
RESEARCH ARTICLE

Testing Multiple Vocabulary Associations for Effective Long-term Learning

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ABSTRACT

This article aims to give a comprehensive guide to planning and designing vocabulary tests which include Identifying the skills to be covered by the test; outlining the course content covered; preparing a table of specifications that shows the skill, content topics and number of questions allocated to each; and preparing the test instructions. The test should meet several criteria as the instructions should be brief and clear; the questions should cover all kinds of skills, tasks and exercises covered in the classroom and textbook; the test items should require the students to perform tasks at the phoneme, grapheme, affix, word, phrase and paragraph levels. The questions should test student's ability to think, apply, infer, connect, and synthesize information, not mere recall, and should not use exact sentences and examples from the textbook. The test should have as many production questions as possible. It should have adequate discrimination power; should be reliable and valid; and should be a power and a speed test. In addition, the article describes the optimal test length, when to give the tests during the semester and the test duration. It describes the test paper format; how the tests are scored, marks allocated for each question type and whole test, using whole marks, not fractions; deducting points for spelling and grammatical mistakes. After scoring the answer sheets, the instructor returns the marked answer sheets to the students, shows the marking system and goes through the questions one by one, gives the correct answers and mentions the common errors. Follow-up issues such as calculating the test validity, reliability, and discrimination power, using the test results for diagnosing weaknesses and providing remedial work are given. The effects of the proposed test model on learning outcomes and students' views are also given.

KEYWORDS

Vocabulary assessment, vocabulary tests, vocabulary skills, multiple-association vocabulary tests, table of specifications, speed tests, power tests, test planning, test design.

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1. Introduction

Although a large number of vocabulary tests have been made available to language teachers, testers, and researchers, there is a need for the development of new vocabulary tests for several reasons. There has relatively been little progress in the development of new vocabulary tests (Webb & Sasao, 2013). Stoeckel, McLean and Nation (2021) declared that existing vocabulary tests have three sources of inaccuracy needed for many specified testing purposes: (i) the overestimation of lexical knowledge from guessing or use of test strategies under meaning-recognition item formats; (ii) the overestimation of vocabulary knowledge when receptive understanding of all word family members is assumed from a correct response to an item assessing knowledge of just one family member; and (iii) the limited precision that a small, random sample of target words has in representing the population of words from which it is drawn. They added the limitations of size and levels tests of written receptive vocabulary knowledge that assess vocabulary knowledge for the purpose of reading. There is also a need for more rigorous and systematic procedures for test development, starting from a more precise specification of the test purpose, intended testees, educational context, the particular aspects of vocabulary knowledge which are being measured, and the way in which the test scores should be interpreted (Schmitt, Nation and Kremmel (2020). vocabulary test developers lack assessment literacy, and a greater support for the end users of the tests is needed, such as providing them with detailed users' manuals. The minimum requirements for vocabulary test development

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and validation should be made clear to teachers and test developers (Schmitt, Nation & Kremmel (2020). Results of a study by Riahi (2018) demonstrated that Tunisian EFL secondary school teachers use traditional techniques in assessing Tunisian EFL secondary students' vocabulary knowledge such as reading comprehension tasks, writing tasks, gap filling and multiple choice. These results revealed a need to continue to examine and improve current vocabulary teaching and testing techniques of EFL teachers.

A further weakness is grade inflation at the school and college levels in Saudi Arabia as revealed by the high pass rates and high percentages of students obtaining Grades A+, A, B+ and B in most language and translation courses. Instructors give easy questions and are lenient in grading to avoid students' complaints. Exam results do not reflect individual differences and distinctions. The grading system produces a high pass rate as 60% of the course marks are allocated to attendance, assignments, quizzes, and class work. Exams focus on a small portion of the course/textbook material. Many course topics are not covered by the tests. Tests contain few easy questions that measure rote memorization and recall rather than higher-level thinking skills. Prior to exams, students enrolled in General English courses are given practice tests with questions similar to the final exam in form and content. Hence, the students know what to expect on the final exam (Al-Jarf, 2022c; Al-Jarf, 2022d; Al-Jarf, 2022f). The content coverage in translation exams is inadequate as 56% of the exams included a vocabulary subtest, 50% included one English text, 32% included 2 texts and 18% included 3 texts. The English text length range between 66-430 words with a median length of 181 words. The Arabic text length range between 26-180 with a median length of 97 words. The typical Flesch Reading Ease of English texts is 40 and the typical Flesch-Kincaid Grade level score is 11. No significant differences among the different college levels nor different subject areas exist in text length nor text difficulty level. Translation exams lack validity, reliability, and discriminating power (Al-Jarf, 2021a; Al-Jarf, 2002).

A review of the literature has shown numerous studies that set some specifications for efficient and effective vocabulary tests. For example, Webb and Sasao (2013) proposed four new types of tests. The first is a new version of the Vocabulary Levels Test; the second measures knowledge of the different sublists of Coxhead's (2000) Academic Word List; the third and fourth are the Guessing from Context Test and the Word Part Levels Test that measure knowledge of affixes. Similarly, He (2019) suggested vocabulary tests for diagnostic purpose that focus on the designed purpose, item selection, task presentation and test response format. Mueller Gathercole, Thomas and Hughes (2008) added normed receptive (standardized tests) vocabulary tests for bilingual children which take into consideration children's exposure to the language in question and provide a general score that compares a given child to all children, whether bilingual or monolingual, and a score that shows the child's placement relative to (bilingual) children who have similar language exposure profiles.

Other aspects that need to be taken into consideration in vocabulary assessment were examined by Read (2007), who surveyed some current developments in second language vocabulary assessment, with particular attention to the ways in which computer corpora can provide better quality information about the frequency of words and how they are used in specific contexts. Word frequency data are needed to measure vocabulary size, such as the Yes/No format, which is being developed and used for a variety of purposes. Reviewed work on testing the depth of knowledge of vocabulary, where rather less progress has been made, both in defining depth as a construct and in developing tests for practical use. Another important perspective is the use of vocabulary within particular contexts of use or registers, and recent corpus research is extending researchers' understanding of the lexical features of academic registers. This provides a basis for assessing learners' ability to deploy their vocabulary knowledge effectively for functional communication in specific academic contexts. The researcher concluded that while current tests of vocabulary knowledge are valuable for certain purposes, they need to be complemented by more contextualised measures of vocabulary use.

The relationship between the breadth and depth of vocabulary knowledge and vocabulary size was assessed by Firda, Azkiyah and Albiansyah (2021). Results of the Vocabulary Level Test and the Words Associates Test indicated that the breadth and depth of vocabulary knowledge of 8th grade Indonesian EFL students had a negative correlation with their vocabulary size. There was also a very low correlation between the breadth and depth of vocabulary knowledge tests and the students' vocabulary size.

The role of speed in tests of second language vocabulary knowledge, whether students with a larger vocabulary size answer faster than students with a smaller vocabulary size on vocabulary breadth tests, whether there are systematic increases in response time as word frequency decreases in L2 vocabulary breadth tests, and whether correct response times on L2 vocabulary breadth tests predict accurate and quick L2 reading were explored by Tanabe (2016). Results revealed that vocabulary size facilitated lexical access by Japanese university students. High frequency words were accessed more quickly but this was only observable after reaching a certain threshold of vocabulary size, and the vocabulary score (accuracy) alone was not associated with accurate and quick reading, whereas vocabulary response time (accuracy + speed) was.

The effect of test item format on test performance was the focus of a study by Akhavan Masoumi and Sadeghi (2020) who compared multiple choice and constructed response vocabulary tests in an EFL setting. The findings implied that testers should

take into consideration the effect of test format in assessing vocabulary knowledge and use a combination of test formats such as Multiple Choice and Constructed Response to reduce the format effect. Zhang (2020) examined pseudowords and guessing in the Yes/No format vocabulary test. One-hundred-and-five university students took a Yes/No test, a translation task and a multiple-choice vocabulary size test. With matched lexical properties between the real words and the pseudowords, pseudowords could index guessing in the Yes/No test as correlations between false alarms and real word guessing were high. This finding provides important validity evidence for correction formulas that employ false alarm information to adjust the Yes/No test scores. The neighborhood size of pseudowords was related to false alarm rates correlations between the Yes/No corrected scores and the multiple-choice vocabulary size test scores were lower, indicating a difference in guessing between the two tests. Another important finding is that the neighbourhood size of pseudowords was related to false alarm rates, which has useful implications for the designing of future Yes/No tests. Finally, the corrected scores of the Yes/No test correlated highly with those of the translation task. In comparison, correlations between the Yes/No corrected scores and the multiple-choice vocabulary size test scores were lower, indicating a difference in guessing between the two tests.

The use of two nonwords in vocabulary size tests showed that tests containing nonwords that are phonologically similar to real words as in "dactor" and "doctor" or "willage," and "village" tended to be better in predicting the actual vocabulary size of Thai university students than tests containing nonwords as in "cillage" from "village" (Wongsirichan, Wannaruk & Ward, 2022).

Furthermore, distractor features in multiple-choice items in synonym-based vocabulary tests have a major influence on the psychometric characteristics of multiple-choice items. Fourth grade students' selection of responses in a German multiple-choice vocabulary test showed that options with semantic relatedness and orthographic similarity increase item difficulty and discrimination, whereas distractors that are less synonymous than the attractor decrease item discrimination (Ludewig, Schwerter & McElvany, 2023).

Regarding vocabulary tests that assess multiple associations, the literature review showed lack of studies that show how vocabulary tests that assess EFL students' ability to make associations are designed. Therefore, this study aims to describe a vocabulary test model that focused on testing EFL college students' ability to make multiple associations such as connecting the printed form of the lexical item with its pronunciation (the hidden sounds, double and silent letters, and homophones), with its part of speech, singular or plural form, synonym and/or antonym, English and Arabic meanings, usage, component parts (prefixes, suffixes, roots), previously-encountered terms and others are designed. It aims to give guidelines for planning, designing, scoring vocabulary tests for EFL college students enrolled in translation programs. It will describe the vocabulary skills to be tested, the content to be covered by the test, preparing the table of specifications, specifying test length, how many words per question, preparing the test instructions, the test paper format, scoring the vocabulary tests, what to do after scoring a vocabulary test, giving general vocabulary test criteria, providing a sample of vocabulary test questions and finally showing the effects of the proposed testing technique and procedures on vocabulary learning outcomes in EFL college students. Focus, in this article, is on paper tests, not electronic tests.

2. Significance of Study

Numerous studies conducted by the author with samples of students are the College of Languages and Translation (COLT), King Saud University, Riyadh, Saudi Arabia showed that EFL freshman students at COLT have difficulties in pronouncing, recognizing the meaning of, using and spelling new English words (Al-Jarf, R. (2022g); have difficulties with phoneme-grapheme relationships (Al-Jarf, 2019a); English plural formation (Al-Jarf, 2022b; Al-Jarf, 2020b), English adjective-forming suffixes (Al-Jarf, 2019b; Al-Jarf, 2008) and others.

In addition, this study is part of a series of vocabulary teaching and testing research studies. In some prior studies, Al-Jarf (2022a), Al-Jarf (2022g), Al-Jarf (2006) proposed a multiple-associations teaching approach that focus on connecting the printed form of the word with its pronunciation (the hidden sounds, double and silent letters, and homophones), with its part of speech, singular or plural form, synonym or antonym, English and Arabic meanings, usage, component parts, previously-encountered words and others while presenting the new vocabulary items in each lesson. Therefore, quizzes and exams should require the students to make these multiple associations, i.e., instructors should test what they teach. So, this study gives guidelines that show instructors how to construct vocabulary tests that require the students to make multiple vocabulary associations.

3. Context

The translation program at (COLT), King Saud University (KSU) is 4 years long (8 semesters). In the first 2 years (4 semesters), the students take English language courses: 4 Listening, 4 speaking, 4 reading, 4 writing, 3 grammar, and 2 vocabulary building courses. Three hours per week are allocated to the Vocabulary I course and two hours per week are allocated to the Vocabulary II course. Students in levels (semesters) 1 and 2 study the following textbooks that are assigned by the department:

- Vocabulary I textbook (3 hours per week): Redman, Stuart (2017). *English Vocabulary in Use: Pre-intermediate and Intermediate*. Cambridge University Press.
- Vocabulary II textbook (2 hours a week): McCarthy, Michael and O'Dell, Felicity (2017). *English Vocabulary in Use: Upper-intermediate*. 4th Edition, Cambridge University Press.

The vocabulary courses aim to develop the students' ability to pronounce, spell correctly, give the part of speech, usage, the English and Arabic meanings of 1500-2000 core vocabulary items in the vocabulary I course and 2000-2500 in vocabulary II course.

In the Vocabulary I course, the students cover 42 lessons out of 100. They cover the following lessons: *Classroom language, Apologies, excuses, and thanks, Animals and insects, The physical world, Countries, nationality, and language, The place where you live, Around the home, The body and what it can do, 1 & 2, Money, Clothes, Shops and shopping, Food, Cooking and restaurants, Health: physical injuries, Jobs, Business and finance, In the office, Ball games, Global Problems, Computers and the Internet, , Prefixes, Adjective suffixes, Noun suffixes, Nouns and verbs with the same form, Collocation (word partners), Idioms and fixed expressions, Verb or adjective + preposition, Preposition + nouns, Phrasal verbs (1), form and meaning, Phrasal verbs (2): vocabulary and style Make, do and take,, Have and have got, Give, keep, break and see, Leave, catch and let, Get: uses and expressions, Go: uses and expressions, , Compound nouns, Compound adjectives, The Senses, Partitives, Uncountable nouns and plural nouns.*

In the Vocabulary II, the students cover 32 lessons out of 100. They cover the following lessons: *Suffixes, Prefixes, Roots, Abbreviations and acronyms, Homonyms, Words commonly mispronounced, New words in English, Words that only occur in the plural, Describing People: Character, Describing People: Appearance, At Home, Education, Work, Global Problems, The Arts, The Natural World, Similes, Binomials, Idioms describing people, Idioms describing Problematic Situations, Idioms connected with using language, Idioms connected with praise and criticism, Miscellaneous Idioms, Expressions with bring and take, Expressions with do and make, Expressions with get, Expressions with come and go, Expressions with set and put, Miscellaneous expressions US English, Formal and informal words.*

In the two vocabulary courses, the students are required to practice and master the following: *pronunciation of silent letter, hidden consonants, double letters, spelling changes, words with the same vowel but different pronunciation and words with different vowels but the same pronunciation, sound-symbol associations, syllabication, and stress, spelling changes and spelling variants; part of speech; word formation: prefixes, suffixes, derivatives; singular and plural forms; count/non-count nouns; word synonyms and antonyms; English and Arabic meanings; compounds; idioms and collocations; word families; American vs British usage; formal vs. informal usage of words.*

4. Vocabulary Assessment at COLT

In the vocabulary tests, the students take 2 in-term tests and a final exam. 25% of the course mark is allocated to Intern test I; 25% are allocated to Intern test II; and 50% are allocated to the final exam. Pass mark is 60% and letter grades A, B, C, D & F. The Intern I test is held after 6 weeks of the beginning of the course; Intern test II after 10-12 weeks; and the final exam is held after 14 weeks, i.e., at the end of the semester. The Intern I covers material taught over first 6 weeks; Intern II covers the material taught over the next 4-6 weeks and the final exam covers the material taught over the whole semester. 50-60 minutes are allocated to each Intern test and 2 hours are allocated to the final exam.

5. Planning the Vocabulary Test

5.1 Outlining the Course Content

The instructor makes a list of all vocabulary items taught and classifies them according to semantic and grammatical categories as in the following examples:

- **Examples of words with silent letters taught:** *daughter, light, weigh, straight, high, light; night, sign, fight, tight; rough, laugh, tough, enough; eight, weigh, height, naughty; knee, knock, know, knight, knife; thumb, lamb, comb, climb, debt; calm, palm, calf, talkative; wrong, write, wrist, answer; Christmas, fasten, listen; tongue, guess, guilty, guard, build, built; honest, hour, heir, honest, honesty;*
- **Words with hidden letters taught:** *casual, usual, television, measure, treasure; future, picture, temperature, literature, adventurous, expenditure; luxury; pension, professional, educate; ocean, specialize, sociable; sugar, Manchester; physics, geography, nephew, off, rough, elephant; graduate, soldier, education; specialize, sociable; position, comprehension, composition; patient, ambitious, cautious; machine; chemistry, school, chemical, character, Christmas; literature.*
- **Prepositions taught:** *on foot, armchair, on a sofa, at a car park, in a parking meter, on a pavement, in the queue, on a hanger, on the left, in the background, in the middle, on the right, ask for help, talk with, come for an interview, interview for a job, settle down, grow up, come from, in the army, in the navy, born in, in the country, invited to for, in the foreground, on other days.*

- **Collocations taught:** Give refunds, pay by cheque, take a seat, have experience, job as a doctor, receive a grant, receive pension, give homework, start school, have a holiday, take an exam, can afford, make ends meet, have a bank account, go on holiday, be hard-up, owe money, to get a job, keep fit.
- **Words with 2 parts of speech (Verb/Noun):** Present, record, consent, graduate, separate, certificate, complement, comment, implement, but not private, chocolate, communicate.
- **Collective Nouns:** Population, race, audience, folk, flock, jury, majority, public, police, staff, luggage, crockery.
- **Prefixes and suffixes:** Disappear, unselfish, impolite, unambitious, unimaginative, unsociable; powerful, useful, wonderful, cheerful; famous, sticky, windy, rainy, snowy; wealthy, tiny; expensive, dangerous; rectangular, public; ugly, guilty, silly; selfish, tidy, imaginative, sensible, optimistic; patient; sociable; adventurous, talkative; ambitious; naughty, lazy, cautious, pessimistic.
- **Synonyms and semi-synonyms:** Stairs, ladder; wood, forest; rug, mat, carpet; door, gate; stream, river; hill, mountain, cliff; cushion, pillow; ceiling, roof; fence, wall, railings; state, say; mend, fix; sand, rock, stone; hotel, bungalow; farm, field; curtain, shutter, blinds; poster, sign, advertisement; armchair, chair, stool, sofa; foal, calf, duckling, chick; road, path, street, highway; march, walk.
- **American/British variants:** Aeroplane, motorbike, trousers, dressing-gown, Nightdress, waste-paper bin, post-box, litter bin, Pavement, motorway, queue, tin, changing room, bank card, trolley, play school, primary school, Autumn, film, flat, lift, petrol, shop, sweets, timetable, Football, subjects, trainers, checked, patched.
- **Regular verbs taught:** Celebrate, climb, compare, complain, change, disturb, fasten, fold, guess, kick, knock, hang, light, mend, possess, punish, repair, request, require, retain, rub, state, solve.
- **Irregular verbs taught:** Sleep, draw, sing, beak, build, feed, hang, ride, shake, cut, sweep, run, throw, draw, overtake, teach, shoot, Sell, find, spend, see, give, find, Think, lend, become, grow up, leave.
- **Homonyms taught:** Cite, site, sight; fare, fair and others.
- **Collocations:** Miss a bus, miss someone, miss a lesson, start a car, start a family, well aware of, terribly sorry to, bitterly disappointed, vitally important, vast majority, dry weather, wet weather, heavy rain, heavy smoker, heavy traffic, heavy sea, hard work, great success, great time, broad shoulders.
- **Idioms and fixed expressions:** In the short term, on the other hand, changed my mind, I haven't a clue, what's up? it's up to you, on the tip of my tongue, keep an eye on, I feel like a drink, I feel like something to eat, I feel like going out, can make it, in theory, in practice, take it in turns, getting nowhere, get on my nerves, make up your mind, had a late night, had an early night, make do with, go ahead, hang on, get rid of, for good, piece of cake.
- **Synonyms:** attempt/try, repair/mend/fix, director/manager, famous/well-known, disgusting/sickening, take off, fly, job, work, profession.
- **Antonyms:** heavy/light; dark/light, easy/difficult, interesting/boring, take off/land, build/destroy.

To make it easy to sort out the words taught and classify them into categories, it is advisable to add to the lists after teaching every lesson. The lists enable the instructor to see all the words taught, select a random sample from each category, decide how many items should be selected from each category, and avoid repetition and overlap or items included under each question/task on a particular test and across all tests.

5.2 Identifying the Skills

The vocabulary skills to be covered by the test include pronunciation, spelling, identifying the part of speech, the morphological structure, semantic aspects, the register, and usage as follows:

Table 1: A sample of Vocabulary Skills to be Tested

<ul style="list-style-type: none"> ○ Pronouncing words correctly. ○ Recognizing silent letter, hidden consonants, double letters, words with the same vowel but different pronunciation and words with different vowels but same pronunciation. ○ syllabication and stress. ○ Spelling words correctly. ○ Defining/giving the meaning of words in English and in Arabic. ○ Giving the opposite of words. ○ Giving all the words that share the same meaning. 	<ul style="list-style-type: none"> ○ Giving the plural or singular form of a noun. ○ Recognizing singular and plural forms. ○ Giving the verb that collocates with a particular noun. ○ Identifying count and non-count; abstract & concrete nouns. ○ American vs British usage. ○ Recognizing derivatives and Word synonyms and antonyms. ○ Adding prefixes, suffixes to roots and words. ○ Compounds. ○ Idioms and collocations.
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<ul style="list-style-type: none"> ○ Grouping related words together. ○ Giving the part of speech of each word. ○ Giving the preposition the follows certain verbs. ○ Capitalization 	<ul style="list-style-type: none"> ○ Using words, idioms, collocations, prepositional phrases, phrasal verbs in correct sentences. ○ Distinguishing phrases that are idioms and those that are not.
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5.3 Preparing a Table of Specifications

The Table of specifications below shows the skills to be tested (vertically) and, content topics or tasks (horizontally) to be covered by the test and number of questions allocated to each. The number of items in each question can be entered in the corresponding cell. For each test, some skills and some content topics might be covered, not all, except for the final exam. For example, in testing vowels, only one task/ skill can be tested (either recognizing, identifying, or distinguishing) not all. The number of items can be adjusted so that the total is equal to the total number of items on a test. Skills and content topics can be modified according to the vocabulary curriculum under study.

Table 2: Table of Specifications

Content Topics to Be Tested	Vocabulary Skills to Be Tested																
	Recognize	Identify	Distinguish	Use in a sentence	Give Eng meaning	Give Ar meaning	Give synonym	Give antonym	Give American	Give example	Add noun suffix	Add verb suffix	Add negative prefix	Add	Explain/define	Capitalize	Spell
Vowels																	
Consonants																	
Silent letters																	
Hidden consonants																	
Double letters																	
digraphs																	
Graphemes																	
-ed																	
-s, -es																	
Words commonly mispronounced																	
Affixes and roots																	
Words																	
Nouns																	
Adjectives																	
Verbs																	
Idioms																	
Phrasal verbs																	
Prepositions																	
Tenses																	
Articles																	
Sentences																	
Derivatives																	
Compounds																	
Singular & plural forms																	
American/British usage																	
Formal & informal																	
Homonyms																	
Abbreviations and acronyms																	
count/non-count N																	

5.4 Preparing Test Instructions

The test instructions should be as brief as possible, specific, contain one task only, and tell the students how and where to write their answer, with the marks allocated to it. The following are some examples:

- Write the silent letters in each word on the line.
- Write the part of speech of each word.
- Circle the words in which -er is not a suffix.
- Underline the words that have no singular form.
- For each word give a synonym.
- Give the meaning of each word in Arabic.
- What is the American expression for the following.
- Fill in the blanks with a preposition.
- For each underline phrase, which idiom / collocation can be used?
- For each situation, use an expression of apology (function).

5.5 Specifying the Test Length

A total of 100 words should be covered by each Interim test (25% to 30% of words taught) printed on a one A4-page. The final exam should consist of 250-300 words printed on A4 pages. Each question should have between 6-10 words, idioms or sentences.

5.6 Sample Vocabulary Test Questions

The Questions should cover all kinds of skills, tasks and exercises covered in the classroom and textbook. The test Items should not be a reproduction of examples used in the textbook, nor those practiced in class. The questions should require the students to perform tasks at the word, phrase, sentence and even paragraph level. Use different question formats to test the same skill (e.g., pronunciation, singular and plural forms). The questions should test the student's ability to think, apply, infer, connect, and synthesize information, not mere recall, and should not use exact sentences and examples from the textbook. The tests should have as many production questions as possible (See Table 3 for examples).

Table 3: A Sample of Vocabulary Test Questions

<ul style="list-style-type: none"> ○ How are the underlined letters pronounced. ○ Write the silent letters in each word on the lines. ○ Circle one word in which the underlined letters are pronounced differently. ○ Write the part of speech of each word (use N, V, Adj, Adv). ○ Circle the words in which -er is not a suffix. ○ Circle the word in which -ed is pronounced [t]. ○ Circle the word in which the plural -s or -es is pronounced [iz]. ○ Circle the words that ○ Circle the words that can only be used in the plural ○ Write a group noun for each word. ○ Underline the words that have no singular form. ○ Give the singular form of the following. ○ What is the opposite of each word (one word only). ○ For each word give a synonym (one word only). ○ Give the Past Tense of the following verbs. ○ Write the Past Participle next to each verb. 	<ul style="list-style-type: none"> ○ Write the type of noun to the right (A, P, Com, Col). ○ Give the meaning of each word in Arabic. ○ What is the American expression for the following. ○ Fill in the blanks with a preposition. ○ In each row, circle the word that is different. ○ Show the difference between each pair by giving the Arabic meaning. ○ Fill in the blank before the word with a verb. ○ Use each word in a complete correct sentence. ○ For each underlined phrase, which idiom/collocation can be used? ○ Break the following words into their component parts using dashes. ○ Add one or more suffixes to each of the following words. ○ For each situation, use an expression of <i>apology</i>... etc. ○ For each word or phrase in column A, choose a matching one in Column B. ○ Write an article in the blank where necessary.
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5.7 Test Paper Format

As shown in the test samples in Appendix 1 and 2, the test paper should be organized as follows:

- General test information (Department name, course name, which test, duration, instructors name) in 1 line and the following line should contain student information (name, ID number and mark) in 1 line only.
- The margins should be 2 centimeters each.
- Use font size 12 Times New Roman. Using a larger font will lead to consuming more pages and using small front with cause clutter on the page.
- The test instructions should be in bold type and numbered in square brackets [] with the mark allocated to the question at the end.
- Use line spacing 1.15 if the students are going to circle or underline words, write one letter or an affix and 1.5 if the students are going to write sentences and examples.

- Use light dotted lines for students to write their answers.
- Use 1-2 Pages for Interms; and 4 pages for final.
- No blank parts should be left on the any page.
- Number pages and test items sequentially.
- Make pages simple, no decorative boxes, decorative borders, circles, flowers, no, smileys and no underlining of questions.

5.8 Scoring Vocabulary Tests

The instructor should prepare an answer key to be used in scoring the vocabulary test. It should show the marks allocated to each question and for the whole test. Give one mark for word-level questions and 2 marks for phrase and sentence-level (production) questions. Use whole marks for correct answers. Deduct half a mark for spelling mistakes. Do not use quarters and small fractions. Put a check mark next to the correct answer (no check marks for incorrect answers), add up the check marks for all the items in a given question in the left margin next to the question number without circles or squares. Write the total of all the question in lower left-hand corner in the bottom margin and the total of all the pages test total in the upper right-hand corner of page 1. An Interm Test can be graded out of 75 or 100 marks and then the student's score can be converted to a mark out of 25, which is the allotted Interm test mark. Thus, the student will lose $\frac{1}{4}$ of a mark for each error rather than a whole mark when the test has few items. Likewise, a final exam can be allocated 250 or 300 points depending on the number of items included. The students' scores can be converted to 50 which is the mark allotted to the final exam by dividing it by 5 or 6. Thus, a student loses $\frac{1}{5}$ or $\frac{1}{6}$ of a mark for each faulty word.

5.9 After Scoring a Vocabulary Test

After scoring the students' answer sheets, return the marked answer sheets to the students. Show the marking system and go through the questions and answers one by one, give the correct responses and the marks allocated to them and point out common errors.

The students keep a record of their marks on the Interm tests to be able to compare their scores on interm I, interm II and Final exam. Ask the students about their difficulties every now and then during the semester. Encourage the students to make comments during office hours, by email, through WhatsApp, the online course or any other technology. Pay attention to students' weaknesses while doing exercises in class.

5.10 Further Criteria

The test items should have adequate discriminating power and should be reliable and valid. A vocabulary test for translation students should be a power and a speed test. Vocabulary tests should have items with different difficulty levels. To have content validity, they should be comprehensive, i.e., cover all the topics taught in class. Several types of validity can be calculated from the students' Interm test and final exam scores such as correlating the students' scores on the post-test and their course grade and by correlating the students' scores on the post-test and their scores on the second Interm test to measure concurrent validity.

Reliability of the vocabulary test can be established by computing the internal consistency of each Interm test and/or final exam using the Kuder-Richardson '21 formula.

The question discrimination power can be established by calculating the number of students who answered each question correctly. If the average is lower, the question and items under it would be difficult; if it is high, the question and its items would be easy. The optimum is to have medium difficulty. However, since the test covers different vocabulary aspects, some would be easy, others would be difficult or of medium difficulty as they cover different content.

5.11 Follow-up Issues

Use the test results to diagnose the students' weaknesses. Give remedial work that focuses on the points that were not fully mastered such as Internet websites, mobile Aps and supplementary exercises. The instructor can use grammar podcasts (Al-Jarf, 2023); mind-mapping software for teaching Greek and Latin roots, phoneme-grapheme correspondences, homonyms, antonyms, synonyms, idioms, collocations, American vs British and forma/informal forms (Al-Jarf, 2015; Al-Jarf, 2011c; Al-Jarf, 2011d; Al-Jarf, 2010); dictionary mobile apps to check new lexical meaning of unknown words, their pronunciation, part os speech, their usage and illustrative examples (Al-Jarf, 2022h; vocabulary mobile apps (Al-Jarf, 2022e; Al-Jarf, 2013a); web-conferencing software and online courses to discuss difficulties and provide extra practice (Al-Jarf, 2013b; Al-Jarf, 2007; Al-Jarf, 2005); online grammar and vocabulary tasks (Al-Jarf, 2022g; Al-Jarf, 2017) such as:

- English Language Activities, Exercises and Tests: <http://www.world-english.org/>
- Beginner vocabulary: http://esl.about.com/library/courses/blcourses_beginner_vocabulary.htm
- English Vocabulary from English Club: <http://www.englishclub.com/vocabulary/index.htm>

- Language Tools: <http://www.itools.com/lang/>
- Power Words: <http://www.executive-vocabulary.com/>
- Learning Vocabulary Can Be Fun: <http://www.vocabulary.co.il/>

6. Effects of the Proposed Testing Technique on Learning Outcomes

The author used the multiple-associations vocabulary tests outlined herein with several groups of EFL freshman students majoring in translation at COLT and they proved to be effective in enhancing the students' accuracy, breadth and depth of vocabulary knowledge. T-test results showed significant differences in the posttest means scores between the experimental group students who were exposed to multiple associations vocabulary instruction and testing and the control groups who did not. Achievement (vocabulary development) in the experimental group was higher as a result of using the multiple associations approach in general.

Interestingly, the multiple associations vocabulary final exam is highly discriminating, i.e., sorts the students out according to their vocabulary mastery level. The distribution of scores is normal. When the students' scores are rank ordered, the instructor will find almost every single score, i.e., 49, 47, 45 ... 36, 34, 33 29, 28 ... down to 12 or even 10 for students who missed most of the classes.

7. Students' Views of the Multiple Associations Vocabulary Tests

Analysis of students' responses to questionnaire-surveys administered at the end of the semester showed that the multiple associations vocabulary instruction and tests were very effective. They develop speed, learn to think fast and answer fast. They learnt to apply their detailed vocabulary knowledge to other lexical items. Their analysis and application skills improved as a result of the technique. The students indicated that the multiple associations vocabulary test questions are usually of different difficulty levels; thus, they match the students' ability levels. They added that their vocabulary knowledge is better as the tests are more demanding and require a lot of studying, practice and reviewing. They also stated that when many items are given on an Intern test, and the test is graded out of 100 then converted to 25, they will lose few marks if they miss some items in a question. They noted that when they are given many items on a test, different parts of the material, skills and tasks in the course are covered. Thus, they have to study and review the whole material rather than small parts of it as it is the case in other course. The exams also test attendance. If they miss a class, they will find a question about it on the exam. For example, the students wrote:

Nada: When I know that the test is going to be easy, and most students will pass, I do not work hard during the semester and do not practice outside the classroom. As soon as I am done with the course I do not remember much of what I had studied.

Sara: the test has many questions that cover all types of skills and tasks that we have practiced in class. We study harder and practice more before we take the test as we know that the test will be challenging.

Noura: the test focuses on many details in the course, I know about 1500 words using correct pronunciation, grammar and meaning.

Maha: When the teacher gives us back our answer sheet, I know what marks I got for each question, on which question I did well and which one I did not. Thus, I work on my weaknesses using the online supplementary material provided by the teacher.

Samia: The vocabulary tests are comprehensive. They contain all kinds of questions formats, production, recognition, gap filling, matching, multiple-choice and so on. The questions are like a game that require constant thinking and informed guessing.

Similarly, follow-up surveys with students who received multiple associations vocabulary instruction and testing with the author whether in the upper levels of the translation program and those who graduated 5 or even 10 years earlier, revealed that the students still remember the vocabulary items, their meanings, structures, pronunciation, part of speech, synonyms, antonyms, spelling, usage and other details that they learnt in the vocabulary course. In translating a text, they reported that they apply everything they studied in the vocabulary course such as identifying the part of speech of words in context, analyzing their component parts, inferring their meanings, using contextual (semantic and syntactic) clues and others.

Finally, the effectiveness of the multiple-associations vocabulary exams described in the current study are similar to multiple-associations, and comprehensive reading exams that focus of applying the process and product skills reported in other studies by Al-Jarf (2021c) and Al-Jarf (2021c).

8. Conclusion

The current study proposed a multiple-associations approach to vocabulary testing for EFL freshman students majoring in translation at COLT. Several guidelines were given related to the planning of the vocabulary tests, the vocabulary skills to be tested, the content to be covered by the test, preparing the table of specifications, specifying the test length, preparing the test instructions, the test paper format, scoring the vocabulary tests, what to do after scoring a vocabulary test, giving general vocabulary test criteria, providing a sample of vocabulary test questions and finally showing the effects of the proposed multiple-associations vocabulary testing procedures on vocabulary learning outcomes in EFL college students.

To enhance the test preparation skills of instructors and test-taking skills of students, this study recommends the use of *Quizizz*, a teacher-powered interactive learning platform for finding and creating engaging activities that the students will like. Huei, Yunus and Hashim (2021) used Quizizz to improve the English vocabulary achievement of primary EFL students in rural schools during the COVID-19 Epidemic. Quizizz enhanced their vocabulary achievement. Students and instructors can also use mobile flashcard apps for test preparation and practice (Al-Jarf, 2021b). Finally, instructors can use digital rubrics (iRubrics) for scoring and reporting the test results to students and other instructors as iRubrics show the detailed skills assessed by a test and the performance levels for each (Al-Jarf, 2020a; Al-Jarf, 2011b).

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Appendix 1
A Sample Multiple-Associations Interm Vocabulary Test

Department xxx

Vocabulary2 - Interm1 - Fall 2009

Time: 1 hour

NAME: ----- ID #: ----- SECTION:----- Score -----

[1] Use in a complete, grammatically correct sentence.

- desert (V) -----
- drop-dead -----
- subject (V) -----
- grateful -----
- spin doctor -----
- plough (V) -----

[2] Give the meaning of each root and 2 examples containing each root, prefix or suffix.

	meaning	2 examples
vert		
duct		
en-		
-en		

[3] Write the Arabic meaning of the following:

- outsourcing -----
- donation -----
- brutal -----
- dreadful -----
- BBC -----
- teleshopping -----
- commercialize -----
- partnership -----
- CIA -----
- readiness -----
- tolerant -----
- Marxism -----
- PIN -----
- revolutionary -----
- oppressive -----
- postpone -----
- WHO -----
- e-commerce -----
- syndrome -----
- UNESCO -----
- biannual -----
- multi-purpose -----
- shopaholic -----
- tele-shopping -----

[4] Change each word into a **noun** by adding or changing a **suffix**.

terrify introductory supportive deport forgivable Spiteful

[5] Give the **opposite** of each word by adding a **prefix** on the line.

----- partial ----- qualify ----- loyal ----- credit ----- bend ----- convenient

[6] Write the derived **adjective** for each word on the line.

Complication Privatization outrageous impress control Introduce

[7] Where applicable, underline the **suffixes** and **prefixes** in each word.

monolingual postgraduate comment worship Buddhist member

[8] Use an **abbreviation** or an **acronym** for each of the following:

representative ----- that is ----- European Union ----- translation ----- General Manager -----

[9] Write the **verb** derived from each word on the line.

commerce reduction nation irreplaceable compliment donation

[10] How are the underlined letters **pronounced**.

hiccough ----- cupboard ----- immature ----- laugh ----- physicist ----- educate -----

[11] Write the **silent letters** in each word on the line.

soften ----- castle ----- unwrap ----- sword ----- debtor ----- monologue -----

[12] Show the **stressed syllable** in each word by adding a stress mark $\bar{\circ}$ on top of the word.

inspect progress (V) decrease (N) economics interesting permit (N)

[13] Circle the word in which the **underlined letter** is pronounced differently.

- new sew flew drew
- roof stone floor sofa
- sailing repair curtain straight
- weigh beach their wear
- potato canoe toe volcano
- power towel rowing flower

Appendix 2
A Sample Multiple-Associations Vocabular Final Exam

University xxx
 Department xxx

Vocabulary1 Final Exam
 Spring 2023

Duration: 2 hours
 Total: 50 marks

Name: ----- ID #: ----- Group: ----- Score -----

[1] Use each of the following in a **sentence**:

- a three-hour -----
- sound like -----
- carry on -----
- do a favor -----
- gone up -----
- how long -----
- fallen -----
- interested -----

- long enough -----
- bend over -----
- waiting in -----
- operate on -----

[2] How are the underlined letters pronounced?

conscios ----- headache ----- architect ----- soldier ----- electrician ----- Asia -----

[3] Write the silent letters in each word on the line.

plumber ----- thumb ----- salmon ----- mosquito -----
bruise ----- spaghetti ----- sharpener ----- wrist -----

[4] In each row, circle the word in which the underlined letters are pronounced differently.

- election confusion discussion
- cabbage manage engage
- chalk salt bald
- wound shoulder court
- curtain currency careful
- shoe clue toe
- weapon breath breathe
- draughty thought thigh
- eyebrow borrow grow
- dye pajamas physical

[5] Circle the abstract nouns only:

software condition draught police force celery salary

[6] where applicable, write the suffix in the word on the line:

Accountant ----- ambulance ----- eruption ----- unconscious -----

[7] Give the Arabic meaning of each phrase:

- start a business -----
- climb stairs -----
- press the button -----
- He made progress -----
- my first language -----
- I'll clear it up -----
- She went grey -----
- I keep forgetting -----
- a guide dog -----
- a five-hour drive -----
- held up by the rain -----
- a bag of apples -----
- run out of water -----
- pick up the kids -----
- food processor -----
- he gave up trying -----

[8] Give the Arabic meaning of each word:

- twist -----
- vet -----
- domestic -----
- plant a bomb -----
- assassinate -----
- conserve -----
- browse -----
- back-up file -----
- manufacture -----
- weapon -----
- paperwork -----
- contents -----
- GP -----
- take the minutes -----
- stock market -----
- garlic -----
- Caribbean -----
- colleague -----
- design -----
- operation -----
- personnel -----
- residential -----
- creative -----
- weakness -----
- incredible -----
- customer -----
- incomprehensible -----

[9] Add a preposition or more in the blank:

- Iraq was ----- war.
- Doctors do research ----- cancer.
- He will go ----- the army.
- I paid \$500 ----- a watch.
- She lives ----- the 5th floor.
- Connect a computer ----- a phone line.
- He works ----- the university.
- He works ----- his brother.
- I'll try the dress -----
- I am tired. I need some time -----

- Parts ----- Africa are a forest.
- I got some information ----- the internet.
- She hit her arm ----- the desk .
- She is excited ----- the trip.
- She is pregnant ----- a baby boy.
- I went ----- a coffee shop ----- coffee.

[10] Add a verb on the line to make a collocation:

----- law	----- shower	----- a seat
----- break	----- divorced	----- blind
----- a cold	----- research	----- pain
----- weight	----- meeting	----- problem

[11] Write the Past Participle form next to each word.

rub	throw	buy	zip	bite	attend
shake	swell	plug	bleed	hang	chop

[12] Add an adjective or adverb to describe each word:

----- pollution	----- civilians	----- lecturer
----- chicken	----- bleeding	----- terrorists
----- awake	----- situation	----- top

[13] Write the opposite under each word.

violent	great job	cut	protect	conserve	wrong
sell	war	cheap	sour	friendly	agree

[14] Change each word into an adverb:

polite	luck	peace	fantastic	good	pain
--------	------	-------	-----------	------	------

[15] Write the singular form under each word.

armed forces	shorts	data	boots	blinds	earrings
Alps	resources	quantities	politics	scales	floods

[16] Write the group name under each word or phrase.

T.V. & radio	office workers	computer programs	chairs and beds
Euro & riyal	firemen	flats	soldier

[17] Circle the compounds only:

Physical world	overhead	living standard	hardware	healthy economy
----------------	----------	-----------------	----------	-----------------

[18] Write the category name of each word. Write your answer under each word.

Etna	a spider	Africa	Mandarin	Andes
Crete	a skirt	a spider	Atlantic	aubergine

[19] Change each word into a verb.

destruction	explanation	strong	education	satisfaction	decision
-------------	-------------	--------	-----------	--------------	----------

[20] Circle the nouns that are Countable.

mathematics	fog	hostage	famine	appointment	decision
jeans	guess	psychology	design	rug	flavor

[21] Change each word into an adjective:

incredibly	Mexico	Europe	Egypt	law
power	vision	electricity	south	education

[22] Change each word into a noun:

high	survive	destroy	protect	save
injure	dangerously	employed	economical	popular

[23] Circle the word in which –er is a suffix.

plaster carpenter lawyer officer prisoner laser

[24] Where applicable, write the plural form of each word next to it.

navy herd crowd damage staff Greek
price gang hardware toast bunch emergency

[25] Give a synonym. Write your answer under each word.

attempt repair director famous disgusting take off job

[26] Rewrite each sentence changing the underlined verb into a noun:

- I will ring you tomorrow. -----
- She advised her students. -----
- She is swimming. -----

[27] Give a brief meaning of each word or phrase in English:

- environment: -----
- illegible: -----
- an accountant: -----
- well-equipped: -----
- go sightseeing: -----
- raw materials: -----

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