a) Produce (or substantially adapt) a coursebook unit (or equivalent) for developing a specified aspect of written discourse in your own teaching/learning situation. Justify your design choices.
b) Trial the unit with a group of your learners and discuss the outcomes.
You should include the unit and/or a description of the activity as an appendix.
If you have adapted a unit from existing materials, you should also include a copy of the original material as an appendix.

1. Introduction

The Problem-Solution pattern, which has been identified in studies of discourse analysis (Winter 1969, 1976, cited in Hoey, 1986), is a very common pattern of discourse organisation (Carter & McCarthy, 1994; Hoey, 1986; Scott, 2001). This paper describes an attempt to use the findings related to this pattern to create a coursebook unit for students in a preparatory programme at a Turkish university to bring them a greater awareness of the pattern and how it may be signalled in expository prose. Section 2 attempts a brief overview of the Problem-Solution pattern before Section 3 examines the relevance of this pattern to the teaching context. Section 4 consists of a detailed rationale of the design of the materials and activities including sources of inspiration. Section 5 focuses on the outcomes of the trial of these materials, noting strengths and suggestions for improvement and Section 6 concludes with suggestions as to how the unit might be incorporated into a systematic programme focusing on text patterns.

2. Text patterns and Clause Relations

2.1 Text patterns

While there are many different approaches to studying discourse, they all share a belief that 'sentences have a meaning together that is more than the sum of their separate parts' (Hoey, 1991, p.13). Many were also developed to give students a better understanding of how this happens. One such approach, taken by Winter (cited in Hoey, 1991), Hoey (1983) and Jordan (1984), amongst others, is to look at large numbers of naturally occurring texts and try to identify patterns of organisation across them, and then to analyse which 'micro-structural' properties of texts (Carter & McCarthy, 1994, p 54) help the reader identify these patterns. Such analysis has uncovered frequently occurring, 'culturally popular' (Hoey, 1991; 2001) patterns such as Question– Answer (Hoey, 1986); Hypothetical–Real (ibid.; Winter, 1994); General–Particular (Hoey, 1983); and the focus of this paper, Problem-Solution (Winter, 1969, 1976, cited in Hoey, 1986). These patterns

may form the macrostructure of a whole text, or combine with other patterns in so doing (Carter & McCarthy, 1994; Hoey, 2001).

2.2 The Problem–Solution pattern

The text pattern that has attracted perhaps the most attention in the literature is that Problem–Solution'; analysts who have described this pattern include Winter (1969, 1976 cited in Hoey, 1986), Jordan (1980; 1984), Hoey (1983, 1986, 1994; 2001), McCarthy (1991), Carter and McCarthy (1994), and Boyle (1996). This is no doubt because the pattern is very common (Carter & McCarthy, 1994) and also perhaps because it can be conceived of as encompassing a number of other patterns, such as those used to account for the archetypal patterns of narrative texts (Jordan, 1984, p 1). In fact, Hoey, in noting that it embodies many of the characteristics of other 'culturally popular text patterns', suggests that Problem–Solution is a 'more basic pattern' (Hoey, 2001, p.142).

Winter (1969, 1976, cited in Hoey, 1986) established that the basic pattern of Problem–Solution texts is that a **situation** is presented, then a **problem** arises in that situation, some kind of **response** is attempted and this response is **evaluated**.

There are several important points to raise regarding this description. First of all, it is idealised and the components in real texts may not always exactly follow this sequence (Hoey, 1986). Secondly, if a response to a problem is seen to be inadequate in some way, then its negative evaluation will act effectively as a new problem in turn demanding a response (Hoey, 1983); generally speaking, the text will not seem complete until a positive evaluation of a response is achieved, unless a particular effect is being attempted (Carter & McCarthy, 1994). Hoey refers to the phenomenon whereby texts contain two or more problem-response cycles as 'multilayering' (Hoey, 1983, p.83). A third important point is that the Problem–Solution pattern may form just part of a larger text and may be embedded in or combined with some other common pattern(s) (Carter & McCarthy, 1994; Hoey, 2001). Finally, as with other common patterns (McCarthy, 1991) the writer will generally signal the different components lexically, although, as Hoey (2001) points out, the solution component is often only identifiable in retrospect, and indeed, in some contexts it is optional.

2.3 Clause Relations

An important concept for identifying text patterns such as Problem–Solution is Winter's 'clause relations' (Winter, 1971 cited in Hoey 1983). According to this view of discourse, readers automatically search for meaning; when they make a mental connection between two clauses,

sentences or segments of text – hereafter referred to as 'segments' – one in terms of the other, then a clause relation results (ibid.). Some relations that may be identified thus are Cause–Consequence, Preview–Detail, Matching contrast and Matching compatibility (Hoey, 1983).

On the understanding that readers will search for such connections, writers make or suggest relations between segments of text to help guide readers towards their intended message, though the amount of help and guidance is likely to vary between registers and genres (Hoey, 2001) and to depend on the writer's conception of their 'Imagined Reader' (Coulthard, 1994, pp 4-5). A principle of clause relations is therefore that they are signalled using various grammatical and lexical means such as subordination, conjunction, lexical signalling and parallel structures for matching relations, although relations are also sometimes left to be inferred by the reader (Carter & McCarthy, 1994, p. 54) based on their world knowledge and on the sequence of the clauses (Winter, 1994).

The importance of clause relations to the analysis of text patterns is explained by Hoey thus,

> 'the real nature of a pattern is the sense of order perceived by a reader in the way the clauses or groups of clauses in a discourse relate to each other. So to describe a pattern is to describe the relations of which it is the outcome.'   (1986, p 190)

What this effectively means is that one cannot identify text patterns without reference to clause relations. It should also be mentioned that this view of text sees it as organised rather than structured; this means that it is possible to describe textual patterns, but not to make firm predictions about what is or is not possible in a particular situation (Hoey, 1986; 1991; 2001).

3. Problem – Solution texts and the Teaching/Learning Context

3.1 The context

The unit was prepared for students who are studying on a programme preparatory to studying at an English-medium university in Turkey. These students range in age from 17 to 20; they have in many cases been studying English for several years and have now reached approximately upper intermediate level. Although they have applied to study varying subjects at the university, they are required to course combining science and arts subjects for their first two years. This means they need to be prepared to read texts and understand lectures in a number of different disciplines as well as to complete writing assignments and answer university examination questions.

The students follow a syllabus which is largely based on the coursebooks written especially for this course by instructors working on the programme. These books are organised according to themes that students may study at university such as psychology, education, and medicine. The texts that

they study are almost at university level, while the writing that they are expected to do is confined to two genres, the five-paragraph essay, and the examination short answer.

3.2 Appropriacy of Problem–Solution texts to the context

The first reason why the introduction of Problem–Solution texts is appropriate in this teaching/learning context is that it is a common pattern (McCarthy, 1991), which suggests that familiarity with it has a direct practical use in a range of contexts, helping students decode written texts and spoken monologues in different subjects. Even a brief examination of the coursebooks used on our programme revealed several examples of Problem–Solution texts. Jordan (1980) has already shown the direct applications of Problem–Solution in engineering, and a large proportion of the students on the programme will go on to study engineering and scientific subjects where they will need familiarity with texts following this pattern. Moreover, as Boyle (1996) has shown, the Problem–Solution pattern is a useful way of organising oral presentations.

Secondly, Problem–Solution not only provides a relatively simple template for students to follow (Hoey, 2001) but also offers an opportunity to focus in context on the lexico-grammar that commonly realises this text pattern, an approach recommended by Hoey (1991) and Carter & McCarthy (1994).

A third important advantage of Problem-Solution texts is their flexibility in terms of length (Hoey, 2001). This means that, as students on the programme progress to higher levels, they can be encouraged to read and produce more complex and lengthy texts.

Finally, since Problem-Solution is a well-formed text (McCarthy, 1991), it is more meaningful than the somewhat artificial five-paragraph essay and embodies a purpose, that is to present a valid solution to a problem, which is lacking in some of the essay writing students are currently asked to do on the programme. This suggests that writing Problem–Solution texts is likely to be more satisfying for students.

4. **The materials: design rationale**

4.1 Source for materials

The 'unit' of materials produced for this assignment (see Appendices 3 and 4) was based around two texts from the main coursebook the students use, *Beyond the Boundaries*. Two texts from the same unit (see Appendix 1) were chosen because they include problems and suggest solutions. They were also selected in the knowledge that students would have time in lessons to read / listen to

them; thus they would be attempting Problem–Solution analysis of texts that they had some familiarity with.

4.2 Background to materials production

An analysis of the clause relations and macrostructure of the two texts then enabled me to write short Problem-Solution summaries of these texts (see Appendix 2), which then in turn formed the basis for the activities produced. The idea behind summarizing the texts was to make them a manageable length and also to extract the overall pattern in these structurally complex texts to ease the students' first explicit exposure to the Problem-Solution pattern. It is also worth noting that the resulting summaries did not follow the minimal situation-problem-response-evaluation pattern, but instead offered examples of 'progressive multilayering' (Hoey, 1983, p.83).

4.3 Overview of materials/activities

The resulting activities (see Appendices 3 and 4) aimed to prepare the students for writing their own problem-solution text on the topic they had been studying. To this end, the idea behind the sequencing of activities was to establish the pattern and then gradually move from receptive-focus activities to ones with a more overtly productive focus; there was also an attempt to address procedural knowledge as well as declarative knowledge, as recommended by Carter & McCarthy (1994). This also entailed frequent reviews of the pattern and reminders of the relevance of the activities to the overall aim. The following section will explain the rationale and source for each of the activities in turn.

4.4 Design rationale of individual activities

Throughout this section it will be necessary to refer to Appendix 3, which lists the activity procedures and answer keys, and Appendix 4, which includes the classroom worksheets used.

Activity 1: mapping text segments to functions

Re-ordering texts is a well-documented way of drawing attention both to the pattern itself and to the fact that very few other sequences are coherent 'even with special intonation' (Hoey, 1994, p28). This was an attempt to combine this well-known activity with the idea of mapping functions to segments of text which I first saw demonstrated by Ann Johns in a workshop held at our university in 2006.

Activity 2: identification of signals

As mentioned in section 2.3, clause relations, the building blocks of any text pattern, are frequently signalled. Therefore, it is important to make students in this context aware of how such signals operate and how to identify them. Readers are not generally aware of discourse organisation as they engage with a text (Hoey, 1983, p3); re-ordering texts and then getting students to identify what clues helped them can help to make knowledge of discourse organisation explicit.

Activity 3: projection into dialogue

This exercise was directly inspired by an experiment mentioned by Hoey (1983, p.171) in which a group of students were presented with a text sentence by sentence and asked them to predict which questions would be answered by the following sentence. This was originally created to test the hypothesis that readers may be conceived of as 'project[ing] text into dialogue' (Winter, 1974, cited in Hoey, 1994) while they are reading to make sense the connections between segments of text. The aim in this activity was to raise students' awareness of the connections between sentences and how a writer's consideration of their 'Imagined Reader' (Coulthard, 1994, pp4-5) prompts them to answer questions which they feel this reader wants answered (Hoey, 2001). It also helped to bring enumeration (Tadros, 1994) and advance labelling (Francis, 1994) to the students' attention as a way that writers commit to answering these questions; in this extract from the source text, the enumeration came in this sentence: *Schools do this by carrying out two paradoxical functions*. This leads to the obvious reader question, 'what is the first of these functions?'

Activity 4: vocabulary categorization

This activity, which focuses on lexical signals, was directly inspired by Jordan (1984), who similarly categorises words according to which part of the pattern they may signal. My aim here was to raise student's awareness that the writer's choice of lexis and the global text patterning used are inextricably linked (Hoey, 1991). This entailed identifying all potential lexical signals from the source text and eliminating those markers of Problem–Solution that in this text only operated at a local level (Scott, 2001). The list was reduced to a more manageable length by running a vocabulary profile of the text through the lextutor website (Cobb, 2006) to remove all words that were categorised as 'Off-list' (ibid.), that is, not belonging either to the 2000 most frequently used words in English, also known as the General Service List, or GSL, or to the Academic Word List (AWL; Coxhead, 2000), which are considered important to learn since they provide coverage of roughly 90% of academic text (Nation, 2001, p17).

Activity 5: abstract nouns and Activity 7: abstract shell nouns as signals

Many abstract nouns 'create cohesion by their inherent unspecificity' (Winter, 1982, 1992, cited in Francis, 1994, p 83) since their meaning needs to be 'completed' by looking somewhere near them in the text. This very property lends to their use as 'signalling nouns' (Flowerdew, J., 2003); as McCarthy (1991) explains, in talking of a larger, but associated group of words, 'discourse-organising words… give us indications of the larger text-patterns the author has chosen'. Schmid (2000), in a corpus-based study of what he calls 'shell nouns', demonstrates how abstract nouns which are members of semantic sets also frequently operate syntactically in similar ways.

Unfortunately, this aspect of cohesion has not gained a high profile in my teaching context despite its obvious importance in academic discourse (Flowerdew, J., 2003). These activities are an attempt to redress the balance.

Schmid's (2000) findings were taken into account in two ways: firstly, numbers 3 and 6 in the exercise offered a second pattern of usage based on Schmid's (2000) findings; secondly, by including the premodifier 'new' in numbers 5 and 9, I wanted to reflect the finding that 'new' combines with words like 'approach', 'way', 'method', 'procedure', and 'technique', all of which may be used as signals of the response component of Problem–Solution.

Activity 6: reminder of Problem–Solution pattern
This activity (see Appendix 3) was included to check student recall.

Activity 8: identifying Problem–Solution components in text
This activity, based on McCarthy (1991, pp 31, 160) aimed to build on earlier activities and develop students' analytical skills while demonstrating firstly that the components of Problem–Solution patterns do not necessarily coincide with orthographic paragraph boundaries, and secondly that it is normal for a negative evaluation to function also as a new problem requiring a response. It also provided an example of a text finishing with a summary of the overall pattern, contrasting with Hoey (1986) where this type of sentence comes at the start. This difference probably reflects the differing purposes of the writers of the two texts; Hoey's text is taken from the New Scientist, and thus reflects a journalistic intention to attract the reader's attention at the start, whereas this text is adapted from a lecture, where the purpose is to remind listeners of the main points.

Activity 9: students identify signals in summary
This was included to remind students of activity 4 and consolidate their understanding of how the components of the problem-solution pattern may be signalled.

Activity 10: discussion following Problem–Solution pattern

The idea of this activity, whose questions were designed following the Problem–Solution pattern, was to get students to come up with and share initial ideas. The topic was chosen to fit in with the overall theme of unit and because the Turkish education system is seen by most students as inherently problematic, which, it was hoped, would facilitate idea generation.

Activity 11: write a minimal Problem–Solution text based on the discussion

As this was the students' first attempt to write to an explicit problem-solution framework, it seemed best to guide them through the process carefully. This is why they were asked to write just one sentence for each part of the pattern, before being encouraged to develop their ideas further in the next stage.

Activity 12: developing the Problem–Solution text

This activity was intended as a combination of Jordan's algorithm (1980) and 'projection into dialogue' (Winter, 1974, cited in Hoey, 1994). The difference here is that the 'projection' is not applied to an already written text, but used as a prompt for students to consider the questions their reader might want answered while reading about the situation, problem, response, or evaluation. This also derives some inspiration from Boyle (1996). All of these ideas, together with guidance on which kinds of relations may apply between segments, such as General–Particular, Instrument–Achievement, and Cause–Consequence (Hoey, 1983), were intended to help students develop their texts.

5. **Discussion of materials/trialling**

    5.1 Sources of feedback on activities

Evaluation of the materials and activities drew on several different sources apart from my own judgements: colleagues who observed the lessons and provided feedback; the student participants, who completed surveys at the end (see Appendix 5); and the student writing (see Appendix 6).

    5.2 Trialling outcomes: the activities

In this section it may be necessary to refer to Appendices 3 and Appendix 4, which describe the activities, and Appendix 5, the student survey results, upon which some of the evaluations are based.

An immediate challenge some students had with activity 1 was that they did not understand the words 'response' and 'evaluation', which made the overall activity much more challenging for them. It is therefore vital to establish these at the beginning; it may also be helpful to introduce the concept of problem-solution through a simpler invented example, such as Winter's sentry story, as recounted by Hoey (1983, p35; 1994). Despite this difficulty, the students were generally able to identify the signals suggesting links between, and at times within, the segments in activity 2; or at least those groups who offered answers were. This activity assumes prior knowledge of cohesive devices which some students may not have, and hence a more visual representation of how the different parts of the text are connected could help, for example drawing lines between key elements, which can also draw students' attention to longer range links and bonds (Hoey, 1991).

Activity 3 elicited all the questions expected and so in this sense was successful. It was also important initially to establish who the text was written for students to have an idea of questions to ask. However, some students seemed to have missed the point of the exercise, which was why a clear explanation of the aim of the exercise was necessary afterwards. It is likely that students who become familiar with this technique will gain a greater awareness of clause relations and the ways that writers signal them; using this dialogue test on their own writing perhaps as part of peer feedback, as a whole class activity, or encouraging students to use this as a self-editing technique are all possible applications that could help students to make their writing more cohesive and coherent.

Activity 4 could be criticized for having too many words and also for a lack of clarity regarding certain items, such as 'goal' and 'ability', which did not seem to fit into any particular category. One could also point out that the categories themselves, especially those relating to problem and evaluation, overlapped and led to confusion. To rectify this it may be helpful to consult Jordan's (1984) category headings, which offer more subtle options, . On the other hand, the resulting discussion of possible answers seemed to help to clarify matters for some students not just in terms of the instantial meanings of certain items but also in terms of what is meant by problem, solution, response and evaluation.

In activity 5, the students had little difficulty understanding that abstract nouns such as 'ability' are somehow lacking a part of their meaning; this is a linguistic phenomenon that is not confined to English. However, they had rather more difficulty identifying patterns of usage of these nouns in the original text, which led to the creation of activity 7, which focuses directly on the patterns of usage of certain of these nouns. The relationship between this exercise and the problem-solution

pattern needs to be made clearer, however. This could be achieved by reference to the earlier categorization activity or by re-categorizing these sentences according to which part of the global text pattern they might signal. There are also examples of further abstract nouns used in similar ways in the text which forms the basis of activity 8 – *reasons*, *models*, *approach*, *hope*, *idea* – which students could identify. The long-term aim could be to encourage students to bring these words into their productive repertoire; but even if this is not achieved, awareness of such items and how they operate can help students as decoders of texts.

Activity 8, which followed and built on activity 6, was also successful with some reservations. Many of the students were not clear that that a negative evaluation of a response also generally functions as a new setting of a problem and so will be followed by another response, leading to the recursive pattern seen here. This suggests that students needed more guidance before attempting a relatively difficult, which could be provided by using 'text frames' (Carter & McCarthy, 1994, pp58-61) or other non-linear representations of information structure (Johns, 1994; Hoey, 2001).

Activity 9 was a welcome further opportunity to pick out signals from the text, including conjuncts such as 'therefore', which, as a signal of the cause-consequence relation is important to the problem-solution pattern since, as Hoey points out (1983, pp 41-46) this is the relation that applies between the problem and response parts of the pattern.

Activity 10 produced a lot of discussion; it was also an effective way of leading into the writing. This made the transition to activity 11 easier, although I had still underestimated the amount of time it would take for groups to write their minimal problem-solution text. This meant that there was no time to continue to activity 12. In future it would be advisable to leave considerably more time for students to write their texts and to establish their 'Imagined Reader' and what kind of information this reader would want.

5.3 Student feedback

The student feedback was generally positive (see Appendix 5), although the suspicion that students are more likely to write positive comments than negative ones remains. The only negative comments are related to finding this text type 'boring', finding the projection into dialogue activity 'not necessary' and being a little confused by activity 4 where it was not always clear which categories the items might go into.

It was heartening to see that students were able to see the benefits for both their writing and their reading, making comments like, 'in the reading I can manage the text more easily' and 'the pattern makes it easy to write', although many comments were positive in the most general terms, such as 'useful' or 'develops writing skills'. It would be interesting to investigate why some students found activities 'boring' or 'not necessary', and how they were 'useful' but that was beyond the scope of this study.

5.4 Indirect evidence: the student-created texts

Any criticism of the texts that the students produced (see Appendix 6) should take into account that they were written in a relatively short time – around 15 to 20 minutes. Examination of these texts suggests that these students have an idea about the basic components of problem-solution texts – although some of them have taken a minimal approach to text construction. It is also clear that the students are trying to use some of the signals focused on in the materials though not without some errors, such as 'In conclusion' used to signal response. In terms of the pattern itself, it would seem that the evaluation component of the pattern seems to be the most difficult to realise, something also noted by Carter and McCarthy (1994, p56). One approach would be to highlight the instrument-achievement relation that applies between successful response and positive evaluation (Hoey, 1983, p 39). Students would then need to know how this relation may be realized; Hoey (1983, p41) offers several examples of this, also mentioning how the choice of lexico-grammar for the second clause will be constrained by that used in the first clause.

6. Conclusion

Even with the modifications and improvements suggested above, this 'unit' is unlikely to make any great difference to these students' ability to identify and compose problem-solution texts and texts in general unless it is part of a systematic programme to develop their knowledge of this and other common patterns; research into target text types may reveal which ones are the most prevalent. Such a programme would also need to focus on clause relations, how they are signalled and how they relate to text patterns (Hoey, 1983).

A programme that addressed text patterns could use some of the activity types described above with the addition of other techniques, such as text-framing (Carter & McCarthy, 1994), and sensitive use of student written and spoken samples as suggested by Boyle (1996) and L. Flowerdew (2000). It would also need to maintain a flexible approach to teaching and learning text patterns so that, as Hoey puts it, formulas are seen as 'reflect[ing] not the sequence but the pattern of relations within a discourse' (1986, p 194) and allow for features such as embedding (ibid.) and multilayering (Hoey,

1983, p.83). While it may be necessary to summarise and simplify source texts, as here, in the early stages of learning, a long-term goal should be to enable students to read target texts and identify the patterns and relations within them (Jordan, 1984). Providing students with the tools to do so would also help them perform tasks such as note-taking and essay writing which are crucial to academic success.

APPENDIX 1: coursebook source materials including exercises and tapescript

Input 3: Reading

Restructuring Education: Rationale and Methods

Before Reading

1a. *What skills and knowledge are valued in your society? In groups, make a list of at least five of these and note down why they are important.*

E.g.

Skill/knowledge	Reason it is valued
English	used in business or at university

1b. *Look at your list. Were these skills and knowledge important 10 years ago, 50 years ago, 100 years ago? If not, why not? Will they still be important 10, 50 or 100 years from now? If not, why not?*

2. *Does the present education system provide us with the skills and knowledge we need? Give reasons to support your opinion.*

3. *Find words in the text to complete the crossword puzzle below. Paragraph numbers are given in brackets after the definitions of the words.*
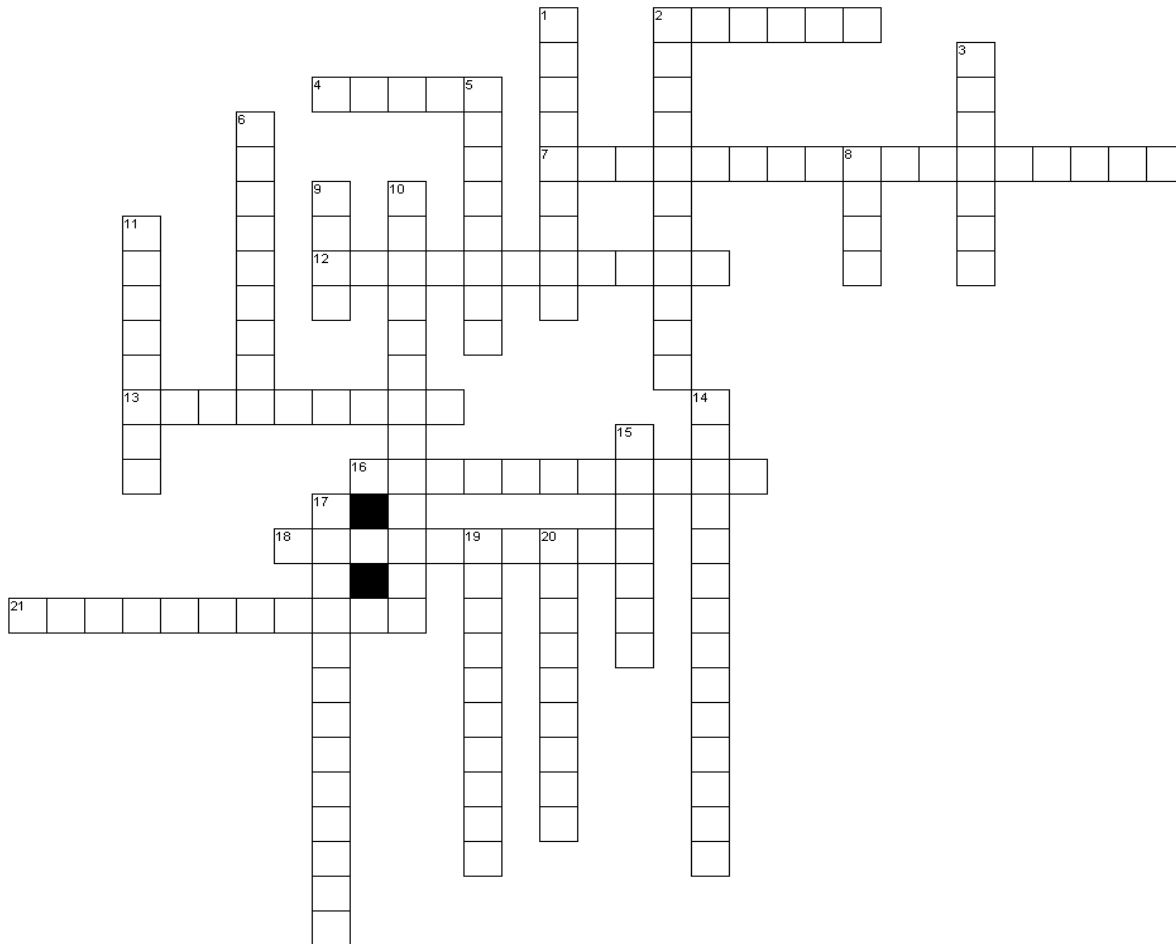
Across (→)

2. specially protected from something (¶5)
4. a change (¶8)
7. involving two or more different subjects (¶17)
12. beliefs that something is true without any real proof (¶11)
13. connection with a particular subject (¶23)
16. the most basic part of something (¶7)
18. to make something easier (¶25)
21. keeping the same (¶23)

Down (↓)

1. to reach a final result after a long process and sometimes a lot of effort (¶17)
2. carried out or put into practice (¶27)
3. to study or examine something in detail in order to find out about it (¶9)
5. to pass on from one person, place or thing to another (¶2)
6. connected with thinking or conscious mental processes (¶10)
8. the most important or most basic, central (¶27)
9. a tendency to support or oppose a particular person or thing (¶26)
10. organising (a company, business or system) in a new way to make it operate more effectively (¶1)

13

11. to keep something from being damaged, wasted or destroyed (¶2)
14. a complete change of something or someone (¶6)
15. great or strong (feelings) (¶25)
17. a sign which shows that something exists or is happening (¶4)
19. when two or more things are combined (¶15)
20. to do with feelings and emotions (¶25)

While Reading

1. *Read the introduction of* **Restructuring Education: Rationale and Methods** *and answer the following questions.*

1. What is the writer's opinion about the way in which education is being restructured?

2. Which of the following do you think she will discuss in this article?
    a. reasons why we need to make changes.
    b. interviews with educators.
    c. what attempts have been made to restructure education.
    d. ways in which changes can be made.
    e. the role that games should play in education.
    f. financial constraints to restructuring

3. The author uses a metaphor in the introduction. What is it? Why do you think the author uses it?

> **Tip: Metaphors**
> A metaphor is an expression which describes something by referring to something that has similar characteristics. E.g. 'The urban jungle' (to describe a city)

2. *Read the conclusion and review your answers to question 2 above.*

3. *Read the entire text. Were the predictions you made before reading the text right?*

4. *Decide if the following statements are true or false.*

1. The main focus of education should be the cultural transmission of knowledge to future generations.
2. The information age, brought about through technological advances, is necessitating a change in all social functions.
3. Our increased access to information means that education and training are less important than they were in the past.
4. Improvements to the present educational system can enable society's needs to be met without a complete change.
5. In the information age, creativity, problem-solving skills and using information have become more important.
6. The skills now required by society are more demanding than the skills required in the past such as memorising facts.
7. The application of knowledge is a crucial area of learning which schools focus on.
8. No matter what changes are made to the educational system, tests are still needed to measure students' knowledge.
9. The future needs of society require the exposure of people to courses which examine relationships between different subjects.

10. A decline in the number of school-age children led to schools offering more services to the community.

11. Education at the classroom level has improved dramatically since the development of the idea of 'bringing the community to the school'.

12. Teaching the processing of information and adopting a systematic sequence of instruction without focusing on language development are necessary elements of restructuring education.

13. A specific program needs to be designed to apply the key principles for restructuring education.

5. *Read the text again and answer the following questions.*

a. Which of their two functions do schools focus on achieving?

b. What were the original goals of American schools in the 1880's? Are they still applicable today?

c. In what way are schools responsible for meeting the critical needs of the new information society?

d. How has the basis for productivity changed in the last 50 years?

e. Which fundamental aspect of teaching assumptions and methods must be addressed for successful change to take place? How should it be addressed?

f. What are 'education value shifts'?

g. Why has support for schools in the US declined in recent decades?

h. Which new client groups did 'bringing the community to the school' cater for?

i. Do teachers need help in facilitating high levels of student learning? Explain why or why not.

Restructuring Education: Rationale and Methods
Shirley D. McCune, Ph.D.

Introduction

[1] Education journals, reports, and dialogues among educators are filled with references to the need for and methods of restructuring education. The move toward educational restructuring often seems to be unclear in its purpose and direction. It is as if we recognize the need for a new game but still have not quite figured out who the players are, where the game should be played, or by what rules. The following is an effort to identify the forces that require a new game and to outline some ideas about the rules for the game and the selection of players.

The Need For Restructuring

[2] The basic function of schools in any society is to socialize and prepare young people with the knowledge, attitudes, skills, and behaviors that they will need to fulfill their individual and societal roles as adults. Schools must do this by carrying out two paradoxical functions. On the one hand, schools must transmit and conserve the knowledge developed in the past. In this sense, schools are conserving institutions. On the other hand, schools must anticipate the future and the knowledge, skills, and behaviors that youth will need when they assume adult roles and then "backward map" in finding ways to prepare them for a future society. The transmission of past culture is a much easier task than anticipating how to prepare students for a future culture. As a result, many of our educational efforts are unbalanced in that students learn about the past but are not prepared to understand or deal with the needs of a future society.

[3] The contract between schools and society in the US is based on a set of goals fitting society's needs at a specific point in time. The basic structures of today's schools were formulated in the 1880s, when the goals were organized around the needs for developing a national set of values for the Americanization of immigrant groups, for preparing youth with basic skills to participate in work and in democratic activities, and for preparing some children for leadership positions. These basic purposes continue to shape American education more than a century later.

[4] Society has undergone profound transformation - a transformation that impacts virtually every aspect of our individual and collective lives. It is the manifestation of a new era of civilization - one produced by technological change. The information age has rapidly moved powerfully into place in the restructuring of the economy and the movement from a national to a global society. Virtually every institution is forced to restructure to meet a changed environment and changed needs. The total society is struggling with a crisis in restructuring.

[5] Education is not immune from the need for restructuring and the pressures for it. In fact, the new society, the information society, places education and training in a position of greater importance. Two primary resources are required for any group or society to succeed in an information age. These are information capital, or the ability to apply and extend information in the development of new or better products and services, and human capital, or the ability to produce citizens who are highly skilled and have the ability to process and apply information. Schools, training programs, and institutions have the basic responsibility for human capital development and, to some extent, the responsibility for information capital or knowledge creation. Thus, critical needs of the society must be met by education and training institutions.

[6] Some people believe societal needs can be met by fixing up or improving present educational structures, programs, and practices. Educational improvement approaches serve a need, but they are insufficient to meet the need for the transformation of educational systems which match the transformations of the larger society. Only when the basic mismatch between the current industrial-based education system and the new requirements for an educational system designed for an information society is resolved, will schools be able to prepare children and adults for living productive and fulfilling lives.

Economic Forces
[7] The most basic change in the economic sector has been the fundamental change in the nature of work. Physical work of the industrial age has been replaced by mind and service work. Employers need people who can solve problems, develop new products and ways of working and providing services, and organize and process information in new ways.

[8] Robert R. Carkhuff has described the shift in industry by pointing out that the basis for productivity has changed. In the 1950s productivity was achieved by working harder - adding to the number of hours of work, involving more people in the task. This approach has some value but it is expensive and often does not result in real productivity increases. By the 1980s we had discovered that productivity gains could best be produced by working smarter. We were forced to find methods of production which used information to increase productivity. From the 1990s and onwards, productivity gains became based on thinking better and being able to process complex information about multiple systems. This requires people with generalized and specialized knowledge and the ability to think and process across an organization or across multiple levels of systems.

[9] Today, we live in an ever-changing environment. The task of the school must be to help students learn to recognize differences and be able to analyze the situation and make a large number of decisions. The basic goal and purpose of education has changed dramatically, as has the complexity of the learning task.

[10] Economic forces require that schools prepare students with more than the memorization of facts. Students must have the ability to understand numerous variables and be able to process data in effective ways. They must be able to work at recognizing relationships and connections among seemingly disparate items and events. This requires a level of cognitive skills that were considerably beyond the goals articulated for education and training efforts.

Educational Forces

[11] The restructuring of educational organizations is essential, but this is likely to have little effect unless we understand the need for the restructuring of our teaching assumptions and methods. The most basic form of restructuring is the redefinition of learning within educational practice.

[12] Clarkhuff identifies three basic steps that are essential for learning. These are illustrated below:

Phases of Learning

Exploring	Understanding	Acting
Where they are	Where they want / need to be	To get where they need / want to go

[13] Current education focuses on the understanding phase of the learning process, with comparatively little attention being devoted to the individualization of learning or the application of information. This rote approach to learning results in an emphasis on the mastery of facts with little attention being given to the application of knowledge or the needs of the learner.

[14] Although the goals of education (to prepare children and youth for adult life in society) remain the same, the basic values and outcomes must change to fit the needs of a new information age. Examples of basic shifts which must be made are provided below.

Educational Values Shifts

From:	To:
• Schooling • Accreditation • Schooling as preparation for adult roles • Limited Achievement • Sorting • Picking "winners" • Measures of factual recall	• Learning • Performance • Continuing Education • No limits to learning • Opportunity system • Developing "winners" • Ability to process and apply information

[15] These shifts require a thorough restructuring of not only schools but also the learning process. Teaching children how to learn, to process information, and to apply information calls for a more individualized, problem focused, integrated method of instruction. Tests which basically only measure factual recall, must be replaced by new systems and structures. There are undoubtedly many ways that the classroom experience can be restructured; in any case, some of the key characteristics of restructuring must include:

http://carolus.furman.edu/depts/music/about/tour/seminar.htm

New Facilities and Equipment

[16] Classrooms should be informal, allowing for multi-purpose use. There should be seminar tables, carrels, work areas, and places to spread out for small group work.

Curriculum

[17] The curriculum may be organized in any number of ways - around themes (magnets), special interests, alternative programs, or work in the community. It must develop interdisciplinary relationships and culminate in action or application activities if it is to be relevant to future needs.

Instruction

[18] The expansion of instructional methodologies is an essential element of restructuring. Instruction must also begin with the existing knowledge and capability of the learner, be more explicit in outlining all of the steps necessary for learning, provide for different types of intelligence and learning styles, and focus on the processing of information rather than the memorization of facts.

Responses to Restructuring

[19] Many have been aware of the need for the restructuring of schools but have not been clear about how to approach the problem. Two major approaches have been used in restructuring. These are bringing the community to the school, and redesigning students' educational experience. Each is described below.

Bringing the Community to the School

[20] Much of the initial educational restructuring grew out of strategic planning models that had been applied to education. Educators were aware that the support for schools has declined, largely as a function of the decline in households with school age children. In the 1950s, one out of two households had a school age child; today, it is one out of five. This decline has been a factor in the decreased support of schools.

[21] Many looked at the community and began to realize the need for services that schools could fulfill. New programs for new client groups were established to meet community needs. Some of the most obvious services schools could provide were early childhood education and after-school programs. Services for senior citizens, adult job training, adult education, and a variety of other activities have opened the school to the community. The extension of this model is a learning community where persons of all ages are interacting in learning programs. The school is not simply a multi-function building but is a center where a wide variety of interactive, inter-generational programs are provided that can extend the learning of all groups.

[22] Variations of this restructuring approach are found in business partnerships, school without walls, business-based programs, and a number of other approaches.

[23] The basic goals of this form of restructuring are related to the need for:

- maintaining a sense of relevance to the needs of the community;
- putting the school into the mainstream of the community;
- increasing learning resources (human and financial); and
- expanding general support for the schools.

Restructuring the Teaching/Learning Process

[24] Many have realized that while bringing the community into the school has many positive values, it does not address the restructuring of the teaching-learning process in a direct way. If carried out successfully there would be benefits to the community, but little would be changed at the classroom level.

[25] The restructuring at the classroom level must be based on the understanding that high levels of learning require a systematic and intense affective and cognitive interaction between teacher and students. It is the quality and intensity of this relationship that will facilitate student learning. If this is to be provided to students, teachers likewise must have higher levels of emotional, physical, and financial support. In a sense, it is the task of everyone in the school and community system to support the teaching-learning process in the classroom in productive ways.

[26] Examples of the key principles to be incorporated into the restructuring of the teaching/learning process include the following:

- All learning begins with the affective; strong interpersonal skills provided to children in an equitable way are necessary preconditions for affective learning;
- Language development is the essential element for academic and life achievement; all effective teaching must focus on the explicit teaching of vocabulary and conceptual understandings;
- Instructional methods have cultural and experiential bias; teaching heterogeneous groups of students requires the systematic use of instructional methods that meet the varied needs of children;
- There is a systematic sequence of instruction that is essential if all children in the class are to learn; this requires a systematic provision of review, overview, presentation, exercise, and summary;
- Teaching students how to process information requires an interactive, process approach to learning; teaching must help students understand their own thoughts and creativity through speaking and writing; and
- A major task of educational programs is to extend the world view of the child; this should include a view of careers, of the community, of our nation and our global community.

[27] These principles can be applied in any number of ways - for example, as magnet schools, community schools, non-graded schools, middle schools, alternative schools, or schools within schools. While the structure of the program can be designed in a variety of ways, there must be a core understanding and the principles outlined above must be implemented.

Conclusion
[28] Knowing the community and society and responding to the forces for change begins to establish the basis for relevance and for preparing children and youth for a future society. Change in the classroom provides the means for ensuring efficiency by increasing the quality and quantity of learning.

[29] Schools may begin the restructuring process in a single area or develop comprehensive plans. Either approach has strengths and problems which must be addressed. What cannot be done is to ignore the need for change and transformation. Change must occur if schools are to achieve their contract with society to prepare children and youth for a future world.

After Reading

1. *Using the ideas in the text about the way learning should change and your own experience in the information age, in groups evaluate the following vocabulary exercises.*

1. Use a dictionary to write down the meanings of these words in your own language. You will be tested on these tomorrow. The test will check whether you have memorised the correct translations of these words.

concept	logical	be based on	wisdom	to construct	competent
allocate	client	confidential	immense	struggle	to cope

2. Read through the text above and find ten new words. Look up the meanings of these words and use them in a paragraph summarizing some of the ideas in the text.

3. Look at the definitions of the prefixes and of the example words in the tip box and then write your own definitions for the words below.

a. sub-concepts

b. sub-points

c. underachievers

d. underemployed

> **Tip: Prefixes**
> A prefix is a group of letters we can add to the beginning of a word to change its meaning.
> A knowledge of prefixes can help you guess the meaning of new words that you come across.
>
> **sub-** a smaller part of a large whole
> E.g. sub-heading – a heading which is given for part of a text, under a main heading
>
> **under-** not enough or not done as well or as much as is necessary
> E.g. undervalued – something not being valued as much as it should be

2a. *Read the two quotes below. Which one views schools as 'conserving institutions'? Which one views schools as 'preparation for life'?*

> Times have changed. Today, there are hundreds of sources of information. Last year's facts, or yesterday's, may not have any value. Skills learned today will soon become obsolete and new skills must be mastered. For this reason, knowing how to learn, search for and acquire information is more valuable than being a learner-of-facts.

> It is easy to focus on change so that we lose sight of the fundamental purposes of education. ... Education is about helping people to learn and appreciate their culture, language, and history, thus strengthening their sense of identity and their sense of belonging to the community of which they are a part. It should also nourish and enlarge the intellectual capacities of students.

2b. *Did your lessons in school provide you mainly with knowledge developed in the past or with the skills to be able to acquire new information and skills in the future?*

3. *The following types of education were mentioned in the text: The University of the Third Age; Non-graded Schools; Schools Without Walls. Read the more detailed information about these alternative forms of education given below and answer the following questions.*

- Who are they for?
- What subjects are taught?
- How successful do you think these would be in your country?

Alternative forms of education

The University of the Third Age
The University of the Third Age (or U3A) is a wholly self-funded, voluntary organisation formed in 1990 to provide lecture courses to its members, who are all aged 50 or over, in a wide range of stimulating subjects. Courses are offered in the humanities (history literature, philosophy, law etc.), social sciences, sciences, architecture, art and music. Everybody aged 50 or over can join: there are no exams, no entry requirements and no limit on the number of courses members may attend. There is an annual fee which covers the cost of all courses that an individual takes. The aims of the U3A are:

1 To organise and maintain a co-operative learning community for retired and semi-retired people, on a non-profit basis;
2 To encourage learning without the need for entry criteria, qualifications, assessments or rewards;
3 To arrange for voluntary tutors and teachers.

Non-graded schools
Non-graded schools are becoming increasingly popular, particularly in elementary schools although some schools apply this system of multi-age teaching to high school students as well. The typical multi-age classroom in a non-graded school includes students who are one or two years apart in age, for example, combining first, second, and third graders, or fifth and sixth graders. Because children are at widely varying skill levels in the multi-age group, the curriculum is usually altered. One common approach is to teach thematic units - on dinosaurs or measuring, for example - and students read, write, and work on math projects relating to the unit at a level appropriate to their ability. Schools using this kind of curriculum usually replace traditional letter grade evaluations with narrative assessments that report a child's strengths and weaknesses, as well as academic progress. Many non-graded schools also keep children with the same teacher for two or three years consecutively. The teacher and students can get to know each other better than in a traditional graded school, and the students may exhibit more family-like relations.

Schools without walls

In the future, people will change careers several times throughout their lives. To cope with this, people will need positive attitudes to lifelong learning, so learning how to learn will become a central focus of future schooling. Information technology means that all learners, whatever their educational or social background or age, can shift to continual learning. To do this however, they must learn how to learn and this is an important skill that schools should equip our young people with. Technology is the key to the skill of learning how to learn. As well as normal teaching sessions, school days should include Internet or video-conference sessions with experts in industry, other pupils and teachers across the world, and Web surfing at home. In a school without walls, with opportunities to learn in appropriate or preferred ways, achievement can be accelerated. The three Rs of reading, writing and arithmetic will remain central to education, but children will also need to be taught information handling, critical thinking and how to adapt to change.

The Future of Learning

Before Listening

1. *Listen to the mini-lecture about note-taking and complete the notes below.*

Topic = _____

2 ways of note-taking:

   1. _____

   2. _____

Technique 1

      A. _____

      B. _____

      C. _____

         1. _____

         2. _____

Technique 2

like _____

ideas _____

_____

starts at centre of page

E.g.

_____

_____
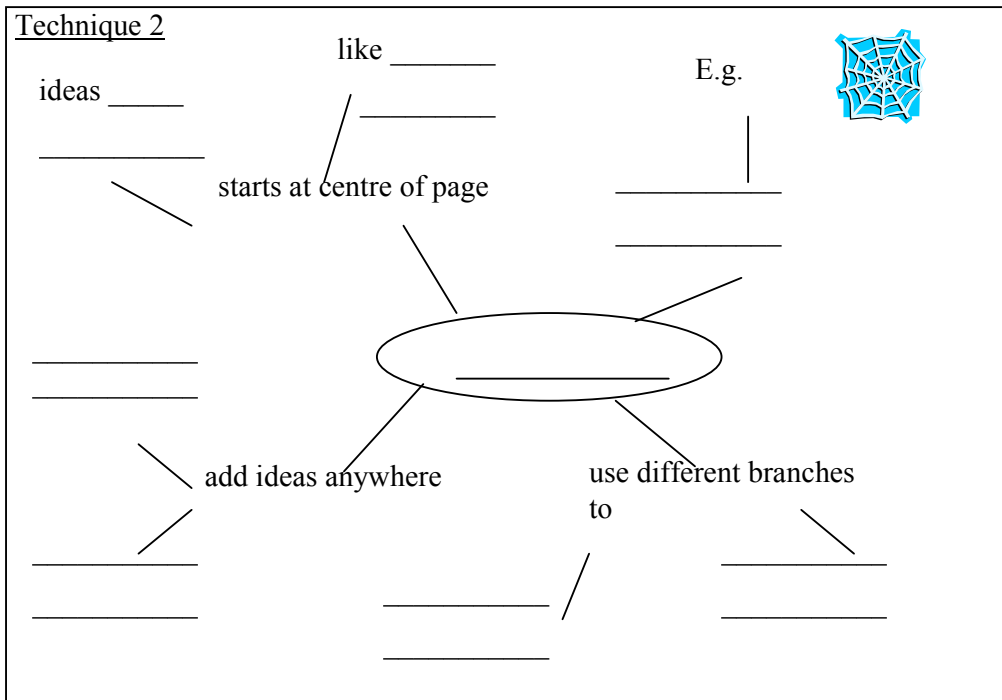
_____

_____

add ideas anywhere

use different branches to

_____

_____

_____

_____

_____

2. *In groups, discuss the following questions. Report your ideas to the class*

- What are the advantages of using computers in education?
- How are computers used in education in your country at present? How could they be exploited more?
- Could computers replace teachers? Why or why not?

3. *With a partner, discuss what role a computer program could play in the following learning approaches.*

1. memorisation – the focus is on remembering factual information
2. task-based – the focus is on doing activities
3. tutorial – the focus is on individualisation
4. deductive – the focus is on finding out things for yourself

While Listening

Listen to the following lecture given at a conference about the future of education and learning. Take notes under the following headings.

1. Problems with Current Models
2. Ideal Model
3. Interactive Learning
4. Reasons for Using Computers
5. Interactive Software
6. Organising Learning
7. Role of Internet
8. Effects on Colleges & Universities

After Listening

1. *Use your notes to answer the following questions.*

1. What are the problems that result from viewing learning as the transmission of information?
2. Which three experts does the speaker refer to?
3. Which approach to learning does the speaker think is most effective? Why?
4. Which three factors are important for highly interactive learning to take place?
5. What information is necessary to address individual student learning problems?
6. Why do computers make the tutorial approach possible?
7. What feature of the *Heat* program makes it interactive?
8. How are students evaluated in mastery learning?
9. What is guided discovery?
10. Why is motivation an important part of this approach?
11. Is the Internet useful for interactive learning? Why or why not?
12. Why does the speaker think universities will not survive in the future?

2. *Discuss the following questions in groups, giving reasons for your opinions.*

1. Is the tutorial approach the best way to learn?
2. Is the tutorial approach the best way to utilise computers in education?
3. Would using a computer be effective in the following situations?

   - Learning a second language
   - Doing laboratory experiments
   - Learning theories, laws and rules, e.g. Newton's law of gravity
   - Training, e.g. to become a doctor, teacher or manager
   - Developing artistic ability

4. In mastery learning, formal grades will no longer be useful. How do you think achievement/mastery will be measured?
5. The speaker suggests that the skills that you acquire are more important than the amount of information that you remember. What is your reaction to this?
6. Do you agree with the Peter Drucker's prediction that universities will die in the near future? If yes, what do you think will happen to research?

3. *Write a response to <u>one</u> of the following questions.*

   - What disadvantages might there be in having a computer rather than a human as a tutor?
   - Would the discovery approach be suitable for you?

Input 4: The future of learning
Tapescript

Good afternoon, ladies and gentlemen. Welcome to this session of the conference. We are here today to discuss the future of education. However, I prefer to talk about learning rather than education or teaching. Only learning counts in the long run. Learning focuses on the student, not the teacher. The current systems of learning are weak at all levels, even in the developed countries. In much of the world, little learning exists for most people. Perhaps because our views of learning come from a time when the world population was much less than it is now. The question today is, How are we to help six billion people learn, from birth to death? We require new models. It seems to me unlikely that schools and universities, as they exist today, will survive. We must be bold in addressing these problems.

At present, one of the major problems is that almost all learning is at a fixed pace; a 'course' is the same length for all students. I believe it was Patricia Cross who said that our present system keeps the time the same and varies the amount of learning but that it should be the other way around. Students should work at a given topic until mastering it. Students, with different interests, backgrounds, and learning styles, learn at different rates. Current educational structures make individualized pacing difficult, suggesting that these structures must change a great deal. Another major difficulty today is lack of equity. Some people have very good learning opportunities, but many, particularly the poor, do not. We need more equitable opportunities.

Lastly, the current dominant models of learning assume that the task is that of supplying information to students. So 'learning' as it is usually found today - in lectures, video, and web experiences - is viewed as transmitting information from one person to another. Mostly we test on memory of this information, often with horrible methods such as multiple-choice. We ignore the

students who do not learn or who learn only partially with the information-transfer model, assuming that they are not intelligent or are not working hard enough. We neglect important high-level skills such as problem solving. These existing models are not good enough for the future.

So, what approach should we take to learning? New approaches to learning could be like the interaction between a student, or a small group of students, and a skilled tutor. Such learning is highly active for both the student and the tutor. It does not offer the same approach to each student, as a lecture does, but is individualized to the needs of each student. Future learning should look continually for individual learning problems and offer help for these problems. Students should have adequate time to learn the material well.

Our delivery systems too must change. To reach very large numbers of students, essential for the future, we need effective distance learning. Students should be able to learn anything, at any place, and at any time. Current models of distance learning, particularly in the United States, are weak. They are often based on the information-transfer model, not the highly interactive model just suggested.

Given the large and growing number of people, and the need for lifelong education, the best hope we have for individualizing learning is with the use of the computer, with adequate learning programs. We have the technology to rebuild learning with the computer. But this involves the development, evaluation, improvement, and distribution of very large amounts of learning material - activities that are not happening today. We do not even have trial projects looking into the type of learning I believe to be essential for the future.

I began using computers in learning situations in about 1958 with an IBM 1620, so there is a long history of computers to aid learning, but not continuous progress. I see most current uses of computers in learning as inadequate, often driven by technology issues rather than learning issues. The main advantage of the computer - the possibility of wonderful human-computer interaction to assist learning - is not often realized.

In order to understand what we mean by interactive let's go back to the student-tutor model I've already mentioned. Interaction is not a yes-no factor, but we can have varying degrees of interaction. There are at least three factors in highly interactive learning, both with and without computers. The first is that interaction should be frequent, as in human conversation. Our experiments with computers in public libraries suggest that the student should do something meaningful, such as answering a question, at intervals of no longer than twenty seconds - very different from the passive lecture environment. Such an active environment keeps students interest for long periods of time, even with difficult learning material. Even more important is the quality of each interaction. This is more difficult to measure but is often clear in practice. We need highly interactive units, close to human interaction, if we are to look continually for student learning problems. High-quality human interaction uses a critical human invention, one unique to human life - our languages. Thus, interaction in this country should be in English, in a two-way dialogue. Other countries will need other languages.

Several forms of high-quality interaction are possible. Perhaps the most important for computers in learning is the Socratic format, with the computer asking questions and the student replying freely in English. In the future, students are likely to respond by speaking to the computer, a format that is already practical.

The third important factor in interaction is long-range memory. In order to address individual student learning problems, a human tutor remembers the learning styles and past problems of students. We can provide a similar facility with the computer, keeping detailed records on student

performance and using these records in making decisions about what is next to be presented to the student. Eventually these records will need to be world-accessible as people move around the world.

Now, why are we trying to copy the tutorial approach to learning with computers? Why not just use human tutors? In our traditional learning environments, some students learn and some do not. It is this second group of students that we want to help. Everyone should learn! This should be an important factor for the future of learning, necessary for the survival of humans. A tutorial approach to learning makes it possible for everyone to learn. But before computers, this approach was too expensive for all but the very rich. Even if it were economically possible, we could not find enough excellent human tutors for all students.

What examples of highly interactive software are there? About fifteen years ago, our project at the University of California, Irvine, developed a set of ten programs that IBM marketed as the Scientific Reasoning Series. These programs are still more interactive than almost all learning software developed today. But the graphics, done so long ago, now seem old-fashioned.

One of these programs is *Heat*. The aim is to allow students to develop the important concept of heat, which they often confuse with temperature. It uses the student's own everyday experience. It begins immediately with a question, with no preceding text. The introductory question is, "How do you measure your own body temperature?" Then the computer waits for the student to type an answer, prompting if nothing happens after a few seconds. The entire program proceeds in this conversational fashion, with computer questions and student answers.

So, how can this software be used to organise learning? The key concept for structuring highly interactive learning experiences is the Benjamin Bloom concept of mastery learning. Since the goal is for everyone to learn everything to the mastery level, grades will no longer be useful. We check frequently for mastery of the learning material, offering more learning sequences if necessary and checking again. A student who has not learned in one way probably needs a different approach, rather than reusing the material that was not previously successful in assisting learning. In such an environment, learning and evaluation are no longer separate activities but are part of the same process. So, the student does not know he or she is being tested, and we avoid the problems of cheating.

Learning in a highly interactive environment can also be constructivist. I mean 'constructivist' as guided discovery, with students discovering their own knowledge. Thus a physics student discovers the Newtonian laws of motion rather than being told them. Such learning must hold the student's interest. We need to be sure, through evaluation, that the student stays at the material. Motivation is particularly important in a distance-learning environment, since none of the 'threats' of the classroom, such as low grades, are available. This does not mean that entertainment is necessary; motivation should be a basic part of the learning material, that is it should be intrinsic. As I already mentioned, highly interactive learning is intrinsically motivating. Also, a mastery-based computer segment could also offer human contact. Small groups could work together, either locally or remotely through electronic communication. Parents might participate with students. Other human help might also be provided.

Apart from being a means of electronic communication, what role can the Internet play in all of this? Our initial goal was to help six billion people learn. At present, the Internet cannot help us deliver the interactive type of learning we have been talking about. Firstly, the current Internet, with overcrowding and limited bandwidth, does not encourage the delivery of large amounts of highly interactive materials. Secondly, a study of the 'courses' offered on the Internet now, through web sites, shows mostly an information-delivery model of education. The overall quality is poor. Therefore, highly interactive programs are not only unavailable but also cannot be delivered on the

Internet as it exists today in many countries. The Internet may be useful for providing web materials to support interactive CD-ROMs or DVD-ROMs developed by private companies. Broadband networks can be used for delivery, but this will not be possible for a long time in poorer countries. Better organization and standards could increase the possibilities.

If private companies and the profit-based educational industry enter the market for interactive learning courses, will colleges and universities compete? Well, Peter Drucker predicted that universities will die in thirty years because universities will not compete successfully with companies. A few may, but not with current strategies. Small wealthy colleges will probably survive. Universities are too stuck in their current ways of doing things to be able to compete with well-developed material from 'outside.' This leaves many open issues, beyond this lecture. Universities serve many functions other than learning. For example, there is the question of the future home of research.

In conclusion, our current systems of learning are weak. To improve learning opportunities for the world's population I suggest that we adopt an interactive approach using computers. In this way we can economically provide individualised learning for large numbers of people. Thank you for your attention.

Original source: "The Future of Learning: An Interview with Alfred Bork," originally published in EDUCOM REVIEW, Vol. 34, No. 4, (July/August 1999): 24-27, 48-50

APPENDIX 2: summaries of texts

1. Problem-Solution summary of 'Restructuring Education'

The basic function of schools in any society is to provide young people with the knowledge, attitudes, skills, and behaviors that they will need to fulfill their individual and societal roles as adults.
However, society has undergone a transformation that impacts virtually every aspect of our lives, and as a result the basic goal of education has changed dramatically, which means that schools also need to change.
Two major approaches have been used in restructuring education. These are bringing the community to the school, and redesigning students' educational experience.
Opening the school to the community involves schools in activities such as providing services for senior citizens, adult job training, adult education, and more.
However, many people have realized that while bringing the community into the school has many positive values, it does not address the restructuring of the teaching-learning process in a direct way.
Restructuring at the classroom level must be based on the understanding that high levels of learning require intense affective and cognitive interaction between teacher and students.
This kind of classroom level change can provide the means for ensuring educational efficiency by increasing the quality and quantity of learning. We must not ignore the fact that change must occur for schools to fulfill their contract with society to prepare children and youth for a future world.

2. Problem-Solution summary of 'the future of learning'

Learning, which focuses on the student, not the teacher, is more important than education or teaching. Only learning counts in the long term. Unfortunately, however, the current dominant education models view learning as transmitting information from one person, i.e. the teacher (the

expert) to another, a student (the novice). Education systems as a result tend to ignore students who do not learn or who learn only partially with the information-transfer model, assuming that they are not intelligent or are not working hard enough. For these reasons, these existing education models are inadequate to ensure learning for all.

New approaches to learning could be based on the interaction between a student, or a small group of students, and a skilled tutor. Such learning is highly active for both the student and the tutor. It does not offer the same approach to each student, as a lecture does, but is individualized to the needs of each student.

This tutorial approach to learning makes it possible for everyone to learn. But unfortunately in practice it is rather expensive, and, even if it were economically possible, it would be impossible to find enough excellent human tutors for all students. Therefore, the best hope for individualizing learning through a tutorial approach is by using computers.

Several forms of high-quality, tutorial-like interaction are possible with the use of computers. One of these is the Socratic format, with the computer asking questions and the student replying. Computers can also keep detailed records on student performance and use these records in making decisions about what is next presented to the student. They can check frequently for mastery of the learning material, offering more learning sequences if necessary and checking again.

At present, however, the idea of computers delivering the interactive type of learning discussed above remains unfulfilled. A study of the courses offered through computers and on the Internet shows mostly an old-fashioned information-delivery model of education.

In conclusion, our current systems of learning are weak. To improve learning opportunities for the world's population we need to adopt an interactive, tutorial approach using computers. In this way we can economically provide individualised learning for large numbers of people.

APPENDIX 3: teacher notes and activity descriptions including answer keys

Activity 1
Procedure
1. Students in pairs work through worksheet and try to put the segments of the text in order, matching them with the labels given to them in the table. Teacher monitors progress and gives clues where necessary.
2. Teacher checks 'correct' order with class.

Activity 2
Procedure
1. Teacher introduces class to activity by eliciting first signals in the text that indicate the sequence of the segments.
2. Students decide which signals or clues in the text indicate the order of remaining segments and note them in the table on the worksheet.
3. Class checks together.

Answer Key (activities 1 & 2)

Section order	letter	Function/label of section	Clues or signals in the text that helped you decide the order

1	G	*(Description of)* **Situation**	*The basic function of schools in any society is to*: general statement
2	A	*(establishing the)* **Problem**	Repetition of key words from G: *society, schools* Paraphrase: *the basic goal of education* refers back to *the basic function of schools'* Signals of a problem: *However, ... schools* **need** *to change*
3	E	*Naming (and enumeration) of two* **Responses** *to the problem*	*Two major approaches* (to the problem introduced in A) Paraphrase: *restructuring education* refers back to *schools need to change*
4	C	**Response 1**	Paraphrase: *opening the school to the community* refers back to *bringing the community to the school* (the first *approach* mentioned in E)
5	F	*(negative)* **Evaluation** *of Response 1*	*However,* Repetition/paraphrase: *bringing the community to the school* refers to *opening the school to the community in* C and repeats the phrase first used in E
6	B	**Response 2;** *includes element of* **evaluation**	Paraphrase: *Restructuring at the classroom level* refers back to *restructuring of the teaching-learning process* in F and to *redesigning students' educational experience* in E [*must* evaluates the response as necessary (and therefore a positive step)]
7	D	**Evaluation** *of response 2 and* *Restatement of problem-solution in one sentence*	Reference: *this kind of classroom level change* refers back to *restructuring at the classroom level* in B Evaluation of response 2: *can..., ensuring educational efficiency... quality and quantity* Situation: schools have a contract to … Problem: this contract is not being achieved Response: change must occur Evaluation: to achieve the contract

Activity 3
Procedure
1. Teacher elicits from students what type of reader might be interested in reading 'Restructuring Education' and establishes that it could be, for example, an education undergraduate student.
2. The students are shown the first sentence of the text below and asked to predict what questions the following sentence might answer.
3. Students are shown the following sentence and check whether their predicted questions were answered, and identify links between the two sentences. They then predict once what questions will be answered by the following sentence, and check and identify signals until all the text is finished.
4. Teacher and students discuss what relevance this has to their learning context.

Original text:
The basic function of schools in any society is to provide young people with the knowledge, attitudes, skills, and behaviors that they will need to fulfill their individual and societal roles as adults. Schools must do this by carrying out two paradoxical functions. On the one hand, schools must transmit and conserve the knowledge developed in the past. In this sense, schools are conserving institutions. On the other hand, schools must anticipate the future and the knowledge,

skills, and behaviors that youth will need when they assume adult roles and then "backward map" in finding ways to prepare them for a future society.

Activity 4
Procedure

1. Teacher reminds students of the components of the basic Problem-Solution pattern and reminds them that some words signal certain components of the pattern.
2. Students work through the worksheet, putting words into more than one category if they think this is necessary. Teacher offers help with unknown terms/words.
3. Teacher checks possible answers with whole class and discusses problem areas/questions.

Tentative Answer Key

Describing a situation	Talking about / identifying problems	Describing responses / solutions to problems	Evaluating the response
The past The basic function of… Efficiency Current / present Goal / purpose / task Ability	Crisis Unbalanced Insufficient Struggling Goal / purpose Limited Require / requirement Necessary Essential Decline The need for change Little Task	Approach / way Shift from… to Address a problem Improve Establish new programs Redesign (educational) restructure programs Alternative programs Method Limit Step Resolve Systematic Facilitate Apply a model Response	Improve Should/must Effective Benefit Facilitate Have positive values Succeed

Activity 5
Procedure

1. Teacher shows students the words; they discuss what they have in common and establish that they are all i) abstract ii) in some way incomplete/unspecific
2. students in pairs are given two words each. They locate the occurrences of their words in the source text (Restructuring education) and look for recurring patterns of usage.
3. Teacher gets feedback from each group on their findings, establishes patterns of usage where found.

Student 'findings' (some editing done by teacher)
Have the/an **ability** to (verb)
Technological | **change**
The most basic
Fundamental |
Benefits to the community
This **approach**
This rote **approach** to learning
Two major **approaches**

A number of other **approaches**
The basic **function** of schools is to (verb)
The two paradoxical **functions** are
The basic **goal** of education is to (verb)
The key **principles** (to be incorporated into the restructuring of the teaching-learning process)
include the following:

Activity 6
Procedure
1. Teacher elicits the components of the Problem-Solution pattern and writes on board
2. Class discusses how the components of the pattern are related

Activity 7
Procedure
1. Teacher reminds students about unspecific abstract nouns, gives an example
2. Students attempt gap-fill activity, adding more than one word the gaps where possible
3. Teacher checks answers, establishes whether more specific information is available in the sentence (and underlines it), or whether the reader needs to look forward or back in the text to find this information.
4. Teacher points out how words with similar meanings often follow similar patterns of usage in sentences.

Answer key – underlined segments of sentences indicate where more specific information about the nouns can be found

1. The basic **function/goal/purpose/task/aim/target** of schools is to prepare children and young people for adult life in society.
2. To get a good job in modern society, school leavers need to have the **ability** to process and apply information quickly.
3.
    a. Two major **methods/approaches/ways** have been used in restructuring education. These are bringing the community to the school, and redesigning students' educational experience.
    b. Two major **methods/approaches/ways** have been used in restructuring education. The first is to bring the community to the school, and the second is to redesign students' educational experience.
4. A more individualized, problem focused, integrated **method/program** of instruction needs to be developed.
5. New **programs/methods/ways/approaches** to meet community needs were established.
6.
    a. Many have been aware of the **need/requirement** for the restructuring of schools but have not been clear about how to approach the **problem/task**.
    b. Many have been aware of the **need/requirement** to restructure schools but have not been clear about how to approach the **problem/task**.
7. There are many **ways** that the classroom experience can be restructured.
8. Schools need to find **methods/ways/approaches** to prepare children for a future society.
9. Companies try to develop new **methods/ways** of working and providing services.
10. This **method/program/approach/way** has some value but it is expensive and often does not result in real productivity increases.

Activity 8
Procedure
1. Teacher reminds students about Problem-Solution pattern and potential signals (reminder of activities 7, 5, and 4)
2. Students read text and identify components of pattern; teacher monitors progress, gives help where necessary
3. Teacher checks answers, establishes that components of pattern do not coincide with paragraphs and that this pattern is recursive; negative evaluation acts also as new problem.

Answer Key
Situation
Learning, which focuses on the student, not the teacher, is more important than education or teaching. Only learning counts in the long term.

Problem
Unfortunately, however, the current dominant education models view learning as transmitting information from one person, i.e. the teacher (the expert) to another, a student (the novice). Education systems as a result tend to ignore students who do not learn or who learn only partially with the information-transfer model, assuming that they are not intelligent or are not working hard enough. For these reasons, these existing education models are inadequate to ensure learning for all.

Response 1
New approaches to learning could be based on the interaction between a student, or a small group of students, and a skilled tutor. Such learning is highly active for both the student and the tutor. It does not offer the same approach to each student, as a lecture does, but is individualized to the needs of each student.

Negative evaluation of response 1 / new problem
This tutorial approach to learning makes it possible for everyone to learn. But unfortunately in practice it is rather expensive, and, even if it were economically possible, it would be impossible to find enough excellent human tutors for all students.

Response 2
Therefore, the best hope for individualizing learning through a tutorial approach is by using computers.
Several forms of high-quality, tutorial-like interaction are possible with the use of computers. One of these is the Socratic format, with the computer asking questions and the student replying. Computers can also keep detailed records on student performance and use these records in making decisions about what is next presented to the student. They can check frequently for mastery of the learning material, offering more learning sequences if necessary and checking again.

Evaluation
At present, however, the idea of computers delivering the interactive type of learning discussed above remains unfulfilled. A study of the courses offered through computers and on the Internet shows mostly an old-fashioned information-delivery model of education.

Text summary
In conclusion, our current systems of learning are weak. To improve learning opportunities for the world's population we need to adopt an interactive, tutorial approach using computers. In this way we can economically provide individualised learning for large numbers of people.

Activity 9
Procedure
Teacher asks students to identify signals of situation, problem, response and evaluation in the text; Teacher notes these on the board, encourages students to add these to table from activity 4.

Activity 10
Procedure
    1. Students read through discussion questions and think about their answers.
    2. In groups students discuss the questions together.

Activity 11
Procedure
Teacher asks students to recall their discussion, think about the most important problem, and write a four-sentence text analysing this problem with one sentence for each part of the situation-problem-response-evaluation pattern. This can be done individually or in pairs or groups.

Activity 12
Procedure
    1. When 'minimal' texts are ready, teacher elicits potential readers of the text.
    2. Students use this Imagined Reader (Coulthard, 1994) to help them complete the other tasks on the worksheet and develop the ideas in their text.
    3. Teacher collects completed texts.

APPENDIX 4: worksheets for classroom use

Activities 1 & 2: worksheet

Below is a summary of 'Restructuring Education: rationale and methods' in the wrong order. Try to re-order the parts so that they match the functional labels given to them. Write your answers in the table below; the first one has been done for you.
Then look at the text and decide which clues or signals in it helped you decide on your order.

    A. However, society has undergone a transformation that impacts virtually every aspect of our lives, and as a result the basic goal of education has changed dramatically, which means that schools also need to change.
    B. Restructuring at the classroom level must be based on the understanding that high levels of learning require intense affective and cognitive interaction between teacher and students.
    C. Opening the school to the community involves schools in activities such as providing services for senior citizens, adult job training, adult education, and more.
    D. This kind of classroom level change can provide the means for ensuring educational efficiency by increasing the quality and quantity of learning. We must not ignore the fact that change must occur for schools to fulfill their contract with society to prepare children and youth for a future world.
    E. Two major approaches have been used in restructuring education. These are bringing the community to the school, and redesigning students' educational experience.
    F. However, many people have realized that while bringing the community into the school has many positive values, it does not address the restructuring of the teaching-learning process in a direct way.
    G. The basic function of schools in any society is to provide young people with the knowledge, attitudes, skills, and behaviors that they will need to fulfill their individual and societal roles as adults.

Section order	letter	Functional label of section	Clues or signals in the text that helped you decide the order
1	G	*Description of the* **situation**	
2		*Identifying the* **problem**	
3		*Main* **responses**	
4		**Response** *1*	
5		**Evaluation** *of Response 1*	
6		**Response** *2 (with elements of evaluation)*	
7		*Final* **Evaluation** *+ reminder of overall* **problem-solution**	

Activity 4: worksheet

All the words/phrases in the list below are taken from the text 'Restructuring Education'; try to categorise them according to their function.

Describing a situation	Talking about / identifying problems	Describing responses / solutions to problems	Evaluating the response

approach (n)   benefit
the/a basic function of X is…   method
restructure / restructuring   (re)design (educational) programs
have positive values   alternative programs

efficiency	insufficient
a shift from X to Y	task
goal	resolve
decline	expand / expansion
facilitate	ability
address a problem	apply a model or principle
current	effective
limit(ed)	little
necessary	the past
purpose	should / must
step(s)	struggling
succeed/ successfully	systematic
way	essential
improvement/ improve	unbalanced
crisis	the need for transformation/change
establish new programs	require / requirement

Activity 5: Worksheet

A. These words are from the last exercise. What do they have in common?

ability (6)	change (8)	benefit (1)
approach (9)	function (4)	goal (6)
improvement (1)	method (6)	need (28)
principle (3)	problem (4)	program (10)
purpose (4)	requirement (1)	task (6)
way (11)		

B. Find examples of their use from the text (the numbers in brackets indicate the occurrences of the word). Can you identify any patterns of use? Do words with similar meanings/functions have similar usage?

Activity 7: Worksheet

Below are some sentences that exemplify the use of these words we looked at yesterday.

i)   decide which of these words can go in the gaps in the sentences (sometimes you can use more than one word)

ii)   As we discussed in class yesterday, each of these words has part of its meaning missing (e.g. if you say someone has an ability, you need to include information about what they can do). Look at each sentence and say whether the 'missing' part of the word's meaning is given in the sentence, or whether you need to look at the sentence(s) before or the following sentence(s).

ability	approach	function	goal	method	need
problem	program	purpose	requirement	task	way

2. The basic _____ of schools is to prepare children and young people for adult life in society.
3. To get a good job in modern society, school leavers need to have the _____ to process and apply information quickly.
4.
   a. Two major _____ have been used in restructuring education. These are bringing the community to the school, and redesigning students' educational experience.
   b. Two major _____ have been used in restructuring education. The first is to bring the community to the school, and the second is to redesign students' educational experience.
5. A more individualized, problem focused, integrated _____ of instruction needs to be developed.
6. New _____ to meet community needs were established.
7.
   a. Many have been aware of the _____ for the restructuring of schools but have not been clear about how to approach the _____.
   b. Many have been aware of the _____ to restructure schools but have not been clear about how to approach the _____.
8. There are many _____ that the classroom experience can be restructured.
9. Schools need to find _____ to prepare children for a future society.
10. Companies try to develop new _____ of working and providing services.
11. This _____ has some value but it is expensive and often does not result in real productivity increases.

Activities 8 & 9: worksheet

Below you will see a summary of the lecture recording you listened to earlier. It includes elements of Situation – Problem – Response – Evaluation.
Try to identify each one – there is more than one response and evaluation.
Can you find a summary of the whole pattern?

When you have finished, try to identify all the signals of the different parts of the text.

Learning, which focuses on the student, not the teacher, is more important than education or teaching. Only learning counts in the long term. Unfortunately, however, the current dominant education models view learning as transmitting information from one person, i.e. the teacher (the expert) to another, a student (the novice). Education systems as a result tend to ignore students who do not learn or who learn only partially with the information-transfer model, assuming that they are not intelligent or are not working hard enough. For these reasons, these existing education models are inadequate to ensure learning for all.

New approaches to learning could be based on the interaction between a student, or a small group of students, and a skilled tutor. Such learning is highly active for both the student and the tutor. It does not offer the same approach to each student, as a lecture does, but is individualized to the needs of each student.

This tutorial approach to learning makes it possible for everyone to learn. But unfortunately in practice it is rather expensive, and, even if it were economically possible, it would be impossible to find enough excellent human tutors for all students. Therefore, the best hope for individualizing learning through a tutorial approach is by using computers.

Several forms of high-quality, tutorial-like interaction are possible with the use of computers. One of these is the Socratic format, with the computer asking questions and the student replying.

Computers can also keep detailed records on student performance and use these records in making decisions about what is next presented to the student. They can check frequently for mastery of the learning material, offering more learning sequences if necessary and checking again.

At present, however, the idea of computers delivering the interactive type of learning discussed above remains unfulfilled. A study of the courses offered through computers and on the Internet shows mostly an old-fashioned information-delivery model of education.

In conclusion, our current systems of learning are weak. To improve learning opportunities for the world's population we need to adopt an interactive, tutorial approach using computers. In this way we can economically provide individualised learning for large numbers of people.

Activity 10: worksheet

Discuss the following questions in your group:

- What kind of system of education does Turkey have? What is the 'dominant model' of teaching? How do teachers and schools believe students learn?
- What are some of the problems resulting from this education system? What is the most serious problem in your opinion?
- What are some possible responses or solutions to this problem?
- Which response is likely to be the most effective? Why?

Activity 12: worksheet

1. Who might be interested in this topic? What aspects of this topic would they be interested in?

2. Now, for each of the stages listed below consider your 'reader': what extra information will they want?
Situation

Problem

Response

Evaluation of response (is it likely to work? Is it effective?)
(could include **Basis for evaluation: why do you think this?**)

You may want to
- give them more details about the situation/problem/response/evaluation
- give them an example of the idea your have presented 'in action'
- explain how the situation or problem works

3. When you are happy that you have included enough information, go back and check that your writing is clearly 'signalled' – have you used words which show that you are talking about a situation (e.g. *current*; *present*; *X is…*), a problem (*insufficient*; *inadequate*; *crisis*; *X needs to change…*), a response (*one possible approach/response/solution is to…*; *a new approach would be to…* etc.) and evaluation (*this approach has positive values, but…*; *the most effective solution is …*; *it is unlikely that …*)

Purpose of research:
I am collecting your feedback so that I can judge whether these lessons and materials were successful or not as part of an assignment for an MA program. Anything you write on here will be kept anonymous (I will not use your name); I may want to use your comments either as part of the assignment or in an article published in a journal or book. You do not have to participate if you do not want to.
Thanks for your help,
Benet

I have read and understood the above and give permission for my feedback to be used in the assignment.
Name: _____   Date: _____

Researcher's Name: _____

SPRE[1] feedback survey

How confident are you now that you can:
   a) recognize a SPRE pattern in a text?

   b) write your own text following this pattern?

Would you want to study or write this type of text more? Why/not?

What other guidance or help do you think you need?

We did the following activities over the past two days. After each one write what you thought about it and why:
   • re-ordering a jumbled SPRE text

   • looking for 'signals' in the text that connect the different parts

   • using questions to explore the connections between sentences

   • categorizing words/phrases according to situation/problem/response/evaluation

   • looking at how some abstract nouns 'work' in texts (e.g. to join sentences together)

   • labelling a text according to situation/problem/response/evaluation

   • writing your own SPRE text (in a controlled way with guidance)

Student survey results
Number of respondents = 17

1. **How confident are you now that you can recognize a SPRE[1] pattern in a text?**

Response	Number of respondents
I am confident	9
Yes, but not all parts; not completely	4
I'm not very successful	1
It's a bit hard but it's useful	1
By finding keywords	1
SPRE[1] pattern is really useful for me to analyze the text	1

2. **How confident are you not that you can write your own text following this pattern?**

Response	Number of respondents
I am confident	8
Maybe, it's possible	3
No response	6

3. **Would you want to study or write this type of text more? Why/not?**

Response	Number of respondents
Yes, I believe that it's useful for me for writing essays; it establishes the main writing structure	8
Yes, it's beneficial	2
No, because it's boring for me	2
Yes, because it help us for reading text	1
Yes, I think it include more than we did	1
Why not, but I think we must focus listening and reading now	1
I want to read this kind of texts more, but I don't want to write	1
I should study, but I don't want	1

4. **What other guidance or help do you think you need?**

Response	Number of respondents
No response	8
About ELAE[2] writing	3
Yes	2
More examples with answers and usages in daily life	1
The organization in the text	1
I need to improve my speaking skill, so some part of lesson can bases on speaking	1
Not needed	1

We did the following activities over the past two days. After each one write what you thought about it and why:

5. **re-ordering a jumbled SPRE text**

Response	Number of respondents
When re-order the whole text, we can learn the structure that is created by SPRE system; it's useful to recognize general meaning of parts	4
It's useful, good	3
No response	2
Good because I can write easily	1
It makes easier try to understand text	1
Useful to know what writer say after what	1
If you know SPRE, it is easy to do it	1
It is hard	1
When we write essay, we write essay ordinarily. For ex: firstly we write situation, then problem, response, lastly evaluation	1
We learnt some short ways and tactics to make them in order easily by asking questions	1
We find easier the answers	1

6. **looking for 'signals' in the text that connect the different parts**

Response	Number of respondents
No response	5
It's useful, good	3
Signals tell you which part you read; we should learn more signals 11	2
Useful for predict what is the text will mention	1
It's good because in the reading I can manage the text more easily	1
It's useful because we can connect them with catching the key words	1
Helps reading skills	1
Benefit for reading and writing	1
We learn how can we use this signals while we're writing a text	1
when we learn what the word says, we can answer the right meaning	1

7. **using questions to explore the connections between sentences**

Response	Number of respondents
No response	4
Answering questions make it easy to connect the sentences	3
It's useful for thinking about the situation	3
Beneficial for reading	3
Very good	1
it is important also to understand the structure	1
Develops writing skills	1
Not necessary	1

8. categorizing words/phrases according to situation/problem/response/evaluation

Response	Number of respondents
it's helpful to understand the text, the main ideas	3
No response	3
Useful	2
It's useful to remember where the vocabularies can use	2
It's a kind of outline and it's useful to write or work on text	1
It help me to find the situation, problem, response and evaluation	1
Helps writing skills	1
Develop writing and reading skills	1
They are all like puzzle. The one is coming after the other one	1
I couldn't do it before I learn it	1
It was not good, because all of them like same	1

9. looking at how some abstract nouns 'work' in texts (e.g. to join sentences together)

Response	Number of respondents
No response	6
It's useful, good	5
Helps reading skills	1
Develop writing skills	1
It's useful to improve my ability about abstract nouns	1
Their usage are like puzzle	1
For example change word show me what it changed	1
I don't know how I do that it can be good [sic]	1

10. labelling a text according to situation/problem/response/evaluation

Response	Number of respondents
No response	7
It is useful in readings to understand better	4
Useful	3
thanks to this we can see the structure quickly	1
I learned exactly the text that how it must go on	1
It was a little bit hard to me because I cannot find it easily	1

11. writing your own SPRE text (in a controlled way with guidance)

Response	Number of respondents
No response	8
Useful, beneficial	3
It's important, necessary because practice is important	3
It's easier than finding out in text	1
I don't really do this	1
I think I learned about that subject a lot	1

Notes

[1] SPRE stands for 'situation-problem-response-evaluation' and is a convenient short-hand way of referring to Problem-Solution texts (Hoey, 2001)

[2] The ELAE is the test of English proficiency that students have to pass to get into the university proper

APPENDIX 6: Problem–Solution texts written by students

Text 1

In Turkey every year millions of young people enter the exam which is the most crucial for their future life. The education system's problem is that the students can't improve their own skills because of focusing only one exam which based on unspecific fields. Moreover, students can't improve social skills because of the fact that they have no extra time out of studying to exam. We think that the first step must be enlarged the time of exam in years. It helps students to show themselves in specific fields. In conclusion, it can takes long time to establish new system. But it will be more productive than today's system.

Text 2

Situation: Middle school and high school period is very long.

Problem:However, in this period students repeat what they learn again and again, therefore children may bored.

Response: Therefore, goverment should combine middle school and high school so it should be shorter.

Evaluation: At present, students could choose thier job or academic career in early age, therefore they may make false decision.

Text 3

Situation: problems of education, education based on memorization

Problem: discriminating, spreating students according to their level. Because of memorization, there is not real skills.

Response: decline the incidence of exams on students' lifes

Evaluation: it can be diffucult solve this problem but if this problem is solved, number of people who graduated from collages will increase.

Text 4

in turkey the education system depends on an exam which name is ÖSS. Unfortunatelly students cannot show their real success in this exam. Students approach to this exam negatively. They prefer not to enter this exam. In conclusion its necessary to change this exam system. Instead of this exam, students should decide their own university so they can choose faculty which they want. That is the way of happiness

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Text 5
turkey's education system is very complex for teaching lessons because the system based on memorization. Unfortunately, students do not get enough education according to their abilities. The best effective approach to opening some schools could be about students' skills. If these kind of schools are opened, a lot of students can get enough information about their abilities, as a result of this, they graduate from the school which they wanted to go and then they do their job willingly.

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