

Dynamic Assessment of EFL Text Comprehension
of At-Risk Students

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Dynamic vs. Static Assessment

There seems to be a certain inherent contradiction between the goals of student assessment and its means. The goal is usually to evaluate the students' learning ability and to gain information useful for more effective instruction. The means, however, are often limited to measuring the students' current performance level.

This contradiction was identified as early as 1934 by Vygotsky (1934/1986; see also Minick 1987, Kozulin, 1998). Vygotsky believed that the normal learning situation for a student is a socially meaningful cooperative activity. New cognitive functions and learning abilities originate within this interpersonal interaction and only later are they internalized and transformed becoming the student's inner cognitive processes. Thus under conditions of collaborative or assisted performance students may reveal certain emergent functions that have not yet been internalized yet. According to Vygotsky these functions belong to the Zone of Proximal Development (ZPD) in counter-distinction to fully developed functions that belong to the zone of actual development. While the results of the static assessment show us the already existent abilities of the student, the analysis of ZPD allows us to evaluate the ability of the student to learn from the interaction with a teacher or a more competent peer. This learning ability may serve as a better predictor of the students' educational needs than the static scores. Vygotsky mentioned the whole range of possible interactive interventions to be used during ZPD assessment, such as asking leading questions, modeling, starting to solve the tasks and asking students to continue, and so on, but he produced no standardized procedure for the ZPD assessment. Vygotsky also made no particular distinction between ZPD assessment of general cognitive functions and ZPD assessment in content-based learning areas.

The first fully operationalized programs for dynamic assessment of general cognitive functions were developed by Budoff in the US and by Feuerstein in Israel (see Lidz, 1987). Budoff perceived dynamic assessment as a better tool for classification of students and prediction of their future achievements. Feuerstein claimed that the goal of dynamic assessment is to discover and actualize the students' propensity toward cognitive change (Kozulin and Falik, 1995). Currently a wide variety of dynamic cognitive assessment procedures is available. What unites all those approaches is their reliance on test-teach-test paradigm, what distinguishes between them is the nature of "teaching" that occurs between pre- and post-tests (Campione 1996; Haywood and Tzuriel, 1992; Lidz and Elliott, 2000).

Some of the dynamic assessments use a highly standardized sequence of cues during the teaching phase, while others (e.g. Feuerstein et al, 1979) are more flexible and interactive offering different types of mediation depending on specific needs revealed by the student during the assessment. In what concerns the testing materials themselves these usually resemble such standard psychometric tasks as Raven's matrices, numerical or symbolic progressions, Koh's cubes, and so on. The tasks for dynamic cognitive assessment are selected in such a way that they tap into more flexible, so-called "fluid" aspects of cognitive functioning.

A slow progress made by dynamic assessment techniques in content areas, such as reading and writing may be related to the fact that relevant cognitive functions are

usually described as “crystallized” (Carroll, 1993) and resistant to short-term changes. Standard reading tests contain a large amount of material (e.g. vocabulary) comprehension of which depends on students’ previous knowledge rather than their cognitive functioning. That is why unlike dynamic assessment of general cognition that could use the material of standard psychometric tests, dynamic assessment in content areas requires the construction of special materials sensitive to cognitive strategy use.

Dynamic Assessment of Reading

Interest in dynamic assessment of reading coincided with important changes that took place in the reading theory. Without denying the role of more crystallized reading skills contemporary authors pay greater attention to the cognitive aspects of reading. It was established that successful readers monitor their reading, plan strategies, adjust effort appropriately, and evaluate the success of their on-going efforts to understand. The process is essentially inferential, in other words, readers must be able to ‘reason’ about text material during reading. Research indicates that direct instruction in techniques that involve students in actively reasoning about texts improves comprehension (Brown, Campione and Day, 1981). The need for adding metacognitive elements to reading curricula became apparent, since researchers consistently posit that metacognition plays an important - indeed vital - role in reading (Brown et al, 1983).

In a landmark study, Palinscar & Brown, (1984) suggest that strategy instruction has the potential of being an effective approach to improving comprehension in L1 readers. Garner (1987) indicates that self-awareness and control of learning to read for comprehension can be taught through the acquisition of cognitive strategies, and suggests certain guidelines for those attempting classroom implementation of the strategy instruction.

a) Teachers must devote time to the processes involved in reading and learning. Brown (1981) noted that product rather than process is stressed in most traditional classrooms. In order to stress processes, the covert cognitive and metacognitive processes must first be rendered into overt form, i.e., suitable materials must be devised.

b) Teachers must do task analyses of strategies to be taught. Strategic problem-solving activities must be examined and strategies broken down into global steps.

c) Teachers must demonstrate a variety of situations in which learners might profitably use the strategies taught, and transfer to these situations must be explicitly taught.

One piece of research which highlights the importance of strategy training is that of Dole, Brown & Trathen (1996). The group which received strategy training outperformed other groups when asked to read selections on their own, without the teachers’ support, pointing to the transfer value of teaching students to become independent learners. This study, like earlier ones, shows that lower achievers benefit particularly from learning specific strategies. In addition, the research indicated that strategies could compensate for lack of background knowledge. Although the

experimental group was not given advance background knowledge provided to other groups, this did not place them at a serious disadvantage.

Concomitantly with this shift of emphasis from rote learning to strategy instruction a number of authors attempted to adapt the dynamic assessment procedure for the needs of reading assessment. Cioffi and Carney (1983) argued that standard assessment procedures are best at evaluating the students' skills knowledge, but insufficient for estimating the students' learning potential and provide little help for identifying the conditions under which the progress can be made. The authors illustrated their claim by a case study of a third grade student who was diagnosed as reading 6 to 9 months below his grade level according to standard tests. The teaching phase in the dynamic assessment included preteaching difficult vocabulary, activating prior knowledge, providing directions for reading, revealing system and structure in text and requiring articulation of what is learned. Under these conditions the child demonstrated grade appropriate average speed of silent reading and answered 7 out of 8 questions correctly. While reading orally the child made only 7 miscues, all of them semantically and syntactically appropriate. The dynamic assessment confirmed that the child's learning potential is consistent with his grade placement and provided the teachers with specific information necessary for creating conditions conducive of his progress in reading.

Kletzien and Bednar (1990) demonstrated how activation of specific strategy may help older children to overcome their text comprehension problems. The authors reported a case study of a 10th grade student whose reading ability increasingly lagged behind her grade level. The girl admitted that she usually did not understand the social studies texts when she had to read them. The strategy analysis of the girl's performance indicated that though she was able to use the decoding strategies appropriately, her text comprehension was based almost exclusively on background experience. When such an experience was insufficient or irrelevant the level of comprehension declined significantly. Dynamic assessment allowed the authors to identify one strategy that was present in the girl's cognitive repertoire but has never been used by her for scholarly text comprehension purposes. That was a strategy of visualization. The girl related that she always vividly imagines the heroines of the romance novels she reads during the summer. It was the activation of this strategy that allowed the girl to anticipate what was going to happen in the next paragraph. The dynamic assessment revealed the girl's reading potential and helped to plot her ZPD that stretched from the 5th to the 10th grade level.

Cognitive approach to EFL teaching, learning and assessment

If cognitive strategies are important for L1 reading they are even more important for text comprehension in a foreign language. There are several reasons for this. While L1 readers can rely on their rich oral experience, L2 readers have to compensate for the lack of such an experience. For L2 readers the task of text comprehension is always complicated by possible lacunae in their L2 vocabulary. Thus various strategies aimed at extraction of meaning in the absence of complete information become extremely important. One may say that reading in L2 is a problem solving activity par excellence.

Clarke and Silberstein (1977) concluded that second language learners needed to be taught strategies cognitively in order to read more efficiently, strategies such as guessing from context, defining expectations, making inferences from the text, skimming ahead to fill in the contexts, etc. Coady (1979) identified three components of the reading process essential for L2 students: process strategies, background knowledge and conceptual abilities. Carrel (1989) demonstrated that training L2 students in strategies for recognizing the organizational structure of texts resulted in improved comprehension, and pointed out some interesting specific differences between L1 and L2 learners: for example, for L2 students, awareness of the more specific logical patterns of organization such as cause-effect, compare and contrast, and problem-solution improve comprehension, indicating that strategy awareness might be even more important for L2 learners.

The implications for EFL curriculum development are that students need to develop strategies which can be generalized to all texts. An example of such a curriculum is one developed by Garb and Kozulin (1998) for adult learners at pre-academic centers in Israel. Each unit focuses on a general problem solving strategy, includes more specific language learning strategies, and provides EFL content material with which to practice, integrate, and gain insight into both the general and specific strategies.

It is fairly obvious that if the goals and methods of EFL instruction are oriented toward a cognitive model, the evaluation of EFL learning should be appropriately redesigned. It would make no sense to check the students' rote memory of words or rules, if the instruction was aimed at developing in them effective strategies for text comprehension that would not be completely handicapped by insufficient vocabulary or a forgotten rule. A dynamic assessment of EFL text comprehension should therefore assess the student's ability to learn, activate and use effective strategies for text comprehension.

Methodology of dynamic EFL assessment

A dynamic EFL assessment was designed and tested in a population of young adults (ages 18 - 25) at a number of pre-academic centers in Israel (Garb and Kozulin, 1999), using the test-teach-test paradigm. The students would first be given a static test. The teacher would then review the test with the students, mediating for them the strategies required in each item, building together with the students process models for each item, and indicating how strategies can be transferred from one task to another. A post-test would indicate how individual students benefited or failed to benefit from the mediation. This post-test would be given soon after the mediation, to avoid interference from classroom learning.

Stage 1. The pre-test. The pre-test was adapted from a standard test used for EFL placement purposes in pre-academic centers at colleges and universities in Israel. The original test consisted of 9 sections, 3 of which dealt with vocabulary recognition or production. These items were eliminated, since success in these items depended purely on prior knowledge. The test now reflected more accurately the nature of real text-comprehension tasks demanded for EFL academic reading, i.e., tasks requiring text comprehension amenable to the use of cognitive strategies. The 6 remaining items were

analyzed in order to determine a) what basic information was needed and b) what strategies should be used for successful completion.

Stage 2. The mediation process. Based on the above analysis, very detailed guidelines were designed to enable teachers to mediate each of the items in an interactive way, and to ensure that mediation was consistent from teacher to teacher. The students' own corrected pre-tests were used for mediation, and collected again after the mediation. The mediation was divided into two stages: Part 1 (items A and B of the assessment) involves manipulation of grammatical, lexical and sentence structure conventions. An "information page" was constructed for students to take home and revise, providing the basic lexical and grammatical information they would need: question words, the auxiliary verbs "to be" and "to do", both in the negative and positive, and the Subject-Verb-Complement (SVC) structure of normative sentences and question forms. Part 2 includes four texts, increasing in length and complexity, with questions designed to test comprehension. The strategies mediated in stage 2 focus on using text structure, cohesion devices, and background knowledge to elicit meaning from texts and questions. Each mediation stage requires approximately 50 minutes.

Stage 3. Re-test. A second test was designed, where each item matched that of the pre-test with regard to information, strategies, length and level of difficulty. Both tests were piloted without mediation at one of the pre-academic centers. Student scores on all items were almost identical, indicating that the second test was equivalent to the first.

Procedure

Pretest: The entire pre-test was given to the students. The maximum time allowed was 90 minutes. Dictionaries were not allowed, so that students would need to rely for word meaning on strategies such as prediction and hypothesis. Mediation and re-testing were done in two stages, since the pilot experiment indicated that this population of students was unable to absorb mediation of the entire test at one sitting. Part 1 was mediated and re-tested a few days later. Part 2 was then mediated, and re-tested a few days later. (Appendix A includes one example, Item A, of the pre-test, the mediation instructions to teachers, and the post test).

Sample

We report here results obtained in one of the pre-academic centers in the rural area of the country. Assessment was conducted with a group of 23 students, 4 males and 19 females, aged 20-23. Three of the students were relatively new immigrants for whom English was their thilanguage. All students were considered the weaker group of academically at-risk students, having failed to obtain a matriculation certificate. In addition to studying EFL, these students were concomitantly taking up to a total of seven other subjects.

Results

The comparison of pre- and post-test performance of the students can be analyzed in a number of ways. First of all one can see that on average students' scores improved in more than one standard deviation (see Table 1). The effect size is 1.2 (Effect size =

Gain score/ SD of the Post-test). This result indicates that many of the students indeed benefited from mediation and were able to apply the acquired strategies to the new text. Secondly, it became clear that while the pre- and post-test scores are highly correlated ($r=0.8$), the gain scores are negatively correlated with the pre test scores. This means that the pre-test scores reflect the students' actual performance level but not their learning potential.

	Mean	SD
Pre	17.0	6.3
Post	22.6	4.5

Table 1. Mean scores and standard deviations in the pre- and post-test of EFL text comprehension, Max score=34. N=23.

A number of students with identical pre-test scores performed very differently at the post test. For example students T. and H. both had 29% correct answers at the pre-test, but after mediation T. got 59%, while H. only 38%. This is true also of initially higher achieving students. For example, L. and A. both received 62% at the pre-test, but at the post-test A. improved his result to 82%, while L. remained with 65%. This finding confirms the practical value of the EFL dynamic assessment procedure because it provides an in-depth information about the different learning needs of the students who have the same standard performance scores.

In order to operationalize the students' learning potential the following scoring method was developed. In our opinion, the learning potential score (LPS) has to reflect both gain made by the student from pre- to post-test and an absolute achievement score at the post-test.

$$LPS = \frac{(S_{post} - S_{pre})}{S_{max}} + \frac{S_{post}}{S_{max}} = \frac{2S_{post} - S_{pre}}{S_{max}}$$

where S_{pre} and S_{post} are pre-and post test scores, and S_{max} is a maximal obtainable score. The above formula provides a theoretical basis for distinguishing between high learning potential and low learning potential students. A student who at a pre-test had a low score = 50, but made a significant progress and reached the maximum score of 100 at the post test would have a very high $LPS=1.5$; a student who at a pre-test had a low score = 50 and made no progress receiving at the post the same score = 50, would have a very low $LPS=0.5$. All other cases characterized by different combinations of gain scores and absolute post-test score can be plotted against these extremes.

The LPS of the students from our sample ranged from 0.47 to 1.21. One can distinguish three sub-groups: a high learning potential sub-group with $LPS>1.0$, a low learning potential sub-group with $LPS<0.71$, and a large sub-group with LPS ranging from 0.79 to 0.88 (see Fig. 1). It is important to emphasize that all three groups include some students that at the pre-test performed at the same level which means that the learning potential score adds important information regarding the students' learning ability that is unobtainable through the standard examination.

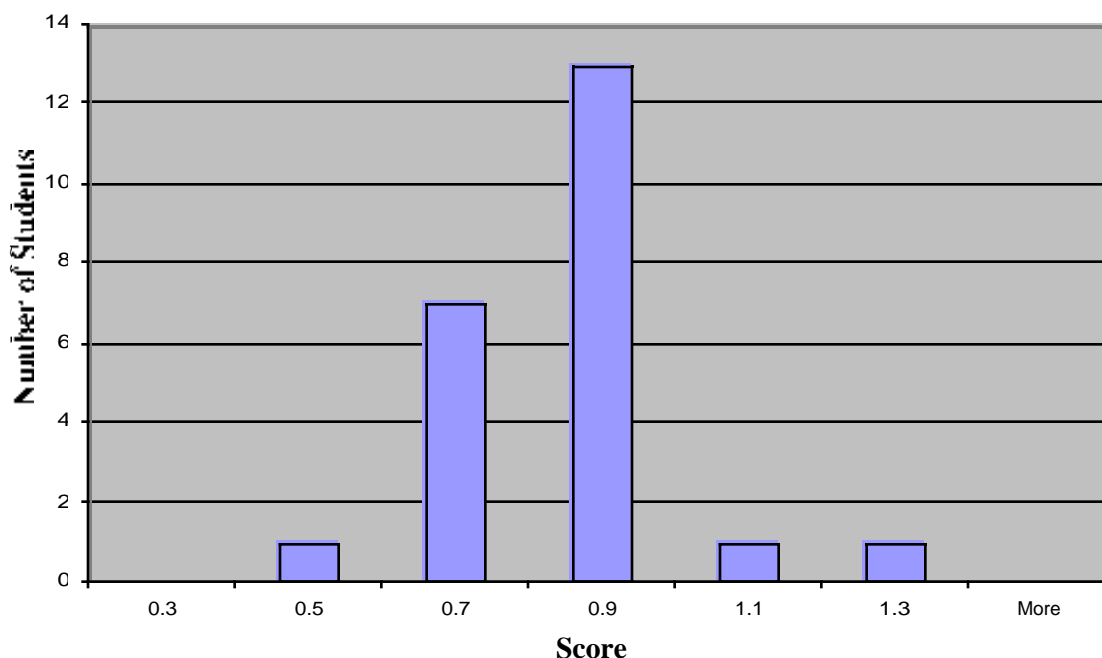


Fig.1. Distribution of learning potential scores in a group of students.

Discussion

The goal of this paper was to explore the feasibility of the development and implementation of the dynamic EFL assessment procedure with at-risk students. The results indicate that the procedure is both feasible and effective in obtaining information on students' learning potential. It was confirmed that students with a similar performance level demonstrate different, and in some cases dramatically different ability to learn and use new text comprehension strategies. Because of this we can affirm that the paradigm of dynamic assessment is useful not only in the field of general cognitive performance but also in such curricular domain as EFL learning.

At the same time one should be aware of those characteristic features of the dynamic assessment procedure that impose certain limitations on the generalizability of the results. Any dynamic assessment that includes an element of intervention depends on the quality of mediation provided by the assessor. In this respect dynamic assessment is closer to a situation of instruction rather than examination. Results obtained in the present study thus reflect not only the students' learning potential but also the quality of mediation provided during the assessment. One may always suspect that another assessor with a different mediational style might reveal a somewhat different pattern of learning abilities in the same group of students. Thus one of the possible directions for future research is a study of reliability of learning potential scores obtained during assessment sessions conducted by different mediators.

The second limitation is inherent in any curriculum-based assessment is its dependence on students' content knowledge. There is no such thing as a content-free language task which means that students with better vocabulary and better knowledge

of grammatical rules would always have a certain advantage. Though our selection of assessment materials was guided by the ideal of strategies-based text comprehension it was impossible to eliminate the element of content knowledge as such. In other words, students who have a very poor knowledge base cannot expect to reach the high achievement level even if their use of strategies is quite good.

The instructional value of the dynamic EFL assessment lies in the fact that its results can be used for the development of individual learning plans for students with different learning needs. For example, the work with students who demonstrated an average pre-test performance but insufficient learning potential should focus on providing them with learning and information-processing strategies, i.e. teaching them “how to learn”. Students with an average pre-test performance and high learning potential should be given more challenging material and more opportunity for independent study. Students with low pre-test performance and low learning potential need an intensive investment into their general learning and problem solving skills that should be based on very simple EFL material. Only after these students acquire the basic learning skills should they be challenged by the standard EFL tasks.

References

- Brown, A. L. (1981,). *Metacognition: The development of selective attention strategies for learning from texts*. Paper presented at the National Reading Conference, Washington, DC.
- Brown, A.L., Campione, J.C., & Day, J..D. (1981). Learning to learn: On training students to learn from text. *Educational Researcher* **10**: 14-21.
- Brown, A.L., Bransford, J.D., Ferrara, R.A. & Campione, J.C. (1983). Learning, remembering and understanding. In W. Kessen (Ed). *Handbook of Child Psychology: Cognitive Development*, vol.3, pp. 77-166.. New York: Wiley.
- Campione, J. (1996). Assisted assessment: A taxonomy of approaches and an outline of strengths and weaknesses. In H. Daniels (Ed.), *An Introduction to Vygotsky*, pp.219-250. London: Routledge.
- Carrell, P. L. (1989). Metacognitive awareness and second language reading. *The Modern Language Journal*, **73**(ii), 121-131.
- Carroll, J.B. (1993). *Human cognitive abilities*. New York: Cambridge University Press.
- Cioffi, G. and Carney, J. (1983). Dynamic assessment of reading disabilities. *The Reading Teacher*, **36**, 764-768.
- Clarke, M. & Silberstein, S. (1977). Toward a realization of psycholinguistic principles for the ESL reading class. *Language Learning*, **2**: 135-154
- Coady, J. (1979). 'A psycholinguistic model of the ESL reader'. In R. Mackay, B. Barkman & R.R. Jordan (Eds). *Reading in a Second Language.*, pp.: 5-12 Rowley, MA: Newbury House
- Dole, J., Brown, K., & Trathen, W. (1996). The effects of strategy instruction on the comprehension performance of at-risk students. *Reading Research Quarterly*, **31**(1), 62-88.
- Feuerstein, R., Rand, Y., and Hoffman, M. (1979). *Dynamic assessment of the retarded performer*. Baltimore, MD: University Park Press.
- Garb, E. and Kozulin, A. (1998). *I think ... therefore I read: A cognitive approach to English teaching*. Jerusalem: Acadamon.
- Garb, E. and Kozulin, A. (1999). Dynamic assessment of EFL at the pre-academic centers. Unpublished report.
- Garner, R. (1987). *Metacognition and reading comprehension*. Norwood, New Jersey: Ablex Publishing Corporation.
- Haywood, C. and Tzuriel, D. (Eds.) (1992). *Interactive assessment*. New York: Springer.
- Kletzien, S. and Bednar, M. (1990). Dynamic assessment for at-risk readers. *Journal of Reading*, 528-533.
- Kozulin, A. (1998). *Psychological tools: A sociocultural approach to education*. Cambridge, MA: Harvard University Press.
- Kozulin, A. and Falik, L. (1995). Dynamic cognitive assessment of the child. *Current Directions in Psychological Science*, 4: 192-196.
- Lidz, C. (Ed.)(1987). *Dynamic assessment*. New York: Guilford Press.
- Lidz, C. and Elliott, J. (Ed.) (2000). *Dynamic assessment: prevailing models and applications*. Oxford: Elsevier Science.

- Minick, N. (1987). Implications of Vygotsky's theory for dynamic assessment. In C.Lidz (Ed.), *Dynamic assessment*, pp.116-140. New York: Guilford Press.
- Palinscar, A. and Brown, A.L. (1984). Reciprocal teaching of comprehension-fostering and comprehension-monitoring activities, *Cognition and Instruction* , **1**: 117-175.
- Vygotsky, L. (1934/1986). *Thought and language* (Rev. ed). Cambridge, MA: MIT Press.

Appendix

Dynamic Assessment Test of English Comprehension[©] Alex Kozulin and Erica Garb

Instruction:

“Circle or underline the clues in the text and in the question that helped you find the answer”.

Example:

Text: David and I were tourists in Europe last summer.

The story

- a) happened in the past
- b) is happening now
- c) happens every summer

Text 1 - Pre-test

“David and Robert were tourists in Europe last summer. They ate cheese in Denmark and olives in Italy. The cheese and olives were very good. They drank wine in France and tea in England. The tea from England and the wine from France were excellent.”

1. The people in the story
 - a) live in Europe
 - b) came to Europe on a visit
 - c) have never been to Europe
 - d) visit Europe every summer

2. How many places in Europe did they visit? What were they?

3. They the English tea
 - a) didn't drink
 - b) ate
 - c) didn't like
 - d) liked

4. Was the cheese from Denmark?
 - a) Yes, it was.
 - b) No. it's from England.
 - c) No, it was from France.

d) No, it was from Italy.

5. In the story there are tourists.

- a) one
- b) two
- c) three
- d) we don't know

6. This story is mainly about

- a) what you can see in Europe
- b) the history of Europe
- c) food and drink of Europe
- d) how people in Europe live

Mediation

Mediation is divided into two categories.

One) Knowledge required. Your students might not have this knowledge. On the other hand, they may have the knowledge, but not use it when required. Mediation therefore also focuses on activating their knowledge through

Two) Strategies, which provide the students with a plan for applying what they know.

Knowledge required:

Denmark, Italy, France and England are countries in Europe.

Strategies for mediation:

1. Text analysis according to agency, activity, location, and time reference.
2. Look for clues in the questions
3. Elimination of impossible answers
4. Comparison of possible answers
5. Inference.

Examples.

Read the text. Try to identify who the characters are, where they were, when, and what they did.

WHO: David and Robert

WHERE: Europe, Denmark, Italy, France, England

WHEN: Last summer

WHAT: were tourists; ate cheese; ate olives; drank wine; drank tea

Task 1. Look for clues in the question. Each answer mentions Europe. Find Europe in the text. The people in the story are David and Robert. What did they do? They were tourists in Europe last summer. Consider all alternatives one by one. First eliminate the improbable, (a) and (c), then compare the possible, (b) and (d). What is the difference between (b) and (d)? One visit vs. visit every summer. Check the WHEN in the text - "last summer". There is no information about visits every summer, therefore (b) is a correct answer.

Task 2. Look for clues in the question. The question is about "places in Europe", and "how many?". Check WHERE because it contains information about the places which the tourists visited, e.g. Denmark, Italy, France, England. Why should Europe not be included? Because the question is about places in Europe.

Task 3. The question is related to English tea. Check all sentences which mention English tea, i.e.

"We drank...tea in England"

"The tea from England...was excellent"

Check alternatives (a) through (d). Eliminate the impossible: (a) and (b). (d) is more probable because if "the tea was excellent" most probably the tourists liked it.

Text 1 - Post-test

Maria and Rosa were tourists in America last year. They visited theaters in New York, "Disney World" in Florida and museums in Chicago. The theaters and museums were excellent. In California they went to the beach. They enjoyed their trip to America.

1. The people in the story

One) live in America

Two) came to America on a visit

Three) have never been to America

Four) visit America every summer

2. How many places in America did they visit? What were they?

3. They the museums.

a) didn't see

b) didn't enjoy

c) didn't like

d) liked

4. Is Disney World in America?

One) Yes, it is

Two) No, it's in California

Three) No, it is in New York

Four) No, it is in Chicago

5. In this story there are tourists

- a) one
- b) two
- c) three
- d) we don't know

6. This story is mainly about

- One) what you can see and do in America
- Two) the history of America
- Three) food and drink of America
- Four) how people in America live