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Assessing learning: a language-based approach

In this presentation, I will set out to outline a way of seeing the role of language in learning and suggest that our teaching and our assessment of learning can be based on language development (e.g. Macken & Slade 1993). By working with a language-based theory of learning, it is possible for language teachers and subject teachers to begin to understand what role each other has in their students' learning. This is relevant for all students although it is especially crucial for those students learning through a language that is not their primary language.

Language, as our primary resource for making meaning and for assessing what learning has occurred, is key to my purpose here. Of course, many texts use a range of ways of making meaning (referred to as modalities) such as charts, graphs, diagrams, pictures, cross-sections, and maps and some of these can be animated, but language is still the dominant resource since we use it to talk and write about what we understand about those multimodal texts.

I will use the systemic-functional model of language to consider how different school subjects "see" the world, how we can assess using language-based criteria and, finally, how we can describe a language-learning continuum.

Education: reshaping the world

Typically, children come to school with 'commonsense' understandings of the world around them. Schooling reshapes their world so that they make new meanings, meanings that are different from those they made when they participated in activities at home with family and friends. For example, if going to see whales is being discussed at home, the talk will be about where, when and how the family will go to see the whales and will typically feature words like *beautiful creatures*, *love*, *incredible*, *awesome*, *coast*, *sighted* and *whale-spotting*. At school, however, the discussion will probably be directed by the teacher towards a taxonomy of whales as *mammals*, divided into *whales with teeth* and *whales with baleen*, and further subdivisions. That will be the purpose of the lesson: parents don't

engage with their children with the purpose of constructing a taxonomy of whales. Furthermore, if the teacher decides that the class will go on an excursion to see whales, the rationale will not be solely enjoyment – in fact, teachers are asked to justify educationally why they are undertaking the excursion. The students' actions will not be those of a family on an outing; they will be expected to behave like apprentice biologists on a field trip, taking scientific notes and then processing the data back at the school, perhaps hypothesising and researching further examples of the species they observed and then comparing these with species they did not observe.

These differences – commonsense versus technical and abstract perspectives – start from the very beginning of schooling, wherever there is a person whose role is to be the teacher. Therefore, we could say that a major goal of education is developing in students the ability to take perspectives on the world that are increasingly technical and abstract.

The role of language in learning

Research (e.g. Halliday 1975 and Painter 1984) has suggested that we do not build our knowledge of the world by simply observing over a period of time or practising long-term the use of some aspect of language. It would be impossible to develop all the knowledge we have in that way. Instead, it tells us that language itself provides the means for going beyond immediate tangible meanings to accessing and developing less tangible more abstract meanings. Let us take the example of constructing a technical classification, a taxonomy of sorts. In the following text (Painter 1984), a young child, Stephen (S), cannot find a picture of a seal in his book about fish so his older brother Hal (H) helps him out:

H: Seals aren't fish. That's why. They're mammals.

S: Are seals mammals?

H: Yes, 'cause they don't lay eggs; they have babies.

The class of mammals is constructed through language; there is nothing concrete about the taxonomy. So young Stephen has developed this knowledge (that one can classify animals in technical ways) through a schooled child, his brother Hal. It was Stephen's linguistic ability that enabled him to understand the criterion that was presented by his brother linguistically. Painter (1996, s. 67) states further that, as the child's ability to use language expands, it opens up new possibilities for thinking and learning. In other words, we can understand the increasingly technical and

abstract meanings as we progress through school because we have developed the necessary linguistic resources. This is significant then for students as they move into higher levels of abstraction, because those who do not develop the right kind of language for realising the technical and abstract meanings demanded in secondary school will, unfortunately, usually fail.

How do different subjects “see” the world?

Education has been presented here as taking an increasingly abstract and technical view of the world but each school subject “sees” or construes the same world from different perspectives. All the school subjects may look at the same objects, events and issues that comprise our complex world, but each construes them in a different way. Let us take a Charles Dickens novel to explore this idea. In English literature, we see the novel as a classic or canonical text for exploring human experiences. History would be more interested in the social conditions that Dickens was exploring and commenting on in his books. Technology looks at the novel and considers the publication process, the hardware and software needed for that. The Arts are more interested in the dust jacket, illustrations, layout and type. Economics asks questions such as what the marketability and cost considerations of a leather-bound volume are. Science might consider the chemical processes needed to maintain the first edition. Geography asks questions such as: Where are the bookshops selling the novel? Who is buying it? Who is reading it? How many libraries have it? How often is it being borrowed?

What does this look like in a curriculum¹, especially if the curriculum has also set certain standards at two-year intervals? The South Australian Curriculum, Standards and Assessment Framework², in describing some of the objectives³ for 9-year-old students in the domain of Science called Life Systems, says that, by the end of their ninth year, students should be able to explore relationships between living things by asking questions about features and functions which they can then investigate. They do this by presenting features of plants in a diagram (e.g. leaves, stems, roots, flowers, fruit) and posing questions (e.g. Which flowers attract bees?) to plan and investigate the relationship between a plant’s features and their functions.

In other words, 9-year-old students should be able to read and understand diagrams such as Figure 1 and written texts such as Figure 2.

1 ‘curriculum’ motsvarar här ‘kursplan’

2 <www.sacsa.sa.edu.au>

3 ‘objectives’ motsvarar här ‘mål’

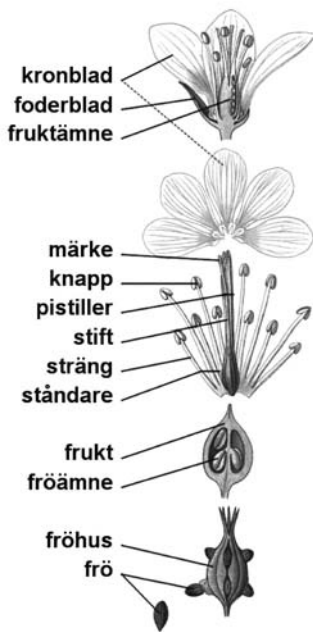


Figure 1. Blommans anatomi
sv.wikipedia.org/wiki/Blomma

Blomman

En blomma är uppbyggd av *blombotten*, *pistill(-er)*, *ståndare* och *hylle*. De flesta blommor är *tvåkönade*, dvs de innehåller både hanorgan, *ståndare*, och honorgan, en eller flera *pistiller*. En del växter har dock *enkönade* blommor, dvs de har antingen bara *ståndare* eller bara *pistill(-er)*.

På blombotten sitter blommans övriga organ fästade. Somliga blomtyper kännetecknas av att blombotten är kraftigt utbredd åt sidorna, t ex som en skål. I andra är den smal men kan då utgöra en på längden utdragen pelare i blommans mitt, *blomaxel*.

Pistillens form är mycket växlande, men den kan alltid kännas igen på att den i sin nedre del är utformad som en behållare, *fruktämnet*. Detta...

En *ståndare* är i allmänhet mycket lätt att känna igen: hos...

Blomhylllet. De blad som formar blommans yttre kontur...

Figure 2. Blomman (Elvers 1968)

If we then move on two years later and see what an 11-year-old student should be able to achieve in the same subject, we see that it has become more complex. Students should now be able to explain the interrelationships between systems within living things and between living things in ecosystems; relating these to the health of individuals and to threats to ecosystems. To do this, they should be able to:

- identify and label key parts of human organ systems and research ways of keeping them healthy
- gather information to identify and describe the factors that led to the disturbance of a local ecological system, and explore alternatives.

The language needed to engage in these scientific activities successfully so that the various technical meanings being made are understood is much more complex.

Are these aspects of language and meaning, as seen in an Australian curriculum, also paralleled in Swedish contexts? It seems that there are parallels, at least in the curriculum of Djurgårdsskolan, Eskilstuna⁴, where the Biology curriculum is expressed as in Figure 3.

Biologisk mångfald

F-5

- Namnger växter och djur i närmiljön.
- Samtalar kring växters och djurs krav på livsmiljö t ex vilka behov finns för överlevnad.
- Gör regelbundna observationer i närmiljön.
- Ger exempel på några livscyklar för växter och djur (t ex groda, fjäril).
- Samtalar om bevarandet av naturtyper och mångfalden av arter.
- Gör enkla försök och dokumenterar dem.

6-9

- Gör observationer/exkursioner i fält.
- Utför, tolkar och dokumenterar enkla mätningar och laborationer, både i fält och i lektionssal.

4 <www.eskilstuna.se/upload/42648/No_dj.pdf>

- *Namnger och sorterar några levande organismer. (Systematik inom växter, djur, svampar, lavar och bakterier.)*
- Diskuterar betydelsen av biologisk mångfald.
- *Beskriver cellernas olika byggnad och funktioner (t ex djurcell och växtcell).*
- Samtalar om livets utveckling m h a olika teorier samt beskriver Darwins utvecklingslära

Figure 3. The biology curriculum of Djurgårdsskolan, Eskilstuna

Figure 3 has in italics the parts of this school's curriculum that match the aspects of the South Australian curriculum I have focused on. Figure 4 shows the criteria that Djurgårdsskolan uses to assess students' learning.

Betygskriterier Biologi

Vi har rangordnat en del formuleringar när vi har skrivit dessa mål, det blir mer avancerat för varje ord:

Undersöker: prövar sig fram.

Samtalar: talar i grupp eller helklass om ett moment.

Diskuterar: motiverar sina åsikter vid diskussioner i grupp eller helklass.

Beskriver: ritar och/eller återberättar ett moment.

Förklarar: djupare förståelse och man vet orsaker till varför det blir som det blir.

Figure 4. Assessment criteria used to assess biology at Djurgårdsskolan, Eskilstuna

These five broad assessment criteria also seem to match quite closely the broad activity domains (Figure 5) in science education as determined by Veel (1997). Based on Veel's taxonomy, there are four major activity domains, or genres, in school science: doing (or enabling) science; organising (or documenting) phenomena, things and events scientifically; explaining physical events; arguing (or persuading) and discussing science. Comparing these domains with the "betygskriterier", we can see that "undersöker" is aligned with doing science or experimenting, "diskuterar" with arguing, "beskriver" with organising and "förklarar" with explaining.

KNOWLEDGE AND ACTIVITY DOMAINS IN SCHOOL SCIENCE	SPECIFIC GENRES	PURPOSES
Doing science	1 Procedure 2 Practical report	1 instructs someone in how to make or do things 2 provides a recount of the method undertaken in an experiment, as well as the results and the conclusions
Organising scientific information	Reports 1 descriptive 2 taxonomic	1 describes features of places or physical phenomena 2 describes different kinds of physical features
Explaining events scientifically	Explanations 1 sequential 2 causal 3 factorial 4 consequential 5 theoretical	1 explains a physical phenomenon by presenting the events producing the phenomenon in chronological order 2 explains the sequence of an event or phenomenon with reasons included 3 explains the multiple factors that contribute to a particular event or phenomenon 4 explains the effects or consequences of a particular event or phenomenon 5 a theoretical explanation illustrates a theoretical principle
Arguing aspects of science	Expository genres 1 argument – analytical argument – hortatory argument 2 discussion	1 analytical arguments present on an issue in order to persuade the reader/listener to agree with a particular point of view. Hortatory arguments both present and try to persuade the reader/listener to take some action 2 presents the case for more than one point of view about an issue

Figure 5. Scientific domains of activity based on Veel's taxonomy of genres

A student who is learning science is participating in these four broad activity domains. Let us consider each one in turn. It is commonplace for a student to undertake experiments in their science lessons. This requires them not only to follow instructions but also to write up the experiment in terms of what was done, what was observed, a discussion of their observations and a conclusion based on their results.

However, not all things can be experimented on in a school because the school may not have the resources (human and physical). For example, schools cannot ask students to explore the universe to discover whether Mars has water on its surface, or work with radioactive materials, or bombard a molecule with atoms, or experiment on genetic technology. So when studying science (and other subjects), students learn about these topics from expert scientists. Their empirical data, hypotheses, theories, descriptions, and classifications are passed on to the apprentice student scientist to read through genres such as information reports and explanations. So, for example, students read about the composition of Mars. This underlines the importance of students being able to read the technical language of information reports.

But science is more than simply a series of facts; a scientist sets out to explain why and how physical events happen. They do this by engaging in the explaining genres which explain how plants and animals are formed, or how and why tsunamis or sea breezes occur.

Also, as the concepts of ecology, environment, bioethics and responsibility for human impact on the non-human world have become more and more important, the arguing genres have become more and more common. In these, students might be asked to debate whether genetically modified food should be allowed or whether nuclear power is a viable power source.

We could have the same discussion about history, geography or the visual arts or any school subjects; each subject has its activity domains made up of genres with their predictable patterns of structure and language.

What kind of language is required in different years of schooling in different subjects?

To discuss the above question, let us analyse the text on flowers (Figure 2) for the major language patterns. What we can see is that there are two major patterns in a text whose function is to describe something scientifically (Figure 6). One pattern is that in a text describing flowers, the sentences usually begin with flower or some aspect of flowers (e.g. *en blomma, de flesta blommor, somliga blomtyper, i andra*). These have been highlighted in

bold face. The other pattern is that there are technical terms used to build up the technical meanings necessary. The original text identified new technical terms in italics. There are other patterns, too, such as those dealing with the tense (simple present) and the process types⁵ (relating processes construct the appearance part of a text: e.g. *är, har, innehåller, sitter*).

En blomma är uppbyggd av *blombotten, pistill(-er), ståndare* och *hylle*. **De flesta blommor** är *tvåkönade*, dvs de innehåller både hanorgan, *ståndare*, och honorgan, en eller flera *pistiller*. **En del växter** har dock *enkönade* blommor, dvs de har antingen bara ståndare eller bara pistill(-er).

På **blombotten** sitter blommans övriga organ fästade. **Somliga blomtyper** kännetecknas av att blombotten är kraftigt utbredd åt sidorna, t ex som en skål. **I andra** är den smal men kan då utgöra en på längden utdragen pelare i blommans mitt, *blomaxel*.

Pistillens form är mycket växlande, men den kan alltid kännas igen på att den i sin nedre del är utformad som en behållare, *fruktämnet*.

Figure 6. Analysis of sentence beginnings in a describing text (Elvers 1968)

The systemic-functional model of language

The objective so far has been to show the crucial role that language plays in learning. If teachers are to understand the learning processes in schooling and the assessment of that learning, then it can be argued that it is crucial that teachers understand how language, our principal resource for making meaning, does its work in the various subjects.

What model of language is useful in assessing the development of “knowledge”? Work undertaken in a range of educational contexts has shown that a model of text in context, specifically, Halliday’s systemic-functional model, is very useful. This model allows us to identify the patterns in language use and how these are directly linked to the context.

The systemic-functional model (e.g. Halliday and Hasan 1985, Halliday and Matthiessen 2004) sees language as a social meaning system,

⁵ Processes are concerned with the visible and invisible activities that are going on in the world; that is, the actions, the sensings, the sayings, and the states of being and having. These are realised in the language through verbs or, more precisely, the verbal group.

where text is situated in context. Hence, every interaction reveals some information about the situational context itself and the cultural context in which that language is used. Combining genre theory and systemic functional linguistics (e.g. Halliday and Martin 1993), we arrive at the model in Figure 7⁶.

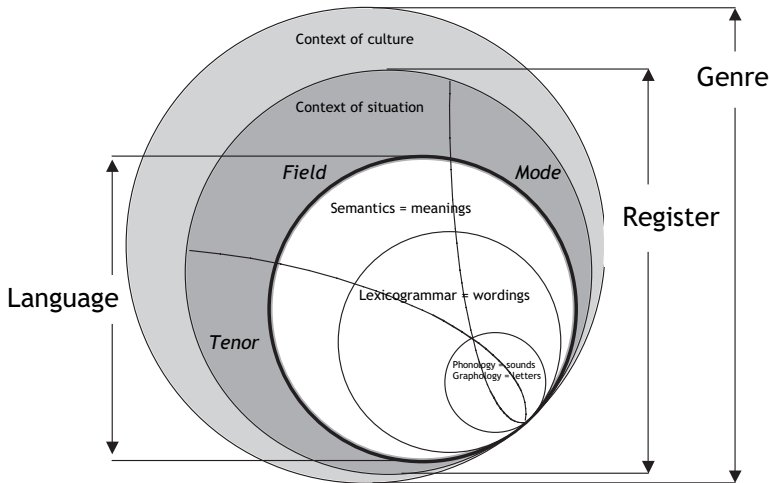


Figure 7. The systemic-functional model of language incorporating genre

Context of culture – genre

Context is the non-verbal environment of the text. It is made up of two parts: the broad context of culture and the more specific context of situation. For educational purposes, it is helpful to link genre with context of culture. A genre is a culturally determined way of getting things done, with patterns that can be predicted, to varying degrees, by members of a particular culture. It is a social activity that has a purpose, is enacted through stages and is realised through language. In terms of the school subjects, the genres are the 'practices' (actions combined with visual and verbal texts) that the teacher and students engage in. It is because these practices have predictable patterns that they can be learned in everyday life – and taught in the classroom.

⁶ Lexicogrammar is made up of lexis (content words) and grammar (the arrangement of words and groups of words) to make meaning. Rather than simply focus on grammar, Halliday wishes to identify the importance of lexis by formulating lexicogrammar.

Using the previously mentioned scientific domains of activity, we can illustrate an example of the sequential explanation genre. The specific text (Figure 8) will explain the processes in the life cycle of the frog.

... Female frogs lay eggs covered with jelly in masses in the water.
 The eggs hatch into tadpoles, which have gills for breathing and a tail for swimming.
 At about 6 weeks old, the tadpoles have lost their external gills.
 Two weeks later, they form hind legs, their bodies become longer and their heads start to take on the distinctive shape of the adult frog.
 In the later stages of development, after about 12 weeks, the almost mature froglets start to grow front legs, lose their tails and develop lungs for breathing air.
 Eventually, the mature frog has lost its tail and as an adult frog hops out of the water to live on land.

Figure 8. Life cycle of the frog: an example of the sequential explanation genre

This text explains a process, which could be represented visually as a flowchart (Figure 9).

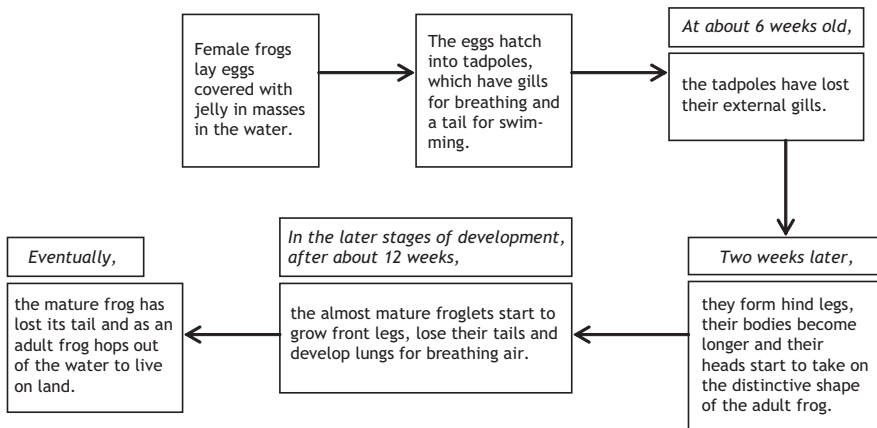


Figure 9. A visual representation of the explanation genre

Figure 9 highlights the patterns in the explanation genre. It shows that this text is made up of six phases. Each phase is a major process in the life cycle of the frog and, although we do not have any images here, it would be quite normal to have an illustration for each of these stages. Linguistically, there is a distinctive pattern in this text which allows it to do in words what the images do in sequence. For example, each stage begins with the product of the previous phase. If the product of the first stage is the eggs, then the next phase in the cycle has the eggs hatching into tiny tadpoles and so on it goes. Since this is a life cycle, then time is crucial too and so there are elements of time as markers of the sequence. The time elements have no involvement in the product itself; they simply signal that the next phase starts around this time. Without the next phase taking up the product of the previous phase, this text would not achieve its generic purpose, which is to explain the processes in a physical phenomenon. We would expect this pattern in all explanations. It is this predictability in genres that means that we can shape our pedagogy accordingly, including teaching these patterns explicitly and using this understanding in our assessment criteria.

Context of situation – register

Now turning to the context of situation in the systemic-functional model of language, we see that it is organised according to its three aspects.

Field

Field⁷ is commonly referred to as the content or the activities of the context. Fields vary in degree of technicality and it helps to see this variation along a continuum. At one end, fields are concerned with the ‘everyday’, moving to ‘specialised’ and finishing with highly technical and/or abstract.

If we consider the frog text (Figure 8), we see that its field is construed by all the processes involved in a life cycle (e.g. the laying, the growing and the breathing), all the participating elements in the processes (e.g. the adult frog, froglets, tadpoles, eggs, legs and lungs) and all the environmental circumstances in which the processes occurred (e.g. in the water, at about six weeks old, out of the water). Also, field is not simply the topic but, more precisely, the topic from a particular perspective. For example, if the topic were cheese, then the following fields are possible according to who is constructing the field: the maker of the cheese, the seller of the

⁷ Field is referred to in Swedish research as ‘fält’. See Hedeboe and Polias (forthcoming).

cheese or the buyer. The lexis (content words) constituting the various fields might typically be:

Cheesemaker: *the culture, lactic acid, bacteria, pasteurisation,...*

Cheese seller: *profit margins, range of goat and sheep cheeses, special discount on roquefort, 20 rounds of Dutch edam,...*

Customer: *hard, soft, ripe, smelly, strong, mild, 250 grams of parmesan, camembert,...*

Tenor

Tenor⁸ is concerned with the interpersonal elements of the context. These interpersonal elements are determined by who the language users are in the specific situation. These language users are shaped by their relationships, their status, their degree of contact, and their degree of emotional involvement. The tenor ranges from familiarity, informality and closeness to unfamiliarity, formality and distance. In written texts such as Figure 8, a crucial tenor variable is the status or the expertise of the writer and/or reader. This determines what degree of certainty the writer chooses to use: should one indicate high certainty by choosing *definitely* or show a lower degree by choosing *probably* or an even lower degree by using *possibly*?

Another variable is the degree of subjectivity. If writing a text that is intended to persuade the reader, is it best to choose highly subjective language or is it better to choose objective language? The answer to this depends not only on what you wish to do and how you wish to position yourself but what the situation allows you to choose.

Mode

Mode⁹ refers to the medium of communication in any situation, which affects how a text is organised and how it flows. Mode can be seen as occurring along a continuum, from spoken to written. At one end of the continuum, there is the most spoken language which usually happens face-to-face and accompanies some kind of action. In the middle of the continuum, spoken and written language overlap, so some texts are spoken-like but written and could be read aloud (e.g. an e-mail or narrative) or written-like but spoken (e.g. an oral presentation). The other end of the continuum is the most written end, where language is most reflective, where the text is constructed by the writer for an unknown reader, and deals with generalisations and abstractions. In addition, the use of any communication technology will have a bearing on the role

8 Tenor is sometimes referred to as 'relation' (Holmberg & Karlsson 2006).

9 Mode is referred to as 'kommunikationssätt'.

that language plays together with the technology. For example, websites using printed text, movement, sound and colour will be different from the same information presented in writing on paper. This is clear if we consider what would happen if we had images of each of the phases in the life-cycle in Figure 8. Would we be able to make more or alternative meanings if we had images or would we be able to reduce how much verbal text we had?

Register continua

The combination of field, tenor and mode makes up the register. It is register that distinguishes one example of a genre from another. We can now add to a goal of education as developing control of a variety of genres and registers: the more genres and registers the student has developed some control of the more likely it is that he or she will be perceived as successful.

Figure 10 displays the links between the register variables and illustrates how education requires students to develop control of language across all contexts but especially to be able to work successfully in the third column.

FIELD

Everyday, commonsense knowledge: typically shared by most members of the culture	Specialised knowledge	Educational or institutional knowledge: technical and/or abstract
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TENOR

Informal, personal, most subjective	Neutral	Formal, impersonal, most objective
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MODE

Language accompanying action: face-to-face, dialogic and close to the event	Language as retelling	Language as reflection: monologic and most distant
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Figure 10. *The register continua*

Language

Moving out of the context now and into language, we can see in Figure 7 that each of the three contextual variables is linked to the language. This is the significant feature of the systemic functional model – it links language systematically and directly with context. Here, Halliday is using the term ‘functional’ not in the sense of external functions – i.e. language is useful for various purposes – but in the sense of language’s own internal functions. These internal functions are the way the language system is organised to get meanings made – to get the job done. In any situation where language is used, certain participants are doing certain things in certain ways and in a certain arrangement. Halliday suggests that the language system is functionally organised to realise the three register variables of the context. So language has functional groupings that realise field, functional groupings that realise tenor and functional groupings that realise mode – all operating simultaneously.

The internal organisation of language

Using a few examples, we can explore the different groupings in the language system that contribute to realising the field, tenor and mode.

Field (*fält*)

Polisen arresterade 500 demonstranter under kvällens lopp.
Säkerhetspolisens styrkor arresterade 500 demonstranter under kvällens lopp.

There are three groupings that realise the field: the processes that are a central concern (*in italics*), the participants in the processes (**bold**), and the circumstances in which the processes occur (underlined). We can see how we can expand the meanings in the participants and increase their technicality; for example, instead of *polisen* we can have *säkerhetspolisens styrkor*. We could also expand other elements, such as *500 demonstranter som tillhörde gruvarbetarfacket*.

Tenor (*relation*)

Polisen arresterade **förmodligen omkring** 500 demonstranter.
Nyligen tillgängliga uppgifter pekar på att polisen arresterade över 500 demonstranter.

There are several language resources that realise the tenor but my focus here is on how degrees of certainty are expressed; in the above examples,

these are in **bold**, including, as we can see, whole clauses, *Nyligen tillgängliga uppgifter pekar på*. The use of *förmodligen* and *omkring* shows that the writer is uncertain of the exact number, perhaps because the police records could not be accessed or perhaps because the exact number did not really matter to the writer and reader. With *Nyligen tillgängliga uppgifter pekar på*, we see that the writer is still not certain but now is referring to some unknown, and perhaps unverifiable, source in the hope that the number of demonstrators arrested should be believed.

Mode (kommunikationssätt)

Polisen arresterade 500 demonstranter under kvällens lopp.

500 demonstranter arresterades av polisen under kvällens lopp.

Under kvällens lopp blev 500 demonstranter arresterade av polisen.

Under kvällens lopp arresterade polisen 500 demonstranter.

The language resources we are interested in when considering mode are theme and rheme¹⁰. Theme can be defined as the orientation of the message and in English and Swedish, theme is located at the front of the clause. As we can see in the examples above, new textual meanings are made simply by having a different orientation. They all have the same meanings related to field and tenor. The difference between each is simply the choice of what begins the clause. In the first, we would expect the example to come out of a section of text which is unfolding according to what police did or said or thought. The next example is not orientated to the police but the demonstrators. We might expect sentences around this one to be also concerned with where the demonstrators came from, who they were and what they were doing. Finally, the third and fourth both choose time to signal to the reader that they are recounting events and we would expect this text to be some distance (both temporally and spatially) from the arrests. In other words, we would expect to hear or read this at least the day after the arrests, probably in a reportage in the mass media.

Changing context – changing language

We can see how this all adds up if we compare two texts (Figure 11) that deal with the same ‘event’ in the world but which represent it very differently. The ‘event’ that the two texts are concerned with is the painting, *Impression – Sunrise*, by Claude Monet. The first text is from a book (Björk

10 På svenska ’tema’ och ’rema’.

and Andersson 1985) intended for young children, while the second text comes from a reference book on impressionism (Keller 1980).

Intrycksmålaren

- Kom Linnea, den här måste du titta på, sa Blomkvist.
- Varför det? sa jag, för *den* lilla tavlan hade jag inte ens märkt förut. En hamn med små båtar i soluppgången, solen var en gulröd fläck.
- Jo, för den här tavlan är viktig i konsthistorien, sa Blomkvist. “Impression” heter den. Det är ett annat ord för *intryck*. Intrycket av vatten som speglar solen till exempel. Efter den tavlan döpte de som skrev om konst i tidningarna Monet till “impressionisten”. Intrycksmålaren med andra ord. Och intrycksmåleri, det var värdelöst, tyckte de. För då var det på modet att måla tydligt, jämnt och noga. Helst lite grått och mörkt också.

På den tiden tyckte nästan ingen om Monets tavlor. Usch, vilket kluderi, sa folk. Slarvigt, fläckigt, inte färdigmålat, för brokiga färger!!!

Men Monet struntade i vad folk sa. Han hade ingen lust att blanda svart i färgen. Han ville måla sina intryck med klara färgfläckar som ser ut att skimra och glittra, så man tycker att det rör sig på tavelduken.

Claude Monet

... Later on, in 1872, Monet painted that picture called *Impression, Sunrise* (pl. 89), which unintentionally gave its name to the movement. Measuring only 50 x 65 cm, it can be seen today by artificial light in the Musée Marmottan in Paris, a place of veneration for Monet's art. A blue haziness makes up the whole picture and surrounds the red ball of the sun above ships and harbour buildings. The idea was born at a particular hour out of a natural atmospheric effect, dashed off by his scurrying brush in a personal, almost private pictorial note: a sunrise. And so it appeared on the cover design of the catalogue at the Centenary Exhibition of Impressionism staged in Paris in 1974, while the text about this nebulous picture was mainly concerned with which authors since that time believed they had seen a sunrise in it and which had seen a sunset.

Figure 11. Two contrasting texts on the same topic

Comparing the two texts, we see that the text intended for children begins with a spoken text and orientates its messages primarily according to people and time (e.g. *Monet, han, man, efter den tavlan, på den tiden, för då*). The art book text focuses on specialised art (e.g. *artificial light in the Musée Marmottan in Paris, the cover design of the catalogue at the Centenary Exhibition of Impressionism*), which is to be expected. And, in contrast with the other text, there is a focus on abstraction (e.g. *veneration, a natural atmospheric effect, movement*). Importantly, abstraction (*A blue haziness, The idea*) features as orientation in this text extract. In other words, the first text unfolds mainly according to people and what they did, thought and said, while the second text represents ideas, abstract qualities and specialised art perspectives about Monet's painting.

Moving along the mode continuum: lexical versus grammatical complexity

What kind of language resources does a student need to develop to be able to engage with and construct texts like the second one? Two major resources are the nominal group and nominalisation. The nominal group is a group of words typically built around a central noun and nominalisation is the process of turning verbs, adjectives and conjunctions into nouns. Let us explore this with an example (Figure 12) that shows that language which is towards the spoken end of the mode continuum and language which is towards the highly written end have their own, yet different, complexity.

SPOKEN

Although and	the plot	was performed still enjoyed	predictable
	the actors		badly,
	the students		the play.

WRITTEN

The predictability of the plot and the poor performances of the actors	did not hinder	the students' enjoyment of the play.
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Figure 12. An example of the difference between spoken and written language

The sentence which is towards the spoken end of the mode continuum is made up of three clauses, two conjunctions and three processes (*was, performed, enjoyed*). It has humans (*the actors, the students*) as its participants. All of its participants are realised by short nominal groups. Finally, two of the clauses have human participants acting as the orientation to the message. All of these features are typical of spoken texts.

In contrast, the sentence which is towards the highly written end is a single clause with one process, long nominal groups and abstraction (*predictability*). Even 'performances' and 'enjoyment' can be seen as more abstract than perform and enjoy. The orientation of the message in this written example is the plot predictability and the poor performances. All of these features are typical of texts at the more written end of the mode continuum because, for example, writing allows for more planning and reflection.

Spoken language can be said to be grammatically complex but lexically simple, whereas written language can be said to be lexically complex but grammatically simple (Halliday 1985). Grammatical complexity (or intricacy) is created by having multiple clauses linked in complex logical relations through using conjunctions and projection, for example. Lexical complexity is created by expanding the nominal group.

To move from the spoken to the written versions above, the process of nominalisation has been used.

ORIGINAL FORM		NOMINALISED FORM
predictable	to	predictability
performed	to	performance
enjoyed	to	enjoyment

Nominalisation and its use in expanded nominal groups is a major resource in written language and one that often is very difficult for students to develop control of. An added difficulty with nominalisation is the associated changes required in other elements of the clause. For example, *the students still enjoyed the play* now becomes *didn't hinder the students' enjoyment of the play*. Only *enjoy* has been nominalised but the other elements have also had to change.

Assessing factual texts

Assessment criteria

Having outlined the relationship between text and context using genre and the systemic-functional model of language, we can now consider the criteria for assessing texts, knowing that our assessment is both for assessment for learning and assessment of learning.

The criteria can be organised into four parts: genre, field, tenor and mode (Figure 13). These four parts are relevant for all assessable tasks and can be used for fiction and factual texts but our focus here is on factual texts. The genre criteria are concerned with purpose, stages, organisation, and phases. The field criteria in factual texts ask questions about the lexis, how varied it is and its degree of technicality and abstraction. For tenor, we ask questions about whether the text is consistent with the roles taken on by the language user, and that is usually to do with the level of expertise and degree of objectivity shown in the text. With mode, the questions centre around how we have organised the text and whether the orientations chosen construct a clear, coherent and cohesive text. Included in mode are the various aspects of writing and speaking accurately such as spelling and punctuation (or intonation, if we were assessing a spoken text). Figure 13 sets out sample criteria for factual texts. These are quite transferable across genres but it may be necessary to refine some of these to make them specific to individual genres.

Genre

- Are the stages and phases of the text organised logically and according to the genre and the task?
- Have all the stages and phases been included?
- Do each of the stages and phases achieve their purpose?

Field

- Does the text include all the field knowledge expected?
- How varied is the student's vocabulary?
- How well has the student expanded the nominal groups?
- Is the level of technicality and/or abstraction in the text appropriate?

Tenor

- Does the student show the appropriate level of expertise?

- Is the appropriate level of uncertainty used?
- Is the appropriate level of objectivity used, e.g. are there subjective elements in the text that you wouldn't expect?

Mode

- How well does the student choose theme (orientation) in the text?
- How well are conjunctions used?
- Is the text cohesive?
- How accurate are the grammatical elements such as tense, articles, and word order?
- Is the spelling accurate?
- Is the punctuation accurate?

Figure 13. Sample criteria for assessing factual texts

As sets of criteria are designed for each genre, these can be used in every year level of schooling. When using these sets of criteria, it may be necessary to use all of the criteria in one set to assess students' work or it may be useful to focus on only one of the subsets depending on what the classroom work is focusing on at the time. For example, the class might be concentrating on tenor and so the questions relevant to tenor would be the only criteria used. It is important that these criteria are shared with the students in the ongoing process of making the teaching-learning process explicit.

After a series of assessable tasks, a teacher is able to report to parents, other teachers and the education system on the students' language and learning development. A resource that is helpful for this is the *ESL Scope and Scales* (Polias 2003), which was developed for the Department of Education and Children's Services in South Australia and is being used in that state. Each scale is a description of the language choices typically made by a child of a certain age. Figure 14 shows the relationship between schooling level, age and scale.

Age				5	6	7	8	9	10	11	12	13	14	15
Standards						1		2		3		4		5
Scales	Early Years	1	2	3	4	5	6							
	Primary Years	1	2	3	4	5	6	7	8	9				
	Middle Years	1	2	3	4	5	6	7	8	9	10	11	12	13
	Senior Years	1	2	3	4	5	6	7	8	9	10	11	12	13

Figure 14. Relating age, schooling level (standards¹¹) and scale

The Early Years refer to five to seven year olds, Primary Years to eight to ten year olds, Middle Years to eleven to fourteen year olds and Senior Years to fifteen years and beyond.

Standards refer to curriculum standards or benchmarks for the various school subjects. They describe what the curriculum writers and subject experts determined is what one could expect of any average-achieving native-speaker child at a certain age. The scales, on the other hand, describe the kinds of linguistic choices being made by a student achieving the outcomes of all the subjects across the curriculum. Also, while the standards are intended to assess native speakers, the scales are aimed at assessing ESL students. As an example, a 13-year-old child would be expected to be achieving Standard 4, at least. Scale 12 describes the language this student would need to be using to achieve this standard. However, second language students (and some native-speakers) will vary from this description and we should be able to identify where this 13-year-old is by examining Scales 1–11.

Each scale is organised according to two strands: Text in Context and Language. These strands are themselves organised according to Genre, Field, Tenor and Mode. Figure 15 shows an extract from the page on Field for Scale 12 for the Middle Years. Apart from Field, there are also pages for each scale on Genre, Tenor and Mode.

¹¹ Standards can also be referred to as Benchmarks. These are the expected outcomes for students of a certain age in all the various subjects of the curriculum.

Text in Context**Language****Field****Outcome 12.2**

Understands and uses a wide range of vocabulary that constructs everyday fields, increasingly those used in diverse specialised situations, and has developed greater control of a range of complex technical fields.

Examples of evidence include that the learner:

- Communicates confidently about a wider range of technical and non-technical topics in supportive informal contexts
- Chooses appropriately from a wide range of vocabulary to maintain a consistent level of technicality and needs less support for highly technical vocabulary
- Includes more confidently other perspectives and ideas or non-core supportive information when constructing expository texts: acknowledges some expert evidence
- Responds to and constructs more confidently literary texts that construct a more elaborate and complex world
- Understands a small range of texts making meanings beyond a literal level: *poems, allegories, films, analogies, feature newspaper articles.*

Examples of evidence include that the learner:

- Makes more delicate choices of vocabulary with greater confidence:
 - verbs expressing action processes: *peered, scanned, scoured*
 - noun groups expressing the participants: *spectacles, thick-rimmed glasses*
 - phrases expressing the manner of an action: *carelessly, carefully*
- Expands noun groups by using accurately a wide range of:
 - describers: the *most important and exciting* discoveries
 - begins to explore possible variations in the order of noun groups in narratives: *“His face, handsome and athletic, showed ...”* rather than *“His handsome and athletic face showed ...”*
 - classifiers: the most important and exciting *medical* discoveries
 - qualifiers: *“One of the most important and exciting medical discoveries in recent times is ...”*
- Constructs technical fields using a range of more specific technical:
 - verbs expressing action processes: *digest, metabolise*
 - noun groups: *B vitamins: riboflavine, thiamine, niacine*
 - phrases expressing the cause of an action: *because of high sugar levels.*

Figure 15. Extract from Field for Scale 12 from the ESL Scope and Scales

We can now compare this with, say, Scale 8 for the Middle Years (Figure 16) to see what a student is typically choosing linguistically if they were 4 scales from where the curriculum is demanding them to be.

Text in Context

Language

Field

Outcome 8.2

Understands and uses common vocabulary that constructs everyday non-technical fields of personal and community interest and has a tentative control of a small range of technical fields.

Examples of evidence include that the learner:

- Communicates confidently about familiar fields with peers in informal contexts but is still unsure of some field-specific vocabulary:
 - brainstorm solutions to a playground issue
- Demonstrates a tentative control of vocabulary beyond immediate personal and school experiences
- Chooses appropriately from a narrow range of vocabulary when required to make more delicate meanings
- Writes and retells simple descriptive texts which construct less familiar fields, such as fantasy characters or creatures, but relies heavily on modelled examples
- Chooses appropriately to use either direct speech or reported speech: when presenting an oral report, uses reported speech
- Uses an English thesaurus with some confidence.

Examples of evidence include that the learner:

- Identifies a range of vocabulary patterns:
 - contrasts the vocabulary for writing a daily recount ('My Budgie') and for writing a technical report ('Budget-rigars')
- Uses slightly more varied vocabulary:
 - verbs expressing mental processes: *know, believe*
 - noun groups expressing the participants (especially the describers and classifiers in the noun groups): *dusty donkey track*
 - phrases of expressing the manner of an action: "*Carefully*, place ...", "It fell *with a bang*"
- Understands a range of common nominalisations and uses a small range of common examples:
 - understands: *possibility, allowance*
 - uses with varying degrees of accuracy: *permission, ability*
- Uses a range of common technical vocabulary: *consume, diet*.

Figure 16. Extract from Field for Scale 8 from the ESL Scope and Scales

Comparing the two, we can see that whereas a 13-year-old student working in Scale 8 is more confident with familiar fields than technical fields and needs substantial support when constructing the latter, a student working in Scale 12 is constructing both technical and creative, literary fields with some confidence. There is a large gap between Scales 8 and 12, which Scales 9, 10 and 11 describe.

Conclusion

A language-based approach to learning needs to be holistic. That means considering language when writing a program of lessons, using an understanding of how language and cognition are interrelated and letting that shape how students are taught, assessed and reported on. I have argued that this needs to be underpinned by a model of language that affords this interdependence. I hope that what I have outlined in this paper provides some impetus for taking such an approach.

References

- Björk, C. & Andersson, L. (1985). *Linnea i målarens trädgård*. Stockholm: Rabén & Sjögren.
- Elvers, I. (1968). *Vår flora i färg 1*. Stockholm: Almqvist och Wiksell.
- Halliday, M.A.K. (1975). *Learning how to mean*. London: Edward Arnold.
- Halliday, M.A.K. (1985). *Spoken and written language*. Geelong, Victoria: Deakin University.
- Halliday, M.A.K. and Hasan, R. (1985). *Language, context, and text: aspects of language in a social-semiotic perspective*. Geelong, Victoria: Deakin University.
- Halliday, M.A.K. and Martin, J.R. (1993). *Writing science: literacy and discursive power*. London: Falmer Press.
- Halliday, M.A.K. and Matthiessen, C. (3rd ed.) (2004). *An introduction to functional grammar*. London: Edward Arnold.
- Hedeboe, B. & Polias, J. (forthcoming). *Genrebyrån*.
- Holmberg, P. & Karlsson, A-M. (2006). *Grammatik med betydelse*. Uppsala: Hallgren & Fallgren.
- Keller, H. (1980). *The art of the Impressionists*. Oxford: Phaidon Press.
- Macken, M. and Slade, D. (1993). Assessment: a foundation for effective learning in the school context. In B. Cope and M. Kalantzis (eds). *The powers of literacy: a genre approach to teaching writing*. London: Falmer Press.
- Painter, C. (1984). *Into the mother tongue*. London: Pinter.
- Painter, C. (1996). The development of language as a resource for thinking. In R. Hasan and G. Williams (eds). *Literacy in society*. London: Longman.
- Polias, J. (2003). *ESL scope and scales*. Adelaide, South Australia: Department of Education and Children's Services.
- Veel, R. (1997). Learning how to mean – scientifically speaking: apprenticeship into scientific discourse in the secondary school. In Christie, F. and Martin, J.R. (eds). *Genre and institutions: social processes in the workplace and school*. London: Cassell.