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**MUSEUMS AND LABELLING: DIFFERENCES, DISCURSIVE
INFLUENCES AND PROFESSIONAL IDENTITIES**

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**A minor dissertation submitted in partial fulfillment of the award
of the degree of Masters in Education (Applied Language and
Literacy Studies)**

**School of Education
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2004**

DECLARATION

This work has not been previously submitted in whole, or in part, for the award of any degree. It is my own work. Each significant contribution to, and quotation, in this dissertation from the work, or works, of other people has been attributed, and has been cited and referenced.

Signed by candidate

Medeé Rall

6 February 2004

ABSTRACT

This study has its origins in the interest of the researcher in the literacy practices involved in the production of museum labels. Three displays at the South African Museum, *Go Bats!*, *Mineral Mania* and *Fossil Stories* were selected for close study because they presented key examples of the differences the researcher wanted to study. These differences appeared to be present in the language used in the labels as well as in the aesthetics of the displays. The research attempts to explain these apparent differences and attempts to provide an explanation as to why and how differences in the genres of writing and designing labels appear.

The research entailed examining the literacy and semiotic social practices implicit in the design activities of different museum professionals – scientists, designers and educators. The research sees them as members of sub-domains of social semiotic practices within the general domain of museum professionals. The research shows that the literacy genres of the scientist, the aesthetic perspective of the designer and the perspective of the educator are variably dominant in certain labels in the different displays that were studied. The differences in the substance and functions of the display labeling are therefore the result of the situated literacy practices of the producers of these displays. This research suggests that museum professionals can benefit from taking into account the different resources that they bring to this collective work, as shown by situated studies of the practices of producing museum displays.

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Chapter 1- Introduction

1.1 Field of study and research focus

My field of interest is broadly that of education and communication as they occur at institutional sites that are not schools or tertiary institutions. My focus, for personal and professional reasons, is on museums – as sites of knowledge production and education. My interest is in how the artefacts on display in a museum, their placing, framing and labelling are outcomes of social processes that shape, influence and perhaps even distort the communicative intentions of the museum professionals who have produced the displays. I am therefore interested in the institutional and discursive processes and practices that produce particular attitudes to artefacts and to the text that attaches to them. My primary interest in this thesis is in the dynamics surrounding the text, illustrations and explanatory diagrams that get attached to, or surround and frame the artefacts that are the primary elements of museum displays. I hope to show, by studying a variety of displays in one museum, and by studying the processes of their production, that the labels do not simply communicate, but also present a particular attitude to the artefacts on display and secondly, that apparent stylistic differences across the examples I examine are products of varying institutional processes that reflect the discursive influences and professional identities of the differently situated producers of such texts, diagrams, designs and illustrations I draw on the conceptual resources of the “New Literacy studies”, as outlined below, as well as those of museum studies as they pertain to the issues of artefact presentation and labelling.

1.2 Reason for the study

I am doing this study because I am interested in the literacy practices involved in the production of museum labels. I examine how labels are produced in a

museum context. The labels that I examined in this study were found in three different displays: *Go Bats!*, *Mineral Mania* and *Fossil Stories* at the South African Museum in Cape Town. I selected these displays for close study because they presented key examples of the differences I was concerned to study here. The differences appeared to be present in the language used as well as in the aesthetics of the displays. In the *Mineral Mania* display the use of scientific language is dominant, in the *Fossil Stories* display, although there is a lot of scientific terminology in the labels, the language use appears to be more pedagogically intertwined, and less formal than the scientific language found in the *Mineral Mania* display. It appears to invite the reader to engage with the knowledge presented in the text. In the *Go Bats!* display the design aesthetics of the artefacts within the showcases and back-lit panels appear to dominate, and the text is secondary to that of the design aesthetics of the display as a whole. What is of interest, and what this study attempts to find out, is why those differences exist and through what processes these differences come to be produced. Finally I am concerned with what effect these differences might have as regards the communicative intent of their producers.

1.3 Conceptual orientation

The New Literacy Studies model (Street 1984, Gee 1990), together with that of genre studies (Halliday and Martin 1993), provide a framework that can be used to analyse the practices involved in producing museum labels. I have chosen to use this framework as it provides conceptual and methodological resources for the study of the reading and writing of museum labels as socially situated practices and processes. I use this framework to analyse the literacy practices of the three role players, or sites of discursive practice, that I identify as having played the dominant role in the display teams that were constituted to produce the three displays that are analysed in this thesis. These role players or sites of discursive practice engaged in the production of museum labels I identify as those of the scientist, the designer and the educator. I decided to study these three because, when I began examining the apparent differences in the labels, the role each played (the scientist, educator and designer) seemed to inform the dominant style

found in the different labels, or to produce hybrid styles and effects where their influences were merged in one way or another.

Museum displays almost always consist of more than one mode of communication. The object or artefact typically forms the basis of the display (Hodge and de Sousa: 1994: 44) and is accompanied by one more of the following modes of communication: written text, diagrams and images. Written text, diagrams and images provide information about the object. Such diagrams and images can provide supplementary information that is illustrative of core information contained in language form in the text. Diagrams and images can also be primary sources of information in themselves (Kress: 2001). When the object and either one element, or a combination of text, diagrams or images, are put together, they communicate a message or messages, through multiple modalities, whose communicative load is more or less consistent across these modalities.

Through examining the production of museum labels as a set of social practices, and by highlighting the differences that appear to be present in the labels that form the focus of this study, I hope to show that museum professionals can benefit from studying situated practices of literacy and signification and applying this knowledge to their work when designing displays, and in particular museum labels.

1.4 Technical and methodological resources drawn upon

A New Literacy Studies approach to the study of literacy holds that the forms and functions of writing are the products of complex social, historical, institutional and ideological processes that are discursively produced and shaped by power dynamics (Street: 1995, Barton 1994, Baynham 1995, Prinsloo 1996). I also draw on museum literature that is compatible with a New Literacy Studies perspective. This literature deals with displays, labelling and education. I examine work by, inter alia, Pearce (1992), Hooper-Greenhill (1994), Alexander (1996) and McDonald and Fyfe (1996) who show that institutional practices in museums involve the communication of museum messages within particular contexts. The messages communicated by museums are ideologically inflected. The making of

museum displays that communicate these messages take place collaboratively and are made up of series of signs that are intended to be a communication system.

In addition I draw on literature that examines the semiotic resources of images, sound, shapes and colours that are used as communicative resources, and carry meaning, in multi-modal texts. I draw on the resources of the multi-modal approach to the study of communication as reflected in the work of Kress (2001), Kress and van Leeuwen (1996) and Rose (2001).

1.5 Research question/statement of problem

There appear to be differences in the labels that form the focus of this research. The differences could be seen in three displays at one museum. When looking closely at the apparent differences, it became clear that there are common elements in the process of producing the three displays as well as differences. The common elements that were identified are the following: The three displays were all natural history displays, drawing mainly on the collections of the same museum. The display team varied for each display, but two members were members of the three display teams. The differences included the following: The museum designer designed two of the displays. The scientists were different for each display, because of the difference in subject matter. The educator was a member of the team for two of the displays.

This raised a number of questions. How do institutional and discursive practices produce the apparent differences in museum display labels? How do labels not only communicate, but also present a particular attitude to the artefacts on display? How do the stylistic differences reflect the discursive and professional identities of the differently situated producers of the various elements of the displays?

This research attempts to explain these apparent differences by answering the questions that have been raised and attempts to provide an explanation for

museologists as to why and how differences in the genres of writing and designing labels appear.

1.6 Structure of the thesis

This thesis examines the production of museum displays, with a focus on the labels. The first chapter details the research focus and outlines the research questions.

Chapter two presents the theoretical framework and the literature review where I outline the conceptual resources used in the study. Following on from the theoretical framework and literature review, the research methodology is discussed and issues of research ethics outlined.

In chapter three the data is presented and discussed. This includes examples of labels written by the three key players in the production of museum labels, working drawings and photographs of displays. The focus is on text, image, object and institutional practice. The practices of the scientist, designer and educator are examined, by looking at the processes involved in the production of labels. This is followed by a semiotic analysis of the displays.

In the conclusion in chapter four the findings of the study are summarised and presented.

Chapter 2 – Theoretical framework and literature review

2.1 Literature review and theoretical framework/contexts

I have focused on four theoretical resources. Firstly the New Literacy Studies, secondly on Kress' arguments about multi-modalities and social semiotic practices, thirdly on the analysis of scientific literacy as a literacy genre and fourthly on museum studies.

2.1.1 Theoretical resources

(i) Literacy as social practice

I have drawn on the theories of the New Literacy Studies because they provide a framework for looking at the social dynamics involved in the written text. Key to the theories underpinning the New Literacy Studies is the notion of literacy as a social practice.

The New Literacy Studies is a body of work oriented to the ethnographic study of literacy practices. It has been shaped by a number of people working in literacy studies who focus on the social and contested nature of literacy in social practice. They include Brian Street (1984, 1993, 1995), Shirley Brice Heath (1983), Mike Baynham (1995) and James Gee (1990, 2001). The New Literacy Studies (NLS) looks at the wider context within which literacy practices are framed. (Prinsloo: 1996) I now go on to summarise the key arguments of the NLS.

(ii) Literacy practices

The influential study by Scribner and Cole (1981) looked at the Vai of northwest Liberia and the way in which they use literacy. They provide detailed descriptions of different forms of literacy including those learned informally which exist outside

the education system. They argue that literacy can only be understood in the context of the social practices in which it is acquired and used.

Scribner and Cole (1981: 236) describe literacy practices as follows:

"Instead of focussing on the technology of a writing system and its reputed consequences ("alphabetic literacy fosters abstraction" for example), we approach literacy as a set of organised practices which make use of symbol system of technology for producing and disseminating it. Literacy is not simply knowing how to read and write a particular script but applying this knowledge for specific purposes in specific contexts of use."

In Street's work, in his "ideological model of literacy" (Street: 1993), literacy is seen to be an ideological and socially embedded practice that is something different across different social contexts.

Baynham (1995) argues that within a social practices model *writing as text* can be studied and that *writing as process* can be studied. He adds that *the writer* can also be studied. Researching writing as a social practice involves investigating the ways in which writing and the writer are implicated in, inter alia, the institutional practices (1995: 208). Following on from the argument that writing as text and writing as process can be studied, Baynham (1995: 208) raises important points with regard to the writing of texts. Baynham (1995: 209) notes that by looking at writing from the point of view of its purpose and intended audience, one identifies a range of different kinds of writing, which he refers to as genres of writing.

Kaplan (in Hooper-Greenhill: 1995: 37), writing about communication in museums, asks similar questions about museums as communicative media and asks who is presenting what, for whom and why. Kaplan (1995: 38) argues that the messages of museum exhibitions are intended to connect those producing them and those receiving them. However, both those who produce exhibitions and the audiences are affected by the rituals enacted in museums, the representations that are made, knowledge that is and isn't conveyed and the perceptions of and response to these (Kaplan: 39).

(iii) Literacy events as units of analysis

Shirley Brice Heath in *Ways With Words* (1983) introduces the concept of literacy events. She describes literacy events as:

“any action sequence, involving one or more persons, in which the production and/or comprehension of print plays a role ...” (Heath: 1983: 386)

Barton (1994: 37) says that literacy events are the particular activities in which literacy plays a role. He goes on to say that literacy practices are general cultural ways of using literacy that people draw on in a literacy event. Street (1995: 162) has combined the two concepts, literacy practices and literacy events. Street uses the term literacy practices as a broader concept than that used by Heath (1983) that refers to both the behaviour and conceptualisations related to the use of reading and/or writing. In this conceptualisation literacy practices incorporate the concept of literacy events. Roberts and Street (1997: 170–171) argue that literacy practices incorporate literacy events, and are occasions in which literacy is integral. Barton and Hamilton (2000: 7) argue that literacy practices are what people do with literacy and that they involve, inter alia, values and attitudes. They understand social practices as social processes, which connect people with one another and include shared cognitive processes of literacy that are represented in ideologies and social identities. The social relations and institutions within which the literacy is embedded are emphasised.

In this thesis I want to apply the concepts such as *literacy practices* and *literacy events* to a specific context, that of a museum. I focus on the practices involved in creating displays. Written text is found in every museum display and plays an important role in conveying information. I argue that because written text is involved in the creation of museum displays, the creation of museum displays can be usefully studied as literacy events. Similarly the resources that have been used to study written texts can also be applied to the study of other communication modalities, such as visual texts. Baynham states that literacy use takes place in a context and that if these contexts are not taken into account, an important dimension for the understanding of literacy is ignored (1995: 37). I will argue that it is important to understand the context in which the literacy practices that are

involved in the production of museum displays take place as they may contribute to understanding the differences in museum labelling.

(iv) Mode-switching and multi-modality

Mode-switching between text and talk is a feature of much social interaction in collective literacy events (Barton: 1994: 8, Baynham: 1995: 155). Kress (2001) says that representation and communication always draws on a multiplicity of modes and that these modes all contribute to meaning. Mode-switching can also be taken to mean not only switching from the written to the oral and vice versa, but also for example between image and text. Kress (2001: 1) argues that in the teaching and learning of science it is common practice for teachers to use demonstrations and experiments, images and models, explanation and response using visual, written and actional means, diagrams, visual and written text or a combination of these. Rose (2001) states that visual objects in multi-modal texts are always embedded onto a range of other texts and that they all intersect and interact with each other to produce meaning.

(v) Domains

From a New Literacy Studies perspective different literacies are said to be located in different social and semiotic domains. Barton and Hamilton (1998: 10) argue that literacy is used within patterned contexts, which are referred to as domains, i.e. literacy is used in a different way in varying situations by different groups of people. They claim that there are particular configurations of literacy practices and that there are regular ways in which people act in literacy events in different contexts (1998: 10). Gee (2001) argues that semiotic domains are associated with different groups of people. Each of these domains makes use of more than one modality such as written language, images, symbols, graphs and artefacts. Gee (2001: 2) states that each of these domains has a design grammar, or rules for meaning-making specific to that domain, and that this grammar is produced by an affinity group. An affinity group consists of people who have mastered a domain and share the norms, values and knowledge of what constitutes a specific domain (2001: 1). The design grammar determines what words, symbols, images and

artefacts combine within a domain to have meaning – meaning that is situated (2001: 2). Examples of semiotic domains include the following: school science, medicine, law, literature and computer games (Gee: 1998: 7). For the purposes of the study then, I wish to treat museums as a semiotic domain, and to treat professional museum workers as constituting an affinity group. However, I aim to show that this affinity group is itself constituted by sub-groups which bring differences to the larger group. These sub-groups have been identified for purposes of my study as those of scientists, designers and educators.

(vi) Discourse/genre

Gee (2001) argues that there are many different social languages such as for instance the language of medicine, law, sociology or even informal dinnertime talk among friends. He claims that to know any specific social language – language that belongs to distinctive cultures or groups – is to know how its characteristic design features are combined to carry out one or more social activities. Gee notes that knowledge of a particular social language makes it possible to use that social language, and makes it possible to participate in a specific social group. Gee (2001) points out that each semiotic domain has its own language with its own distinctive vocabulary.

In a museum context, language with its own distinctive vocabulary is used. There is clear evidence of the influence of the scientific genre, and in some instances the educational and the aesthetic perspective dominates.

I go on to discuss these in detail, starting with a review of the literature on the scientific genre.

(vii) Scientific literacy as a genre of a social semiotic domain

This extract from a science textbook overleaf is an example of the use of scientific language:

The rate of crack growth depends not only on the chemical environment but also on the magnitude of the applied stress. The development of a complete model for the kinetics of fracture requires an understanding of how stress accelerates the bond-rupture reaction.

In the absence of stress, silica reacts very slowly with water. (Michalske and Bunker, 1987: 81 in Halliday and Martin)

Gee (2000) argued that scientific knowledge is rooted in the day to day social practices of scientists and is distributed across the practices and texts, symbols and technologies that are used by scientists. Halliday and Martin (1993) use the word “scientific English” as a useful label for a generalised functional variety of the English language. They argue that there is variation in what they term field, tenor and mode. Variation in field involves the transmission or exploration of knowledge in the physical, biological or social sciences. Variation in tenor entails addressing text to specialists, laymen or learners – both within and across these groupings. The variation in mode is what is involved in the fluctuation between formal and less formal texts with a range of rhetorical functions (1993: 54). I have already shown that modes can also be visual, or performative, rather than linguistic modes.

Gee (1998) argues that the design features of writing are not only about the phonographic “code” that relates sounds to letters, but that the design features of language are far more extensive than this. Gee (1998: 6) proposes that certain forms of vocabulary, syntax and discourse connectors map to certain styles of written and oral language.

The following is an example Gee gives from a science textbook (1998: 6):

The destruction of a land surface by the combined abrasion and removal of weathered material by transporting agents is called erosion ... The production of rock waste by mechanical processes and chemical changes is called weathering.

Gee notes that the text from the science textbook has design features that mark these sentences as being written in an academic style. He names some of the features as follows: what he terms “heavy subjects”, where processes and actions are named by nouns or nominalisations rather than verbs, passive main verbs and

passives within nominalisations, modifiers that have more content than nouns and complex embedding. Gee (1998: 7) points out that the style of language has many distinctive discourse markers. These discourse markers are linguistic features that characterise larger stretches of text and give them unity and coherence as a certain type of text or genre.

(viii) Educational perspective in museum labels

Educators in museums are tasked with acting as the mediator between the scientist and the visitor; they mediate the text, drawing on principles of clarity, simplicity and dialogicality. An example would be a text written in the scientific genre, which is altered by an educator to text that is more accessible to non-scientists. Text in which the educational perspective is dominant has several features. When the educational perspective is dominant, the text tends to be interactive and/or dialogical and the reader is involved. An example of this can be seen on page 54 (labels 1, 2 and 3) in the phrases "Today we invite you to ...", "Look carefully at ..." and "Can you read it?" In scientific writing the action is removed from the text, and when the educational perspective is dominant the action returns. An example of this is "What parental role is suggested by having two young nestled in the same burrow?" which becomes "Do you think the parents of these two youngsters still took care of them?" In the first, scientific, text the object of the sentence is an abstraction. In the second, educational, text "the parents of these youngsters" is the main agent in the statement. The educators strive to reframe the content by using a genre of literacy that is closer to everyday language as they understand it from their perspective. This "everyday language" might not correspond to the "everyday language" of the different groups of people visiting the museum. However, that is not the focus of this study.

(ix) Design aesthetics in museum displays

In displays in which the design aesthetics dominates, consideration is given to issues such as visual balance. A sense of balance and proportion in the design is a feature of a display in which the design aesthetic dominates. This can be seen in figure 12 (page 41), a diagram from a book on museum design that indicates

visual balance. The visual balance as suggested in this diagram has been put into practice in the working drawing (figure 10, page 39) and the actual display panel (figure 11, page 40). Other features found in displays of this nature are attention to conventions regarding type of font and font size, such as the use of sans serif fonts.

(x) Multi-modality

Kress (2001: 2) addresses the questions of how different modes – with the increasing prevalence of multi-modal texts – interact with one another to make meaning as well as what effects the representational uses of these modes have on the very forms of language itself. Kress argues that representation and communication always draws on a multiplicity of modes, which all contribute to meaning (2001: 2). Modes facilitate the making and taking of meaning differently, for example, written texts often contain sequential accounts of events, while visual texts can present relationships between people and things by using spatial relations to indicate social relationships. In addition, the meanings of the modes are always interwoven with the meanings made with all the other modes present; this interaction produces meaning (2001: 2). Kress and van Leeuwen (1996) present the argument that language – speech or writing – has always existed as only one mode in a totality of modes involved in the production of written or spoken text. A spoken text is both verbal and non-verbal, combining non-verbal modes of communication such as gesture and facial expression. Written text involves more than language – it is written on something with something using letters and is laid out on, for instance, a page or a computer screen (1996: 39). Kress and van Leeuwen hypothesise, *inter alia*, that human societies use various modes of representation; each mode has a different potential for meaning making; each mode has a specific valuation in specific social contexts; individuals use a range of representational modes and different modes of communication are not held separately as autonomous domains in the brain (1996: 39).

(xi) New Literacy Studies and multi-modality – conclusion

The literature reviewed in this section has shown that literacy is not simply about the ability to read and write, but rather that reading and writing is embedded in specific social practices. These practices incorporate literacy events, which are instances in which literacy plays a role. In collective literacy events mode-switching takes place between text and talk. This switching between modes contributes to meaning and can take place for instance between image and text and between oral and written. Kress and van Leeuwen (1996: 39) argue for the emergence of multi-modal analysis which draws on a multiplicity of modes, which all contribute to meaning. I argue that the terms used in the field of the New Literacy Studies can be applied to specific contexts, such as a museum. In the next section I review literature specific to the field of museology and the practices of museologists involved in the production of museum displays.

(xi) Museum practice

(a) History of museums

In this section I present a brief summary drawn from literature on the history of museums. This is followed by a review of the literature that examines practices specific to museums and in particular the practices related to the production of museum displays. According to Alexander (1996) the Latin word *museum* has had a number of meanings throughout the centuries. Alexander (1996: 7) notes that in classical times the word signified a temple dedicated to the muses. During ancient times the Greek temples had votive offerings of bronze objects, statues and paintings and the Romans displayed paintings and sculptures, but museums were not understood then in the way they are today. During the Middle Ages churches, monasteries and cathedrals venerated relics of the Virgin, Christ, the apostles and saints embellished with gold, silver and jewels as well as manuscripts in sumptuous metal bindings and rich fabrics. The Crusades brought magnificent art objects that were added to the palace collections of the princes and nobles. Museums became public only in the late seventeenth century. During the eighteenth century the discovery of basic natural laws led to the intellectuals of

the time wanting to preserve natural specimens as well as human artistic creations and scientific creations in museums. The Vatican established several museums in 1750, and during this time the emphasis was on collecting beautiful and curious specimens (1996: 9). The kinds of objects that were collected at the time included works of art, scientific specimens and botanical specimens. Collectors traditionally gave their collections to museums. Once the public was admitted to museums, the museums' exhibition function became paramount. The emphasis was no longer on conservation, restoration and research. Research often led to further additions to the collections as material was collected through fieldwork and archaeological excavations (1996: 10). Exhibition function also changed over time. At first the displays were done in such a way as to benefit the scholar and the collector, changing in the nineteenth century to when the museum became a place where families could enjoy a country's heritage. By the twentieth century museums had become centres of education. The nature of displays has changed, as has the process of creating displays (1996: 11–12).

(b) Institutional practices

The Museums Association in Britain defines museums in the following way: "A museum is an institution which collects, documents, preserves, exhibits and interprets material evidence and associated information for the public benefit" (Museums Association 1991:13: cited in Pearce, 1992). This definition of museums presents museums as institutions that are entirely neutral, carrying out a set of functions common to all museums. Pearce (1992: 249), however, argues that local and national politics influence museum policy, especially with regard to funding. Writers may also think that they are writing transparent text, but may not be aware that they are implying meanings, which are revealed by doing critical linguistic analysis that aims to uncover a text's hidden agenda (1992: 249). Pearce notes that this criticism is especially important in museums that are perceived to be innocent and objective. Kaplan (in Hooper-Greenhill, 1995: 38) views museums as social institutions in which political messages in the broadest sense are displayed, interpreted and converted in to meaning by museum professionals, as well as by the audiences who look at these displays. Maroević (in Hooper-Greenhill, 1995: 34) makes the point that the museum message is a

concrete and actualised form of the content of an exhibition. The character of the exhibition determines the specific messages. Silverstone (1994: 162) argues that museums are no longer institutions that can be understood as being innocently engaged in the collection, conservation, classification and display of objects. He claims that museums are like other contemporary media in many respects; they entertain and inform, aim to please and educate and they translate the unfamiliar into the familiar. It is in the construction of their texts that they offer an ideologically inflected account of the world. Vergo (1994: 151) is of the opinion that objects that are displayed in a museum have various kinds of significance. This can either be suppressed or reinforced by the character of the museum, the theme of the display, the way objects are juxtaposed or by the physical context created by the exhibition designer.

Hooper-Greenhill (1995: 21) describes museum displays as being made up of a series of signs that are intended to be a communication system. These consist of, inter alia, introductory text panels, object labels, photographs and diagrams. Hooper-Greenhill argues that all communicative acts in a museum consist of signs and signals (1995: 21). Alexander (1996) describes museum displays as being "carefully organised to present a theme and sub-themes through a series of objects arranged in ordered sequence and supported by interpretative aids such as labels, diagrams, art work, photographs, models, and perhaps multimedia devices". The function of museum labels is said to be to transform a collection of objects into an exhibition that communicates effectively with its chosen audience (1996: 183).

The literature that has been reviewed shows that labels are produced collaboratively by people who have knowledge and expertise in certain fields. Pearce (1992) makes the point that all kinds of museum staff members, but most obviously designers and educators, are involved in the business of presenting meanings in museums. In museums, meanings arise from the direct interpretation of the collections, mixed with other interpretative traditions like design. (Pearce: 1992) Kaplan (1995) argues that exhibitions originate with a curator or a curatorial team responsible for the concept, which requires designers to give the ideas tangible form in three-dimensional space. Kaplan (in Hooper-Greenhill: 38) states

that curators can be viewed as ritual specialists who are the keepers of ritual knowledge. This knowledge includes objects, labels and display techniques. Kaplan (1995: 38) views these specialists as mediators between two worlds. They impart knowledge to what she terms the uninitiated. Miles and Tout (1994) note that most curators of palaeontological collections tend to be involved, to some extent, in exhibition work.

Dean claims that the subject specialist, the scientist in this case study, generates the narrative document based on his or her knowledge of the collections and other available resources. Once the narrative is completed, the designer and educator begin to sift the information for topical divisions and methods of communication. The educator looks at the narrative in terms of its content with view to translating this into digestible bits. The designer helps by developing the visual elements that are needed to attract and keep the attention of the visitor. The specialist continues to work with the other team members to ensure factual accuracy (Dean: 1994: 104).

Ravelli (1996: 370) states that the written text found in museum labels is produced in teams made up of scientists and curators who are in possession of knowledge around a particular object or artefact. Ravelli notes that educators have become involved in this process in recent years. Roberts (1996) writes that, in the early 1980s, educators began to be included in exhibition design, and that they are responsible for ensuring that the exhibit is intelligible to viewers. Roberts, in describing the team approach to exhibition design, defines the role of team members as follows: The curator provides scholarly expertise based on her/his knowledge of a particular collection and is responsible for the establishment of the overall concept of the exhibition. The designer takes responsibility for the visual appearance of the exhibition and makes sure that the material is set out in an attractive and understandable manner. The educator is there to establish the link between the exhibition's content and the audience. The educator is identified as a specialist in communication and understands the way people learn and the needs of the audiences (Roberts: 1996: 6–9). I draw on these understandings of how differently located museum professionals contribute to the production of displays in my own research, as I now go on to discuss.

2.2 Research site

The site at which this research was done is the South African Museum, a natural history museum. This museum is a component of Iziko Museums of Cape Town. This conglomerate of museums consists of 15 sites that include an art gallery, house museums and a planetarium.

The South African Museum was started in 1825 by decree of Lord Charles Somerset. The Museum was intended to house collections of South African origin. However, because of donations, bequests and occasional purchases, collections from across the world can be found in this museum. By the middle of the twentieth century there were collections of natural history and cultural history and included a large collection of colonial objects dating back to early European settlements (Davison: 2000: 2).

In addressing the issue of cultural history being represented in natural history museums, Davison (2000: 5) makes the point that all museums operate in the domain of culture and the natural world is interpreted through a cultural lens.

I chose to do research at this site for a number of reasons. I was employed at this museum for thirteen years, and therefore have intimate knowledge of museums. I was a member of each of the three display teams responsible for mounting the displays that are examined in this thesis. This presented an opportunity to look critically at museum displays, and at the practices involved in the production of museum labels.

My initial research focus was to understand how the labels are produced and subsequently received by museum visitors. I was interested in exploring whether the product that was produced was received in the way in which it was intended. The research focus shifted, when upon closer examination of the three sets of labels, it became apparent that there were differences in the way they were presented. Being part of the display team has not prevented me from looking critically at these labels, as I have a genuine interest in understanding the

questions raised and because I would like to contribute to the understanding of museum displays. I could only do this by obtaining enough distance to be critical. This has also been made possible by the fact that I am no longer in the employ of the Museum.

I gathered the data that is presented in this thesis whilst working as a member of staff at the South African Museum and a member of the display team working on these exhibitions. Photographs of the displays were taken at a later stage as it was felt that they could supplement the data that had been gathered.

2.3 Research methodology

This research takes the form of a case study in which I examine the practices involved in the production of museum displays, with a focus on labels. I extend this analysis by drawing on Kress' work on semiotic analysis of multi-modal texts.

I attempt, through the interpretation and analysis of this data, to determine what the differences in museum labels are and to find out what processes produce these differences.

I have chosen to do qualitative research and case study as opposed to quantitative research. Qualitative research involves detailed and systematic research, based on a conceptual framework or theory that yields results (Maxwell: 1996: 25). This conceptual framework helps to frame the purpose of the study and to develop relevant research questions and methods (1996: 25). This method of study examines an event in detail that is believed by the researcher to exhibit the operation of an identified theoretical principle (1996: 192). In the research that I have done I have chosen to study museum labels, and analysed the meaning of words and phrases within larger chunks of text – the museum discourse. Mouton (2001: 168) describes discourse analysis as aiming to study the meaning of words within larger chunks of text such as conversations or discourses. This is in contrast with the types of analysis of some modern linguistics, which is mainly concerned, with the study of smaller units of language such as words and sounds. The mode of reasoning in this form of analysis is predominantly inductive –

chunks of discourse are interpreted (2001: 168). The sources of data tend to be existing discourses that are analysed (2001: 168). Strengths of this method of analysis include that by focusing on larger contexts of discourse these forms are high on construct validity, the texts for discourse analysis are often produced through non-obtrusive strategies and the emphasis on discourse in natural settings also enhances construct validity. Studies such as these can be limited by their generalisability, as they are context-bound and context dependent (2001: 168). A feature of case study research includes organising data in such a way that the "unitary character of the social object being studied" is preserved (Rose: 1991: 191). A further feature of this method of research is that of representivity and generalisability – which are often seen as weaknesses (1991: 192). Rose concludes that a case study design can comprise single or multiple cases and these may be snapshot or longitudinal studies (1991: 192). In this study I have analysed existing discourses, in the form of the displays, with particular emphasis on the labels. I have used multiple cases – several displays and labels within one museum were analysed.

Chapter 3 – Practices of museum professionals: the scientist, the designer and the educator

3.1 Data collection

The data was collected after the exhibitions were completed and I made the decision to make the exhibitions the focus of my study. I gathered the data in the following way. I discussed the topic of my research with one of the scientists, the designer and the educator who were part of the research teams and got permission to use their working documents, which they sourced and sent to me via e-mail and gave me hard copy of some of the documents. In addition I gathered my own working documents, which I then ordered with the documents supplied to me, to reflect sequentially the process of mounting these displays. I then photographed aspects of the displays, adding this to the documentation gathered. It was only after the complete set of data was gathered that I began examining the data in detail, raising the questions mentioned in the process.

The data includes the following: examples of the labels written by the scientist, examples of the labels with comments made by the educators, working drawings of displays and photographs of aspects of displays.

I analysed this data, using the theoretical resources that I outlined above.

3.2 Limitations of research design

Every attempt has been made to present an accurate picture of the processes involved in producing museum labels and to find out why different discourses are evident in different displays. I endeavoured to focus on a narrow area of museum displays for the purposes of this study, and have not explored the way in which the visitors engage with the displays, and the way in which the visitors received the information in the labels. This could be the focus of further study.

3.3 Research ethics

I submitted a proposal for this research to the Faculty Research Ethics Committee, and received clearance. I have asked the research subjects' permission to question them and to use diagrams and photographs of the exhibitions for the purpose of this study.

3.4 Analysis of museum displays, with an emphasis on museum labels

A particular genre of writing is used in writing texts in museums. The South African Museum is a natural history museum, a museum of science. The genre of writing that is dominant in the museum is scientific. However, this research argues that the scientific genre as well as the educational perspective and the aesthetic perspective can dominate in different displays in this natural history museum. The research shows that the genres are not absolutely distinctive, but that certain elements of the scientific genre can be found in three displays. The scientific genre is not the dominant genre throughout.

Using the concept of *literacy event* as a unit of analysis, I make the argument that the process of producing a museum label is a literacy event, that is, where talk revolves around a piece of writing or where literacy plays a role. In the process of producing a label, the first draft of the text is written by the scientist, the person with the subject knowledge. This is then given to the educator to comment on and change the text. The process is not as simple as writing the text and handing it on for comment. Many discussions took place between the scientist and the educator before the label was finalised in the Fossil Stories exhibition, for example.

As outlined in the literature review, texts for museum displays are often produced by a collaborative team consisting of scientists, exhibition designers and educators. The content and aims of an exhibition are determined and the initial script written by the scientist. Thereafter the script is checked and modified by the educators in collaboration with the scientists. The designer then designs the exhibit and the exhibitions team constructs the exhibit. It must be noted that the process described does not take place in a simple, linear manner. There is

interaction between the various members of the team at different times, resulting in changes to the design or script at various stages of this process. The various stages of this process are illustrated below. Figure 1 shows the first draft written by the scientist as part of his motivation for mounting a display on palaeontology. The first comments on the draft labels by the educator can be seen in figure 2 on page 24. In these initial comments the educator notes that the work palaeontologists do needs to be clarified (Figure 2, page 24, second bullet – “An area dedicated to what paleontologists (sic) do – what their work is”). This comment is also made on the second draft of the label, which can be seen in figure 18 on page 53. At the bottom of this text the educator has written “What do palaeo’s do?”. An example of specialised and scientific words that have been replaced with everyday, familiar words can be seen where the educator has suggested changing words such as “detached” and “regulate” with “became separated” and “burst”. In figures 4 and 5 on pages 25 and 26 the educator has made comments, both in writing and electronically. These can be seen in brackets and include “body form” and comments such as “look at its claws and tusks”. Figure 6 on page 27 shows an example of the final label, in which the comments from the educator are included. For example, the phrase suggested by the educator in figure 5 (“look at its tusks and claws”) has been incorporated. The sentence now reads as follows: “Look closely at its tusks and claws”. The initial sentence (figure 4, page 25) read: “Examination of its tusks and claws show wear and tear confirming that they were being heavily used”.

****Clive) Survivor of the Great Dying:** this magnificent mammal-like reptile has appeared in the pages of National Geographic Magazine. Its claim to fame?- it was one of the few terrestrial animals to have survived the "Mother of all Mass Extinctions". About 251 million years ago an estimated 90% of living species became extinct in an event so catastrophic that life on Earth nearly died. Much research is currently being done in the Karoo to try to find out what caused this disaster.

It is thought that the distinctive long shovel-shaped snout and tortoise-like beak with two prominent tusks enabled this animal to bite through very tough vegetation and thus survive a great drought that brought about a mass extinction event some 251 million years ago. The worn down ends of the tusks and the flattened claws are evidence that they were able to dig up roots and bulbs during dry seasons.

Images available:

Field shot, carrying the specimen on stretcher

Field shot of embedded fossil taken for National Geographic Magazine

National Geographic artists reconstruction of Lystrosaurus in landscape.

Figure 1 – First draft written by scientist

The ideas and exhibit look really exciting, however, I have some suggestions which I hope are able to be applied as I think it would add to the educational value of this exhibit. Some of the ideas we discussed such as:

- ◆ including a section about how fossils are formed - those that die in muddy areas and possibly one other common way in which fossils are formed just so that children realise this is not the only way they are formed.
- ◆ An area dedicated to what paleontologists do - what their work is
- ◆ A display about how the fossils are removed from the ground
- ◆ A display about what happens to the fossils once they are brought to the Museum- this is partly what Annie/Kerwin will be doing, but kids would love to know how the models of these ancient animals are conceptualized and created - we spoke about the small display opposite *dicynodont* and *hipposaurus* (Boonstra diorama) being moved up to the fourth floor - possibly with extra labeling and some explicit diagrams.

Figure 2 – Initial comments by educator on first draft (Figure, 1 page 23)

- ◆ The pannels have good information, but I think the content is too much for children to read. They would give up when they find too many words and too many difficult words to read. One could have possibly approached this problem by having a tape recorded story about the fossil which they could listen to and then asking them to discover some things about the fossils by using some of the written questions to conduct their own investigation.
- ◆ I am concerned about some of the really tough words which the general child and even adult will not understand - I have made alterations to the first few pannels to give you an idea. I know it is difficult to remain true and accurate to the subject matter and try to make the language of a level which is not difficult for the general public to understand.

Figure 3 – initial comments made by educator on first draft (Figure 1, page 23)

I'M A SURVIVOR (Clive)

This magnificent mammal-like reptile is a *Lystrosaurus*. It was one of the few animals of any kind on Earth to have survived the mass extinction at the end of the Permian Period, 251 million years ago. Why did this group of animals survive the so-called, "mother of all mass extinctions," when millions of others did not?

To answer this question, researchers are studying both the anatomy of *Lystrosaurus* and the rocks in which it was found to reconstruct the environmental conditions in the ancient Karoo when this extinction event occurred.

The rocks show that a great drought hit the ancient Karoo at the time, and palaeontologists think its flat claws, shovel-like snout and long tusks might have been used to dig up buried roots and tubers to help it survive the long dry season. Examination of its tusks and claws show wear and tear confirming that they were being heavily used.

[FOSSIL Clive - location DC-3; G-15]

Can you find out more about the animals of the Permian?

Look at its tusks & claws to see how they were used.

What happened to cause the mass extinction?

What did it do to survive?

Figure 4 – Comments written on label by educator

I'M A SURVIVOR (Clive)

This magnificent mammal-like reptile is a *Lystrosaurus*. It was one of the few animals of any kind on Earth to have survived the mass extinction at the end of the Permian Period, 251 million years ago. Why did this group of animals survive the so-called, "mother of all mass extinctions," when millions of others did not?

To answer this question researchers are studying both the body form (anatomy) of *Lystrosaurus* and the rocks in which it was found. The researchers will use this information to try and work out what the (want to reconstruct the environmental conditions in the ancient) Karoo was like when this extinction event occurred.

The rocks show that a massive drought hit the ancient Karoo at the time. Paleontologists think that *Lystrosaurus* may have used its flat claws, shovel-like snout and long tusks to dig up buried roots and tubers. This food helped it survive the long dry season.

Look closely at its tusks and claws. Would you say that they are damaged and broken? This shows that they were heavily used.

[FOSSIL Clive - location DC-3; G-15]

Figure 5 – Electronic comments made by educator (in brackets)

I'm a SURVIVOR (Clive)

This magnificent mammal-like reptile is a *Lystrosaurus*. It was one of the few animals of any kind to have survived the worldwide mass extinction at the end of the Permian Period, 251 million years ago. Why did this group of animals survive the so-called, "mother of all mass extinctions," when millions of others did not?

To answer this question, palaeontologists are studying the anatomy of *Lystrosaurus* and geologists are looking closely at the rock strata in which these fossils are found. They are both searching for clues as to what happened in this part of southern Gondwana when this extinction event occurred.

The rocks show that a great drought hit the ancient Karoo at the time and we think that *Lystrosaurus* with its flat claws, shovel-like snout and long tusks was well-adapted to dig into the baked soils for roots and tubers to help it survive the long dry season. If you look closely at its tusks and claws you will see signs of wear and tear confirming that they were being heavily used.

Identification: *Lystrosaurus murrayi*

Specimen no. SAM-PK-8038

Age: Early Triassic (250 My)

Locality: Heldemoed, Bethulie District, Orange Free State

Finder: Roger Smith 1998

Prepared by: Hedi Stummer and Annelise Crean

[FOSSIL Clive - location DC-3; G-15]

Figure 6 – Final label incorporating comments from educator (figures 2, 3, 4 and 5)

In this section I have outlined the process that is followed when producing exhibitions, and the roles played by the various members of the exhibition teams – the scientists, exhibition designers and the educator. I have presented data to demonstrate the process, and have indicated where suggested changes were made by the educator and where they have been incorporated. In the next section I will present data and examine the practices of the scientist, the designer and the educator.

3.4.1 Scientist and practice

(i) Outline

In this section I provide images of the Mineral Mania display and show the composition of the exhibition team. I will then present data, which is used to substantiate my argument that the scientific discourse dominates in this display and that the practices of the scientist determine the discourse.

For the Mineral Mania display (see figures 7 and 8 on pages 29 and 30) an exhibition team of eight was assembled. This team included an exhibition designer, the researcher (in my capacity as editor) and six scientists, of whom five were geologists. There was no educator on this exhibition team, in contrast to the literature reviewed where having an educator present is described as being the norm.



Figure 7 – Mineral Mania display

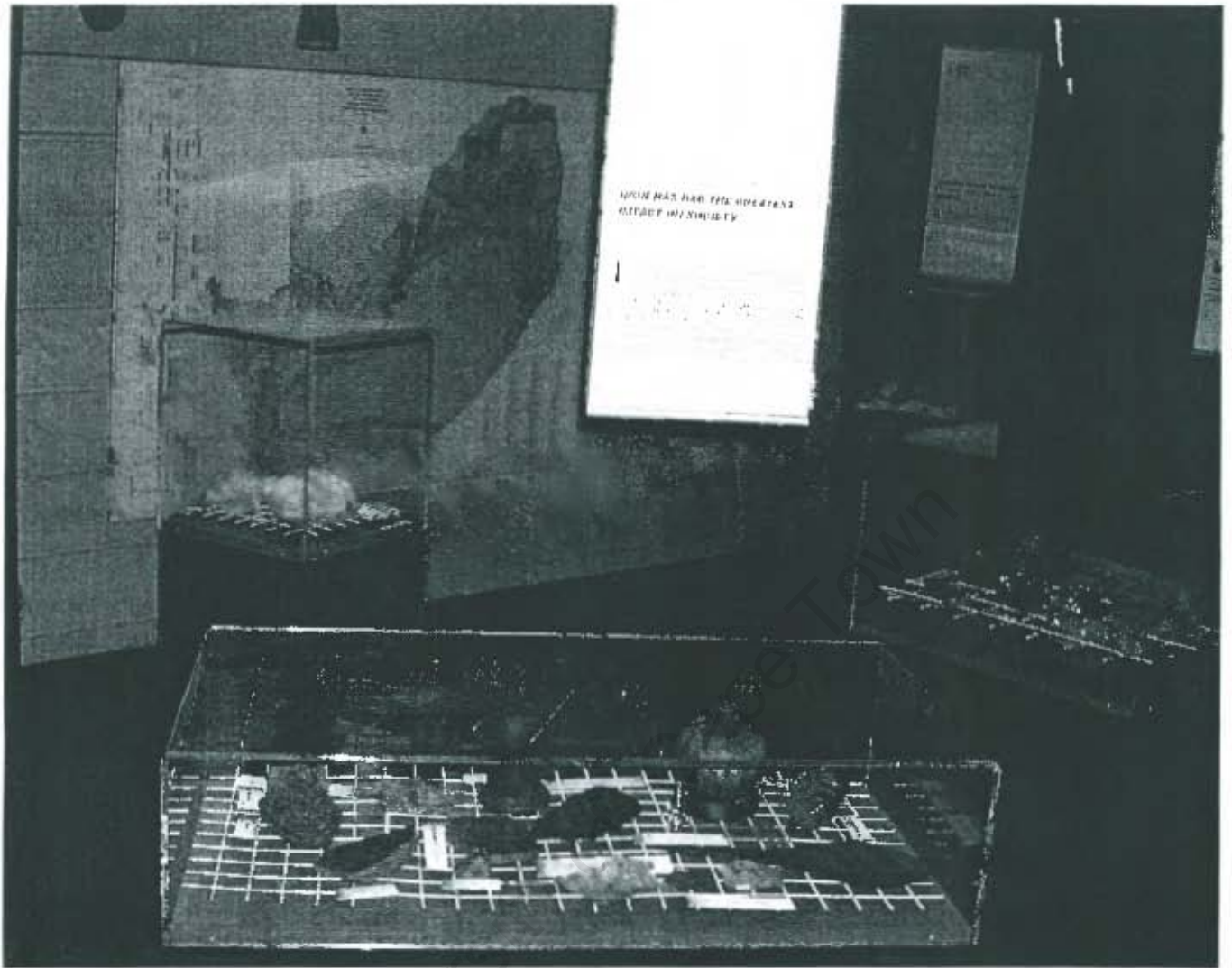


Figure 8 – Mineral Man.a display – close-up of showcases showing the relationship of the label the showcase

This display (figures 7 and 8) is a geological display, made up mainly of geological specimens drawn from the Museum's collections as well as some items from the private collections of two of the geologists. Figure 8 (page 30) shows the showcase in which specimens of iron and items made from iron are displayed. I will argue that the scientific discourse dominates in this display and that the text is written in the scientific genre. The practices of the scientists determined the genre or style of writing, the discourse.

(ii) Analysis of the text

The text below is taken from a label in the Mineral Mania display that provides information on the samples of iron and objects made from iron in this display.

Polished sections of meteorites often display beautiful geometric intergrowths of different alloys, known as Widmanstätten structures.

This extract is an example of scientific writing from a museum label in which design features of this genre can be seen. This is manifest in what Gee (1998: 7) terms "heavy subjects", for example, "the rate of crack growths", "kinetics of fracture" and "bond-rupture reaction". 'Heavy subjects' can be explained as follows. A large amount of information is condensed into a few words. Non-scientists, for example, are not familiar with scientific processes, which are implied when the information is condensed into a few words, and therefore are not able to comprehend the full meaning of the text. In this extract (above), the 'heavy subject' is "geometric intergrowths of different alloys". The process that gives rise to "geometric intergrowths of different alloys" is not explained in detail, but condensed into this short phrase.

The example of the written text given below is from a label on Blaauwberg volcanics, taken from the Mineral Mania display.

The deposition of the Malmesbury Group sedimentary rocks on the deep ocean floor was associated with some volcanic activity. The magma (called lava in this case because it erupted on the surface of the Earth) cooled very fast. The resultant igneous rock is very fine grained, mostly much less than 0.1mm, with only a few

crystals of feldspar (white), pyroxene (grey) and iron oxide including magnetite (black) which are larger than 0.25 m.

I argue that the text of the examples that are presented in this section is an example of the scientific genre of writing, as it is manifest in labels.

The following are further examples of what Gee (1998: 7) terms 'heavy subjects' to describe the typical sentence structures of scientific writing: "the deposition of the Malmesbury Group sedimentary rocks on the deep ocean floor", "The resultant igneous rock is finely grained", "naturally occurring metallic iron", "well-developed platy cleavage", "low heat conductivity" and "beautiful geometric intergrowths". In all of the above examples the processes have not been described, but have been implied and condensed into a few words. For example "deposition of", "the resultant igneous rock" and "naturally occurring".

Another feature that Gee (1998: 7) has highlighted is that of processes named by nouns and not by verbs, with the result that the action disappears from the text. Examples of this are the following:

Because of its low heat conductivity, expanded vermiculite mixed with cement is used in foundries and boilers for heat insulation.

Extract 1

After diamonds, corundum is the second hardest naturally occurring substance on Earth.

Extract 2

In the extracts above the following are examples of processes named by nouns: "low heat conductivity" and "second hardest naturally occurring substance". The process of producing heat is named by a noun: "conductivity". The action that produces something becomes a nominalization as in the following example: "naturally occurring substance". Nouns are used to refer to processes, and not verbs.

(iii) Authoritative text

The text on Cape granites in the Mineral Mania display (figure 9, page 34) includes this information:

The most common minerals which make up the sample on display are, in order of decreasing abundance:
feldspar (1–5mm in size, blocky, white or cream in the rock sample, light and dark grey with wavy stripes in the thin section);
quartz (~ 1mm, rounded, greyish in the rock sample, light yellow or black in the thin section);
biotite mica (0.5mm flakes, black in the rock sample, black yellow or green in the thin section).

In order to clarify the context of this label, a photograph of the wall panel on which these labels occur is provided on the following page (figure 9). The text that is quoted can be seen on the wall panel. The rock sample is at the bottom and the thin section referred to can be seen at the bottom of the written text.

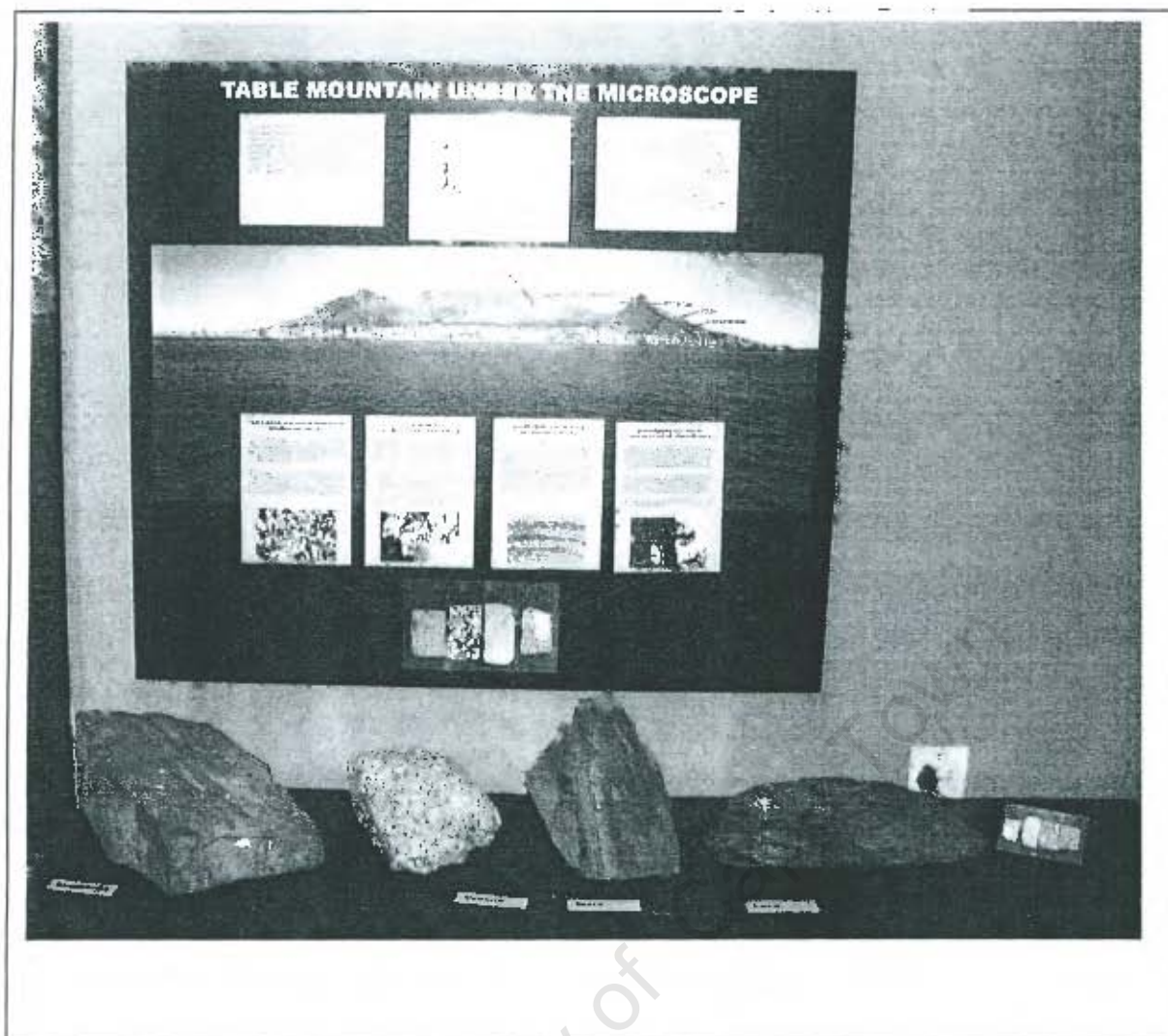


Figure 9 – Mineral Mania display – detail of label in relation to objects

The phrase "The most common minerals ... are, in order of decreasing abundance", is an example of the use of 'heavy subjects'. As scientific text is authoritative, it gives and does not negotiate information. (Halliday and Martin: 1993) The text above, which provides information about feldspar, quartz and biotite, does exactly that – it provides and does not negotiate information.

A fundamental feature of scientific discourse is that it is universalised; the scientist who does the observing is removed from the picture. I argue that this can be demonstrated by the descriptions in the text above of feldspar, quartz and biotite. The actions are turned into abstracts. For example, "quartz (~ 1mm, rounded, greyish in the rock sample, light yellow or black in the thin section)". There is no action and there are no verbs; the phrase that describes quartz has been turned into an abstraction. Further examples of the providing and not negotiating information are: "Quartz can be grown synthetically ...", "Copper has a vital

technological function as wire because ...”, “Iron is a highly versatile metal” and “Table salt is sodium chloride ...”. In these examples information is given about the properties of quartz (can be grown synthetically), copper (has a vital technological function as wire) and salt (is sodium chloride).

(iv) Scientific text

Halliday and Martin (1993: 34) also note that scientific text is relatively exclusive and that only people apprenticed in the field will know what it is going on. The text in this geological display is relatively exclusive. Examples of excluding text are the following (extracts 1, 2 and 3 below):

The oxygen produced by early photosynthetic algae caused iron to precipitate in Earth's early oceans. This formed banded iron formations, the major ores of iron, deposited about two million years ago.

Extract 1

Naturally occurring metallic iron is almost always in the form of meteorites, which arrive continuously from space, adding tons annually to the Earth's mass.

Extract 2

More commonly it is embedded in microscopic grains like those embedded in the polished sample of *banquet*, conglomerate ore from the Witwatersrand.

Extract 3

The terminology that is used in the examples given above makes the text exclusive and not accessible to non-scientists. The words and phrases that are scientific in nature include: “early photosynthetic algae caused iron to precipitate”, “formed banded iron formations”, “naturally occurring metallic iron” and “it is embedded in microscopic grains”.

Halliday and Martin (1993: 54) argue the tenor in scientific text can be addressed to either the scientist or the layman. This can happen from within the same group – from scientist to scientist – or across groups such as from the scientists to the layman. The language of the mode can be either formal or non-formal. In this instance the communication takes place across groups – the text was written by scientists for the layman, the visitor. The mode of the language is formal, for

example: "Quartz has a multiplicity of other uses ...", "Copper has a vital technological function ..." and "Metallic zinc was first recovered from its ores by distillation ...". Halliday and Martin (1993: 60) distinguish between the expository, polemic and imaginative rhetorical functions of text. The written text found in this display is expository. The following are examples (extracts 1 to 4 below) of expository text:

Under suitable conditions quartz forms beautiful crystals with flat natural faces, in a variety of colours.

Extract 1

Iron metal extracted from oxide ores have been used for about the past 5 000 years.

Extract 2

Zinc is also used to protect iron from corrosion, for instance in galvanised roofing sheets.

Extract 3

Fluorine occurs naturally in mineral fluorite, which is calcium fluorite.

Extract 4

The function of expository text is to explain. The extracts above (extracts 1 to 4) explain information in the following ways. In the first extract the text explains under what conditions quartz crystals are formed, what it looks like (with flat natural faces) and that quartz crystals can be found in a variety of colours. In the second extract the text explains that iron metal is extracted from oxide ores and that iron metal has been used for the past 5 000 years. In the third extract it is explained that zinc protects iron against corrosion and that it is used in galvanised roofing sheets. In the fourth extract it is explained that fluorine occurs naturally in mineral fluorite, which is calcium fluorite. These examples demonstrate the explanatory nature of expository text. In these examples the functions of minerals, where they occur and suitable conditions under which minerals are formed is explained.

The analysis of the labels in this exhibition has demonstrated that scientists, as subject specialists, commonly communicate in the scientific genre. Transmission of knowledge commonly takes place mainly within the same group, and not across groups such as in this instance when labels have to be written for an exhibition. The analysis of the labels has shown that scientists sometimes have difficulty in

stepping outside of their genre when writing for those who are not subject specialists.

3.4.2 Designer and practice

(i) The aesthetic perspective

“Some authors make the act of creating an exhibition look like an artistic act. They consider the exhibition to be a specific work of art.” Šola (1992) in Hooper-Greenhill: 1995: 30) states that: “as normally conceived by their originators, exhibitions are works of art in the traditional European sense ... like a novel or a play [addressing] themselves to a chosen set of human circumstances...”. I will argue in this section that in particular exhibits the aesthetic perspective of the designer dominates. This can be seen in the Go Bats! Display (figures 11 and 13 on page 40 and 44). The aesthetic perspective is informed by commonly accepted principles in museum design. This includes, for example, placing objects and text in relation to one another. Another principle that informs the aesthetic perspective is that of achieving a sense of balance. The literature shows that there are rules of proportion, which are applied by museum designers. The designer responsible for this particular display – the Go Bats! display – had worked in a natural history museum for several decades. Both formal training as an artist and working knowledge gained through visiting other museums to keep up to date with display trends, familiarity with relevant literature and decades of experience in museum design has inculcated this aesthetic perspective of the designer, which informed other displays designed by him. The aesthetic perspective that can be seen in the Go Bats! display (figures 11 and 13) will be analysed in this section. In my argument I will show that the aesthetic perspective of the designer, influenced by design artistic criteria, dominates in this display, but that the scientific genre as well as the educational perspective can also be seen in aspects of this particular display. The aesthetic perspective here is a specific attitude to the text and image which is more concerned with spatial dynamics than by the substantive content of the text and images, as is the case with the scientific genre. This is consistent with the findings of this research that show that the genres, discourses and perspectives found in museum displays are not absolutely

distinctive, but that there is a dominant perspective throughout the three displays that have been analysed. In this instance the designer's working knowledge of displays was incorporated. This includes the dimensions of the display cases in relation to people, the recommended length of blocks of text and input with regard to the genre used in the written text. Practices of designers include generating working drawings of an exhibition to scale, viewing design aesthetics as of primary importance and an understanding of the use of typeface, font size and proportion. Museum designers are concerned with producing a pleasing arrangement of images, artefacts and text as informed by art appreciation semiotics.

Dean (1994: 58) argues that balance is usually the desired result of the arrangement of objects and that grouping objects into cohesive and effective units is an art in itself. This is not a concept that can be measured, but it involves an aesthetic sense. The showcases and the back lit display unit that is shown in this section are evidence of this arrangement and grouping of objects into cohesive and effective units (figures 10 and 11 on page 39 and 40). Dean (1994: 120–121) suggests that a white typeface against a dark background can be visually striking. This is evident in these back lit displays in which the background is black and the typeface white. The back lit panel consists of text and image that form a unit that is balanced. This sense of balance has been achieved by adhering to the rules of proportion as indicated in the diagrams. For example, the flush arrangement of texts and images demonstrated in figure 12 (page 41) is evident in figures 10 and 11 (page 39 and 40). The top left and top right images in figures 10 (working drawing) and 11 (photograph of actual display) are arranged in a flush line, both at the top and the bottom (see diagram 11, page 40). The bottom left and bottom right image and text similarly is arranged in a flush line at the top, and is aligned in the same way as is demonstrated in first two areas on the left indicating text or image in figure 12. There is also a balance between the text and the objects in the two showcases.

Panels for Bat Exhibition Scale 1:10

Working drawing
to be photographed

Unit 4

890

100

150

200

250

300

200

300

400

500

600

700

Reproduction



This image shows the bat's wing spread, highlighting the delicate structure of the membrane and the underlying skeletal framework.



This image shows the bat's head and neck, highlighting the facial features and the beginning of the wing structure.

This image shows the bat's head and neck, highlighting the facial features and the beginning of the wing structure.



This image shows the bat's head and neck, highlighting the facial features and the beginning of the wing structure.

500
to whole

1000

50

Figure 10 - Go Bats! display - working drawing showing balance between text and image

Reproduction



Female vampire bats use their sharp teeth to catch and hold their prey by the wrist or leg (Photo © M. Tullis)



Bats have large brains relative to the size of the skull (Photo © M. Tullis)

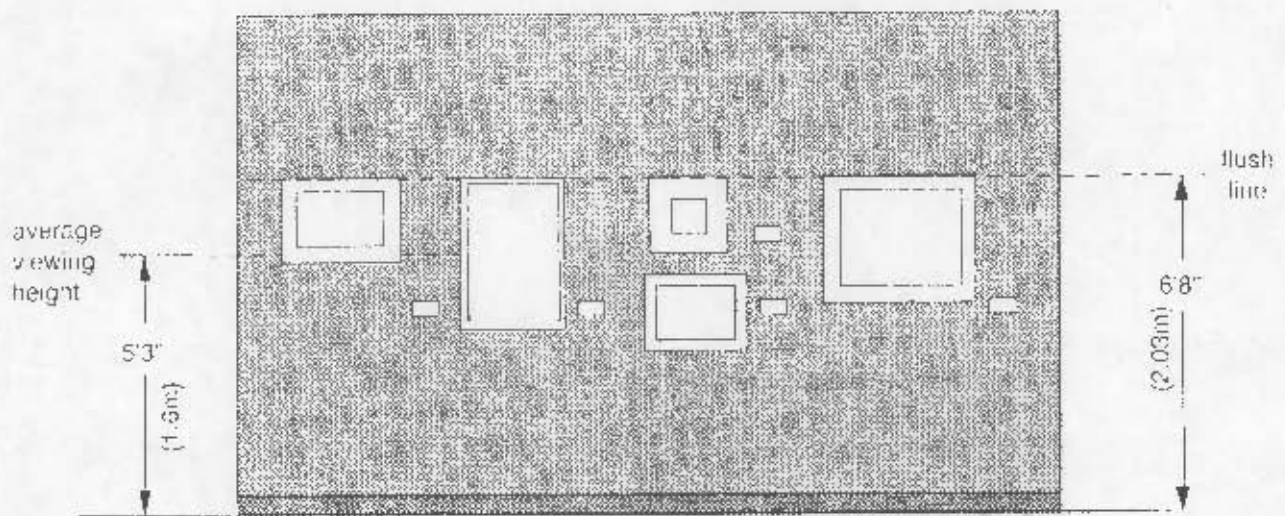
Mating generally takes place in autumn prior to hibernation but, because of delayed fertilization young are only born in spring. Depending on the species, pregnancy lasts 3-6 months. Female bats give birth in either an upright position catching the newborn pup in their tail membranes or, if the mother gives birth hanging upside down, she catches the baby with her wings.

Mothers nurse and care for their pups. The pups cling to her fur and are wrapped in her skin for warmth and protection. During feeding times the young are carried by their mothers and when they become too heavy, they are left behind in a nursery cave. Young bats can fly about 20 days after birth. Vampire bats are the slowest developers and suckle for up to 3 months.



Bats usually feed only one pup a year (Photo © M. Tullis)

Figure 11 – Go Bats! display – photograph of exhibition panel showing balance between text and image



3.18 Flush arrangement

Figure 12 – Diagram indicating visual balance

(ii) Design process

The following process was followed in the design of the Go Bats! display (figures 11 and 13 on page 40 and 44). The exhibition team consisted of scientists (a bat specialist and a zoologist), a member of the Bat Action Group who is not a scientist, but has great interest in bats, a designer and assistant designer, a collections manager from the Museum who curates the mammal display and an educator. I was a member of the team in my capacity as editor as with the other two displays (Mineral Mania and Fossil Stories).

Three displays form the focus of this study. The Go Bats! display (see figures 11 and 13) was the first of the three new displays that I have researched to be designed. The only member of the team that had any experience in museum displays was the exhibition designer. I suggest that this had an impact on the fact that the aesthetic perspective is dominant.

Dean (1994) writes that, often when exhibits are designed, this starts with informal brainstorming sessions. The exhibition team for this display followed this process and held an initial brainstorming session in which ideas for this display were mooted. The ideas generated by this initial meeting were discussed and refined in relation to how they could be practically implemented. Members of the display team were responsible for sourcing the information related to the objects on display. They included the curator and the scientists. Once this had been done, decisions were made with regard to the design of the display. The contents of the display included material from the collections in the South African Museum as well as materials supplied by the member of the display team who belonged to the Bat Action Group. It is usual for museum displays to be determined by what is in the collection although objects and material not found in the collections can be incorporated, as was done in this instance. The exhibition consisted of the material that was available in the museum – mainly the bat specimens – and material drawn from an art gallery, museum library and private collections. This included books, art works, statuettes and posters. The text was written around the objects that were available and reflected the interests of the members of the exhibitions team. The narrative document was generated by the curator of mammals as well as the scientists.

Analysis of the written text in a number of the labels revealed a mix of genre. However, the actual design that includes a number of showcases and back lit panels, was designed to be aesthetically pleasing in the first instance, as can be seen in figures 11 and 12. Throughout the process of producing this display, the designer had a lot of input in the written text. The final labels were the work of the designer.

I am going to analyse the written text from the following labels to highlight the modifications that have taken place.

Around seventy percent of bats are carnivorous and catholic in their diet, eating insects, fish, frogs and reptiles. These rapacious feeders consume up to fifty per cent of their body fat per day. In our terms this translates into around thirty-eight kilograms of food, or two well-laden supermarket trolleys a day.

Although nearly all mammals are reliant upon mechanical wings to send them soaring, there is one that has conquered the skies under its own steam. These fortunate beings of the order of chiroptera, or “hand wing”, merely stretch their arms, spread their fingers, flex their pectorals and ... lift off.

Mating generally takes place in autumn, prior to hibernation, but because of delayed fertilization, only takes place in spring. Depending on the species, pregnancy lasts 3–6 months.

When the aesthetic perspective is dominant in a display, this can detract from the legibility of the label. An example of this design feature dominating and subsequently making it difficult to see the text can be seen in figure 13 (page 44). The design literature recommended using design features such as a sans serif font, which was used in the Go Bats! display (figure 13, page 44). However, in trying to retain the “jewel-like” quality of the display cases, the labels were printed on transparent Perspex. The display cases are triangular and can be viewed from three sides. The label, however, can only be viewed from one side. The reflection of the glass and the Perspex makes it difficult to see the written text as well as the fact that the background of the text is not in contrast with the lettering. O’Neill (1994:130) suggests that transparent labels work well on light coloured mounting board. This is because there is contrast, which is lacking in this display. The dominance of the aesthetic perspective can result in the devaluing of the text.

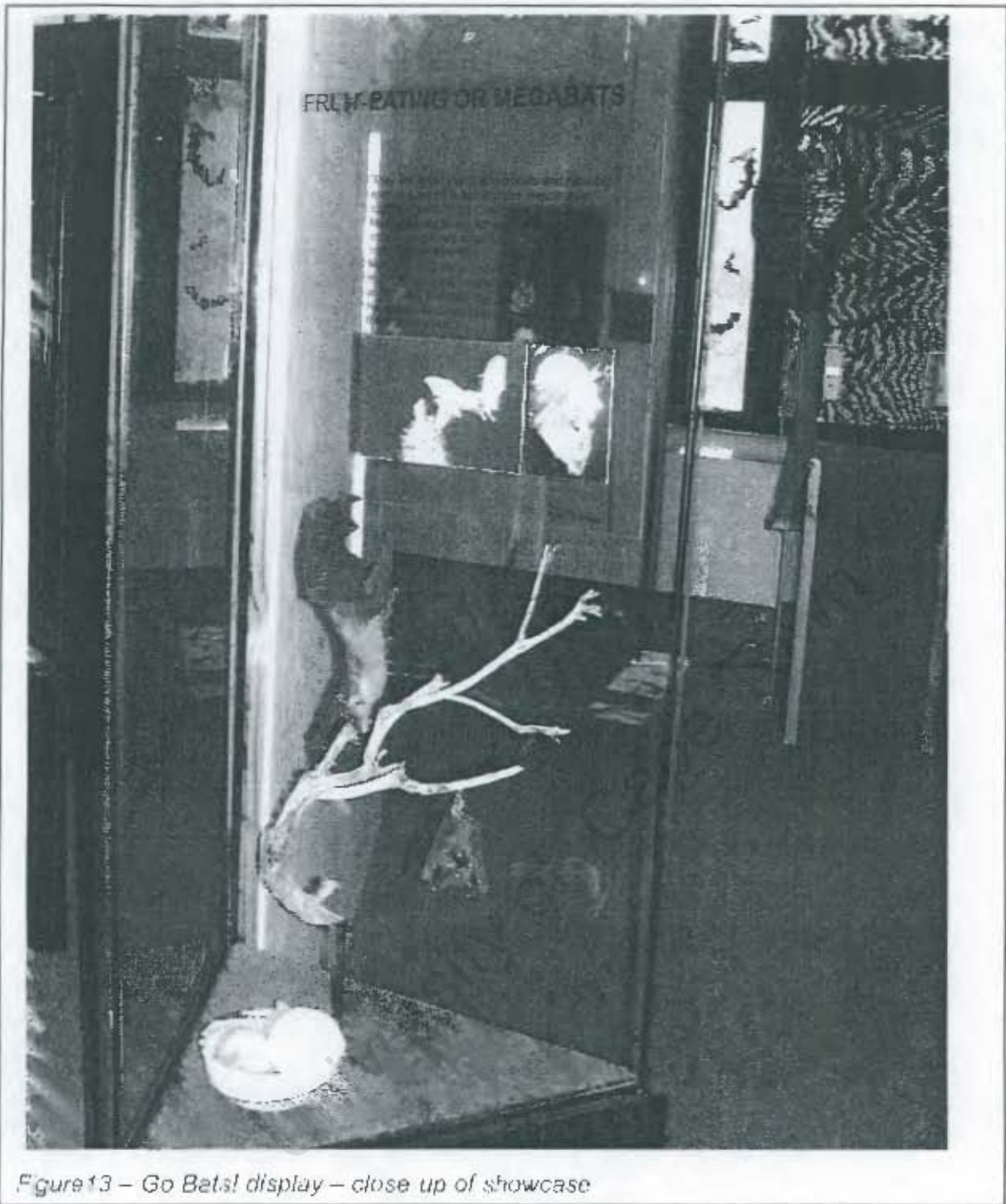


Figure 13 – Go Bats! display – close up of showcase

The analysis of the labels above shows that the aesthetic perspective dominates, but that there is evidence of the scientific genre in some of the labels. Although the content of the display is scientific, the text is not written in a scientific genre throughout. The panel on reproduction is representative of the scientific genre, and the labels on bat diet and bat flight, although the content is scientific, includes evidence of the aesthetic perspective being dominant. The aesthetic perspective dominating is manifest in the arrangement of images, text and artefacts. Personal involvement and observation has made it possible to show how the designer played a major role in this display, including producing the written text, resulting in a display in which the aesthetic is the dominant genre.

3.4.3 Educator and practice

(i) The role of the educator

The Fossil Stories display focuses on the mammal-like reptiles that lived in the Karoo 250 million years ago. The scientific content was provided by one of the museum's palaeontologists (the scientist) in the form of a script as well as a list of specimens that he had collected and images that were available.

Working documents
concept

Brief motivation, introduction and captions for a new gallery of recently prepared fossils entitled "FOSSIL STORIES"

Motivation

One of the strengths of the South African Museum is the quality and diversity of its fossil collections. However, one weakness is that many of these fine fossils are not on display. Six years ago the Earth Sciences Division conducted an audit of its fossils on displays and found them widely disseminated through the galleries without any real focus area. Since then we have regularly asked for a budget to renovate and update the existing fossil displays, most of which are very old (eg Boonstra's dioramas) or very dull (Fossils for Africa) or done shoddily, by non-display staff, as a temporary display (current research).

Karoo reptiles and the Langebaanweg vertebrates are arguably our greatest asset in terms of number, quality and uniqueness. Over the past 10 years, the Karoo Palaeo team led by Roger Smith have made a concerted effort to find and excavate and clean as many large Karoo vertebrate skeletons as their NRF funds would allow. They have made some spectacular discoveries that generated considerable publicity for the Museum. These specimens are now ready to move out of our preparation laboratory to make way for more. Thus, the time is right to open a new fossil gallery- we have exceeded the "critical mass" for a new gallery and would like to move these fossils into the display area rather than into storage.

Each fossil described below has been found over the past 10 years and has never been on display before. Each one is unique in that it contains evidence of things that happened to it in the very distant past. Thus it is more than just old bones with a funny name- in fact "every fossil tells a story".

Many of these specimens may be augmented with high quality colour photographs of the excavation phase. Some have professionally made video footage. A few have Cedric Hunter's sketches and colour reconstructions- only *Diictodon* has a full size fleshed-up model. The idea of depicting each story as a cartoon strip appeals to me and I would like to follow up on that. Ultimately, of course, a set of full size models in full sized dioramas is the best way of showing what these animals looked like- and that is really what we should be aiming for.

Figure 14 – Fossil Stories display – motivation for display

Labels for specimens selected for new display

**** Large fossil needing special bases**

(Oompies)=Laboratory nickname- not for the public.

**** (Mamafura) Walking wounded:** this partially-articulated skeleton of a large herbivorous mammal-like reptile is known as *Oudenodon* (meaning "without teeth"). It used its tortoise-like horn covered beak to graze on the ancient Karoo floodplains some 255 million years ago. You can see that it must have taken a tumble when it was alive because there are several bony growths on the ribs where fractures have healed. We know that a carnivorous gorgonopsian spent some time chewing on the carcass because there are bite marks on the bones and one of its sharp canine teeth accidentally dropped out and is still lying amongst the bones.

Images available:

Cedric's pencil sketch of gorgonopsian attacking a small dicynodont.

Several colour slides of the excavation

Maggie Newmans painting in Karoo National Park of Oudenodon and a gorgonopsian.

Figure 15 – Fossil Stories display – first draft of label with list of display objects and images

**** (Dellah) Armour-plated reptile:** *Pareiasaurus* (meaning "helmeted reptile"), named after a helmet used by the ancient Greek gladiators. It is an ancient ancestor of turtles and tortoises of today. This animal died close to a waterhole and became buried in soft mud in a crouching position with its skin still intact. Rows of knobbly osteoderms (bones in the skin) are still in place on its back. This armour probably prevented scavengers from tearing the carcasse apart- all they could do was to nibble on the toes.

Images available:

Field shots of what it looked like when it was first discovered.

Excavating with rock hammer.

Plastering, dragging the plaster jacket out of the gulley.

Hoisting the jacket into the Museum.

Cedrics painting of a green Pareiasaurus

**** (Clive) Survivor of the Great Dying:** this magnificent mammal-like reptile has appeared in the pages of National Geographic Magazine. Its claim to fame?- it was

Figure 16 – Fossil Stories display – first draft of label with list of display objects and images

Ravelli (1996) argues that texts in museums need to work as text in the first instance – that they need to be coherent and cohesive and that they then have to be broadly accessible, explaining and not presuming information. However, the scientific integrity of the information must not be challenged. The labels in this section were initially written by a scientist and then interpreted by the educator. In this process it was made clear by the scientist that the scientific integrity of the information was not to be compromised in the process of incorporating suggested changes from the educator; the scientist had the final say with regard to changes to the text. The language and style in which the first draft of the label was written is scientific language.

In the Fossil Stories exhibition labels, scientific terminology is used extensively. The terminology includes, for example, the following words: *Lystrosaurus*, mammal-like reptile, anatomy, mass extinction, palaeontologists, Permian Period, *Anteosaurus* and armoured plating.

I am going to argue in this section that the educational perspective dominates. The educational perspective can be described as follows: An attempt is made to qualify and explain terminology, for instance the work done by palaeontologists is described after intervention by the educator. In what Gee (1998: 7) describes as scientific text, 'heavy subjects' are extensively used. When using 'heavy subjects', a large amount of detail is condensed into a few words. The result of this is that the action disappears from the text. In text in which the educational perspective dominates, 'heavy subjects' are not used in the text, with the result that there is evidence of action in the text. This is also the result of suggestions made by the educator to use verbs in instances where nouns have been used to name processes instead of verbs. In this display there is evidence of making text less universal, as is evidenced by the use of phrases such as "Today we invite you to ..." and "Check your powers of observation and your imagination ..." A further feature found when the educational perspective dominates is the use of everyday, familiar words. Examples of this will be given in the analysis of the texts that follows as well as of evidence of action returning to the text when the use of processes named by nouns is replaced with verbs.

The role of the educator is to act as mediator between the scientist and the visitor to the museum (Roberts: 1996). Educators have to familiarise themselves with the displays and have in-depth knowledge of these as they interact with visitors, for example through the schools programmes that they develop and present. In a natural history museum such as the South African Museum, for instance, educators need to have knowledge of archaeology, palaeontology and marine biology. This knowledge is communicated when taking school groups through the display areas and in educational activities such as workshops. As already argued here, scientific text is relatively exclusive and only those who have been apprenticed would know what is going on. As mediator between the scientist and the visitor, the educator interprets the text and alters it from the scientific genre, which is relatively exclusive, to a text that aims to be closer to the everyday language of an ideal or imagined audience. Examples of the mediating of the educator will be given in the analysis of specific texts.

Analysing the Fossil Stories exhibition labels demonstrates how the educator's knowledge is applied, resulting in the educator's perspective becoming dominant. Features of this perspective have been described above. The educator has suggested ways in which the content can be altered so as to presumably be more accessible to the visitor. This will be demonstrated in the analysis of the text that follows.

The exhibition team for the Fossil Stories display included scientists (both of whom are palaeontologists), an educator, an exhibition designer who was "contracted in" as well as myself, again in my capacity as editor. In this instance the exhibition designer was contracted in as the fulltime museum designer had retired. The wealth of working knowledge of museum displays that the museum designer had was lacking in this instance and I argue, this absence is noticeable in this display, in contrast with both the Mineral Mania and the Go Bats! displays that are analysed in this thesis.

What became evident when examining the data, was that the educational perspective was dominant. Although the concept was developed, and the first draft of the labels written by the scientist, there was a lot of interaction between

the scientist and the educator. This interaction took place in writing and in discussion.

The scientist, a palaeontologist, initiated this exhibition. This can be seen in his motivation in figure 14 on page 46. This document (figure 14) included an introductory label as well as drafts of the labels for the specimens that have been selected for display. In this instance all the specimens were drawn from the Museum's collections. This can be seen in figures 15 and 16 on page 47. At the first meeting this document (figures 14, 15 and 16) was distributed for comment to the exhibition team. This was followed by a site inspection of the proposed display area. Once consensus was reached on whether it was appropriate to mount the exhibition and whether adequate funding was available, further planning meetings were convened.

At one of the early planning meetings, the draft labels and the working drawing were made available to the team for comment. From early on the educator was encouraged to comment and to provide advice on how to make the material accessible to visitors, which included school groups. A substantial part of the work done by museum educators involves taking school groups around museums and presenting lessons that are based on the various displays. What is interesting to follow is the process. Analysing the data revealed that hand written comments and questions on the working drawing and on the draft labels, as well as electronically communicated changes, were incorporated into the final labels. Although many of these comments were incorporated, it must be noted that many of the changes made were the work of the scientist. Arguably these changes may well have been stimulated by the many exchanges between the scientist and educator. This will be shown in the figures presented and in the analysis of the data (figures 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27 and 28). I will argue that, although the educational perspective is dominant in this display, there are elements of the scientific discourse evident in the different labels.

In comparing the scientific discourse evident in the first draft of the introductory label with the final version, it can be seen that the educational perspective becomes dominant. The scientist writes the following:

For many years the reptile fossils of the Karoo were studied by palaeontologists who were mainly interested in answering the question "What is an animal?" They are taxonomists who describe, name and classify fossils into evolutionary lineages.

In response to what the scientist wrote in the extract above from the introductory panel for the display, the educator, in her notes on the working drawing, as well as on the labels, asks the following question: "What do palaeontologists do?" See figure 17 (page 52) at the bottom left and figure 18 (page 53). In the final document the question is answered in a reworded text, in a discourse that is not scientific. The label reads as follows:

Examining the fossils of these ancient animals is like lighting a candle in the deep past. Palaeontologists try to answer these questions by studying not only the fossils of the animals themselves, but also the rocks in which they are preserved.

University of Cape Town

Key
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WALKING WOUNDED

(Mamafura)

Explanation
of mammal like reptile

A-4 fixed

This partially articulated ^{said} skeleton of a large, herbivorous mammal-like reptile is that of an *Oudenodon*, meaning, "without teeth." Instead of teeth, it used its huge, horn-covered beak to shear off the tough vegetation of the ancient Karoo flood plains. And while *Oudenodon* dined on vegetables, other animals dined on *Oudenodon*.

Taphonomists - paleontologists ^{passive} interested in the how and why ancient animals died and how they came to be fossilized - are especially interested in specimens like this one, which shows clear signs of both healed injuries and also of being scavenged after death.

Regardless of how this *Oudenodon* died, all *Oudenodons* ^{become} went extinct during the mass extinction at the end of the Permian Period, 251 million years ago. Why this happened is one of the great palaeo-puzzles of all time, and the answer is a fossil story yet to be discovered and told...

[FOSSIL Mamafura - location DC-9; G-6]

Part articulated

how is a fossil formed?
what do paleo's do?

Intro panel

Figure 18 – Fossil Stories exhibition – first draft of label with comments by educator (see bottom of label for comment – "What do paleo's do?")

There is evidence of the text being made less impersonal and universal in tenor and more interactive or dialogic, and not simply giving information. This can be seen in these phrases in labels 1, 2 and 3 below:

Today we invite you to become a fossil detective. By answering the questions in the boxes you can help us find out what killed these animals millions of years ago.

Label 1

You don't need to be a scientist to spot some odd things about this fossil. Look carefully at the *Oudenodon* skeleton and try to answer some of these questions.

Label 2

The fossil story told by these two sleeping puppies is an exciting one indeed. Can you read it?

Label 3

In the first label, there is evidence of Gee's (1998: 7) specialist scientific writing in the phrase "taxonomists who classify fossils into evolutionary lineages". In the second, reworked, label the 'heavy subject' is replaced by the phrase "Palaeontologists try to answer these questions by studying not only the fossils of the animals themselves, but also the rocks in which they are preserved". A further example of a 'heavy subject' is reflected in this question containing the phrase "type of body plan". What can be seen in the examples given below is that the action, or process, returns to the text when the educator's comments have been added.

What would this type of body plan be good for?

(Figure 19, page 56, question 1)

The educator suggested rephrasing this as:

Why do you think they are shaped like this?

(Figure 19, page 56, question 1)

In the final label this question reads as follows, with the 'heavy subject' altered to "type of body":

What would this type of body be good for?

(Figure 20, page 57, question 1)

In the following sentence the 'heavy subject' is "parental role":

What parental role is suggested by having two young nestled in the same burrow?

(Figure 19, page 56, question 3)

The educator suggested the following:

Would you say the parents took care of these babies?

Or

Were they left to fend for themselves?

(Figure 19, page 56, question 3)

The question in the final label was phrased as follows:

Do you think the parents of these two youngsters still took care of them?

(Figure 20, page 57, question 3)

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[Thrinax - location DC-13 or DC-7; video]

QUESTIONS

Paleontologists use every clue to try to read the story written by the fossil. You can do the same by thinking about these questions...

1. What is the body shape of these animals? What would this type of body plan be good for?
How does this shape body help? why do you think they are shaped like this?

Can you see anything with burrow? Show your hand they were...

2. Assuming this is the same burrow they were born in, do you think they were hatched out of eggs or born alive?
What parental role is suggested by having two young nestled in the same burrow?
Mark carefully for the evidence would you say the parents take care of these babies or were they left to fend for themselves?

4. Do you think they were vegetarians or carnivores or both? Why?

3. Do you think the parents...
What? sure

2. Look carefully for the evidence to tell you if these babies were hatched from eggs or born alive.

5. What do you think happened to these 2 babies?

Figure 19 – Fossil Stories exhibition – label text with comments from educator (see question 1)

[Thrinax - location DC-13 or DC-7; video]

SO YOU THINK YOU ARE A PALAEOLOGIST? LET'S SEE HOW GOOD YOU ARE.....

Paleontologists use every clue to try to read the story written by the fossil. You can do the same by thinking about these questions....

Q What is the body shape of these animals? What would this type of body be good for?
A *Thrinaxodon* was a long-bodied and short-legged animal, perfectly adapted for living in tunnels and burrows, much like weasels and mongoose do today

Q If these twins were born in this burrow, do you think they were hatched out of eggs or born alive?
A In the absence of eggshell fragments lying around it is likely that these young were born live.

Q Do you think that the parents of these two youngsters still took care of them?
A These juveniles are both exactly the same age and they are still living together suggesting that they are from the same litter and are being looked after by one or both parents.

Q Do you think they were herbivores (vegetarian), carnivores (meat-eater) or omnivores (meat and plant eater)?
A The sharp front teeth (incisors) and the rows of three pronged back teeth (after which the animal is named), show that *Thrinaxodon* ate a meat or insect diet.

How did you do????? Keep going. It gets easier with practice!

Figure 20 – Final label incorporating comments from the educator

[FOSSIL Delilah - location FP-1; G-12]

QUESTIONS

You don't need to be a scientist to spot ^{some} several very interesting things about this fossil. Look carefully at the *Pareiasaurus* and try to answer these questions:

1. What is unusual about the state of preservation of this animal?
how this animal has been preserved?
2. Is the skeleton intact or has there been major *disarticulation* – that is disruption or scattering - of the bones?
3. What anatomical features ^(- physical) of this animal might have contributed to its preservation and protection from scavengers?
4. What circumstances of death and burial might have allowed this excellent ^{what do you think the circumstances were when it died} state of preservation?
5. Name several animals alive today that have similar armour plating as ^{when it was buried that} natural protection from predators?

how do you think this animal would feel if you touched it?

helped to preserve this animal so well?

Figure 21 – Fossil Stories exhibition – label with comments from educator

[FOSSIL Dellah - location FP-1; G-12]

SO YOU THINK YOU ARE A PALAEOLOGIST? LET'S SEE HOW GOOD YOU ARE.....

Look carefully at the *Pareiasaurus* and try to answer these questions:

Q What is unusual about how this animal has been preserved?

A The *Pareiasaurus* skeleton was buried in a crouching position, as though it was still alive, and it still has its skin on!

Q Is the skeleton intact or has there been major *disarticulation* – that is disruption or scattering - of the bones?

A There has been very little scavenging of the animal after death, only the feet and tail end have been disarticulated otherwise the skeleton is amazingly intact.

Q What can you see on this animals body that might have protected it from predators?

A It had a bony head shield that protected it from the deadly neck bite of predators and its skin was filled with knobby bones called osteoderms – literally “skin bones.” This armour plating must have provided excellent protection against the predators and scavengers of its time.

Q How do you think that this skeleton get buried without falling apart?

A Palaeontologists believe that this specimen died in or near a waterhole where it sank into soft mud in a crouching position. The body armour protected the softer parts from scavengers – all they could do was nibble on its toes and tail!

Figure 22 – Final label incorporating comments from the educator

In the phrase below the 'heavy subject' "anatomical features" is used and after the educator annotated this sentence with the word "physical" it was rephrased, replacing the 'heavy subject'.

What anatomical features of this animal might have contributed to its preservation and protection from scavengers?
(Figure 21, page 58, question 3)

The rewritten phrase is as follows:

What can you see in this animal's body that might have protected it from predators?
(Figure 22, page 59, question 3)

The educator writes on the working drawing (figure 17, page 52, middle, bottom of the label): "How to make the exhibits come to life". This is done in several ways. The language is simplified and the text made less dense. Scientific terms are explained. Lightness of phrase is introduced. This is done throughout this exhibition. Throughout the visitor is invited to engage with the display and the text by being encouraged to take on the role of a fossil detective. Phrases that demonstrate this are the following:

Today we invite you to become fossil detective. By answering the questions on the boxes, you can help us find out what killed these animals millions of years ago.
(Extract 1)

You don't need to be a scientist to spot some odd things about this fossil.
(Extract 2)

Check your powers of observation and your imagination ...
(Extract 3)

The text becomes less generalised as opposed to text written in scientific language – the scientist writing the text is removed in this process. Attempts have been made by the educator to make the information less universal. This is done by the following phrases: "Today we invite you", "you can help us" and "check your powers of observation and imagination". The text has been transformed by the educator to construct a frame of scaffolded enquiry (Bruner, 1987) where the imagined target audience is an inquisitive school-going child or group of children who are supported by the teacher/educator.

Below is an example of the text written by a scientist.

The rocks show that a great drought hit the ancient Karoo at the time and palaeontologists think its flat claws, shovel-like snout and long tusks might have been used to dig up buried roots and tubers to help it survive the long dry season... Examination of the tusks and claws show wear and tear confirming that they were being heavily used.
(Figure 23, page 62)

After input from the educator (see written comments in figure 23, page 26), the text read as follows:

The rocks show that a great drought hit the ancient Karoo at the time and we think that that *Lystrosaurus* with its flat claws, shovel-like snout and long tusks was well-adapted to dig into the baked soils for roots and tubers to help it survive the long dry season. If you look closely at its tusks and claws you will see signs of wear and tear confirming that they were being heavily used.
(Figure 24, page 63)

Written comments by the educator include the following: "Look at its tusks and claws. Do they look as though they could have been used to dig up ..." and "What happened to cause the mass extinction?" (See figure 23, page 62) These comments found their way into the text in these phrases: "its flat claws, shovel-like snout and long tusks may have been used to" and "The rocks show that a great drought hit the ancient Karoo at that time" (figure 24).

I'M A SURVIVOR (Clive)

This magnificent mammal-like reptile is a *Lystrosaurus*. It was one of the few animals of any kind on Earth to have survived the mass extinction at the end of the Permian Period, 251 million years ago. Why did this group of animals survive the so-called, "mother of all mass extinctions," when millions of others did not?

Can you find the animal?

What else was alive at the time animals & plants

To answer this question researchers are studying both the anatomy of *Lystrosaurus* and the rocks in which it was found to reconstruct the environmental conditions in the ancient Karoo when this extinction event occurred.

The rocks show that a great drought hit the ancient Karoo at the time, and palaeontologists think its flat claws, shovel-like snout and long tusks might have been used to dig up buried roots and tubers to help it survive the long dry season. Examination of its tusks and claws show wear and tear confirming that they were being heavily used.

look at its tusks & claws do they look as though they have been used to dig up...

what happened to cause the extinction?

[FOSSIL Clive - location DC-3; G-15]

what did the earth look like 251 m.y.a

extinction

Figure 23 – Fossil Stories exhibition – label with comments from educator

Half Panel (70 x 90)

I'm a SURVIVOR (Clive)

This magnificent mammal-like reptile is a *Lystrosaurus*. It was one of the few animals of any kind to have survived the worldwide mass extinction at the end of the Permian Period, 251 million years ago. Why did this group of animals survive the so-called, "mother of all mass extinctions," when millions of others did not?

To answer this question, palaeontologists are studying the anatomy of *Lystrosaurus* and geologists are looking closely at the rock strata in which these fossils are found. They are both searching for clues as to what happened in this part of southern Gondwana when this extinction event occurred.

The rocks show that a great drought hit the ancient Karoo at the time and we think that *Lystrosaurus* with its flat claws, shovel-like snout and long tusks was well-adapted to dig into the baked soils for roots and tubers to help it survive the long dry season. If you look closely at its tusks and claws you will see signs of wear and tear confirming that they were being heavily used.

Identification: *Lystrosaurus murrayi*
Specimen no. SAM-PK-8038
Age: Early Triassic (250 My)
Locality: Heldemoed, Bethulie District, Orange Free State
Finder: Roger Smith 1998
Prepared by: Hedi Stummer and Annelise Crean

[FOSSIL Clive - location DC-3; G-15]

Figure 24 – Final label incorporating comments from the educator

The text initially written by the scientist includes the use of the passive main verb: "It is thought that". An example of text written using the passive main verb is the following:

Examination of its tusks show wear and tear confirming that they were heavily used.
(Figure 23, page 62)

The educator suggested rephrasing the above sentence as follows: "Look at its tusks and claws. Do they look as if they have been used to dig up?" This suggestion was incorporated, changing the passive use of the verb to the active and resulting in the phrase below:

If you look closely at its tusks and claws you will see signs of wear and tear confirming that they were being heavily used.
(Figure 24, page 63)

In addition in this phrase there is a shift from providing information, as is done in conventional scientific texts, to a style of writing that involves the reader in the process of providing information, making the text less generalised. The relation between writer and reader has shifted, and the reader has been constructed as an independent enquirer who is assisted by the knowledgeable suggestions of the experts.

Halliday and Martin (1993: 34) argue that scientific text, on the other hand, provides and does not negotiate information. Evidence for this argument can be found in the following phrases below extracted from labels found in this display:

In reptiles, the pineal organ senses changes in temperature and light.
(Extract 1)

They belong to a group of mammal-like reptiles called *cynodonts* (meaning "dog-like teeth"), that are anatomically very close to true mammals.
(Extract 2)

This magnificent mammal-like reptile is a *Lystrasaurus*.
(Extract 3)

These animals lived in small herds on the tree-lined banks of the large Mississippi-sized rivers that used to flow across the southern parts of Gondwana.
(Extract 4)

Halliday and Martin (1993) argue that, in scientific language, actions are turned into abstracts. There is evidence of this in the original draft written by the scientist, which was changed after comments made by the educator.

What is unusual about the state of preservation of this animal?
(Figure 25, page 66)

The "state of preservation" – a phrase in which the action has been turned into an abstract – was changed after the suggestion from the educator. The educator suggested that this be rephrased as follows, incorporating the suggestion of the educator, resulting in the action returning to the phrase (see figure 25 on page 66) "how this animal has been preserved". The final label reads as follows:

What is unusual about how this animal has been preserved?
(Figure 26, page 67)

The text has been repositioned as a stimulus for enquiry rather than a statement of the given.

[FOSSIL Delilah - location FP-1; G-12]

QUESTIONS

You don't need to be a scientist to spot ^{some} ~~several~~ very interesting things about this fossil. Look carefully at the *Pareiasaurus* and try to answer these questions:

1. What is unusual about the state of preservation of this animal? *how this animal has been preserved?*
2. Is the skeleton intact or has there been major *disarticulation* – that is disruption or scattering - of the bones?
3. What anatomical features ^(- physical) of this animal might have contributed to its preservation and protection from scavengers?
4. What circumstances of death and burial might have allowed this excellent ^{what do you think the circumstances were when it died} state of preservation?
5. Name several animals alive today that have similar armour plating as ^{when it was buried} natural protection from predators? *What*

How do you think this animal would feel if you touched it?

helped to preserve this animal so well?

Figure 25 – Fossil Stories exhibition – label with comments from the educator

[FOSSIL Delling - location FP-1; G-12]

SO YOU THINK YOU ARE A PALAEOLOGIST? LET'S SEE HOW GOOD YOU ARE.....

Look carefully at the *Pareiasaurus* and try to answer these questions:

Q What is unusual about how this animal has been preserved?

A The *Pareiasaurus* skeleton was buried in a crouching position, as though it was still alive, and it still has its skin on!

Q Is the skeleton intact or has there been major *disarticulation* – that is disruption or scattering - of the bones?

A There has been very little scavenging of the animal after death, only the feet and tail end have been disarticulated otherwise the skeleton is amazingly intact.

Q What can you see on this animals body that might have protected it from predators?

A It had a bony head shield that protected it from the deadly neck bite of predators and its skin was filled with knobby bones called osteoderms – literally “skin bones.” This armour plating must have provided excellent protection against the predators and scavengers of its time.

Q How do you think that this skeleton get buried without falling apart?

A Palaeontologists believe that this specimen died in or near a waterhole where it sank into soft mud in a crouching position. The body armour protected the softer parts from scavengers – all they could do was nibble on its toes and tail!

Figure 26 – Final label incorporating comments by the educator

This phrase, containing the nominalisation “degree of articulation” was changed after suggestions from the educator.

What is the degree of articulation – bones connected to each other in the natural and correct anatomical position – of these animals?
(*Figure 27, page 69, question 2*)

The change that was suggested was to add the phrase “can you find any”. This was done and the nominalisation was removed:

Are any of the bones articulated – joined as they were when the animals were alive or have the skeletons fallen apart and become completely disarticulated?
(*Figure 28, page 70, question 2*)

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[Claasens - location FP-2; G-8]

QUESTIONS

If you studied the specimen carefully, you probably found the same signs and clues as the paleontologists did. Check your powers of observation and your imagination...

1. How many animals, give or take a few bones - are there? *Can you walk out how many animals there are?*
2. What is the degree of articulation - bones connected to each other in the natural and correct anatomical position - of these animals? *Can you find any?*
3. What might the "depression" in the landscape have been, considering that animals were gathering there and ~~considering~~ *we know that* that the area was undergoing severe drought at the time? *Could (be) a body?*
4. Why might a number of "inexperienced" young animals have ~~all~~ died in the same place, if not necessarily at the same time? *got through a did a lot of*
5. How did their bones get all jumbled and mixed up as they were being buried? *do you think (even if they did not all die at the same time)*
6. *think of yr ans - to the qu - before 4.*

Figure 27 - Fossil Stories exhibition - label with comments from the educator

[Claasens – location FP-2; G-8]

SO YOU THINK YOU ARE A PALAEOLOGIST? LET'S SEE HOW GOOD YOU ARE.....

Check your powers of observation and your imagination...

Q How many animals, give or take a few bones – are there?

A If you count the *Lystrosaurus* skulls, there are at least ten animals here, give-or-take some bones.

Q Are any of the bones articulated - joined as they were when the animals were alive or have the skeletons fallen apart and become completely disarticulated?

A The skeletons have fallen apart completely, except for a few ribs that were probably held together with dried up skin.

Q What do you think happened to these “inexperienced” young *Lystrosaurus* during the drought.?

A As the drought went on, these ten juvenile *Lystrosaurus* probably stayed around a shrinking waterhole to drink and wallow in the mud. By the time it finally dried up they were either too weak or too inexperienced to look for water elsewhere and right there, one by one, they died of thirst.

Q How did their bones get all jumbled and mixed up as they were being buried?

A The skeletons lay around the dried up wallow for up to two years during which time they fell apart. The next big thunder storm caused floods that washed all the bones into the water hole in a jumbled heap. After the storm, the waterhole was full again and small particles of silt and clay that were floating in the water slowly settled to the bottom to bury the bones under a new layer of mud.

How did you do????? Keep going. It gets easier with practice!

Figure 28 – Final label incorporating comments by the educator

In scientific writing scientific and conceptually dense words are often used. In the first draft (figures 14, 15 and 16 on page, 46 and 47) prepared by the scientist, this is evident in the use of words such as *regulate*, *depression*, *ruptured* and *detached*. These words, after comment and suggestions from the educator, became, control, burst and became separated. By using everyday, familiar words, the language is no longer that which only those apprenticed into science can understand, but presumably can be understood by the non-apprenticed – the layman or the visitor to a museum. I would suggest that the ideal audience the educator has in mind is a secondary school child or group who are first language English speakers or at least at ease with “everyday” English as spoken by the middle classes.

I have shown that in rewriting the text with input from the educator a transition occurs in the text from the use of the scientific genre to one in which the educational perspective dominates. In the process a shift has occurred, changing the text containing scientific, conceptually dense words to text containing “everyday” words. In the process an attempt is made to invite the visitor to engage with the text. The text that is written for displays in natural history museums tend to be written in the scientific genre as the information that is communicated has to be scientifically accurate. I have argued the point in this chapter by focusing on the following: In the first instance I looked at features characteristic of the scientific genre and at how the scientific genre was altered after input from the educator. This resulted in the educational perspective becoming dominant. I then looked at examples in which the educator suggested ways in which the exhibits could be made to “come to life”, which involved inviting the reader to engage with the text, for example the educator suggested changing the use of passive verbs to using the active form of verbs.

Chapter 4 – Conclusion

I have applied the theoretical resources of the New Literacy Studies and genre analysis to the production of labels that form part of displays in a museum.

When examining the practices of the scientist, the designer and the educator in the production process of these labels, with a view to looking at the differences in the labels, it became apparent that the discourse of the scientist, the aesthetic perspective of the designer and the perspective of the educator are dominant in certain labels in the three different displays that have been studied in this thesis.

In the Mineral Mania exhibition the scientific discourse is dominant, in the Fossil Stories exhibition the perspective of the educator is dominant and in the Go Bats! exhibition the aesthetic perspective of the designer dominates. This research has shown that these discourses and perspectives differ because the different practices of the different museum professionals – the educator, the scientist and the museum designer – determine which of the discourses or perspective dominate.

The literature review has highlighted that museums are not neutral institutions carrying out the functions of collecting, documenting, preserving, interpreting and displaying information, but that the institutional and discursive practices of museums produce certain attitudes towards the text and the objects. Museum exhibits, made up of a series of signs that are intended to be a communicative system, consist of inter alia, objects, labels, photographs and diagrams. The function of labels in a museum is to transform a collection of objects into a display. I argue that the stylistic differences found in the museum labels that have been studied are the product of institutional processes that reflect the discursive and professional identities of the differently situated producers of the texts, diagrams, designs and illustrations – the scientist, the designer and the educator. Although the discourse of the scientist, the aesthetic perspective of the designer and the perspective of the educator dominates in each of the three displays, for reasons that became clear through analysing the labels, there are elements of the different discourses and perspectives that have been identified as being present in each of

the displays. The differences that became apparent are manifest in the use of language and in the level of importance that the aesthetics were afforded. This study has provided evidence that there are differences in the discourses and perspectives in the three different displays, and has shown that the differences are the result of the communicative intent of the producers of the displays.

The New Literacy Studies looks at the wider context within which literacy practices are framed. Barton and Hamilton (2000: 7) argue that literacy practices are what people do with literacy which involves, *inter alia*, values and attitudes. I argue that the values and attitudes of museum professionals are reflected in the practices that are manifest in the production of displays, and in museum labels in particular. The analysis of the data made it possible to identify the different practices of the different museum professionals that are involved in producing displays. The literature review has presented arguments that literacy practices are embedded within institutions. I have studied literacy events as occasions in which there is talk around the text. In the process of producing labels there is talk around the text. Such interaction is shaped by the professional resources that participants bring to the event. This is so particularly in the Fossil Stories display where the educator not only gave written comments on the text, but discussed the suggested changes both in a general meeting and in detail in several meetings with the scientist. It has been pointed out that the process of producing displays and labels in particular is not a linear process, but a process in which there are discussions and changes and the text goes back and forth between different groups.

Mode-switching between text and talk is a feature of collective literacy events. This research has shown that the production of museum labels is a collaborative event and that displays are produced by exhibition teams. Discussion about the text of the labels took place in the exhibition teams. In the Fossil Stories exhibition there was a lot of collaboration both in the writing of the text and in the discussion between the scientist and the educator. In this exhibition the designer had no input in the writing of the text for the label. The educator's comments, which were mostly language-based, were negotiated between the scientist and the educator. In the Go Bats! display the designer had input on the labels, whereas there was no input from the educator. This resulted in the emphasis being on design criteria, rather than the

emphasis being on accessibility or intelligibility criteria. Examples in the Go Bats! display of how the aesthetic perspective dominates are in the use of black font on a see-through Perspex background which is extremely difficult to read. My argument is that this is so because six of the eight team members were scientists and because there was no input from the educator, and the designer gave no input in the content of the label.

Different domains make use of different modalities such as language, symbols, graphs and artefacts. Gee (2001) made the point that there are different social languages such as for law and medicine and that that people using these different languages belong to different groups, although they also belong to a broader affinity group – that of the museum professionals. I argue that museum professionals belong to different groups and have different social languages. This has been shown through analysing the data, where it became apparent that the language of the scientist, the designer and the educator are not the same. The scientist provides scholarly expertise based on his or her knowledge of a collection and is responsible for the overall concept of an exhibition. The language used by the scientist is what has been termed by Halliday and Martin (1993: 54) as “scientific language”. The language used by the designer demonstrates knowledge of the principles of design and does not show in-depth knowledge of the needs of the visitor with respect to making the text in the labels accessible. The educator, working with pedagogic principles concerned with creating an atmosphere of interactive dialogue and scaffolded enquiry, plays the important role of trying to make the information contained in labels accessible whilst keeping the scientific integrity of the text.

In the labels in which the perspective of the educator is dominant, there is an attempt to make the style of writing more accessible to the non-scientist. Attempts were made to negotiate rather than give information. Underlying questions such as “What do palaeontologists do?” were asked by the educator. As a member of what Gee terms an “affinity group” to which scientists belong it would not occur to them to start with this prior question, such as explaining to the visitor – who is not a member of this affinity group – what palaeontologists do (2001: 1). Attempts were made by the educator to make the text more accessible to an imagined audience

and to involve the visitor by making the text interactive. Information was presented as negotiable and not given, as is the case with the scientific discourse. The educator invites the audience to participate as apprentice members of the affinity group known as “museum scientists” or palaeontologists. The educator identified what Gee has called ‘heavy subjects’ (2001: 7). It must be noted that these were identified not as ‘heavy subjects’ but as language use that restricts the text’s accessibility to those apprenticed in the scientific discourse and makes the text less accessible to non-scientists – in this instance visitors to the museum. The educator also asked questions about how to make the exhibition come to life. The need to make the exhibition come to life is based on an understanding that visitors will not respond to exhibitions that appear to be lifeless. Exhibitions can appear lifeless if the scientific discourse is dominant – when information is given and not negotiated. The use of scientific language was tempered and the text made less universal.

In the display in which the aesthetic perspective of the designer is dominant, there is less criticism of the use of the scientific discourse – which is authoritative. In this display aesthetics and the principles of good design prevails. This is manifest in, for example, the design of the showcases and the labels for the objects to be displayed are worked out according to the principles of good design and aesthetics. This was not the case with the Fossil Stories exhibition where there was not a museum designer with vast experience involved and in which case no working drawings to scale were done taking into consideration the principles of design. In the instance of the Fossil Stories exhibition the showcases were designed to fit the object, whereas in the Go Bats! and Mineral Mania display the objects were chosen to fit into the display cases which were designed to be both aesthetically pleasing and to fit into the available exhibition space in an aesthetically pleasing way and in a way that allows for through-flow of visitors in a very small, limited space. In the Go Bats! display the attention to balance, as described in the design literature was prominent. This can be seen in the diagrams taken from a book on design, the working drawing of a back lit panel and the photograph of the final panel as it appeared in the exhibition. This attempt at achieving a sense of balance could also be seen in the Mineral Mania display that was designed by a museum designer. The needs of the visitor were not taken into consideration as much as it was with the Fossil Stories exhibition in which there was close co-operation between the

scientist and the educator. In the Go Bats! exhibition the educator was not involved in the production of the text and the designer played a major role in the finalisation of the text for the label.

The research done for this thesis has revealed that museum professionals can benefit from taking into account situated studies when designing displays. I hope to have shown that museum professionals can benefit from studying situated practices and applying these theories to their work and the understanding of their work when designing displays, and in particular when writing labels. Given the results of this research, I suggest the following guidelines for museum professionals when designing displays and writing labels: Make use of the framework that is provided by the New Literacy Studies model as well as that of genre studies as this provides the conceptual and methodological resources to examine the reading and writing of museum labels as socially situated practices and processes. A process for the production of designs needs to be developed where the different resources of scientists, designers and educators need to be reorganised and given space. A greater understanding of how their own resources work will enhance their flexibility.

What is not an integral part of museology is an understanding of the needs and wants of the visitor, the situated knowledge they bring with them, which needs to be taken into account. This is, however, an area of research that is not in the scope of this thesis, but has bearing on how the information is received.

Bibliography

Alexander, Edward P. (1996) *Museums in motion: an introduction to the history and functions of museums*, Walnut Creek, California: Altamira Press

Barton, David. (1994) *An introduction to the ecology of the written language*, Oxford: Blackwell

Barton, David and Hamilton, Mary. (1998) *Local literacies: reading and writing in one community*, London: Routledge

Barton, David and Hamilton, Mary. (2000) *Literacy practices*. In *Situated Literacies: reading and writing in context*. Barton, David, Hamilton Mary and Ivanić, Roz (ed). London: Routledge

Baynham, Mike. (1995) *Literacy practices: investigating literacy in social contexts*, London: Longman

Brice-Heath, Shirley (1981) *What no bedtime story means: narrative skills at home and at school*. In *Social literacies: critical approaches to literacy in development, ethnography and education*. Street, Brian V. London: Longman

Brice-Heath, Shirley. (1983) *Ways with words*, Cambridge: Cambridge University Press

Bruner, J. (1987) *Life as narrative*. In *Social Research*, Volume 54, pp 11–32

Davison, Patricia. (2000) *Redefining relevance: museums for a new millennium*. In *South African Museums Bulletin*, Volume 25, no. 1, June 2000

Dean, David. (1994) *Museum exhibition: theory and practice*, London: Routledge

Gee, James Paul. (1990) *Social linguistics and literacy: ideology in discourses*, London: Falmer Press

Gee, James Paul. (1998) *Preamble to a literacy programme*, Unpublished manuscript, University of Wisconsin, Madison

Gee, James Paul. (2000) *The New Literacy Studies: from 'socially situated' to the work of the social*. In *Situated literacies: reading and writing in context*. Barton, David (ed). London: Routledge

Gee, James Paul. (2001) *Learning in semiotic domains: a social and situated account*, Conference paper presented in Cape Town, South Africa

Halliday, M. A. K. and Martin J. R. (1993) *Writing Science: literacy and discursive power*, London: The Falmer Press

Hodge, Robert and de Sousa, Wilfred (1994) *The museum as a communicator: a semiotic analysis of the Western Australian Gallery, Perth*. In *The educational role of the museum*. Hooper-Greenhill Eilean (ed). London: Routledge

Hooper-Greenhill, Eilean. (1994) *The educational role of the museum*, London: Routledge

Hooper-Greenhill, Eilean. (1995) *Museum, medium, message*, London: Routledge

Kaplan, Flora E. S. (1995) *Exhibitions as communicative media*. In *Museum, medium, message*. Hooper-Greenhill, Eilean (ed). London: Routledge

Kell, Kathy. (1994) *An analysis of literacy practices in an informal settlement in the Cape Peninsula*, M.Phil thesis, Department of Adult Education and Extra-Mural Studies, University of Cape Town

Kress, Gunther. (2001) *Multi-modality*, To be published by the Open University

Kress, Gunther and van Leeuwen, Theo. (1996) *Reading images: the grammar of visual design*, London: Routledge

Maroević, Ivo. (1995) *Exhibitions as communicative media*. In *Museum, medium, message*. Hooper-Greenhill, Eilean (ed). London: Routledge

Maxwell, A. J. (1996) *Qualitative research design: an interactive approach*, Thousand Oaks, CA: Sage

McDonald, Sharon and Fyfe, Gordon. (1996) *Theorizing museums*, Oxford: Blackwell Publishers

Miles Roger S. and Tout, Alan, F. (1994) *Outline of a technology for effective science exhibits*. In *The educational role of the museum*. Hooper-Greenhill Eilean (ed). London: Routledge

Mouton, J. (2001) *How to succeed in your masters and doctoral studies*, Pretoria: Van Schaik

O'Neil, Mark. (1994) *Cheap and cheerful: techniques for temporary displays*. *The educational role of the museum*. Hooper-Greenhill Eilean (ed). London: Routledge

Pearce, Susan M. (1992) *Museums, objects and collections: a cultural study*, Leicester: Leicester University Press

Prinsloo, Mastin. (1996) *The social uses of literacy*, Cape Town: SACHED Books & John Benjamin Publishing Company

Ravelli, Louise J. (1996) *Making language accessible*, In *Linguistics and Education*, Volume 8

Roberts, Lisa C. (1996) *Educators on exhibit teams: a new role, a new area*. In *Developing museum exhibitions for lifelong learning*, Durbin, Gail (ed). London: The Group for Education in Museums

Roberts, C. and Street, B. (1997) *Spoken and written language*. In *Handbook of sociolinguistics*. F. Coulmas (ed). Oxford: Blackwell

Rose, Gillian. (2001) *Visual methodologies*, London: Sage Publications

Rose, Howard. (1991) *Case studies*. In *Handbook for research students in the social sciences*, Allan G. and Skinner C (ed). London: Falmer

Scriber, Sylvia and Cole, Michael. (1981) *The psychology of literacy*, Boston: Harvard University Press

Silverstone, Roger. (1994) *The medium is the museum: on objects and logics in times and spaces*. In *Towards the museum of the future*. Miles, Roger and Zavala, Lauro (ed). London: Routledge

Šola, T. (1992) *For the contemporary museum*. In *Museum, medium, message*. Hooper-Greenhill, Eilean (ed). London: Routledge

Street, Brian V. (1984) *Literacy in theory and practice*, Cambridge: Cambridge University Press

Street, Brian V. (1993) *Cross-cultural approaches to literacy*, Cambridge: Cambridge University Press

Street, Brian V. (1995) *Social literacies: critical approaches to literacy development, ethnography and education*, London: Longman

Street, Brian V. (1984) *Literacy in theory and practice*, Cambridge: Cambridge University Press

Vergo, Peter. (1994) *The rhetoric of display*, In *Towards the museum of the future*. Miles, Roger and Zavala, Lauro (ed). London: Routledge