-designers in the case of e-learning materials. The implication of this is that FLT materials should, as in the cases of some of the coursebooks analysed, include both an overt explanation of the overall philosophy towards visuals and a general overview of their use, as well as guidance for the teacher and learner with regard to

specific visual elements where necessary: this guidance may be provided by the positioning of visuals relative to text or by means of arrows or other symbols. It may also be provided by explicit processing instructions that indicate whether individual interpretations of a picture are encouraged and welcome, whether consensus has to be found or if the teacher has to lay down a specific meaning for it, and so forth. A further implication of such a strategy is that the production team would automatically have to consider visuals and the role they play in their overall conception from the beginning of the project.

For teachers and teacher-trainers, a greater emphasis on the instructional role played by visuals implies integrating modules on the theory and practice of teaching with visuals into training programmes, as outlined under 'Directions for future research'. It also implies a greater general awareness of visuals in the classroom on the part of teachers, and in the absence of the processing instructions which materials ought to supply, it means they would have the job of making it clear to the learners how visuals are related to the goals of instruction and how they should be used. In this regard, instructions such as: 'Ignore this kangaroo, it isn't related to the task,' provide just as much guidance to the effective processing of visuals as instructions to attend to them.

For learners, using more visually-focussed materials and being taught by teachers with a thorough grounding in the theory and practice of using instructional visuals, would mean that, through normal activities in the language classroom, they would receive gentle guidance towards effective habits of processing visual information to support language learning goals.

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APPENDIX A: CHAPTER V

Questionnaire items in their original summative scales or questions

The individual sections are designed to obtain data about:
1: ***respondents' beliefs in general about the affordances of pictures in FLT materials(sum. scale)***
2: ***opinions about support from the producers in using the visuals in the coursebook (sum.scale)***
3: ***the extent of the respondents' awareness of visual elements in teaching materials (sum. scale)***
4: ***how the respondents use pictures (apart from those in the coursebook)- also gives insight into intensity of use of pictures, and beliefs about their affordances***
5: ***the respondents' opinions about the functions of pictures in specific areas of SLA***
6: ***the sources of pictures the respondents use (other than those in the coursebook)***
The questionnaire was aimed at teachers of various languages in adult education classes. Where relevant, the respondents were asked to think of one specific course-book they are using. The language of the questionnaire was German, since the respondents were either German L1 speakers or living and teaching in Germany: the NNS of German were given the questionnaire at meetings or workshops being held in German, so were assumed to have a functional command of German.

6-point rating scales (no fence-sitting possible)

stimme vollkommen zu, stimme stark zu, stimme zu, lehne ab, lehne stark ab, lehne vollkommen ab;

trifft vollkommen zu, trifft stark zu, trifft zu, trifft nur zum Teil zu, trifft nur sehr bedingt zu, trifft überhaupt nicht

zu; fast immer, sehr oft,oft, manchmal, selten, nie

Sections

Questions 1 to 24 are the items from four different 6-item scales: scales 1, 2, 3 and 5. These were all entered on one spreadsheet. Items in italics were also analysed individually. Scales 1,2 & 3 were designed as summative scales and the internal consistency reliability was measured (Cronbach's alpha). The data were subjected to descriptive statistical measurements, viz frequency (shown on histograms); measures of central tendency - mean, median and mode; and measures of variability: standard deviation and variance.

Section 1: general attitudes to pictures in FLT materials
Bilder sind eben so wichtig wie Textmaterial in Sprachlehrwerken **ITEM 19;**
Bilder sind motivierend **ITEM 11**
Es ist wichtig, dass Sprachlehrwerke für Erwachsene Bilder haben **ITEM 7**
Bilder lenken vom Sprachenlernen ab **ITEM 3; reversed**
Die Bilder im Lehrwerk helfen mir als Lehrer/in wenig **ITEM 21; reversed**
Das Lehrwerk wäre auch ***ohne*** Bilder genauso effektiv **ITEM 9; reversed**

Section 2: opinions about support from the producers in using the visuals in the coursebook

Es ist nicht immer klar, wie die Bilder im Lehrwerk den Lernprozess unterstützen sollen **ITEM 16; reversed**

*Das Lehrerhandbuch soll genaue Hinweise geben, wie man die Bilder in den Übungen einsetzen soll.(stimme zu …)***ITEM 6; reversed**

Ich weiß ohne Anleitung, wie die Bilder im Lehrwerk im Unterricht eingesetzt werden sollen. **ITEM 23**

Viele der Bilder im Lehrwerk sind nur eingesetzt worden um Lücken zu füllen. (stimme zu …) **ITEM 12; reversed**

Ich habe den Eindruck, dass die Autoren des Lehrwerks gut überlegt haben, was die Bilder im Lehrwerk zum Unterricht beitragen sollen. (stimme zu …) **ITEM 4**

Die Bilder im Lehrwerk bieten mir gute Anregungen für die Gestaltung des Unterrichts. (immer …)**ITEM 14**

Section 3: awareness of visual elements in teaching materials

Ich gucke die Bilder auf der Seite als erstes an, wenn ich das Lehrwerk aufmache. (immer … nie)**ITEM 1**

Ich kann mich an ein Bild aus dem Kapitel, das wir im Moment durchnehmen, erinnern. **ITEM 10**

Ich gehe im Unterricht auf Karikaturen oder Comics auf der Lehrwerkseite ein, auch wenn sie nicht Teil einer Übung sind. **ITEM17**

Es ist wichtig, dass die Illustratorin/der Illustrator eines Fremdsprachenlehrwerks die Länder, wo die Sprache gesprochen wird, gut kennt. **ITEM 15**

Wenn ich die Illustrationen im Lehrwerk nicht mag, wird meine gesamte Einstellung zum Lehrwerk negativ beeinflusst. **ITEM 20**

Mir fällt es schon auf, wenn die Illustratorin/Illustrator etwas nicht sehr gut gezeichnet hat. **ITEM 8**

In meiner Ausbildung oder in Workshops usw. habe ich gezielt gelernt, wie man Bilder im Fremdsprachenunterricht einsetzt, damit sie den Lernprozess effektiv unterstützen. JA □ NEIN: □ **ITEM 44**

Falls "Ja", könnten Sie bitte kurz schildern, was Sie gelernt haben, und wie? z.B. "Uni-Seminar zum Thema X" oder "Workshop in meiner Sprachschule zum Thema X"

Section 4: use of pictures (apart from those in coursebook) ITEMS 25-31 Analysed separately (frequencies)

Ich bringe Bilder mit in den Unterricht ***oder*** zeichne eigene Bilder...

….damit die Lernenden über sie sprechen können (fast immer, sehr oft, oft, manchmal, selten, nie)

….damit die Lernenden über sie schreiben können

….als Grundlage für Grammatikübungen oder -erklärungen

…um Sprachlernspiele zu spielen

Aus anderen Gründen (welche?)---------- separate analysis

Ich sammle Bilder, die ich eventuell in meinem Unterricht benutzen könnte (sehr oft …)

Ich zeichne spontan Bilder im Unterricht (sehr oft …)

Section 5: opinions about the functions of pictures in specific areas of FLT Not summative: histogram or bar charts showing relative frequencies

Bilder sind eine wichtige Unterstützung bei der Vermittlung neuer Vokabeln (stimme …**ITEM5**

Bilder sind eine wichtige Unterstützung bei der Vermittlung neuer Grammatik-Themen **ITEM18**
Bilder sind eine wichtige Unterstützung bei der Vermittlung von landeskundlichen Informationen **ITEM13**
Bilder sind eine wichtige Unterstützung beim Lesen und Hören unbekannter Texte. **ITEM22**

Kleine Piktogramme wie  sind eine wichtige Hilfe für Lehrwerkbenutzer.**ITEM2**

Ich finde es effektiver, wenn Sprachregeln mit Hilfe von Bildern (z.B. mit kleinen Figuren) erklärt werden **ITEM24**

Scale 6: sources of pictures ITEMS 32-43 histograms/bar charts
(Bitte ankreuzen! Sie können mehrere Kästchen wählen)
In meinem Unterricht benutze ich...

... gar keine Bilder ☐ … nur die Bilder im Kursbuch ☐

… nur Bilder, die ich selber in den Unterricht bringe ☐

… die Bilder im Kursbuch sowie auch Bilder, die ich selber in den Unterricht bringe ☐

… Bilder, die ich vom Internet runterlade ☐ … Bilder, die ich kopiere (oder einscanne) ☐

… Bilder, die ich aus Zeitschriften usw. ausschneide ☐… Bilder, die ich selber zu Hause zeichne ☐ … ….Bilder, die ich selber am Computer erzeuge ☐… eigene Photos oder Photomontagen ☐

… Bilder, die ich selber im Unterricht an die Tafel zeichne ☐
…Bilder aus anderen Quellen (welchen?):……analyse separately
44) ☻ Ich benutze regelmäßig das Lehrwerk/ die Lehrwerke (Titel des Lehrwerks/der Lehrwerke)

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45) ☻ Damit unterrichte ich Anfänger ◻**1** leicht Fortgeschrittene ◻**2** Fortgeschrittene ◻ **3; 4= more than one level** (ggf. Stufe im europäischen Referenzrahmen für Sprachen: A1, B2 usw.)
46) ☻ Ich unterrichte in der Regel: weniger als 4 Unterrichtsstunden pro Woche ◻**1** zwischen 4 und 10 UST pro Woche ◻**2** mehr als 10 UST pro Woche ◻**3**
47) ☻ Ich unterrichte eine Fremdsprache seit: weniger als 3 Jahren ◻**1** zwischen 3 und 10 Jahren ◻**2** über 10 Jahren ◻**3**
NB: respondents with the pattern 4, 2, 3 or 4,3,3 for items 45-47 were classified as "experienced teachers" and responses to sections 1-3 also analysed separately.
☻ Meine Muttersprache ist …**German: 1; Other: 2; Multilingual: 3**
☻ Zum Thema Bilder im Unterricht möchte ich noch Folgendes sagen: … Analyse: patterns or common comments? ----------
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FINAL QUESTIONNAIRE ADMINISTERED TO THE TEACHERS

1) Ich gucke die Bilder auf der Seite als erstes an, wenn ich das Lehrwerk aufmache.

☐ ☐ ☐ ☐ ☐ ☐

trifft voll-kommen zu | *trifft stark zu* | *trifft zu* | *trifft nur zum Teil zu* | *trifft nur sehr bedingt zu* | *trifft über-haupt nicht zu*

2) Kleine Piktogramme wie  **sind eine wichtige Hilfe für Lehrwerkbenutzer.**

☐ ☐ ☐ ☐ ☐ ☐

stimme voll-kommen zu | *stimme stark zu* | *stimme zu* | *lehne ab* | *lehne stark ab* | *lehne voll-kommen ab*

3) Bilder lenken vom Sprachenlernen ab.

☐ ☐ ☐ ☐ ☐ ☐

stimme voll-kommen zu | *stimme stark zu* | *stimme zu* | *lehne ab* | *lehne stark ab* | *lehne voll-kommen ab*

4) Ich habe den Eindruck, dass die Autoren des Lehrwerks gut überlegt haben, was die Bilder im Lehrwerk zum Unterricht beitragen sollen.

☐ ☐ ☐ ☐ ☐ ☐

stimme voll-kommen zu | *stimme stark zu* | *stimme zu* | *lehne ab* | *lehne stark ab* | *lehne voll-kommen ab*

5) Bilder sind eine wichtige Unterstützung bei der Vermittlung neuer Vokabeln.

☐ ☐ ☐ ☐ ☐ ☐

stimme voll-kommen zu | *stimme stark zu* | *stimme zu* | *lehne ab* | *lehne stark ab* | *lehne voll-kommen ab*

6) Das Lehrerhandbuch soll genaue Hinweise geben, wie die Bilder im Lehrwerk im Unterricht eingesetzt werden soll.

☐ ☐ ☐ ☐ ☐ ☐

stimme voll-kommen zu | *stimme stark zu* | *stimme zu* | *lehne ab* | *lehne stark ab* | *lehne voll-kommen ab*

7) Es ist wichtig, dass Sprachlehrwerke für Erwachsene Bilder haben.

☐ ☐ ☐ ☐ ☐ ☐

stimme voll-kommen zu | *stimme stark zu* | *stimme zu* | *lehne ab* | *lehne stark ab* | *lehne voll-kommen ab*

8) Mir fällt es schon auf, wenn die Illustratorin/der Illustrator etwas nicht sehr gut gezeichnet hat.

☐ ☐ ☐ ☐ ☐ ☐

trifft voll-kommen zu | *trifft stark zu* | *trifft zu* | *trifft nur zum Teil zu* | *trifft nur sehr bedingt zu* | *trifft über-haupt nicht zu*

9) Das Lehrwerk wäre auch *ohne* Bilder genauso effektiv.

☐ ☐ ☐ ☐ ☐ ☐

stimme voll-kommen zu | *stimme stark zu* | *stimme zu* | *lehne ab* | *lehne stark ab* | *lehne voll-kommen ab*

10) Ich kann mich an ein Bild aus dem Kapitel, das wir im Moment durchnehmen, erinnern.

☐ ☐ ☐ ☐ ☐ ☐

trifft voll-kommen zu | *trifft stark zu* | *trifft zu* | *trifft nur zum Teil zu* | *trifft nur sehr bedingt zu* | *trifft über-haupt nicht zu*

11) Bilder sind motivierend.

☐ ☐ ☐ ☐ ☐ ☐

stimme voll-kommen zu | *stimme stark zu* | *stimme zu* | *lehne ab* | *lehne stark ab* | *lehne voll-kommen ab*

12) Viele der Bilder im Lehrwerk sind nur eingesetzt worden um Lücken zu füllen.

☐ ☐ ☐ ☐ ☐ ☐

stimme voll-kommen zu | *stimme stark zu* | *stimme zu* | *lehne ab* | *lehne stark ab* | *lehne voll-kommen ab*

13) Bilder sind eine wichtige Unterstützung bei der Vermittlung von landeskundlichen Informationen.

☐ ☐ ☐ ☐ ☐ ☐

stimme voll-kommen zu | *stimme stark zu* | *stimme zu* | *lehne ab* | *lehne stark ab* | *lehne voll-kommen ab*

14) Die Bilder im Lehrwerk bieten mir gute Anregungen für die Gestaltung des Unterrichts.

☐ ☐ ☐ ☐ ☐ ☐

stimme voll-kommen zu | *stimme stark zu* | *stimme zu* | *lehne ab* | *lehne stark ab* | *lehne voll-kommen ab*

15) Es ist wichtig, dass die Illustratorin/der Illustrator eines Fremdsprachenlehrwerks die Länder, wo die Sprache gesprochen wird, gut kennt.

☐ ☐ ☐ ☐ ☐ ☐

trifft voll-kommen zu | *trifft stark zu* | *trifft zu* | *trifft nur zum Teil zu* | *trifft nur sehr bedingt zu* | *trifft über-haupt nicht zu*

16) Es ist nicht immer klar, wie die Bilder im Lehrwerk den Lernprozess unterstützen sollen.

☐ ☐ ☐ ☐ ☐ ☐

stimme voll-kommen zu | *stimme stark zu* | *stimme zu* | *lehne ab* | *lehne stark ab* | *lehne voll-kommen ab*

17) Ich gehe im Unterricht auf Karikaturen oder Comics auf der Lehrwerkseite ein, auch wenn sie nicht Teil einer Übung sind.

☐ ☐ ☐ ☐ ☐ ☐

trifft voll-kommen zu | *trifft stark zu* | *trifft zu* | *trifft nur zum Teil zu* | *trifft nur sehr bedingt zu* | *trifft über-haupt nicht zu*

18) Bilder sind eine wichtige Unterstützung bei der Vermittlung neuer Grammatik-Themen.

☐ ☐ ☐ ☐ ☐ ☐

stimme voll-kommen zu | *stimme stark zu* | *stimme zu* | *lehne ab* | *lehne stark ab* | *lehne voll-kommen ab*

19) Bilder sind eben so wichtig wie Textmaterial in Sprachlehrwerken.

☐ ☐ ☐ ☐ ☐ ☐

stimme voll- | *stimme* | *stimme zu* | *lehne ab* | *lehne stark* | *lehne voll-*

kommen zu *stark zu* *ab* *kommen ab*

20) Wenn ich die Illustrationen im Lehrwerk nicht mag, wird meine gesamte Einstellung zum Lehrwerk negativ beeinflusst.

☐ ☐ ☐ ☐ ☐ ☐

trifft voll-kommen zu | *trifft stark zu* | *trifft zu* | *trifft nur zum Teil zu* | *trifft nur sehr bedingt zu* | *trifft über-haupt nicht zu*

21) Die Bilder im Lehrwerk helfen mir als Lehrer/in wenig.

☐ ☐ ☐ ☐ ☐ ☐

trifft voll-kommen zu | *trifft stark zu* | *trifft zu* | *trifft nur zum Teil zu* | *trifft nur sehr bedingt zu* | *trifft über-haupt nicht zu*

22) Bilder sind eine wichtige Unterstützung beim Lesen und Hören unbekannter Texte.

☐ ☐ ☐ ☐ ☐ ☐

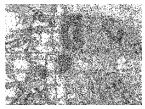
stimme voll-kommen zu | *stimme stark zu* | *stimme zu* | *lehne ab* | *lehne stark ab* | *lehne voll-kommen ab*

23) Ich weiß ohne Anleitung, wie die Bilder im Lehrwerk im Unterricht eingesetzt werden sollen.

☐ ☐ ☐ ☐ ☐ ☐

trifft voll-kommen zu | *trifft stark zu* | *trifft zu* | *trifft nur zum Teil zu* | *trifft nur sehr bedingt zu* | *trifft über-haupt nicht zu*

24) Es ist effektiver, wenn Sprachregeln mit Hilfe von Bildern (wie diese) ----------→ erklärt werden



☐ ☐ ☐ ☐ ☐ ☐

stimme voll-kommen zu | *stimme stark zu* | *stimme zu* | *lehne ab* | *lehne stark ab* | *lehne voll-kommen ab*

Ich bringe Bilder mit in den Unterricht *oder* zeichne eigene Bilder…

25) ….damit die Lernenden über sie sprechen können.

☐ ☐ ☐ ☐ ☐ ☐

fast immer | *sehr oft* | *oft* | *manchmal* | *selten* | *nie*

26) ….damit die Lernenden über sie schreiben können.

☐ ☐ ☐ ☐ ☐ ☐

fast immer | *sehr oft* | *oft* | *manchmal* | *selten* | *nie*

27) ….als Grundlage für Grammatikübungen oder -erklärungen.

☐ ☐ ☐ ☐ ☐ ☐

fast immer | *sehr oft* | *oft* | *manchmal* | *selten* | *nie*

28) …um Sprachlernspiele zu spielen.

☐ ☐ ☐ ☐ ☐ ☐

fast immer | *sehr oft* | *oft* | *manchmal* | *selten* | *nie*

29) Aus anderen Gründen (welche?) ……

30) Ich sammle Bilder, die ich eventuell in meinem Unterricht benutzen könnte.

□ □ □ □ □ □

fast immer sehr oft oft manchmal selten nie

31) Ich zeichne spontan Bilder im Unterricht.

□ □ □ □ □ □

fast immer sehr oft oft manchmal selten nie

bitte wenden

Bitte ankreuzen! Sie können mehrere Kästchen wählen..

In meinem Unterricht benutze ich ...

32) ... gar keine Bilder □
33)... nur die Bilder im Lehrwerk □
34)... nur Bilder, die ich selber in den Unterricht bringe □
35)... die Bilder im Lehrwerk sowie auch Bilder, die ich selber in den Unterricht bringe □
36)... Bilder, die ich vom Internet runterlade □
37)... Bilder, die ich kopiere (oder einscanne) □
38)... Bilder, die ich aus Zeitschriften usw. ausschneide □
39)... Bilder, die ich selber zu Hause zeichne □
40)... Bilder, die ich selber am Computer erzeuge □
41)... eigene Photos oder Photomontagen □
42)... Bilder, die ich selber im Unterricht an die Tafel zeichne □
43)... Bilder aus anderen Quellen (welchen?).....

---

44) In meiner Ausbildung oder in Workshops usw. habe ich gezielt gelernt, wie man Bilder im Fremdsprachenunterricht einsetzt, damit sie den Lernprozess effektiv unterstützen.

□ □ □ □ □ □

trifft voll- kommen zu trifft stark zu trifft zu trifft nur zum Teil zu trifft nur sehr bedingt zu trifft über- haupt nicht zu

Falls "Ja", könnten Sie vielleicht kurz schildern, was Sie gelernt haben, und wie? z.B. "Uni-Seminar zum Thema X" oder "Workshop in meiner Sprachschule zum Thema X"

☻ Ich benutze regelmäßig das Lehrwerk/ die Lehrwerke (Titel des Lehrwerks/der Lehrwerke)

☻ Damit unterrichte ich Anfänger □ leicht Fortgeschrittene □ Fortgeschrittene □
Falls bekannt, Stufen im europäischen Referenzrahmen für Sprachen: (z.B. A1, B2):…… …..

☻ Ich unterrichte in der Regel: weniger als 4 Unterrichtsstunden pro Woche □
zwischen 4 und 10 UST pro Woche □ mehr als 10 UST pro Woche □

☻ Ich unterrichte eine Fremdsprache seit:
weniger als 3 Jahren □ zwischen 3 und 10 Jahren □ über 10 Jahren □

☻ Meine Muttersprache ist ……

☻ Ich bin: weiblich □ männlich □

Zum Thema Bilder im Unterricht möchte ich noch Folgendes sagen:

SPREADSHEET WITH QUESTIONNAIRE DATA

Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	44	45	46	47	48	49
T1	1	3	6	3	1	2	1	1	6	1	1	5	1	3	1	3	3	2	1	1	3	1	1	1	4	4	3	3	1	1
T2	4	3	6	3	3	2	1	4	6	4	1	4	2	2	2	3	6	1	2	6	6	1	1	2	2	4	2	3	2	1
T3	2	4	6	1	3	3	3	3	4	2	1	6	1	3	2	4	3	3	1	3	5	1	4	1	4	1	3	1	1	2
T4	2	3	6	2	1	3	2	2	6	1	1	5	1	4	2	3	4	4	4	2	5	2	4	3	4	4	.	.	1	1
T5	4	3	6	2	2	3	2	1	6	2	2	5	1	2	2	6	4	2	5	2	5	2	4	5	.	3	3	3	1	1
T6	3	3	6	3	4	2	3	2	5	2	2	5	3	3	2	4	3	4	4	5	4	3	4	4	3	.	2	3	1	1
T7	4	1	6	1	1	3	1	3	6	1	2	4	1	3	1	4	3	3	2	5	5	1	2	1	3	4	3	3	1	1
T8	3	3	4	3	3	3	3	3	4	3	3	4	3	3	3	4	3	3	4	4	4	3	3	3	6	4	2	3	1	1
U9	3	4	5	.	1	3	2	4	4	2	3	4	2	3	3	3	3	3	2	5	4	3	3	3	2	1	3	1	2	1
U10	3	3	4	2	2	2	2	2	5	3	2	4	2	3	4	3	3	3	3	4	2	2	3	4	3	4	3	3	1	2
T11	4	2	5	3	2	2	2	1	4	2	2	3	2	3	1	3	3	3	4	2	5	2	4	2	5	4	2	3	2	2
T12	3	5	6	3	1	3	1	1	6	1	2	5	2	5	2	3	5	3	4	4	4	3	4	3	5	.	3	3	1	2
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M17	2	3	4	3	3	3	2	2	5	2	2	4	2	3	2	3	4	3	4	3	4	3	2	4	4	4	3	3	1	1
M18	4	4	4	3	3	3	3	3	4	4	3	4	3	3	2	3	3	4	3	3	5	3	4	3	3	4	2	1	2	1
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W20	4	3	4	3	3	4	3	4	4	3	2	4	2	2	3	4	3	2	3	4	6	2	4	1	4	4	2	1	2	2
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W22	1	3	6	3	1	3	1	2	6	1	1	4	1	3	4	3	6	1	3	3	5	1	4	2	6	1	2	1	1	1
W23	1	1	6	3	1	3	1	1	6	1	1	4	1	3	1	3	3	1	2	2	5	1	1	1	2	4	2	3	1	1
W24	2	2	4	3	1	2	2	3	6	2	2	4	2	3	2	4	3	4	3	3	5	3	4	3	.	4	3	3	3	2
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M26	3	3	4	3	3	2	3	3	4	3	3	4	3	3	2	3	5	4	3	3	.	.	.	3	3	1	1	3	.	1
F27	3	3	4	3	4	3	1	4	4	3	3	4	3	3	3	4	4	3	3	5	4	3	4	3	6	4	1	1	1	1

F28	2	1	4	3	3	2	.	3	4	3	2	.		1	3	1	.		3	3	3	5	6	3	4	3	.		4	2	3	3	1
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F30	3	3	4	3	2	1	2	1	4	3	3	4	1	3	3	2	4	3	2	5	3	2	4	3	5	4	2	3	2	1		
F31	4	3	4	3	3	3	3	3	4	3	3	3	3	3	3	4	3	3	3	3	4	3	3	3	2	0	3	3	2	1		
F32	2	3	6	2	1	2	1	2	6	3	1	6	1	2	2	4	2	4	2	4	5	1	6	2	0	2	1	1	2	1		
F33	1	4	5	3	1	3	1	2	6	1	1	4	1	3	1	3	3	4	3	1	5	2	2	5	3	4	3	3	1	1		
F34	4	1	6	3	1	3	3	3	5	1	1	4	1	1	1	3	2	3	*two!*	3	0	0	0	0	3	4	3	3	1	1		
F35	4	1	6	3.5	1	1	1	3	6	3	1	4	1	3	4	2	2	3	4	2	6	2	4	1	6	2	2	3	1	1		
F36	2	3	5	2	1	2	2	1	5	2	3	4	1	3	1	4	5	4	3	5	4	2	3	2	4	4	0	3	2	1		
F37	1	3	4	3	3	3	2	3	4	4	2	0	1	3	1	0	4	0	3	4	4	3	3	3	3	4	2	3	1	1		
F38	2	3	6	1	4	4	1	4	5	1	1	5	2	3	1	4	2	3	4	4	5	2	6	1	6	1	1	1	2	1		
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F41	3	3	5	3	2	3	1	3	6	1	2	4	2	3	1	4	3	2	2	5	6	1	4	3	4	1	2	1	1	1		
F42	2	2	4	3	2	4	1	5	5	2	2	4	2	2	3	3	4	3	1	3	6	3	4	3	5	4	2	3	1	1		
F43	2	1	6	2	2	2	1	1	6	2	2	4	1	3	2	3	3	4	1	3	4	3	4	2	4	4	3	2	2	1		
F44	3	1	3	3	1	3	1	1	6	1	1	5	1	1	4	3	1	3	1	1	6	1	3	3	3	4	3	3	2	1		
F45	4	3	4	1	3	3	3	3	4	3	3	4	3	4	3	4	4	3	4	3	4	3	4	3	5	1	1	2	1	1		
F46	2	5	4	3	5	3	5	3	3	5	4	4	4	4	2	3	6	5	4	6	5	4	4	5	6	4	0	3	2	1		
F47	3	3	5	3	3	0	3	5	5	3	3	3.5	2	3	5	4	3	3	4	3	6	3	4	3	4	4	2	1	2	2		
F48	4	4	6	3	3	4	3	4	4	2	3	4	3	3	3	3	3	3	3	4	3	3	3	3	5	1	1	3	1	1		
F49	3	4	5	4	3	3	2	2	5	2	2	3	1	2	3	3	2	3	3	3	4	3	3	4	5	2	2	2	1	1		
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F51	4	2	4	2	3	4	2	3	4	1	1	4	1	3	2	4	4	3	3	3	6	1	1	3	6	2	1	3	2	1		
F52	2	1	4	3	3	3	3	3	4	1	3	4	2	2	2	4	4	4	3	6	6	3	4	3	6	4	2	2	1	1		
F53	2	3	4	2	1	3	3	3	4	3	3	4	3	3	1	4	1	4	4	1	5	3	4	3	4	4	3	3	2	1		
F54	2	3	4	2	2	3	2	3	3	2	2	3	2	4	2	3	4	3	2	5	5	4	4	4	3	4	2	1	2	1		
F55	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3	1	4	6	0	1	0	0	0	6	0	2	3	1	1		
F56	4	3	4	3	4	4	3	1	4	1	3	6	2	2	2	5	2	3	3	1	5	3	3	3	6	4	2	3	1	1		
F57	4	3	3	4	3	3	3	3	4	4	4	4	3	3	1	3	5	4	4	3	3	3	4	4	6	0	1	3	2	1		

F58	1	3	6	6	2	3	2	5	6	3	2	2	2	3	2	1	5	3	1	2	6	2	3	3	3	4	3	3	1	2
F59	2	2	4	2	2	1	1	4	6	3	1	5	1	2	1	0	3	3	4	5	6	1	1	1	5	0	2	3	2	1
F60	2	2	4	3	0	1	1	4	6	2	0	4	2	2	1	3	3	3	4	4	4	1	4	3	5	4	3	3	2	1
F61	4	4	6	3	3	3	1	2	5	1	1	4	1	3	5	3	5	3	3	4	6	1	4	3	4	4	2	3	2	1
F62	2	4	4	3	2	4	2	2	4	5	2	3	2	5	2	2	5	5	2	2	2	4	5	5	5	1	1	3	2	1
F63	4	1	4	3	1	3	2	3	6	1	2	4	2	3	4	3	3	2	2	4	6	1	3	1	4	4	3	3	1	1
F64	4	3	4	4	2	1	3	1	5	5	3	1	1	3	1	1	5	3	3	1	3	3	5	3	6	4	3	1	1	2
F65	3	3	6	3	3	4	3	3	4	3	3	4	3	3	4	6	3	3	0	4	3	3	2	4	6	4	3	0	2	1
F66	4	2	4	4	2	2	3	3	4	3	3	3	3	3	3	3	3	3	3	3	4	3	4	3	6	1	1	1	2	1
F67	4	3	6	2	1	2	3	3	6	2	3	5	2	3	1	3	4	3	2	3	6	1	4	3	5	4	3	2	1	2
F68	1	4	6	3	1	4	1	2	5	3	1	5	2	2	4	4	3	3	3	3	6	3	2	3	4	4	3	3	1	1
F69	2	1	5	3	2	3	1	1	5	2	2	4	3	1	1	4	2	3	3	2	6	1	1	3	5	4	2	3	3	1
F70	2	4	5	2	2	3	2	2	5	1	2	6	1	2	3	4	4	3	2	4	6	1	2	5	5	1	3	1	1	1
F71	1	1	6	3	2	2	2	1	6	1	1	4	3	3	4	3	3	4	4	4	4	2	4	3	3	4	3	3	1	1

RESPONSES TO QUESTION 29:

Ich bringe Bilder mit in den Unterricht oder zeichne eigene Bilder …
Aus anderen Gründen (welche?)

1. T1: Referate helfen(?) halten(?), Prüfungsvorbereitung
2. T3: Worterklärungen: oft
3. T6: eine gemeinsam(keit?) Ausgangspkt f. alle Teilnehmer zu schaffen!
4. U10: um Wörter zu erklaren
5. M17: zur Identifikation der eigenen Rolle bei Rollenspielen
6. W22: zur gegenseitigen Vorstellung mit Bildern
7. W23: Humor
8. F29: neue Vokabeln einführen
9. F33: Um neuen Wortschatz zu vermitteln
10. F43: um den Unterricht unterhaltsamer zu machen
11. F44: Um den Unterricht schöner zu gestalten
12. F47 Als ice-breaker am Anfang/um Spannung aufzulösen während des Unterrichts ((NNS: L1 English))
13. F48: damit der Unterricht bunter wird!
14. F51: Landeskunde
15. F53: BESCHREIBEN/VORHER/NACHHER
16. F63: Einführung neuer Wörter
17. F65: Vokabeln zu verdeutlichen
18. F69: zur Initiierung von Rollenspielen/Situationen + zur Erklärung von Wortschatz
19. F70: zur Erklärung von Vokabeln (sehr oft!!)

Further uses of pictures in the language classroom (20, 21 and 22) were (inexplicably) mentioned in question 44, where respondents were asked whether they had had specific training in using pictures in language teaching, and if so, what they had learnt, and how.

20. F47: Bilder zeichnen bei Vokabelunterricht; "Time lines" bei Tempusunterricht
21. F 41Bilder als Denkanstoß, Gesprächsthema
22. M 26: Bilder/Graphics für Ortbeschreibung Haushaltbeschreibung; Photos von „Dorfeliten“ Bilder/Graphics unterstützen die schrift. Darstellung sehr, es ist einerseits attraktiv wiederum „manipulierend“(? illegible)

QUESTIONNAIRE: written answers to question 43
In meinem Unterricht benutze ich Bilder aus anderen Quellen (welchen?)

T1: Prospekte aus dem Reisebüro; Beilagen Supermarkt/Möbelhaus; aus fertigen Spielen; Postkarten; Grußkarten
T7: Sammel - (Gratis) Postkarten

T8: Kinderzeichnungen, Spiele, Schülerzeitung (aktuelle Bilder + Jugendsprache!)

W22: … die jemand für mich gezeichnet hat, die sehr gut zeichnen kann

F31: fertige Karten

F33: Prospekte, Broschüre

F41: aus anderen Lehrbüchern

F46: Zeitung, Bücher

F48: gute ältere Sprachbücher

F53: ANDERES LEHRWERKEN(sic)

Ten respondents provided additional information on other sources of pictures in answer to question 43. Sources they mentioned were:
other coursebooks (3 mentions); postcards (2 mentions); games (2 mentions); prospectuses, brochures (2); newspapers (2).
There were single mentions of: books, greeting-cards, children's drawings, drawings commissioned from acquaintances "who can draw very well".
Very specific information was given in these instances:
brochures from the travel agent's; advertising supplements for supermarkets or furnishers in newspapers; free postcards; school newspapers, because they provide up-to-date pictures and examples of youth jargon; good older coursebooks, ready-made ("fertige") cards.

FINAL OPEN QUESTION ON QUESTIONNAIRE

Further Comments: "Zum Thema Bilder im Unterricht möchte ich noch Folgendes sagen:"

1. T1: Bilder im Unterricht werden von den Kursteilnehmern äußerst positiv aufgenommen.

2. T2: Es wäre besser wenn die Bilder im Arbeitsheft bunter und lustiger wären. Damit die Schüler mehr motivation haben. [L1 Spanish; Coursebooks Caminos und Bien Mirado]

3. T6: AUCH IN DEN LEHRBÜCHER VORHANDENES BILDMATERIAL IST LETZLICH NICHT AUTHENTISCH. ICH FINDE ES DAHER WICHTIG; STETS AUCH "ALLTAGSMATERIALIEN"-WERBEPROSPEKTE; ZEITUNGEN; ETC. - IN DEN UNTERRICHT EINZUBINDEN!

4. T7: Art der Bilder wechselt/verändert sich mit dem Niveau (zunehmend abstrakter)
5. [Coursebooks: Tangram +Tangram aktuell, Themen neu aktuell (als Materialzusatz), em-Brückenkurs/Mittelstufe "Auf neuen Wegen"]

6. M17: In den Lehrwerken sind Bilder nicht immer klar motiviert und stehen bei Tangram z.B. oft isoliert. [coursebooks: Tangram, em, Themen, auf neuen Wegen]

7. W20: Ich verwende meistens Fotos, seltener Zeichnungen, aber häufig comics.

8. W22: Danke für dieses Angebot, diesen Kurs mit dir zu machen! [Reference to workshop]

9. W23: Ich zeichne oft, um neue Vokabeln einzuführen. Erwachsene Lerner kopieren die Tafelbilder sehr gern. Mnemotechnisch ist die Verknüpfung zwischen Bild und fremdsprachlichen Begriff ideal. Zeichenkurse sollten zu jedem Sprachstudium (Lehramt) gehören. [L1 German; Coursebooks Caminos 1 +2 (alt) + neu].

10. M26: - Bilder sind sehr interessant und relevant beim heutigen visuell-stark-geprägten Gesellschaft. -Leider bin ich selbst wenig visuell [inspiriert? impr..iet?], deswegen lerne (lehre?) ich Sprache durch andere [Methoden?], die möglicherweise heute nicht mehr plausibel ist, dennoch bin ich der Meinung, dass Bilder beim heutigen Spracherwerb eine Rolle spielt. [L1 not supplied; written answer partly illegible; answer to "Ich benutze regelmäßig das Lehrwerk…" is "ja"]

11. F32: Ich mache "nur" ein Conversation Kurs! [L1 "Francais"; possible implication is that the respondent does not consider pictures relevant in a conversation course?]

12. F33: Bilder sind für mich ein wesentlicher Bestandteil des Fremdsprachenunterrichts, insbesondere im Anfängerbereich. [L1 German; Coursebooks On the Move, Network Conversation, Green Line]

13. F34: Bilder sind inspirierend, erklären viel, lockern die Atmosphäre auf; aber ohne Text schriftlich oder mündlich geht es nicht.

14. F35: Bilder bringen die Teilnehmer dazu, "echte" Sprachäußerungen zu machen, d.h. das zu sagen, was sie wirklich meinen. Es ist eine "stimulierte" (?) Situation.

15. F44: Bilder sind genauso notwendig wie Spiele.

16. F45: ON THE MOVE enthält zu viele Bilder, bei Erwachsenen dieses Levels genügen wenige (sic). Coursebook: On the Move, I and II.

Written answers to question 44

44) In meiner Ausbildung oder in Workshops usw. habe ich gezielt gelernt, wie man Bilder im Fremdsprachenunterricht einsetzt, damit sie den Lernprozess effektiv unterstützen.

□1	□2	□3	□4	□5	□6
trifft voll-kommen zu	*trifft stark zu*	*trifft zu*	*trifft nur zum Teil zu*	*trifft nur sehr bedingt zu*	*trifft über-haupt nicht zu*

Falls "Ja", könnten Sie vielleicht kurz schildern, was Sie gelernt haben, und wie? z.B. "Uni-Seminar zum Thema X" oder "Workshop in meiner Sprachschule zum Thema X"

T1: 4 [NB: Number is the code for the box chosen: in this case, "trifft nur zum Teil zu"] Dein Workshop damals bei Tandem. Und vor allem „learning by doing“, besonders in Alphabetisierungskursen/Frauenkursen für Lernungewohnte
T2: 2; no comment (henceforth 'n.c.') L1 Spanish
T3: 4; n.c.
T4: 4; n.c.
T5: - ; Fortbildung in meiner Sprachenschule (Tandem)
T6: 3; Uni-Seminar DaF „Lebendiger Unterricht“; VHS-Fortbildung „Übungen in Spiele“; DaF „kommunikatives Lernen"
T7: 3; Uni-Seminar zum Thema Visualisierung; Goethe-Institut-Workshop „Visualisierung“ (Einsatz von Bildern)
T8: 6; n.c.
U9: 2; Uni-Seminar
U10: 3; z.B.Seminar (bei Ehnert) zum Thema „Collagen im FSU“
T 11: 5; n.c.
T 12: 5; n.c.
T 13: 3; Uni-Seminar zum Einsatz alternativer Materialien
T 14: 4; n.c.
T 15: 4; n.c.
T 16: 3; n.c. L1 German
M 17: 4; n.c.
M 18: 3; Workshop vom Niederländischen “Taleninstituut” z.B. Komiks (*sic*) (TN sollen selbst Text ausfüllen)
W 19: 5; Englisch-Ausbildung vor 20 Jahre (*sic*)
W 20: 4; n.c.
W 21: - VHS Workshop am 28.9.2005 [the day of the workshop]
W 22: 6; n.c.
W 23: 2; Literatur: Mit Bildern lernen, Langensch.; Workshop Mit Bildern lernen, München.
W 24: -; n.c.
W 25: 3; Uni-Seminare „Bilder im DaF-Unterricht“; „Basisqualifikation“ für neue Fremdsprachenlehrkräfte“ VHS Bielefeld
M 26: 3; Bilder/Graphics für Ortbeschreibung Haushaltbeschreibung; Photos von „Dorfeliten“ Bilder/Graphics unterstützen die schrift. Darstellung sehr, es ist einerseits attraktiv wiederum „manipulierend“(? illegible)
F 27: 6; n.c.
F 28: -; n.c.
F 29: 3; an der Uni
F 30: 5; n.c.

F 31: 2; n.c. L1 Japanese

----------F 32: -; n.c.[but comments at end: “Ich mache ‘nur’ ein Conversation Kurs!”]

F 33: 3; Uni-Seminar, Referendariat, Fortbildung

F 34: 3; Weiterbildung für Lehrer, mehere Workshops, schon lange her!

F 35: 6; n.c.

F 36: 4; „Uni-Seminar“ andere Fremdsprachenunterricht

F 37: 3; n.c. L1 German

F 38: 6; n.c.

F 39: 4; privat (Unterricht)

F 40: 3; n.c. L1 Dutch

F 41: 4; Bilder als Denkanstoß, Gesprächsthema

F 42: 5; n.c.

F 43: 4; Seminar Bilder in den Landeskunde (*sic*)

F 44: 2; n.c. L1 Spanish

F 45: 5; n.c.

F 46: 6; n.c.

F 47: 4; Bilder zeichnen bei Vokabelunterricht; "Time lines" bei Tempusunterricht

F 48: 5; n.c.

F 49: 5; n.c.

F 50: 3; n.c. L1 English

F 51: 6; n.c.

F 52: 6; n.c.

F 53: 4; n.c.

F 54: 3; n.c.

F 55: 6; n.c.

F 56: 6; n.c.

F 57: 6; n.c.

F 58: 3; Pat Skorge's workshop

F 59: 5; n.c.

F 60: 5; n.c.

F 61: 4; In meiner Heimat, im Studium (Argentinien)

F 62: 5; n.c.

F 63: 4; Uni-Seminar

F 64: 6; n.c.

F 65: 6; n.c.

F 66: 6; n.c.

F 67: 5; n.c.

F 68: 4; n.c.

F 69: 5; n.c.

F 70: 5; n.c.

F 71: 3; Uni-Seminar zum Thema Bilder im Unterricht, Uni-Seminar zum Thema Lernmethoden, Präsentationsmethoden

DESCRIPTIVE STATISTICS

Section 1

Table 1: Descriptive statistics for Section 1

Statistics

		Q3	Q7	Q9	Q11	Q19	Q21
N	Valid	70	69	71	69	69	69
	Missing	1	2	0	2	2	2
Mean		2,19	2,03	2,20	2,13	2,94	2,30
Median		2,50	2,00	2,00	2,00	3,00	2,00
Mode		3	1	3	2[a]	3	1
Std. Deviation		,952	,907	1,037	,922	1,097	1,192
Variance		,907	,823	1,075	,850	1,202	1,421
Range		3	4	5	3	5	5
Minimum		1	1	1	1	1	1
Maximum		4	5	6	4	6	6

a. Multiple modes exist. The smallest value is shown

Section 2

Table 2: Descriptive statistics for Section 2

Statistics

		Q4	Q6	Q12	Q14	Q16	Q23
N	Valid	69	69	68	70	68	68
	Missing	2	2	3	1	3	3
Mean		2,81	4,26	2,91	2,84	3,57	3,28
Median		3,00	4,00	3,00	3,00	4,00	4,00
Mode		3	4	3	3	4	4
Std. Deviation		,809	,816	,876	,810	,903	1,183
Variance		,655	,666	,768	,656	,815	1,398
Range		5	3	5	4	5	5
Minimum		1	3	1	1	1	1
Maximum		6	6	6	5	6	6

Section 3

Table 3: Descriptive statistics for Section 3

Statistics

		Q1	Q8	Q10	Q15	Q17	Q20
N	Valid	70	70	70	70	70	70
	Missing	1	1	1	1	1	1
Mean		2,69	2,53	2,30	2,39	3,49	3,43
Median		3,00	3,00	2,00	2,00	3,00	3,00
Mode		2	3	2[a]	2	3	3
Std. Deviation		1,084	1,126	1,121	1,171	1,126	1,379
Variance		1,175	1,267	1,257	1,371	1,268	1,901
Skewness		,031	,209	,647	,479	,131	-,001
Std. Error of Skewness		,287	,287	,287	,287	,287	,287
Range		4	4	4	4	5	5
Minimum		1	1	1	1	1	1
Maximum		5	5	5	5	6	6
Sum		188	177	161	167	244	240

a. Multiple modes exist. The smallest value is shown

Section 4
Table 4: descriptive statistics for Items 25-28, 30 and 31

Statistics

		Q25	Q26	Q27	Q28	Q30	Q31
N	Valid	68	68	67	68	68	68
	Missing	3	3	4	3	3	3
Mean		3,60	4,18	4,48	3,59	3,34	3,78
Median		4,00	4,00	5,00	4,00	3,50	4,00
Mode		4	4	5	4	4	5
Std. Deviation		1,174	1,196	1,005	1,249	1,277	1,402
Variance		1,377	1,431	1,011	1,559	1,630	1,966
Range		5	5	5	5	5	5

Table 5: descriptive statistics for Section 5
Section 5

Statistics

		Q2	Q5	Q13	Q18	Q22	Q24
N	Valid	70	69	70	70	68	69
	Missing	1	2	1	1	3	2
Mean		2,70	2,22	1,89	3,09	2,25	2,84
Median		3,00	2,00	2,00	3,00	2,00	3,00
Mode		3	3	2	3	3	3
Std. Deviation		1,040	,983	,808	,864	,952	1,093
Variance		1,083	,967	,653	,746	,907	1,195
Range		4	4	3	4	3	4
Minimum		1	1	1	1	1	1
Maximum		5	5	4	5	4	5
Sum		189	153	132	216	153	196

APPENDIX B: CHAPTER VI

Exhibit 1

To the teacher: ideas for using the ten pictures

Give the learners the ten pictures with these instructions: **Work in pairs: please look at these ten pictures and discuss what (in your opinion) is happening in each picture, and whether you think the behaviour of the people can, in any way, be regarded as "bad manners" or as "bad behaviour", and why.** After the initial discussion, go on to discuss the intercultural aspects of the pictures. You might like to use the following notes as background information for yourself, or to give it to the class, perhaps in the form of an information-gap activity as described below. The country or region in capitals after each excerpt is the one the rule applies to. This information is taken from the internet, and may not be accurate or authoritative. Encourage the learners to question it!

NOTES WITH CROSS-CULTURAL INFORMATION

Acceptable and unacceptable manners and public behaviour in other cultures: quotes and references from guides for international business contacts and international students, tips for backpackers, etc. All websites accessed July 2005.

Classroom use: photocopy these pages a few times and give different groups different pages. Alternatively, cut them up into individual items and give each student a few slips of paper. Allow time for reading and deal with vocabulary questions. Then ask if anyone can contribute information that might throw new light on the ten pictures. Also ask whether students find it acceptable to speak about "the Germans" "the Thais" ("German/Thai people" is less offensive) or to use expressions such as "'They' don't understand the concept of personal space". [18]

Picture 1: stretching across the table (bad behaviour) (USA)

Picture 2: blowing your nose in public (bad to very offensive)

(BELGIUM, AUSTRALIA, JAPAN, KOREA x2)

Picture 3: position of knife and fork when you have finished eating, not leaving food on your plate, hands on your lap: all good behaviour Britain. Position of cutlery and hands may not be acceptable in Germany. Several American websites stated explicitly that one could put one's hands in one's lap when one had finished eating (may considered bad manners in Germany). Leaving food on one's plate is considered good manners in some cultures and bad manners in others. The correct position of knife and fork differs greatly from country to country. Each of the American websites quoted prescribed a different arrangement of knife and fork.

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[18] Author's note: With the exception of a quotation from an academic article, the quotations provided as material for the teachers have not been included in this online version of the thesis to avoid possible copyright violations. They gave information on how the behaviour depicted is regarded in the country/countries indicated in capitals.

(DENMARK, JORDAN, GERMANY x2, BRITAIN, USA x3, USA/CALIFORNIA, CANADA

Picture 4: touching a child's head (a major taboo in many Asian cultures)
(THAILAND x2, INDIA, SOUTH EAST ASIA

Picture 5: spitting on the pavement – not considered very nice in Britain and Australia; common, if not encouraged, in many cultures.

(UK, THAILAND, AUSTRALIA)

Picture 6: eating with left hand (extremely offensive and disgusting in many countries in which the left hand is - or has traditionally been – the one used for purposes of personal hygiene)
(YEMEN, JORDAN, SUB-SAHARAN AFRICA IN GENERAL, SRI LANKA, ALL MUSLIM COUNTRIES)

Picture 7: bothering non-smokers with smoke (or complaining about smoke in an environment where smoking is expressly allowed)
(SPAIN)

Picture 8: pointing a foot at someone else; inthe Middle East and Far East, it is extremely insulting to point one's foot at or to show the sole of one's shoe to others.

(THAILAND x2, MALAYSIA, MIDDLE AND FAR EAST IN GENERAL)

… *dog in the house, treated like a human being. In many cultures, it is not normal or desirable to allow cats and dogs to enter the house, beg for food and sleep on beds and chairs.*
(USA, advice on hosting international students – quotations from 3 different organizations)

Picture 9: talking at the same time
"Wieland (1991) … states that overlapping seems to be the 'rule' in French. […] Kerbrat-Orecchioni (1996) …compares the French opinions on interruptions to the German ones, and concludes that what might seem lively and a sign of active participation to the former, the latter could interpret as aggressive. Wieland …points out that on the other hand, the French can interpret the absence of overlaps as a sign of impoliteness. Carroll also puts forward the same point. In French, she claims (1988), interruptions are not usually considered impolite, but rather they have the role of punctuation marks." (Kohonen 2004: 21) [19]

Picture 10: invading a stranger's personal space and even unconcernedly pressing against them in a public space. Normal, and not considered rude in rural Africa, India, Latin America. The quotations were from western

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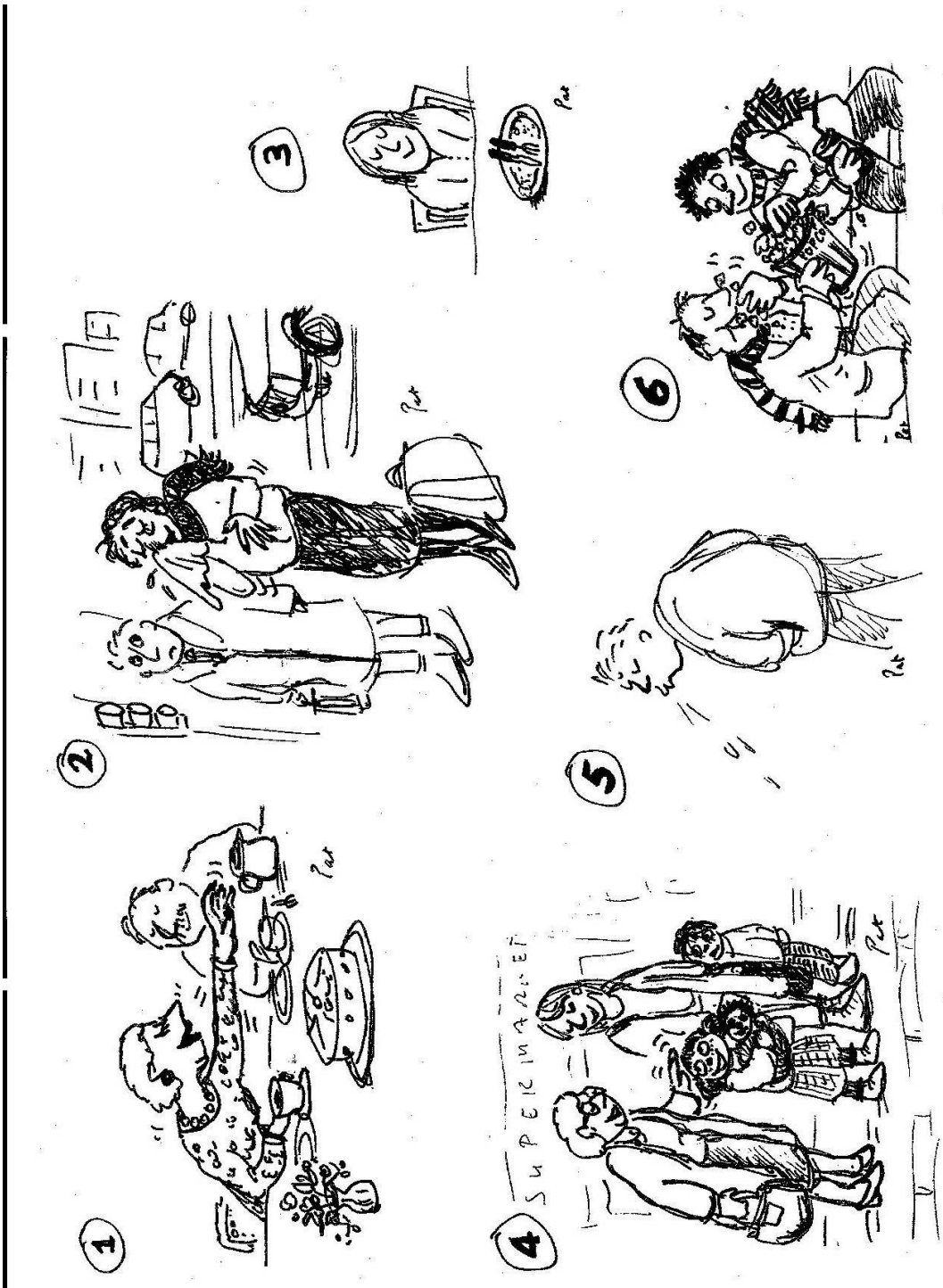
Kohonen, S. (2004). Turn-taking in conversation: overlaps and interruptions in intercultural talk. *Cahiers* 10.1. 15-32. Retrieved July 4, 2005 from http://www.afls.net/cahiers/10.1/kohonen.pdf

travellers' travel tips or accounts of journeys in buses and minibuses and reflected their discomfort at physical contact with strangers.
(INDIA, AFRICA in general, ECUADOR, GUATEMALA)

Exhibit 2: pictures



Pictures 7-9

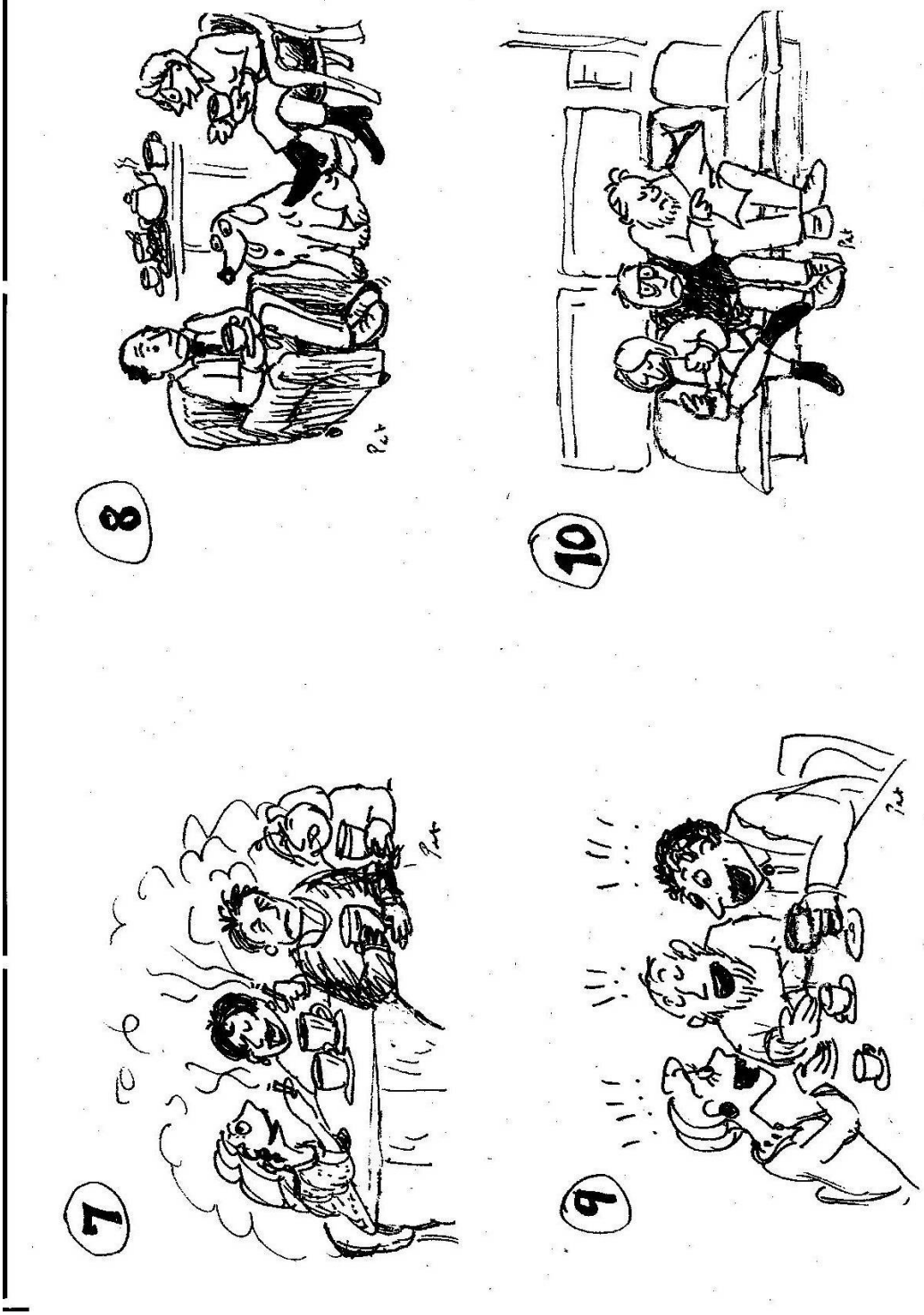


Exhibit 3: Questions for the picture interpretation study

1) Version for learners of English

Please look at these ten pictures and state in one or two sentences what (in your opinion) is happening in the picture, and whether you think the behaviour of the people can, in any way, be regarded as "bad manners" or as "bad behaviour", and why.

Picture 1:
a) What's happening?
……
……
……
……
……
……

b) Bad manners or bad
behaviour?……
.....
.....
……
……
……
.....

Picture 2:
a) What's happening? ……

(etc) …… ……

Information about you (this is voluntary: you don't have to fill it in)

What country are you from? ……

Are you male □ or female □ ?

Are you over 25 years old? Yes □ No □

Thank you so much for taking the time to tell me what you think about the pictures; your input will be very helpful for my research!

Pat Skorge

2) Version for learners of German

Bitte gucken Sie die zehn Bilder an und schildern Sie in 1-2 Sätzen a) was (Ihrer Meinung nach) auf dem Bild passiert und b) ob das Verhalten der Menschen auf dem Bild für Sie in irgendeiner Art und Weise "schlechtes Benehmen" oder "schlechtes Verhalten" darstellt, und warum.

Bild 1
a) Was
passiert?.....
.....

b) Schlechtes
Benehmen?.....
Bild 2
a) Was
passiert?.....
etc.

Herkunft: Aus welchem Land kommen Sie? ……
Geschlecht: männlich □ weiblich □
Alter: Sind Sie über 25? Ja □ Nein□
Vielen Dank, dass Sie mir Ihre Meinung zum dargestellten Verhalten mitgeteilt haben! Es wird mir bei meiner Forschung sehr behilflich sein!
Pat Skorge

Exhibit 4: Picture interpretation study: question on manners/behaviour only

Please look at these ten pictures and state in one or two sentences whether you think the behaviour of the people can, in any way, be regarded as "bad manners" or as "bad behaviour", and why.

Picture 1: Bad manners or bad
behaviour?.....
……
……
.....
……
……
……
.....

Picture 2: Bad manners or bad
behaviour?.....
(etc.)

Hiermit erklare ich, dass ich diese Dissertation selbständig verfasst, nur die angegebenen Quellen und Hilfsmittel benutzt und alle Stellen, die dem Wortlaut oder dem Sinn nach aus anderen Werken übernommen worden sind, als solche gekennzeichnet habe. Außerdem erkläre ich, dass diese Dissertation in der gegenwärtigen oder einer anderen Fassung noch nicht einer Fakultät vorgelegen hat.

Bielefeld, im August 2006