

**VOCABULARY AND QUESTION DIFFICULTY
IN ENGLISH 30 READING DIPLOMA EXAMINATIONS**

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Abstract

Vocabulary and Question Difficulty in English 30 Reading Diploma Examinations

This study examines sixteen reading tests given to English 30 students in Alberta between June 1986 and June 1993. The focus of the study is the vocabulary question, that is a multiple choice question that uses as alternative answers, words which might be of difficulty to the average grade twelve student. The words used as alternatives do not appear in context nor do they appear anywhere else on the exam. The student needs to be able to use the word correctly in order to answer the question correctly.

The two research questions are (1) How many questions on Diploma Examinations between 1986 and 1993 were vocabulary questions? and (2) What are the difficulty levels of those questions? Difficulty level is defined as the number of students answering each question correctly, as shown by Alberta Education statistics.

Individual exams comprised a variety of vocabulary questions ranging from a low of 7.1% of total questions to a high of 25.7% of total questions. On several exams vocabulary questions were among the hardest on the test. In eight of sixteen exams vocabulary was deemed to be a large factor in determining student achievement.

The average difficulty level of vocabulary questions varied between 51% correct and 71.6% correct for the exams studied. It was found that vocabulary questions were on average more difficult than the mean for questions of all types (65%). In ten of sixteen exams, vocabulary questions were more difficult than questions of other types.

A list is included which contains the 166 words used in vocabulary questions. A second list includes eleven words that appeared as possible answers on five or more exams.

The author concludes that vocabulary questions make up a significant portion of questions on Diploma Examinations in English and that these questions comprise a high proportion of the most difficult questions on the exams. Further, he concludes that a student's vocabulary is a large factor in determining achievement on these tests.

It is suggested that vocabulary knowledge is very important for students writing diploma examinations. Vocabulary acquisition and some approaches to vocabulary teaching are discussed.

The author also presents a computer game designed for teaching vocabulary. Called "Olympus," it uses a Hypercard stack and uses a journey/maze approach. It uses a sample of the 166 word list taken from all exams.

It was found that vocabulary knowledge is a factor in student achievement, and it is suggested that vocabulary instruction should be stressed in the classroom.

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Vocabulary and Question Difficulty in English 30 Reading Diploma Examinations

Diploma Examinations

The Diploma Examinations in Alberta are tests administered to grade twelve students in Mathematics, Social Studies, English, Chemistry, Biology, Physics, and French. Approximately two thirds of Alberta grade twelve students use English 30 as their English prerequisite for graduation and admission to post secondary institutions. These exams have been in use since 1984. They are administered in January and June at the end of each semester.

The English 30 exam consists of two parts, the essay and the reading test, which are written on different days. The reading exam, the focus of this study, is made up of nine or ten reading passages chosen by persons in the testing branch of Alberta Education followed by six to ten multiple choice questions concerning each passage. The questions for each passage are created by committees of four teachers of English 30 and one person in charge of constructing the exam. In any given year, there may be three or four of these committees. After items are made, they are field tested in grade twelve classrooms throughout the province with those deemed suitable assigned to an item bank. The basic guidelines for inclusion are that every alternative draw at least 5% of responses and that more students choose the correct response than choose any other single alternative. The exam is then constructed by one person in the testing branch with the consultation of one or two colleagues.

The total number of questions on the exam is 70 or 80 and the difficulty level of questions varies between 35% correct student responses and 91% correct student responses.

Literature Review

The testing of vocabulary out of context has been the subject of extensive research. According to Hughes (1986), out of context testing is a problem when we consider the vast number of words in the English language. With a total of 800,000 words, the possibilities for the test constructor are nearly endless while the possibilities for the student preparing for such an exam are nearly hopeless. If we consider the fact that the average person uses 2,240 words in his or her daily discourse (Hughes, 1986), the difference is large indeed. It is estimated that the average high school student has a vocabulary of 80,000 words (Farr, 1969). Some researchers place the number of words for the average high school student as low as 40,000 (Nagy and Herman, 1987) and the average university graduate's at 157,000 (Farr 1969). Even with a vocabulary this large, the odds are against the student who is faced with 800,000 possibilities.

There is a large gap between the average college graduate's vocabulary and the average high school student's vocabulary. In my consideration of Diploma Examinations I have often considered this gap between student and teacher vocabularies to be a possible problem for students.

Much of the criticism of standardized testing comes from use of vocabulary as a predictor of reading competence. Stodolosky (1976) points out that this is not a valid tool for measuring reading skills. Patton (1976) suggests that such tests are biased in favour of white middle class people since vocabulary is a function of experience more than an indicator of reading skill. Thus, the test becomes a measure of whether the student has the same experience and values the test assumes rather than a test of potential. Meier (1976) also criticizes the use of vocabulary items on standardized tests, saying that they are used because they have a positive correlation with later school success, which may be a result of a myriad of factors other than reading skill. Strenio (1981) agrees with this idea, stating that vocabulary tests are merely tests to determine whether the student has the language of the test publishers. He affirms that vocabulary is a function of experience and the scores shown by some minority groups test their exposure, not their aptitude.

Others have questioned the use of vocabulary tests to measure reading skill. Smith (1969) suggests that vocabulary tests are invalid as tests of reading because it is possible for two people to have a different meaning for the same word. Indeed, it seems that the same word appearing in different contexts might well have two meanings. Therefore, presentation of vocabulary words in isolation would be a questionable test practice. Another point Smith makes is that a test should measure what has been taught. He has a valid point when consideration is given to the fact that the teaching of reading is not the direct

teaching of vocabulary but rather the teaching of skills with which to establish the meaning of words in context.

Schwartz (1984) also questions the use of out of context vocabulary testing. He states that the test tends to test what the student should know rather than what the student does know. While this is a problem connected with most tests, it seems particularly true for vocabulary tests. He states vocabulary is a commonly tested skill on reading tests because vocabulary scores have a high correlation with the overall test scores. While this is the case, it is likely because vocabulary skills are a result of a number of other subskills which are tested in the reading test. He also agrees that presenting vocabulary in isolation would be a problem because it ignores the importance of context in determining word meanings. Further, he suggests that this type of test item is susceptible to guessing strategies which would call into question their validity.

As Schwartz states:

Despite their different techniques, most vocabulary measures correlate with one another, usually in the range .7 to .8 (Farr, 1969). Although this means the various tests are largely tapping the same thing, it does not mean the "thing" they are measuring is vocabulary. For example, vocabulary tests also correlate in the range .7 to .8 with comprehension tests that are supposed to be measuring a different skill. Such findings call into question the validity of vocabulary tests. Their reliability has also been shown to be highly variable and to be strongly influenced by guessing strategies (Farr, 1969, page 53).

Ivo Greif (1981) carried out an interesting study using words taken out of context. He took 298 words from one issue of the Reader's Digest that he felt high school students might not know and tested students by asking them to give a meaning for the words. He found that high school students knew the meaning of an average of 17.98 % of the words. These figures were born out by a follow up study with nearly identical results. This illustrates that defining words out of context is a very difficult thing to do for most students.

While some writers suggest that there is a high correlation between global (summary or overall) score and vocabulary scores on reading tests, there is some research that calls that position into question. Arnaud (1984) attempted to demonstrate that vocabulary test scores predicted the vocabulary richness of written work. He based his work on a statement by Ingram (1968) in which vocabulary was called the nearest thing to a "foolproof test" of reading and language ability. While Arnaud found a positive correlation between vocabulary scores and lexical richness in student writing, that correlation was extremely low. Correlations of .27 and .24 are not very convincing. Stalker (1982) completed a study in which she considered vocabulary test scores as a predictor of GPA and drop-out rate in post secondary students. She concluded that vocabulary scores are a very weak predictor of Grade Point Average and as such have very little use in predicting success in the post secondary programs she studied. This study reaffirms the criticisms of standardized tests

being used as a screening device for entrance into college programs. Diploma exams fill the same role in determining entrance into post secondary programs.

In summary, it seems that researchers are divided on the value of vocabulary tests as a measure of reading skill and as a predictor of future school success. While there is a high correlation between vocabulary scores and global reading test scores, there are many problems with vocabulary tests. Not the least of these problems is that a vocabulary test that tests out of context is a test that determines whether the student has the experience and therefore the vocabulary assumed by the test. Nearly all researchers agree, however, that the presentation of vocabulary words in isolation as a measure of reading ability is not a reliable and valid testing strategy. If vocabulary is to be tested it should be tested in context.

Overview of Study

This study examines sixteen English 30 examinations administered between June 1986 and June 1993. The purpose of the study was to determine the effect of vocabulary knowledge on student response in multiple choice reading questions.

This study focuses on a particular type of question commonly used on the English 30 reading exam. I term this question type a vocabulary question, that is a multiple choice question concerning a reading passage in which at least one of the words used as alternatives in the answer is a word that many

grade twelve students would not know. This is best explained by an example.

Following is question 44 from the June 1991 examination.

44. In lines 26 and 27, "Others" view the law with

- A. optimism
- B. veneration
- C. resignation
- D. nonchalance

In this question none of the four words offered as answers is in the selection on which the question is based. In answering this question the student can not use the context to determine the word's meaning nor can the student use any other reading skill to determine which word to choose for the answer. The student must know the meaning(s) of the word or words in order to answer the question. Students who know the meaning of the reading, but who do not know the meaning(s) of the word(s) cannot answer the question correctly. Thus, a significant factor that determines the student's ability to answer the question is vocabulary knowledge.

The above question is supposed to test a category from the Alberta Education curriculum blueprint called "Meanings." That is, it asks the student what the line means. As such, it is not a difficult question until the alternatives are scanned. The question probably does not test the "meaning" of the passage at all, but rather whether the student knows what the four words in the alternatives mean. If the student does know, the student answers correctly, but

if he or she does not, he or she has little chance of choosing a correct answer. The thing that determines student achievement on questions of this type is student vocabulary knowledge, not reading skill.

If the word(s) in the answer are beyond the knowledge of the student, the student would have no alternative except to guess. It appears that the assumption of the exam makers is that the student knows the words used. This is a dangerous assumption, not unlike the problem Hughes(1986) refers to when he points out that with over 800,000 words in the English language and with the average university graduate having a vocabulary of 157,000 words compared to the 80,000 words of the average high school student, to assume that the student will have the same vocabulary as the test constructor is likely a mistake.

While it is not possible to determine conclusively that vocabulary knowledge or some other aspect of any question is what makes it more difficult than others, it is possible to determine how often a vocabulary question is a difficult question and make inferences from that information. It is interesting to note that neither in the literature published by Alberta Education nor in my discussions with individuals in the testing branch is there mention of this type of question or of this type of knowledge being tested.

Research Questions

The two questions which guided my study were (1) How many questions on Diploma Examinations between 1986 and 1993 were vocabulary questions? and (2) What are the difficulty levels of those questions? Difficulty level is defined as the percentage of students who answered each question correctly. For example, a difficulty level of 65% indicates that 65% of the students who wrote the exam answered the question correctly and 35% answered incorrectly. Each question on every exam has a statistical difficulty level, as provided by Alberta Education.

Average Difficulty Level

Questions from each examination which were of the vocabulary type were identified and the difficulty level as shown by Department of Education statistics was recorded. Following is a table showing average difficulty level, maximum difficulty level, and minimum difficulty level.

Table 1Difficulty Level of Vocabulary Questions for All Exams

<u>Exam</u>	<u>Average difficulty level</u>	<u>Minimum difficulty level</u>	<u>Maximum difficulty level</u>
Jan 93	57.5	80.9	56.9
June 93	57.7	71.3	42.7
Jan 92	60.5	85.3	36.6
June 92	65.7	83.6	41.5
Jan 91	67.2	83.4	41.6
June 91	51	73.1	38.2
Jan 90	68.4	87.9	56
June 90	65.2	76.1	58.2
Jan 89	58.7	76.7	35.1
June 89	67.4	82.7	49.8
Jan 88	71.6	87.1	53.4
June 88	55.9	79.8	40
Jan 87	60.3	72.9	50.3
June 87	51.3	91.3	40.6
Jan 86	58.4	83.1	41.2
June 86	53.4	84	44

*Above figures indicate percentage of students who answered correctly.

Table 1 shows that the average difficulty level for vocabulary questions varied between 51% and 71.6%. These figures show that in some exams vocabulary knowledge may have been a significant factor, since difficulty levels in the 50% range are among the most difficult questions on exams. How significant this is however, would be determined in part by the total number of difficult vocabulary questions on any given exam. If, for example, there were only two difficult vocabulary questions on an exam, vocabulary knowledge would not be nearly so large a determiner of a student's grade as if there were 10 or more difficult vocabulary questions. These averages of 51% to 71.6% are outside the parameters of difficulty levels for all questions of all types for all

exams. When questions of all types are taken into account, the difficulty level varies from 62.1% to 67.8%. When the difficulty levels for all question types and all exams are averaged the result is 65%.

My discussions with Ms. Gail Gates, coordinator of test development for English 30 for Alberta Education indicate that 65% is the target difficulty level when exams are constructed. If vocabulary questions were to fit the profile for difficulty of all questions the difficulty level should also be in the 65% range. Difficulty levels consistently greater than 65% would indicate that vocabulary questions for that exam are harder than the average. The exams for 1993, January 1992, June 1991, January 1989, June 1988, 1987, and 1986 all have vocabulary questions that are harder than the average level for all questions. The greatest mean difficulty levels for questions were from the June 1991 exam (51% correct) and the June 1987 exam (51.3% correct).

These comparisons show that vocabulary questions are, on average, more difficult than the 65% difficulty level which is the standard on provincial diploma exams. It can be noted that vocabulary questions are generally more difficult than questions of other types in ten of sixteen exams. These figures put vocabulary questions in the range of the most difficult questions on the exams. If the number of questions of this type is high (19% or more), then vocabulary knowledge will be significant in determining achievement level. It is not vocabulary that is supposed to be tested in the question, but rather the

student's ability to read and comprehend the passage. If the Diploma Examinations rely heavily on vocabulary to sort students into different achievement levels, then they are falling into the trap referred to by Schwartz (1984) and Strenio (1981) who suggest that vocabulary knowledge is a measure of experience rather than reading skill. As such, the reliance on vocabulary knowledge to answer a question might circumvent the intent of the particular question.

Examination of the minimum and maximum difficulty levels (as shown in Table 1) shows that there is a wide variety in the difficulty level of vocabulary questions. Ranging from 35.1% to 91.3%, these figures suggest that while there are some questions where student vocabulary knowledge is probably not a problem in answering the questions correctly, there are questions where student vocabulary knowledge probably prevents the student from answering the question correctly. On every exam studied there were one or more vocabulary questions which were very difficult to answer. While this may not appear to be a problem, the real question is how many vocabulary questions are there on individual exams? If, for example, there are eight difficult vocabulary questions on an exam, a student's vocabulary is a significant factor in determining whether an A grade is possible, since 11% of the questions are vocabulary based.

Difficulty Level of Individual Examinations

My first concern was to determine the total number of vocabulary questions on each exam. Table 2 expresses those values in percentages.

Table 2

Percentage of Vocabulary questions for all exams

Exam	Percentage
Jan 93	10
June 93	10
Jan 92	18.6
June 92	12.9
Jan 91	17.1
June 91	17.1
Jan 90	25.7
June 90	7.1
Jan 89	11.3
June 89	18.8
Jan 88	12.5
June 88	17.5
Jan 87	10
June 87	18.8
Jan 86	22.5
June 86	27.5

Table 2 shows a significant number of vocabulary questions on all exams. If these questions are of a high difficulty level they would have an impact on student achievement.

My next step was to analyze each exam to determine which questions were the most difficult. I counted the number of questions where the difficulty level was at 60% or less and then checked to see which of those questions were vocabulary questions. Following is Table 3 which shows these numbers.

Table 3Questions Which Were Answered Correctly by 60% or Less of Total Students

<u>Exam</u>	<u>Total Questions</u>	Total Vocabulary <u>Type Questions</u>	Percentage of Difficult Questions <u>Which were Vocabulary Type</u>
Jan 93	19	3	15.8
June 93	32	4	12.5
Jan 92	20	6	30
June 92	19	2	10.5
Jan 91	26	4	15.4
June 91	25	8	32
Jan 90	17	7	41
June 90	19	4	21
Jan 89	22	9	41
June 89	18	4	22
Jan 88	31	1	3
June 88	39	10	25.6
Jan 87	23	6	26
June 87	29	9	31
Jan 86	23	8	35
June 86	30	14	46.7

Table 3 shows that for some exams vocabulary questions comprised a notable portion of the difficult questions. Indeed, from 1986 until June of 1988, at least 25% of the hardest questions on the exams were of the vocabulary type. The highest number of this type of question came in 1986 when 46.7% of the difficult questions were vocabulary questions. As well, in June 1992, June 1991, January 1990, and January 1989 at least 25% of the most difficult questions were vocabulary questions.

These figures show that student vocabulary knowledge is a significant factor in determining achievement. In eight of the sixteen exams studied,

vocabulary knowledge may have been an unreasonably large determiner, since 25% or more of the most difficult questions on these exams were vocabulary questions. In these cases it can be argued that vocabulary is being used as a quick way of determining the achievement level of students. Interpreted superficially, it could be argued that students and teachers who concentrated on the study of vocabulary words for the entire school year, ignoring curriculum objectives, could have an advantage over those who studied the entire curriculum. On those eight exams this type of preparation might have resulted in scores of as much as 10% to 18% higher. For example, in June 1986, 14 of the most difficult questions on an 80 question exam were vocabulary questions. Students with strong vocabulary knowledge would probably do well on those questions whereas others would not. This would be acceptable if it were the objective of the exam to test vocabulary, but that is not the case.

Words Used in Vocabulary Questions

In this section of the study I extracted the words which were used in each vocabulary question. Table 4 shows the complete word list from all exams.

Table 4Word List

adeptness	cunning	guile	ornamentation	self-rebuke
adherence	cunningly	heedlessness	overwrought	shrewdness
adversity	cynic	humanitarian	passivity	sibilant
allure	cynical	hypocrisy	patronizing	sceptical
aloof	cynically	hypocritical	peerless	scepticism
aloofness	cynicism	idiosyncracies	perceptive	socioeconomic
ambiguities	decadent	impertinence	perceptiveness	speculative
ambivalent	deceitfulness	impetuousness	perversely	submissive
apathetic	denunciation	implications	petulance	subservient
arrogant	deplore	inconsequential	placidity	subversive
articulate	despondency	incredulous	pragmatic	succumbed
assiduously	disdain	indifference	presumptuous	sullen
astuteness	disdainful	indifferent	pretentious	susceptibility
aversion	disillusionment	indignation	proletariat	tolerance
benevolence	distraction	indoctrination	ravenously	transience
benign	domineering	indolence	reactionary	trivialities
bewilderment	eccentricities	indulgence	rebuking	unanimity
blatantly	egocentric	infallibility	recluse	unobtrusive
brusqueness	egotism	ingenuity	reconciliation	unresolved
calculating	elitist	inherent	reconciling	vacillation
coercion	elusive	inhibited	reflective	vehemently
coercive	elusiveness	innate	regression	veneration
communal	er:mity	insolence	remorse	vibrant
complacency	enthraled	ludicrous	remorseful	vicariously
complementarity	erratic	manipulative	repressive	vindicate
conciliatory	esoteric	mediocrity	repugnant	vindictive
condescending	exasperation	melancholy	resignation	vitality
condescension	expediency	meticulous	resigned	vivacious
confirmation	exultation	misadventure	resolute	volatile
consternation	fallibility	nonchalance	resolve	vulnerability
constraining	fervent	nostalgia	restrained	
constraint	gaudiness	nurturing	restraint	
contemplation	grandeur	oblivious	sacrilegious	
contingency	gregarious	obliviousness	sardonic	

An examination of the list indicates multiple examples of words that are considered difficult for students in high school to define out of context. In my experience such words as sibilant, sardonic, assiduous, astute, indolence,

veneration, and esoteric are seldom used by high school students and most probably have not been exposed to the words. This is similar to the task presented by Greif (1981) when he asked students to identify words taken out of context from the Reader's Digest. While the test does not ask the student to define the word, it does assume that the student knows the word or can use it correctly. If the student does not know the word veneration, for example, the student will find it very difficult to answer the question which has it as a possible answer. Since the word does not appear in the passage the student is asked to read, or anywhere else in the exam, the only way to answer correctly is to know the word or to guess correctly.

Sample quizzes based on the list yielded scores averaging 48% when given to four classes of 25 English 30 students. For students to use these words in answering questions they must have a good grasp of their meanings. The quiz I gave students confirms that these words are indeed difficult for my high school students. A sample of the quiz used is given in Appendix B. A further scrutiny of the word list shows a group of words which were used multiple times on examinations. Table 5 shows those used three times or more between 1986 and 1993.

Table 5**Words Used Multiple Times**

<u>Word</u>	<u>Number of Times Used</u>
indifference	14
resignation	11
cynical	8
resolve	6
condescension	6
hypocrisy	6
reflective	5
scepticism	5
remorse	5
disillusionment	5
disdain	5
nostalgia	4
erratic	4
ambivalent	3
melancholy	3
inherent	3
calculating	3
vindicate	3

This table shows only three words which were used on half the exams or more. The three words - indifference, resignation, and cynical - are words that I feel students of English 30 should be able to use and understand. They are indeed words in common use in my classroom. A consideration is that any student who did know these three words would have a very good chance of missing at least one question on his or her final exam.

Summary

The average difficulty level for vocabulary questions ranged from 51% to 71.6% on all exams studied. Eight of the sixteen exams had average difficulty levels greater than the target difficulty level of 65% set for exams by Alberta

Education.

The total vocabulary questions on each exam varied widely, from a minimum of five questions (June 1990 - 7.1%) to a maximum of 22 questions (June 1986 - 27.5%).

The ratio of difficult questions (greater than 60% difficulty) on each exam which were vocabulary questions varied from a high of 46.7% of all difficult questions on the June 1986 exam to 3.0% of all difficult questions on the January 1988 exam. All exams except the January 1988 exam had at least 10% of difficult questions vocabulary type.

Of the total 166 words used in vocabulary questions, many were difficult for students in my classes. Eighteen words were used three or more times in vocabulary questions between 1986 and 1993, with indifference being used 14 times and resignation being used 11 times.

Discussion

The vocabulary question, as used on some exams, creates a question that is difficult, not because of the reading required or the skill that is supposed to be tested, but instead, is difficult because of the word knowledge demands it makes on the student.

It seems that what we have at work here is the problem that Hughes (1986) describes. That is, that the exam assumes that the student has the same vocabulary that the constructors of the exam do. This is, of course, not

the case. In fact, as Smith (1969) pointed out, it is quite common for two people to have different meanings for the same word.

If there are a large number of this type of question, the student's grade is being affected significantly by the vocabulary knowledge he or she has and not by the ability to read and comprehend the passage. If there are a number of these questions with unreasonably difficult words in them, then the student's vocabulary is being tested more than intended. In the June 1986 exam for example, 14 of the 30 most difficult questions were vocabulary questions. On such an exam, it could be argued that vocabulary knowledge and not reading skills would determine whether a student achieved an A, B or a C grade. This is based on the ratio of 18% of the total questions on the exam being difficult vocabulary questions. While vocabulary scores and overall scores on reading tests do have a high correlation (Schwartz, 1984), the fact remains that it is not vocabulary knowledge but reading skill that is supposed to be tested.

An examination of the word list from all exams shows individual words that are difficult for the majority of high school students. If the correct answer for a reading question is "sardonic" it may be assumed that many of the 12,000 students who write the exam would not know the word. This type of question then becomes a quick way to sort students and vocabulary knowledge becomes the yardstick rather than the stated skills of (a) meanings, (b) understanding human values and experience, and (c) critical response (the

three areas of skills identified in the examination blueprint as those to be tested). These three areas are named on page 23 in the curriculum document titled English 30 Information Bulletin 1993-94 published by Alberta Education. By a "quick" way of sorting students I mean that it seems that the exam constructors take advantage of the high correlation between vocabulary knowledge and global reading test scores (Schwartz, 1984). Taking this approach to the extreme would have students take only a vocabulary test at the end of the course. While the scores would likely correlate with scores students would achieve on a reading test, they would not have taken a test that evaluated all of the objectives of the reading curriculum.

Vocabulary questions may be the result of an assumption on the part of the exam constructors, who are teachers of high school English. In an attempt to choose just the right word for an answer, the teachers may forget that the perfect word may well be a word that is not in the vocabulary of most high school students. When this happens too often, the student is penalized for not having the same vocabulary as the exam constructors. When asked a question touching on this problem, Gail Gates, the person in charge of test construction for English 30 at Alberta Education, replied that while the vocabulary level of reading selections is scrutinized and at times footnotes are used to explain difficult words, this is not done when exam questions are made. It is assumed that the teachers making the exams would know what words students are

capable of using in answering questions. The data I have presented suggests that this is not always the case.

There seems to be an overemphasis on one part of reading skill which is already being tested by the "meanings" category of questions. My opinion is that vocabulary questions are not necessarily bad questions but that too many difficult vocabulary questions are a problem on a diploma exam. When the number of difficult vocabulary questions (greater than 60% difficulty level) exceeds 10% of the total number of questions, then vocabulary knowledge in my judgement becomes too much of a factor in determining student achievement. For example, Table 3 shows that seven exams had seven or more difficult vocabulary questions. This means that up to 20% of a student's grade on the reading exam would be largely determined by his or her vocabulary knowledge.

Implications for Teaching

It is apparent that vocabulary knowledge is an important factor for students who wish to do well on English 30 diploma examinations. It is also apparent from examination of difficulty levels that many students do not have the vocabulary knowledge that is taken for granted by the makers of these exams. This lack of vocabulary knowledge is likely a result of our changing culture, where reading is no longer a leisure activity for most students and where exposure to words is becoming more limited instead of expanding. As a

teacher of English 30, I think it is important that a greater emphasis be placed on vocabulary knowledge in my classroom instruction for two reasons. It is necessary for students to have this knowledge to do well on diploma exams and more importantly it is necessary that this erosion of word skills be resisted so that my students are more confident and better educated than they might now be.

Existing research indicates that students acquire vocabulary four ways: through wide reading, from context, by using the dictionary, and through direct instruction from the teacher (Nagy, 1988). Nagy (1988) says that the problems with the traditional methods used to teach vocabulary are that the definition (dictionary) method is often ineffectual because students can not make the bridge from a definition to the meaningful use of a word and that the context method is highly inefficient because huge amounts of text are needed to teach a few words and context clues are not always reliable. While encouraging wide reading experience is the best way to foster vocabulary growth in students, there is research that supports the direct teaching of vocabulary in the classroom. Wixson, (1986) showed that significant growth in vocabulary comes from direct instruction and others agree (Stahl, 1983; Weiss, Mangrum & Liabre, 1986; Nagy, 1988).

Nagy (1988) outlines the characteristics of effective vocabulary teaching in three parts: instruction using repetition, relating word meanings to student

experience, and encouraging meaningful word use, usually in student writing. He also suggests that integration of vocabulary instruction into daily teaching is desirable. Cooper (1991) agrees that it is repeated use that creates ownership of a word for the student.

I have developed an approach to teaching vocabulary that uses the computer in the classroom. I chose this vehicle because of the recent stress on the use of this tool and also because of the fascination many students have with computer games. With this in mind I developed a game that teaches vocabulary with a game that uses a maze approach to complete a journey. Through the use of the maze it is possible for the student to have a different experience in each session with the game.

This game fits some of the characteristics of successful vocabulary instruction as shown through existing research. Through the use of the trial and error method to play the game the student receives repeated exposure to words. This can be followed with other class assignments that build on this repetition. The experience of playing the game puts the words into a context that the student can relate to the word. While some of these contexts will be new to the student, others will be familiar and this should aid in the retention of knowledge and the ownership of vocabulary. In addition, the use of games to teach vocabulary gives variety to instruction. I currently use a number of games to teach vocabulary with good success and this game is a good

addition. Beck and McKeown (1991) agree that there is no single best method for teaching vocabulary but that variety is an important consideration.

The game I have decided to use with this project is an interactive computer game based on a Hypercard stack. Called "Olympus", it needs only to be inserted into a Macintosh computer and explored. The package accompanying it gives some alternate uses for the program. My use of the game in the classroom has shown it to be a useful tool of instruction. Some students are able to use it without supervision while others need to be directed in its use and helped to move past the "quick" approach common in some game play. For these students it is useful to get the player lost in an area of the game they have not seen and encourage them to find their way back home and then forward toward the final objective. I have been well satisfied with its benefits in the classroom. The program is found in Appendix D.

It is ironic that while the English language continues to grow, our students seem to have smaller vocabularies than in past years. It is suggested that the average student must learn seven new words each day he attends school in order to have an average vocabulary by the time he or she graduates (Nagy & Herman, 1987). Our students may not be making this kind of progress in vocabulary growth. The erosion of the time spent reading for both school and leisure is likely an important factor in this problem. It is unlikely that teachers of English can force students to read much more than they do now,

but it is possible to emphasize word knowledge more in the classroom. While this can be taught as a reading skill, it can also be taught as a knowledge based skill. While teaching vocabulary in order to help students achieve on one examination may seem a rather narrow focus, it is a practical one. The Diploma Examinations are not going away - they are the way schools, teachers and students are being evaluated. A stress in this area has two benefits - survival in the short term for the student and the teacher, and the lifelong gift of a larger vocabulary for the student.

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Appendix A

Complete Word List

Complete Word List

adeptness	cynically	hypocritical	overwrought	shrewdness
adherence	cynicism	idiosyncracies	passivity	sibilant
adversity	cynicism	idiosyncracies	patronizing	skeptical
allure	decadent	impertinence	peerless	skeptical
aloof	deceitfulness	impetuousness	perceptive	skepticism
aloofness	deceitfulness	implications	perceptiveness	skepticism
ambiguities	denunciation	inconsequential	perversely	skepticism
ambivalent	deplore	incredulous	petulance	socioeconomic
ambivalent	despondency	incredulous	placidity	speculative
ambivalent	despondency	indifference	pragmatic	submissive
apathetic	disdain	indifference	presumptuous	subservient
apathetic	disdain	indifference	presumptuous	subversive
arrogant	disdain	indifference	pretentious	subversive
arrogant	disdain	indifference	pretentious	succumbed
articulate	disdainful	indifference	proletariat	sullen
assiduously	disillusioned	indifference	ravenously	susceptibility
astuteness	disillusioned	indifference	reactionary	tolerance
aversion	disillusionment	indifference	rebuking	transience
benevolence	disillusionment	indifference	recluse	trivialities
benign	disillusionment	indifferent	reconciliation	unanimity
bewilderment	distraction	indifferent	reconciling	unobtrusive
blatantly	domineering	indifferent	reflective	unresolved
brusqueness	eccentricities	indignation	reflective	vacillation
calculating	egocentric	indignation	reflective	vehemently
calculating	egotism	indoctrination	reflective	veneration
calculating	elitist	indolence	reflective	vibrant
coercion	elusive	indulgence	regression	vibrant
coercive	elusiveness	infallibility	remorse	vicariously
communal	enmity	ingenuity	remorse	vindicate
complacency	enthraled	inherent	remorse	vindictive
complacency	erratic	inherent	remorseful	vindictive
complementarity	erratic	inhibited	remorseful	vitality
conciliatory	erratic	innate	repressive	vivacious
conciliatory	esoteric	insolence	repugnant	volatile
condescending	exasperation	ludicrous	resignation	vulnerability
condescension	expediency	manipulative	resignation	vulnerability
condescension	exultation	manipulative	resignation	
condescension	fallibility	mediocrity	resigned	
condescension	fervent	melancholy	resolute	
confirmation	gaudiness	melancholy	resolve	
consternation	grandeur	meticulous	resolve	
constraining	gregarious	misadventure	resolve	
constraint	guile	nonchalance	resolve	
contemplation	heedlessness	nostalgia	resolve	
contingency	humanitarian	nostalgia	restrained	
cunning	hypocrisy	nostalgia	restraint	
cunningly	hypocrisy	nostalgia	sacrilegious	
cynic	hypocrisy	nurturing	sardonic	
cynical	hypocrisy	obliviousness	sardonic	
cynical	hypocritical	ornamentation	self-rebuke	

Appendix B

Sample Quiz

Match the word with its definition

- | | |
|-------------------|------------------------------|
| ___ destitute | 1. outgoing, friendly |
| ___ vulnerability | 2. giving in |
| ___ insolence | 3. able to be injured |
| ___ subservient | 4. without money |
| ___ sardonic | 5. very unhappy |
| ___ vivacious | 6. insulting |
| ___ despondent | 7. satisfied, not upset |
| ___ derision | 8. ridicule |
| ___ skeptical | 9. anger |
| ___ consternation | 10. good judgement, cautious |
| ___ complacent | 11. doubting |
| ___ discretion | 12. cynical |

Appendix C

Data Sheets for Examinations

DATA FORM for VOCABULARY RESEARCH

34

EXAM
MONTH - June
YEAR - 1993

<u>QUESTION NUMBER</u>	<u>WORD(S)</u>	<u>QUESTION DIFFICULTY LEVEL</u>	<u>NOTES</u>
2	indifferent	57.5	
	condescension	57.5	
27	cynical	57.4	
	hypocritical	57.4	
34	grandeur	42.7	
35	cynic	71.3	
36	reflective	57.4	
50	denunciation	54.6	
52	disdain	63.1	

AVG DIFF LEVEL	57.65556
MAX CORRECT	71.3
MIN CORRECT	42.7

DATA FORM for VOCABULARY RESEARCH

35

EXAM
MONTH - January
YEAR - 1993

<u>QUESTION NUMBER</u>	<u>WORD(S)</u>	<u>QUESTION DIFFICULTY LEVEL</u>	<u>NOTES</u>
1	nostalgia	80.9	
11	melancholy	62.4	
23	indifference	77.5	
34	unresolved	56.9	
35	elusive	n/a	
52	peerless	58.9	
64	inherent	66.1	
		56.9	

AVG DIFF LEVEL 57.45 JANUARY 1993
MAX CORRECT 80.9
MIN CORRECT 56.9

DATA FORM for VOCABULARY RESEARCH

36

EXAM
MONTH - June
YEAR - 1992

<u>QUESTION NUMBER</u>	<u>WORD(S)</u>	<u>QUESTION DIFFICULTY LEVEL</u>	<u>NOTES</u>
3	onobtrusive	66.6	
15	subversive	80.9	
20	resignation	68.8	
	resolve	68.8	
	disillusionment	68.8	
25	vindictive	41.5	
27	reconciliation	44.8	
39	astuteness	83.6	
43	hypocritical	71.1	
60	disdain	60.5	
70	indignation	67.5	

AVG DIFFICULTY	65.71818
MAX CORRECT	83.6
MIN CORRECT	41.5

DATA FORM for VOCABULARY RESEARCH

EXAM
 MONTH - January
 YEAR - 1992

<u>QUESTION NUMBER</u>	<u>WORD(S)</u>	<u>QUESTION DIFFICULTY LEVEL</u>	<u>NOTES</u>
1	susceptibility	56.4	
8	erratic	41.1	
11	distraction	78.7	
12	egocentric	66.1	
18	volatile	85.3	
	nurturing	85.3	
19	succumbed	83.5	
28	cunningly	36.6	
40	arrogant	56.6	
41	inconsequential	n/a	
44	repugnant	74.2	
56	pretentious	48.8	
59	vibrant	54.5	
60	vulnerability	80.2	
AVG DIFF LEVEL		60.52143	JANUARY 1992
MAX CORRECT		85.3	
MIN CORRECT		36.6	

DATA FORM for VOCABULARY RESEARCH

38

EXAM
 MONTH - June
 YEAR - 1991

<u>QUESTION NUMBER</u>	<u>WORD(S)</u>	<u>QUESTION DIFFICULTY LEVEL</u>	<u>NOTES</u>
7	communal	47.1	
9	indifference	60.9	
21	ambivalent	58.6	
35	insolence	73.1	
44	veneration	38.2	
	resignation	38.2	
	nonchalance	38.2	
56	reflective	51.8	
58	apathetic	39.9	
	ambivalent	39.9	
60	remorse	63.6	
62	esoteric	62.4	
65	cynical	43.1	
	indifference	43.1	
69	restraint	58.8	
70	resolve	59.6	

AVG DIFFICULTY 51.03125
 MAX CORRECT 73.1
 MIN CORRECT 38.2

DATA FORM for VOCABULARY RESEARCH

39

EXAMMONTH -
YEAR -January
1991

<u>QUESTION NUMBER</u>	<u>WORD(S)</u>	<u>QUESTION DIFFICULTY LEVEL</u>	<u>NOTES</u>
9	erratic	79.1	
19	tolerance	81	
	condescension	81	
26	misadventure	64.1	
34	humanitarian	83.4	
35	indulgence	78.6	
	shrewdness	78.6	
45	inherent	41.6	
	unanimity	41.6	
53	guile	72.1	
58	arrogant	51.5	
59	perceptiveness	67.8	
62	sibilant	55.4	
63	enmity	62.4	
68	skepticism	67.9	
	complacency	67.9	
	indifference	67.9	
	condescension	67.9	
	AVG DIFF LEVEL	67.21111	JANUARY 1991
	MAX CORRECT	83.4	
	MIN CORRECT	41.6	

DATA FORM for VOCABULARY RESEARCH

40

MONTH -
YEAR -

EXAM

JUNE
1990

<u>QUESTION NUMBER</u>	<u>WORD(S)</u>	<u>QUESTION DIFFICULTY LEVEL</u>	<u>NOTES</u>
22	domineering	76.1	
28	reflective	58.9	
28	cynicism	58.9	
41	nostalgia	67.6	
64	hypocrisy	58.2	
64	aloofness	58.2	
70	cynical	71.7	
70	melancholy	71.7	

AVG DIFF LEVEL 65.1625
MAX CORRECT 76.1
MIN CORRECT 58.2

DATA FORM for VOCABULARY RESEARCH

41

EXAM
 MONTH - January
 YEAR - 1990

<u>QUESTION NUMBER</u>	<u>WORD(S)</u>	<u>QUESTION DIFFICULTY LEVEL</u>	<u>NOTES</u>
1	remorse	66.5	
2	constraining	87.9	
6	confirmation	70.1	
12	indignation	65.4	
	bewilderment	65.4	
16	reflective	79.4	
	egotism	79.4	
19	elusiveness	68.2	
23	erratic	80.1	
27	restrained	59.8	
	submissive	59.8	
	calculating	59.8	
28	rebuking	83.1	
34	expediency	86.1	
36	contemplation	74.8	
40	deceitfulness	54.4	
45	resolve	64.2	
55	inhibited	57.7	
	skepticism	57.7	
56	mediocrity	74.2	
67	erratic	61	
	resolute	61	
69	impetuousness	56	
70	remorse	68.3	
	AVG DIFF LEVEL	68.34583	JANUARY 1990
	MAX CORRECT	87.9	
	MIN CORRECT	56	

DATA FORM for VOCABULARY RESEARCH

42

EXAM

MONTH - June
YEAR - 1989

<u>QUESTION NUMBER</u>	<u>WORD(S)</u>	<u>QUESTION DIFFICULTY LEVEL</u>	<u>NOTES</u>
9	nostalgia	70.4	
11	vulnerability	66.2	
14	perversely	76.5	
16	calculating	55.3	
21	fervent	68.4	
25	implications	82.7	
29	skeptical	57.6	
36	proletariat	79.8	
	socioeconomic	79.8	
51	eccentricities	65.5	
52	disdainful	65.5	
	presumptuous	65.5	
53	indoctrination	69.4	
58	innate	71.5	
60	unobtrusive	60.4	
70	cynically	78.1	
71	vacillation	51.4	
77	trivialities	49.8	

AVG DIFFICULTY	67.43333
MAX CORRECT	82.7
MIN CORRECT	49.8

DATA FORM for VOCABULARY RESEARCH

MONTH -
YEAR -

EXAM
January
1989

<u>QUESTION NUMBER</u>	<u>WORD(S)</u>	<u>QUESTION DIFFICULTY LEVEL</u>	<u>NOTES</u>
2	adversity	76.7	
16	exultation	49.9	
21	adherence	56.8	
26	blatantly	54.5	
42	apathetic	55.5	
49	sacrilegious	71.2	
64	vitality	68.2	
70	indifference	60.6	
74	hypocrisy	35.1	

AVG DIFF LEVEL
MAX CORRECT
MIN CORRECT

58.72222 JANUARY 1989
76.7
35.1

DATA FORM for VOCABULARY RESEARCH

44

EXAM
MONTH - June
YEAR - 1988

<u>QUESTION NUMBER</u>	<u>WORD(S)</u>	<u>QUESTION DIFFICULTY LEVEL</u>	<u>NOTES</u>
12	melancholy	53.8	
22	indifference	52.8	
24	condescension	69.7	
	disillusionment	69.7	
25	resolve	40.1	
28	vindicate	52.1	
32	sardonic	65.8	
	incredulous	65.8	
43	self-rebuke	66.6	
44	remorseful	43.4	
50	benign	43.4	
52	subservient	53	
56	elitist	79.8	
61	conciliatory	40	
70	nostalgia	41.3	
71	resignation	56.4	
	indifference	56.4	
	AVG DIFFICULTY	55.88824	
	MAX CORRECT	79.8	
	MIN CORRECT	40	

DATA FORM for VOCABULARY RESEARCH

MONTH -
YEAR -

EXAM

January
1988

<u>QUESTION NUMBER</u>	<u>WORD(S)</u>	<u>QUESTION DIFFICULTY LEVEL</u>	<u>NOTES</u>
3	ravenously	71.3	
	vehemently	71.3	
19	skepticism	71.4	
	consternation	71.4	
21	despondency	87.1	
24	cynicism	69.2	
27	vivacious	72.6	
42	cynical	70.5	
	sardonic	70.5	
	reflective	70.5	
56	deceitfulness	62.6	
58	resignation	72.2	
	despondency	72.2	
69	passivity	53.4	
72	indifference	87.1	

AVG DIFF LEVEL	71.55333	JANUARY 1988
MAX CORRECT	87.1	
MIN CORRECT	53.4	

DATA FORM for VOCABULARY RESEARCH

46

MONTH -
YEAR -

EXAM

January
1987

<u>QUESTION NUMBER</u>	<u>WORD(S)</u>	<u>QUESTION DIFFICULTY LEVEL</u>	<u>NOTES</u>
5	perceptive	66.7	
15	incredulous	64.7	
	resigned	64.7	
32	resignation	50.3	
41	coercive	69.9	
46	regression	53.2	
74	gregarious	55.8	
	recluse	55.8	
	assiduously	55.8	
75	ingenuity	72.9	
78	enthralled	53.4	

AVG DIFFICULTY
MAX CORRECT
MIN CORRECT

60.29091 JANUARY 198
72.9
50.3

DATA FORM for VOCABULARY RESEARCH

47

EXAM
 MONTH - June
 YEAR - 1987

<u>QUESTION NUMBER</u>	<u>WORD(S)</u>	<u>QUESTION DIFFICULTY LEVEL</u>	<u>NOTES</u>
9	condescension	40.6	
	indifference	40.6	
	hypocrisy	40.6	
10	ludicrous	65.6	
18	patronizing	61.2	
	indifferent	61.2	
26	exasperation	66.8	
27	oblivious	64.5	
38	meticulous	91.3	
44	remorseful	75.1	
45	cunning	57.7	
47	complacency	73.1	
	obliviousness	73.1	
54	infallibility	52	
61	constraint	81.9	
69	disdain	57.9	
	indifference	57.9	
72	sullen	50.9	
77	petulance	52.8	
78	idiosyncracies	50.8	
79	impertinence	55	
	AVG DIFFICULTY	60.97826	
	MAX CORRECT	91.3	
	MIN CORRECT	40.6	

DATA FORM for VOCABULARY RESEARCH

EXAM
 MONTH - June
 YEAR - 1986

<u>QUESTION NUMBER</u>	<u>WORD(S)</u>	<u>QUESTION DIFFICULTY LEVEL</u>	<u>NOTES</u>
2	disillusioned	60.6	
5	fallibility	66.1	
10	gaudiness	84	
11	ornamentation	64.8	
15	disillusionment	82.2	
16	placidity	64.8	
21	indolence	51.3	
23	vindictive	44.1	
23	manipulative	44.1	
29	overwrought	54.6	
31	deplore	59.8	
37	disdain	41.4	
40	ambivalent	39.2	
	calculating	39.2	
	indifferent	39.2	
47	transience	45.8	
50	complementarity	67.6	
51	reconciling	N/A	
52	inherent	65.6	
56	idiosyncracies	58.5	
58	allure	66.6	
60	aversion	44	
66	pretentious	45.5	
75	aloof	52.6	
	AVG DIFFICULTY	53.4	
	MAX CORRECT	84	
	MIN CORRECT	44	

DATA FORM for VOCABULARY RESEARCH

MONTH -
YEAR -

EXAM

January
1986

<u>QUESTION NUMBER</u>	<u>WORD(S)</u>	<u>QUESTION DIFFICULTY LEVEL</u>	<u>NOTES</u>
4	skeptical	63.8	
	conciliatory	63.8	
8	pragmatic	61.9	
	speculative	61.9	
	condescending	61.9	
20	adeptness	53.3	
	ambiguities	53.3	
24	contingency	63.7	
28	subversive	78	
29	vicariously	57.5	
31	articulate	67.6	
36	presumptuous	48.5	
39	repressive	83.1	
	decadent	83.1	
42	hypocrisy	58.3	
47	manipulative	81.3	
53	reactionary	50.2	
61	benevolence	68.3	
	indifference	68.3	
62	brusqueness	n/a	
63	coercion	n/a	
66	disillusioned	64.9	
67	heedlessness	41.2	
70	vibrant	67.9	
	AVG DIFF LEVEL	58.40833	JANUARY 1986
	MAX CORRECT	83.1	
	MIN CORRECT	41.2	

Appendix D
Olympus Vocabulary Game

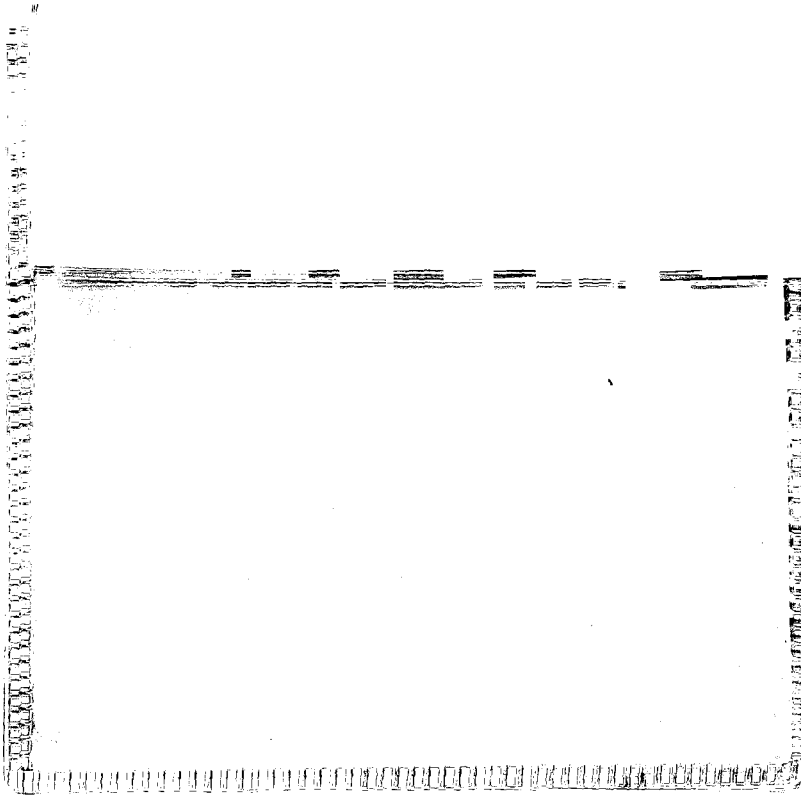
Olympus is a Hypercard stack designed to teach vocabulary through exploration. Following are some ways of using the program:

1. Use the program with individual students, small groups, or attached to an overhead for use with an entire class.
2. The program was designed as a game in which students learn vocabulary through trial and error and through exploration of the game. As students progress, they attempt to stay out of Hades by making correct guesses and moving to the next level. Correct guesses are indicated by an apple on that particular card. Too many incorrect guesses move the player closer to Hades and the end of that game or round.

It is through the making of mistakes that the student learns more words and experiences more meaning.

3. The game may be used by a student with a dictionary and a preset time limit for each decision.
4. Students may play with teams and scores may be kept for correct choices or for the successful completion of the game.
5. A list of the words used in the game could be made in which each word is placed in context by using it in a sentence and students would use reading skills to determine the words' meanings.
6. A list of Greek and Latin prefixes, roots, and suffixes could be given students for reference while playing the game.
7. The game can be played with or without the Hypercard menu bar. To remove the menu, use control/spacebar and return it the same way. With the menu the student can return to the beginning of the game after losing one round. (Go To First)
8. Many other variations of the game can be invented by the student or teacher.

Olympus



Appendix E

Definition of Terms

1. Achievement Over Time Project - a research project conducted by Alberta Education to measure changes in student achievement since 1984, when Diploma Examinations were instituted in the Province of Alberta.
2. Alberta Education - the Department of Education of the Province of Alberta.
3. Difficulty level - the difficulty of a Diploma Examination question, determined by the percentage of students writing the examination who answer the question incorrectly. The levels of difficulty are listed as follows:
 - Level A - 50% or less of students in the province answered correctly.
 - Level B - 51- 60% of students in the province answered the question correctly.
 - Level C - 61 - 70% of students in the province answered the question correctly.
 - Level D - 71% or more of students in the province answered the question correctly.
4. Diploma Examination - final examinations administered by Alberta Education which count for 50% of a students final grade in grade 12 English.
5. English - English 30, a course required for graduation.
6. High difficulty level - Level A - 50% or less of students in the province answered correctly.
7. Vocabulary knowledge - student ability to recognize words and define them.

8. Vocabulary question - questions which contain as all or part of a correct or alternative (sometimes called a distracter) answer, a word or words which would be of significant difficulty for an average grade 12 student and in which the word does not appear in the reading selection on which the question is based.

Perlet
Micro
ME-211

HD

OLYMPUS UNIVERSITY MICROFILMS INTERNATIONAL

olympus	
created and owned by	MAINC
Glenn Secretan	LB
403-732-5532	5
	U54
	S42
	1994