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Original Research Article

Common parlance English in an Indian medical undergraduate institution: current scenario and ranking the improvement

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ABSTRACT

Background: Indian undergraduate medical students fail to differentiate word-inflexions, or look-alike-sound-alike words, and words which are not candid contextually. Baseline English vocabulary assessment followed by a gap analysis and training can motivate an improvement.
Methods: Harrison's Textbook of Internal Medicine was the reference textbook for vocabulary. All the asked words in MCQ.1 (pre-test) or MCQ.2 (post-test) were ensured in Oxford English Mini Dictionary to verify their common parlance use. Dorland's Illustrated Medical Dictionary was referred to verify semantic similarity. The chosen words' usage frequency rank was decided as per COCA corpus. After 7 months, MCQ.2, with word-to-word match of nearly 5000 higher rank (hinted as per internal assessment), was held and students were expected to repeat a similar performance.
Results: In MCQ.1, 89 students got enrolled and 87 participated. In MCQ.2, 104 students were enrolled and 103 participated (an indicator of motivation). On 2-tailed paired t-test, p value was 0.1129, confidence interval at 95% significance was -0.54 to +0.06 and t-value was 1.6017 (MCQ.1 and MCQ.2 performances were essentially similar).
Conclusions: Similar performance at higher rank indicates that the training uplifted the students' vocabulary by at least 5000 ranks within 7 months.

Keywords: COCA, English, Medical, Undergraduate, Vocabulary

INTRODUCTION

In classes, exams or academic talks, the author found that many Indian Undergraduate Medical Education (IUME) students cannot differentiate between various word inflexions- e.g. 'effect' (noun) and 'affect' (verb).[1] Many 'look alike sound alike' (LASA) words- are ill understood, confused during conceptualization, and misapplied many a times. For example, the students confused between trial (a test or attempt) and trail (a track or path).[1]

Meanings may be counter-intuitive. For example, to 'obviate' does not mean 'to make obvious'- instead, it means 'to make something unnecessary, and thereby, to prevent it in further use!'.[1] Moreover, many household words common in the medical literature- e.g. stinging insects such as hornet/yellow jacket or wood eating insects like weevil/termite- are not known to them.

Here the need to clarify new or less conceptualized words through dictionaries arises.[2-4] Students of IUME (over 1 million each decade) or of other countries using English as the second language (ESL) face similar imbroglio.[5-8] Assessing the current status (baseline) of English vocabulary of the IUME students', followed by feedback can itself generate a motivation for improvement.

This project added time-bound training followed by a final reassessment to help the IUME students gain proper understanding and communication. As the teaching language of IUME is English in India, this study is relevant because there is no unanimity over using any regional vernacular instead, nor is there any formal assessment, or

training, of English is there in IUME. The aim and objectives of this study are as it follows:

Aim

To assess and upgrade the English proficiency of Indian medical undergraduates

Objectives

To assess the background status (pre-test). To improve it by additional teaching-learning techniques. To reassess the improvement, if any (post-test).

METHODS

Design and setting

For this prospective, longitudinal, experimental, voluntary-enrolment based study, students of admission batch 2022 and 2023 at GMERS Medical College, Morbi, Gujarat, India were enrolled.

Participants and sampling

Students were invited for participation in an English vocabulary quiz of 30 MCQs in 30 minutes to assess the baseline competence (this pre-test was labelled MCQ.1). After 6 month of upgradation training [aiming to increase 1000 COCA ranks (explained ahead) each month], a summative post-test MCQ.2 was taken. In MCQ.2, word-to-word match of nearly 5000 higher rank was planned and students were expected to repeat a similar performance.

Tools/instruments

Harrison's Textbook of Internal Medicine is a worldwide renowned reference textbook in the medical education.[9] For the assessment of word power- at baseline (MCQ.1) or in summative assessment (MCQ.2)- all the words were taken from it.

For common parlance, the Indian edition of the Oxford English Mini Dictionary (1.8 x 5.1 x 3.4 inches; from Oxford University Press) is intended for proficiency at higher secondary level- 90,000 words taken in it from British National Corpus worth 5 billion words.[1]

All words in MCQ.1 or MCQ.2 from our medical textbook were also available in this dictionary- implying "common parlance English in medical literature".[1,9] Dorland's Illustrated Medical Dictionary verified semantic similarity of the both.[1, 9,10]

Data collection methods

For MCQ.1, the words' usage frequency rank was determined according to the COCA (word usage frequency) corpus, the subscription of which was purchased beforehand.[11] It consists of 1 billion words corpus while ascertaining 60,000 top rankers and involves English words from 1990-2019 (adding 28 million words in the corpus each year).[11]

Maximally used word was ranking 1 herein- numerically higher ranking indicated rarer usage requiring greater language proficiency. Owing to regular training, internal assessments, and feedback- the students were expected to advance monthly by 1000 ranks and advance by at least 5 thousand COCA ranks in MCQ.2.

Data analysis

A 2-tailed paired t-test was chosen as difference could be either way- performance in the post-test (MCQ.2) could 'exceed' or 'miss' the expectation. The same data (marks obtained) were processed through 2 different freely available online apps to verify the results mutually (Figure 2 Graphpad and Figure 3 Statskingdom).[12,13]

RESULTS

In MCQ.1, 89 students were enrolled and 87 participated (2 students were absent). In MCQ.2, 104 students were enrolled and 103 participated (only 1 was missing). As Figure 1 shows, word-to-word upgraded match for approximately 5000 ranks over MCQ.1 was performed to formulate MCQ.2. The average usage frequency rank of MCQ.1 was 19414.52 and that of MCQ.2 was 24396.62. (the pair-wise rank details are shown in Table 1). Asked words in MCQ.1 and MCQ.2 are listed in Table 2.

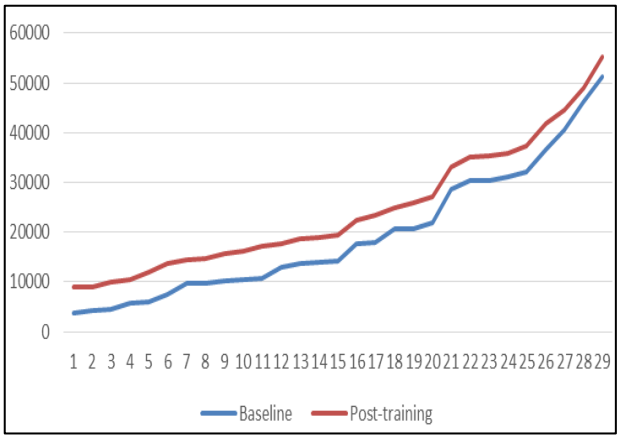

Figure 1: Word use frequency in the baseline test (MCQ.1) and post-training test (MCQ.2).

One word (bolded in Table 2) was beyond the limit of COCA corpus of usage frequency ranks (>60,000) in MCQ.1 as well as MCQ.2 each- thus, the statistical analysis included only the remaining 29 items. The baseline data of only 87 students were available- so calculation was done on their scores only (Table 3). Two freely available online statistical calculators were accessed and both gave a p value of 0.1129 and a 2-tailed t-value of 1.6017. The confidence interval at 95% significance was -0.54 to +0.06.

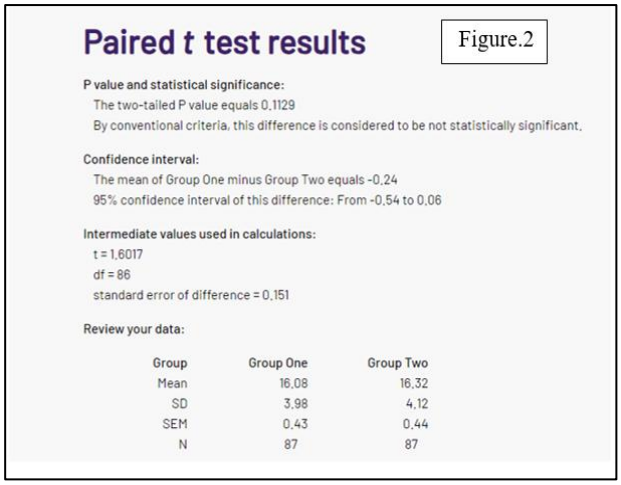

Figure 2: Paired t-test result (based on arithmetic mean value).

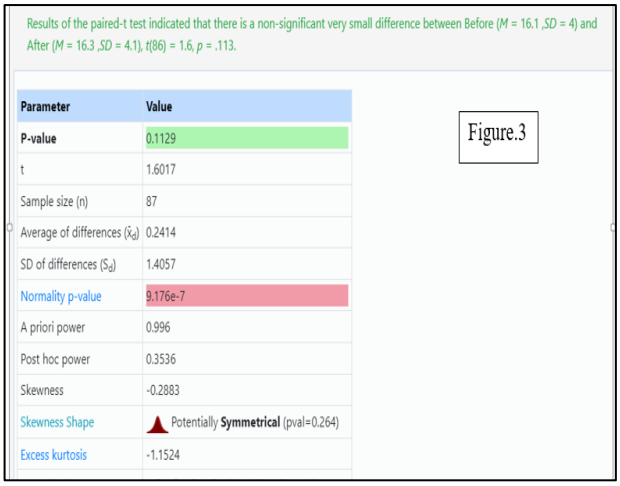

Figure 3: Paired t-test result (based on Cohen's D value).

Table 1: Word-to-word match (COCA rank i.e. usage frequency) for MCQ.1 and MCQ.2.

MCQ.1	MCQ.2	MCQ.1	MCQ.2	MCQ.1	MCQ.2
3790	8956	10683	17104	28602	33161
4172	9021	12865	17733	30381	35048
4597	9939	13573	18569	30481	35272
5811	10404	13831	18846	31075	35855
5937	12031	14298	19357	32129	37243
7493	13816	17601	22340	36555	41907
9681	14441	17811	23321	40530	44654
9693	14628	20657	24844	46236	49002
10114	15790	20747	25985	51332	55308
10458	16162	21888	27180	>60000	>60000

Table 2: Words asked in MCQ.1 and MCQ.2.

MCQ.1		MCQ.2	
Accretion	Emaciated	Foreskin	Recumbent
Acuity	Erosion	Honeycomb	Restitution
Analogous	Erotic	Limpet	Semantic
Anchor	Flank	Litter	Splice
Annular	Forelock	Loin	Splinter
Aperture	Gaze	milieu	Tampon
Apex	Gonad	Obtund	Tandem
Appetite	Heuristic	Pedigree	Trepidation
Binge	Hornet	Penumbra	Turbid
Bisexual	Hospice	Perennial	Undulant
Caries	Illusion	Pernicious	Ungulate
Corrosive	Incipient	Pneumatic	Vertex
Cough	Indolent	Prickle	Vitreous
Cramp	Knuckle	Proboscis	Wean
Dogma	Lacunar	Ramify	Wink

Table 3: Marks (out of 29) of the participants (87) in MCQ.1 and MCQ.2.

MCQ.1	MCQ.2	MCQ.1	MCQ.2	MCQ.1	MCQ.2	MCQ.1	MCQ.2	MCQ.1	MCQ.2
20	22	19	17	16	14	26	25	16	17
20	20	14	16	17	17	14	15	12	13
10	12	17	15	17	16	16	15	14	16
18	20	10	12	17	17	25	23	18	19
14	16	17	17	21	21	22	22	23	23
17	19	14	13	19	21	21	22	22	23
21	22	24	26	8	10	9	7	22	23
20	20	16	17	18	19	18	20	20	22
8	7	16	17	8	6	11	10	19	21
11	11	7	9	17	19	12	13	15	15
16	16	10	12	19	21	17	15	14	15
11	12	12	14	17	17	17	16	10	8
17	18	17	18	20	18	16	16	12	13
12	12	12	13	16	15	17	15	13	15
14	14	15	13	16	15	17	18	14	13
18	16	18	18	18	16	18	18		
18	19	18	18	14	12	14	16		
20	18	18	17	15	15	13	13		

DISCUSSION

The decreased number of absenteeism (2 in MCQ.1 versus 1 in MCQ.2) despite increased number of registrations (89 in MCQ.1 to 104 in MCQ.2) indicated the level of motivation that the initiative could have caused (after 7 months of MCQ.1, the MCQ.2 was held.). As no participant scored 0/30 or 30/30- the assessment tool was not redundant at any point.

As it was not a more or less type single sided assessment (like non-superiority or a non-inferiority comparison), a 2-tailed t-test was chosen. As the same subject was assessed twice (in MCQ.1 and MCQ.2)- a paired t-test was used. One t-test (Figure 2) was based on the mean difference and another (Figure 3) was on Cohen's D.[12,13]

A p value of 0.1129 indicated a non-significant difference- which is further confirmed by the confidence interval (at 95% significance) across zero (-0.54 to +0.06). The 2-tailed t-value was 1.6017 whereas the critical value at 95% significance was 1.663.[14] Thus all 3 parameters, viz the p value, the confidence interval and the t-value, were unanimous in that the outcome of MCQ.2 was not significantly different from that of MCQ.1- despite upgrading the COCA corpus word usage frequency rank in MCQ.2 by nearly 5000.

The assessment tool comprised of common parlance vocabulary to avoid the effect of "years in medical education." Otherwise, an assessment tool encompassing medical terminology could introduce a Berksonian bias of incomparable samples. To clarify it otherwise, pharmacology is taught only in the second year of the IUME. If a terminology of this subject were asked, the first-year students would have been unaware, while the second-year students would have been proficient.

In contrast, in the present study, a homogenous population (in terms of higher secondary school level English- which continues as the medium of teaching learning in IUME) was produced. This article addressed only terminal assessment tools (MCQ.1 and MCQ.2). For exact reproducibility of this study design, an analysis of the teaching learning tool used over 7 months (gap analysis apropos standard reference textbooks, various dictionary options and students' choice outcomes) is discussed separately.

There are some limitations of the study. The total outcome can't be ascribed to teaching learning material- motivation by teaching learning method did contribute. In this study, the portion of hard skill (study material, hours of teaching etc) can't be separated from the soft skill (teachers' personal care and avidity to guide for betterment).

CONCLUSION

With a motivating start and a regular guidance (feedback from baseline, gap analysis apropos medical references, lexical training with multiple options)- the session uplifted the students' vocabulary by at least 5000 ranks within 7 months.

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