

## HOW TO INCORPORATE ACADEMIC WRITING PEDAGOGY IN UNDERGRADUATE AND POSTGRADUATE MEDICAL EDUCATION

### ABSTRACT

**Introduction:** Medical researchers, who are non-native English speakers, are facing now the growing need to publish their research results in international journals switching to an English-only policy, to apply for grants and scholarship, but at the same time this puts many authors whose native language is not English at a disadvantage compared to their English-speaking counterparts.

**Objectives:** This paper aims at analysing the existing parameters of academic writing proficiency of medical undergraduate and postgraduate students; elucidating current approaches to develop academic writing competency and to promote academic multi-literacy of junior researchers, and outlining the general recommendations to improve the quality and sophistication of their writing by incorporating the principles and achievements of academic writing pedagogy into the system of medical training.

**Material and Methods:** This study is an empirical applied research of a qualitative type mainly based on data elicited from informants (n=120) of the Ukrainian Medical Stomatological Academy aged from 20 – 35.

**Results and Discussion:** All participants were able to identify personal problem areas, and virtually all they note dissatisfaction with the use of English in their scholarly writing. They stated the obvious difficulties in sentence patterns and keeping tone of scientific narrative format. Writing in genres other than original research articles seems to be quite demanding and is often associated with the lack of self-confidence and language anxiety. Attention to developing academic writing skills should focus on the basic elements of academic writing, characteristics of written genres across the disciplines, providing a framework in which expert and practical knowledge is internally organized.

**Key words:** academic writing, English as a second language, writing pedagogy, medical education, medical discourse.

*A science well-expounded is just like well-made language.*  
*Étienne Bonnot de Condillac*

**Introduction.** Universities today compete on a global scale. Among the criteria that distinguish universities in the ranking lists, there are journals published, conferences, proportion of international student and staff against domestic ones, and the presence of academic publications in well-regarded citation indices such as Scopus, Web of Science, PubMed. All that leads to a greater use of English language, which is transcending nations, localities and languages, and has become the dominant international language in the academic and professional worlds. It plays a significant role at the tertiary education where undergraduate and post-graduate students have to inevitably increase their English for furthering their academic studies, mobility programs, career offers as emphasized by R. Berry, T. Dudley-Evans, K. Hyland, R. Jordan 1997, D. Steward 2006 [1, 2, 3, 4, 5]. This has been accelerated by global forces, and its pedagogical consequences have not been fully explored.

Numerous reports of M. Hull, C. Tardy, D. Crystal have provided strong evidences of the dominance of English as an international academic language, as a medium of instruction, and a language for special purposes in medicine that has increased manifolds for the last few decades [6, 7, 8]. Medical researchers, who are non-native English speakers, are facing now the growing need to publish their research results in international reviewed journals, which are switching to an English-only policy, to apply for grants and scholarship, but at the same time this probably puts many authors whose native language is not English at a disadvantage compared to their English-speaking counterparts.

Writing skills following the reading skills are those that Ukrainian medical professionals and researchers have to the most actively use in their professional and academic career. In a classic review of the needs of physicians, S. Muller reported that 'writing and communication skills are perhaps the most fundamental skills a physician can have' [9]. But, based on our fifteen year experience of ESP teaching in the domain of medicine and dentistry, we regret to say that the overwhelming majority of young Ukrainian medical researchers show total unawareness of what is thought to be the basics of academic writing, and this is particular true for English writing [10].

This paper **aims** at analysing the causes of this situation; elucidating current approaches to develop academic writing competency and to promote academic multi-literacy of junior researchers, and outlining the general recommendations to improve the quality and sophistication of their writing by incorporating the principles and achievements of academic writing pedagogy into the system of medical training.

**Study design.** This study is an empirical applied research of a qualitative type mainly based on data collection approaches. The data were obtained over the period of four years, from 2013 to 2017, from informants of the Ukrainian Medical Stomatological Academy, medical / dental undergraduate and postgraduate students, junior medical / dental researchers and academics holding PhD degree (n = 120), including an equal share of male and female persons aged from

20 to 35. We used both subjective and objective information obtained through the observation, data from questionnaires, interviews, and writings to evaluate the needs of the participants in acquiring academic writing skills and to arrange the needs according to their priorities. First, participants were given a criterion-referenced pre-test designed as a diagnostic test to examine their General English language proficiency. The undergraduates (n=50) were included in the study to assess the initial level of those entering the medical profession. The undergraduates were at different language threshold levels ranging from A1 to B2 according to Common European Framework of Reference for Languages [11] despite their average 10 year period of learning English as a routine part of training at schools and medical university, for some of them English was their third foreign language they started learning at the medical academy. For many of them, over a half, unsatisfactory skills in General English impeded mastering the discipline-specific discourse conventions. The junior researchers being more motivated demonstrated somewhat higher levels of English proficiency, reaching B1 – B2 criteria, that can be explain by pressing need to read a lot of PhD research-related literature. Need analysis in our study mainly refers to English as a language for academic purposes and is viewed as identifying and evaluating details about the circumstances in which English academic writing is typically used, language proficiency and the dimensions of language competences involved [12, 13].

The participants were approached with the request that they be interviewed on the development of their professional writing ability. We employed 3 methods: questionnaires, interviews, including biodata survey, opinion questions, self-ratings, judgmental ratings, and discussion with faculty of different departments. The interview questions were loosely grouped around the personal approach of the participants to writing: whether they need any assistance in doing their writing products and which type of assistance they may need in particular; their relationship with Ukrainian and English writing skills; how they assess their own development as scholarly second language writers, concerning experience when submitting articles to international journals, and, as a result of their own developmental experience, the type of assistance or advice they might offer (or claim to offer) peers and their own graduate students.

**Results and discussion.** According to the results obtained, the large share of the participants did almost no academic writing in their undergraduate courses neither in their native language (67.8%) nor in English (74%). In a majority, they were unfamiliar with journal professional scientific publications and research articles until their senior years. The participant noted that over 2-year courses at the Department of Foreign Languages, Latin Language and Medical Terminology they were usually taught to read and discuss discipline-related texts and to practice role-play activities and familiarized only with some principles of good writing through the drilling and modelling of sentence patterns and vocabulary. But they were not taught how to write in the discourse of the field of medicine or dentistry neither in their native nor English languages. Our medical undergraduates seem to be not the only ones who have encountered this problem: studies by L. Carroll, A. Herrington, M. Curtis, and L. McCarthy reveal considerable variety in the writing undergraduates do and in the disciplinary approaches they encounter [14, 15, 16].

All interviewees find academic writing in English difficult or rather demanding. All participants were able to identify personal problem areas, and virtually all they note dissatisfaction while using English in their scholarly writing. This varied from issues of formal correctness, including grammar aspects, misuse of voices, correct sentence structure; correct articles, preposition; spelling, flexible use of general and academic vocabulary, e.g. synonyms, collocations, hedging, unnecessary use of jargon and acronyms; failure to adhere to punctuation conventions; to more complicated areas as logical development of ideas, genre sensitivity, unawareness of patterns of text organization or rhetorical schemas.

Writing actually is a very personal activity and different people have different problems even in their native language. Basically, the interviewees thought there are a lot of differences between writing in English and in their native languages, Russian or Ukrainian. First, they stated the obvious differences in sentence patterns, format of citation, and tone of scientific narrative format. But some journal editors have observed that, at the level of a junior researcher, writing problems experienced by native and non-native writers are nearly similar, especially in terms of proper using of rhetorical techniques and functions when describing own results, uniting knowledge from multiple sources into some sort of coherent organizational pattern focusing on the central idea, drawing conclusions, etc [17, 18]. The analysis of such aspects of scientific texts written of by the participants in Ukrainian as the structure, word choice, grammatical structure and techniques, syntax, rhetoric techniques and devices, have confirmed that this is particularly true for junior researchers writing in their native languages. Moreover, the respondents noted that they perceive influence of native language norms primarily caused by difference between Ukrainian as an inflexion language and English as an analytic language, i.e. flexible word order in Ukrainian language significantly interferes with sentence building in English. In addition, some of them wrongly consider that wordiness and redundancy, excessive citation, too long complex sentences and clauses, complicated language, high-flown or stuffy style are typical of academic discourse, whereas brief and clear writing is supposed to lack thought. This misconception may have originated from the scientific writing conventions of the Soviet days and, unfortunately, has been partially inherited by Ukrainian academic writing. It is apparent that Ukrainian medical researchers bring the style of writing in academia that somewhat contrasts with conventions of English academic writing as emphasized in Anglo-American universities. Therefore, educator and researchers have to consider of cross-cultural difference in thought and writing patterns.

There are two opposing opinions on the nature of academic discourse: one stressing the universality of academic discourse [19, 20, 21], based on the theory that the basic concepts of science are universal, irrespective of the native

language of the scientists [22], the other postulating the culture-specificity of cognitive and textual [23, 24, 25, 26]. Nevertheless, despite a number of attractive features of the theories claiming the universality of scientific discourse, according to which the concepts and procedures of science are universal, and Scientific English is seen as an instrument to realize universal specialized communicative functions such as those associated with scientific and technical discourse, professional discourses and academic genres still retain their culture-specific intellectual styles. Sciences and technology are known to demonstrate a greater degree of rigidity in discourse convention [3, 7, 21] compared with humanities. The medical professionals and researchers can not but agree that original research articles published in esteemed Ukrainian and international journals follow the very standardized IMRaD (introduction, methods, results, and discussion) structure with a decreasing use of the literary stylistic devices. To some extent, this facilitates both writing and reading, and may be considered as a response to the constant growth of information.

Some contemporary scientific texts, nevertheless, are quite stylistically coloured [6], and medical journal articles do not come to nothing more than publishing primarily IMRaD research articles (original report articles), which report original data, or review articles, synthesizing and summarizing the essential contents of a particular field, rather than report on new results; they include a wide range of other genres, characteristic of medical academic discourse, i.e. case reports (descriptive articles), articles of opinions, contemporary, perspectives, correspondence, reviews of books, clinical practice guidelines, regulatory documents (expert reports, safety and efficacy summaries).

The results elicited from the participants of our study show that writing in genres other than original research articles with their conventional structure seems to be troublesome and often associated with the lack of self-confidence and language anxiety. Moreover, some of the interviewees (38%) have even admitted that they experience difficulties when reading the articles of non-IMRaD format and uses Google Translate despite of its only 57.7% accuracy [27].

To date, a large body of research has established the fact that effective foreign language usage in academic writing is only possible at the comparatively advanced language proficiency [28, 29, 30, 31], therefore, the number of English-writing specialists among Ukrainian medical researchers is virtually insignificant. Most of the respondents are seeking for translators, who would translate their articles for submission to the international journals, or writing to a translation agency for rendering into English, whereupon the original text can lose more in academic and even in discipline-specific appropriateness. Sometimes the researches ask for translators to polish their manuscripts in accordance with journal submission guidelines, but quite often this looks like translating rather than polishing. Peer-reviewing in order to check the clarity and writing style is far from being often practiced as native-speaking colleagues can hardly be seen as a channel for improving language. In their attempts to write articles or paper for conference proceedings by themselves, the participants of our study consult journals on how the texts are structured, what language and stylistic devices are used. The introduction, formulating the research questions, and discussion sections, which are the mirror image of the sequence of topics, are reported to be the most difficult to write because of their more marked socio-pragmatic orientation that implies more complex grammar and more sophisticated selection of rhetoric devices compared with writing the method or result sections.

Writing high-level academic papers involves innumerable, simultaneous skills that require intensive knowledge and practice. The comment voiced by some respondents that the acquisition of rich, flexible discipline-appropriate discourse must be a lengthy process. V. Collier and W. Thomas's research [32] suggests that it takes most English language learners five to seven years to develop native-like academic language proficiency and literacy. It is true that unless medical researchers are taught to express their ideas in a proper way, they will find it difficult to write primary research articles or any other types of academic or professional texts.

It is going to be an investment in time to take on teaching in English. The problem is that the requirements of academic discourse are often implicit and students are expected to gain a grasp of academic literacy without necessarily being given instruction in how to utilise these conventions of effective writing. The principles of basic writing pedagogy should run through the disciplines instructed. Attention to developing academic writing skills should focus on the basic elements of writing, characteristics of written genres across the disciplines, providing a framework in which expert and practical knowledge is internally organized. This also suggests focusing on the ability to identify the building blocks in designing discipline-specific texts, identify and critique thematic and rhetorical structures, to choose and employ proper language means and meta-language, to recognize expository and argumentative discourse patterns. As S. Aranha points out, 'No matter the language the text is written in, students have to negotiate the genre conventions, the knowledge and the values of academic writing in their struggle for a personal voice' [33].

Undergraduates and post-graduates may gain experience writing in a variety of genres, starting with library-research papers, essays, conference posters and presentations, editing both print and online documents, designing and producing documents using standard software, and working on projects in teams and individually. They can also participate in a professional experience that requires a significant amount of writing, e.g. to write content for university websites, health-related magazines or news articles. In accordance with up-to-date qualifying requirements, Ukrainian medical and dental graduates need to be familiar with searching medical literature, understanding and presenting research data, editing and publishing requirements; they need to be equipped with the knowledge, skills, and behaviours to work as professional communicators (through the written channel as well) in various contexts within their professional field.

The next urgent question is who should set principles of academic writing. On the one hand, writing is best taught by someone who combines disciplinary expertise and writing experience. But few discipline insiders have a good

command of English to implement rules of Writing Across the Curriculum, a pedagogical movement, which holds that development of critical thinking skills, discipline specific knowledge, and formal academic communication [34, 35] are fostered by the frequent incorporation of writing in the classroom. On the other hand, most English language teachers are not the best candidates for this because of their lack of discipline-related training. Following experts in writing across the curriculum pedagogy and in academic writing, we believe that the most realistic approach for Ukrainian educational settings at present is to engage English language teachers and instructors who are writing experts in creating cooperation with experts in medical and dental disciplines. A lot of English language instructors in medical universities are quite proficient in medical concepts and terminology resulted from the assistance in translating and interpreting special discipline-related literature or the work with the physicians/scientists by helping present the information in an appropriate manner.

Theoretical foundations of academic writing, Basic Writing Pedagogy, Writing Across the Curriculum have been thoroughly developed in numerous Western studies [2, 5, 12, 15, 16, 28]. They have been adapted to multiple educational contexts and fostered the development of academic writing methodology and writing centre pedagogy. This profound knowledge and experience would be of great value in developing similar practices in countries where English is a foreign language. Academic writing has been started to gain interest among Ukrainian academics for the last few decades. Vyacheslav Karaban, Svitlana Zhabotynska, Olena Ilchenko, Tetiana Yakhontova have made enormous contribution in developing and promoting academic writing for international academic communication.

There are many resources available for medical professionals to improve their training in academic writing, or to upgrade their knowledge and skills on an ongoing basis. Training in this discipline may involve short one or two day courses or workshops by professional bodies, for example, a two-day training “Academic writing as a tool for integrity” led by Victoria Taylor, PhD in Rhetorical and Communication (The University of Arizona, Tucson) in Kyiv, Kharkiv, Odessa, Lviv in May, 2017. A growing number of higher medical educational settings are developing and incorporation on-the job ‘mentor-guided’ training as well as designing special programs for medical PhD students. This training is usually provided by ESL lecturers or instructors more experienced in academic writing who help to uncover its practical implications.

Self-study appears not only as the most convenient approach but as the mainstay in the context of continuing education. Numerous reports stress that self-study has considerably expanded from its original roots in the late eighties and digital technologies have made huge changes in the system of education. Online learning is considered as the greatest revolution in contemporary education that provides significant new functionality in transmitting information. There is the number of online courses delivered by prestigious universities that aim at equipping researchers with the principles of effective academic writing. Such courses as ‘Writing in the Science’ from Stanford University School of Medicine, ‘Introduction to Writing: Academic Prose’, ‘Intermediate Writing: Research Writing in a Persuasive Mode’ from Utah State University, The Science Writing Program from Johns Hopkins University are known worldwide for their valuable innovative approaches to teach writing skills. In one of our previous papers we described the inside experience of medical undergraduates and PhD students in taking online courses. Though this type of learning was very challenging for the participants, all they would recommend online courses to their peers as an effective way to develop profession-related knowledge and skills as well as to gain experience in collaborating with international team and to raise their awareness of the conventions of academic English language and culture.

**Conclusions.** Academic writing proficiency is an important prerequisite to exchange experience, views and to collaborate with international colleagues. Various kinds of academic writing have different purposes and forms, therefore multi-faceted integrated approach in developing academic writing competences seems to be the most desirable. Incorporation of principles of writing pedagogy into the medical educational settings can greatly contribute in the development of academic literacy in non-English speaking young researchers as well as in the build-up of their self-esteem. It would be pedagogically useful to raise their awareness of cross-cultural variation in academic writing. To support this, more cross-cultural research into academic discourses in English and Ukrainian using rigorous comparative designs is still necessary. A realistic environment produced through high-fidelity simulation enhances the opportunities for the optimal learning process.

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