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**LANGUAGE PROFICIENCY OF INTERNATIONAL STUDENTS:  
TWO DIFFERENT BILINGUAL EDUCATIONAL PROGRAMS**

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*Abstract*

Two bilingual programs are available to foreign students in Russia – «immersion» and «transitional» ones. But their "weak spot" is the lack of progress in Russian proficiency that can have a negative effect on academic achievements. There was put forward a hypothesis, consisting of a set of assumptions that, the process of teaching international students will become more effective if the Russian language is taught not only in Russian classes, but also in other courses such as physics, chemistry, mathematics and others, without duplicating the work of the teacher of the Russian language, but complementing it. Thus, the aim of the work is to achieve good proficiency in Russian and improve academic performance of students in certain content courses. To achieve the goal, content teachers should introduce special bilingual methods and strategies and highlight the role of interactive methods of learning in their classes. The experiment was conducted at the Volgograd State Medical University. The findings suggest that students in focus groups score higher in the Russian language and certain courses than students in control ones. Moreover, the students became more active, increased their communicative skills, managed their stress and raised their self-esteem. Thus, the research allows the conclusion that implementation of bilingual teaching strategies and methods and complementing them with bilingual manuals promotes learning Russian and also enriches the professional culture of future specialists.

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## 1. Introduction

In 2017, the Ministry of Education set up a new project with the eloquent title "Export of Education". The purpose of this mission is to attract as many international students as possible, simplifying the conditions for their entry into Russia, and introducing new innovative training programs. The number of international students is expected to grow more than three times. As the Minister of Education of the Russian Federation Vasilieva puts it, "instruction of international students brings considerable income to the economy of Russia as a whole" (Dobroe Utro TV program of September 4, 2017). Moreover, according to the figurative expression of the minister, training of international students is a kind of "soft power" for intellectual, cultural and informational influence on the world.

Two different kinds of bilingual programs are available to international students in Russia – immersion and transitional ones. These programs differ in the degree they use Russian and a well-mastered language (English or French) in the learning process. In our study the term well-mastered means that English or French are not mother tongues for most international students who come to Russia from India, China, Jordan, Malaysia, etc., but they are proficient in the language(s). Immersion programs involve instruction through a foreign language (Russian) after a short period of study at the preparatory course. Further in the work we will refer to the classes who receive training under such programs immersion ones. At a transitional bilingual program, students receive instruction in two languages — English or French in the first three years, and in Russian in senior years, including the process of final state certification. Classes trained within the program will be referred to as transitional ones.

## 2. Problem Statement

In spite of their difference, the bilingual programs are united by a common goal of acquiring expertise via studying in two languages. But their "weak spot" is lack of progress in Russian proficiency, which can negatively affect academic achievements as a whole. Students come to Russia without any knowledge of the Russian language; they exhibit problems not only in communicating at the university, but also in many other public places. Students do not master Russian rapidly, and this low progress has a negative effect on learning in particular, and the quality of their life in general. In immersion classes, as practice shows, students' poor speaking and listening skills in the process of mastering first year subject courses, render them unable to express their ideas fully and understand the speech correctly, and finally result in low level of student's academic performance. In transitional classes, despite the possibility of studying courses within a so-called "supportive learning environment" of the well-mastered language, students exhibit difficulties of a similar nature. These are difficulties in learning Russian as a foreign language, problems of adjusting to an unfamiliar culture, episodes of frustration caused by cultural and psychological isolation, etc. Moreover, by the time of students' practical training in Russian clinics and hospitals, students are supposed to show readiness for effective communication in Russian to collect and analyze patient complaints and take a detailed case history, aimed at making a correct diagnosis. The fact supports the importance of rapid and productive learning of Russian as a foreign language.

Besides that, the practitioners and researchers state that the process of mastering a foreign language is associated with a number of challenges caused by specific features of the subject itself. Learning any foreign language requires an expenditure of enormous energy, as well as daily, systematic,

motivated work. According to the opinion of Fomina, engaged in the study of socio-cultural adaptation of international medical students, the initial stage of studying any foreign language is always a frustration, because the process is associated with violation of age-long laws of ethnic life. For some people, she asserts, “the very need to speak a foreign language causes negative emotions and attitudes toward native speakers and their culture” (Fomina, Altukhova, & Ignatenko, 2016: 211). As she also states, the Russian language differs from those of the Romano-Germanic group both with its synthetic nature, and with a complex lexical configuration associated with stratification of various ethnic components in the course of evolution of the Russian ethnoses.

### **3. Research Questions**

Over the last decade, content and language integrated learning has been used as an “umbrella term” (cited by Marsh, 2012:28) referring to a number of situations dealing with experience of learning non-language courses in a foreign language. Our understanding and perception of the process is still evolving, and Nikula, Dafouz, Moore, Smit (2016) remind us of “the intricacy of the factors that influence the learning (institutional, pedagogical, personal) and need to be considered”. As Coyle, Hood and Marsh (2010) and Anderson McDougald, and Cuesta Medina (2015) say that content and language integrated learning means “good teaching”. To their mind, these programs are aimed at fostering the development of students’ communicative competences in a foreign language. Others claim that the very idea of integrating language and content in science classes comes alongside potential development of literacy in the classroom. Meyer, Coyle, Halbach, Schuck, and Ting (2015) point out that deep academic understanding is not possible without appropriate level of mastery of academic forms of communication and writing. Fang, Lame and Pringle (2010) and Whittaker & Acevedo (2016) suggest different teaching-learning strategies that may facilitate scientific literacy through language learning since students have to use a foreign language to communicate their findings and articulate their thinking. The implementation of content-based strategies in bilingual contexts has been approached by different studies (see Barranco, Sanz, Calderón, & Alario, 2016; Genesee & Hamayan 2016; Nargund-Joshi & Bautista, 2016). Edgar Garzon-Diaz (2018) in his study integrated content, culture and foreign language (English) in school lessons of Bogota, Colombia. His findings highlight the role of language integration in science lessons, considering the science as the key element for fostering cooperative and communicative work of students, motivating them to use English in content lessons and contributing to the development of scientific citizenship as a whole. It becomes obvious that many attempts have been made to reveal the connection between language structures and particular subject content, “to find the so-called language muscles of content disciplines at all language levels: lexicosemantic, morphosyntax and genre” (cited by Dalton-Puffer, Llinares, Lorenzo, Nikula, 2014: 216). Thus, to open doors to innovative teaching-learning strategies at the implementing stage of the pedagogical experiment, bilingual modules, tools and methods were introduced. Some grammatical exercises aimed at formation and development of Russian language proficiency, can be as follows.

Exercise 1. Read and write down words and phrases. Find the meaning of the new words in a dictionary.

Термин (*a term*): ввести (*introduce*) – вводить термин (*introduce a term*); информация (*information*): хранить (*to keep/to store*) – сохранить информацию (*to save information*); хранение (*storage*) - сохранение информации (*storage of information*); обработать (*to process*) - обрабатывать информацию (*to process information*), обработка информации (*data processing*).

Exercise 2. Make and write down phrases consisting of a verb and a noun:

Изучать ( <i>study/learn</i> )	информация ( <i>information</i> )
Сохранить ( <i>save</i> )	данные ( <i>data</i> )
Обрабатывать ( <i>process</i> )	задача ( <i>a problem</i> )
Строить ( <i>plot</i> )	сигнал ( <i>a signal</i> )
Решать ( <i>solve</i> )	график ( <i>a graph</i> )
Использовать ( <i>use</i> )	устройство ввода ( <i>input device</i> )

Exercise 3. In word combinations you have written down, replace the verb with a noun ending in – ание/-ение.

Model: сохранить (что?) информацию – сохранение (чего?) информации.

Note: from the verbs *обработать*, *передать* nouns are derived by another pattern: *обработать* – *обработка*, *передать* – *передача*.

Exercise 4. Define the composition of single-root words: информация (*information*), информировать (*inform*), информатор (*informer*), информационный (*informational*), проинформированный (*informed*).

Exercise 5. Repeat the term using the model:

Кто (что) это кто (что)/*Who (what) is who (what)*

Model: Мгновенная скорость — это производная от радиуса вектора по времени (*Instantaneous velocity is a derivative of radius-vector with respect to time*).

Что состоит из чего/*What consists of what ...*

Model: Молекула воды состоит из двух атомов водорода и одного атома кислорода (*A water molecule consists of two hydrogen atoms and one oxygen atom*).

Что отличается чем/*to be notable for ...*

ЭВМ отличается высоким быстродействием и большим объемом памяти (*The computer is notable for a high speed and large memory capacity*).

Exercise 6. Make sentences according to the models using your words and word combinations:

что – это что/*what is ... what*

Скорость, быстроты, движения, степень (*Speed; degree of movement*);

Память, опыт, способность сохранять и воспроизводить впечатления, (*Memory, experience, the ability to keep and reproduce impressions*);

что состоит из чего .../what consists of what ...

Группа, пятнадцать студентов (The class consists of fifteen students).

Exercise 7. Read the sentences. Tell in which cases the word "устройство/device" denotes a process/*процесс*, and in which cases the object/*предмет*:

1. Устройство диагностической установки очень сложное (*The setup of the diagnostic device is very complicated*).
2. Это устройство для наблюдения интерференции волн (*This device is for observing interference of waves*).
3. Устройство плотины продолжалось полгода (*Arranging of the dam lasted for six months*).

Exercise 8. Name the nouns from which the following adjectives are derived.

Центральный (*central*), физический (*physical*), логический (*logical*), цифровой (*digital*), графический (*graphic*), химический (*chemical*).

Exercise 9. Determine the composition of root words, that is, find the root, suffix, prefix, ending in them: память – памятник (*memory – memorial*); процесс – процессор – процессорный блок (*process – processor – processor unit*).

Exercise 10. Pay attention to lexical compatibility of the word "event". Compose phrases with the word "event", distributing them into two groups: mathematical terms or words from everyday life.

Model: несовместные события – термин ("exclusive events" is a term); знаменательные события – житейское значение ("significant events" is a word combination used in everyday life).

Радостные (*joyful*), горестные (*sorrowful*), противоположные (*opposite*), достоверные (*certain*), недостоверные (*uncertain*), неправдоподобные (*unbelievable*), замечательные (*wonderful*), счастливые (*happy*), зависимые (*dependent*), знаменательные (*significant*), неприятные (*unpleasant*), невозможные (*impossible*).

There were also introduced special bilingual methods of *visual support*, *reading support*, *language support*, and bilingual tools of "*language input*", "*bridging / prompting*", "*code switching*", etc. Let us consider them in more detail.

The method of *visual support* implies the use of visualization in the process of presentation and semantization of lexical, grammatical and theoretical material to have a reinforcing effect on retention. This method involves the use of drawings, photographs, tables, diagrams, films, presentations as well as visibility in derivation of formulae, introduction of theorems and chemical reactions. Subject teachers in the classroom should introduce new terms, as well as explain new words that students should see written on the board. Banks (2008: 37) notes that "students learn better if they *see* and *hear* words in the target language. ... The challenge to language instructors is to devise ways of augmenting their verbal presentations with non-verbal visual material".

Methods of *reading support* are implemented through a number of strategies of working with texts. The texts used in the process of bilingual education should meet stringent demands, namely, not only authenticity, scientific character, actuality, informative value, but also educational and methodological appropriateness, that is, the limitedness of information depending on the stage of instruction and the level of language proficiency (Khudobina, 2013). The texts should be relatively short and logically coherent, with clear presentation, no complicated linguistic constructions, and with illustrative examples. Texts should not duplicate the contents of the language module, but should either supplement it or contain fundamentally new information that enriches students' expertise.

Methods of *language support* imply the use of cues and prompts aimed to help students in the process of generating oral and written utterances, as well as articulating their knowledge and expressing their thoughts and findings appropriately. In the process of speaking, the prompts create conditions for controlling the content of the utterance and, in an indirect form, determine the choice of linguistic means. There are different types of clues and prompts according to the nature of content, its meaning, thoroughness, etc. These are plans, questions, key words and word combinations, symbols, numerals, etc. Dynamics of developing spoken language skills (from reproduction to production) implies a gradual departure from prompts. In the process of bilingual training, it is important to teach students to find these clues and use them, for example, in retelling a text. Examples of tasks using prompts can be as follows: *find* in the text *prompts* (basic terms and phrases) necessary for understanding and memorizing the information; *make sentences* with the prompts; *make a plan* of retelling a text using the prompts; *retell the text*, mentally restoring in your memory the key words; *try to unfold the words* into utterances, etc.

*Code switching* means alternation of two languages in the learning process. To provide understanding, the teacher should think through his speech in advance, plan which information and tasks will be given in the foreign language. The method plays a positive role in language development of learners and presents a form of communicative support to expand their linguistic competency (Yow, Tan, & Flynn, 2017; Hornberger & Link, 2012). Code switching can be used as a tool to build terminological vocabulary in two languages; to fill in lexical gaps; to perform comparative analysis; for psychological reasons, to decrease the students' level of anxiety. Within the framework of this method, the following simple stimulating speech utterances and questions can be used in Russian: *извлеките квадратный корень из числа 64* (*Take the square root of number 64*); *выразите давление в миллиметрах ртутного столба* (*Express pressure in millimeters of mercury*); *кто открыл закон?* (*Who discovered the law?*), *когда был открыт закон?* (*When was the law discovered?*). This method is also applicable to formation of skills in translating the content from the code of symbols (mathematical signs, schemes, graphs, formulae) to the code of words, using the following tasks: *read the physical law*; *write down this law with the formula*; *read the formula in words*, etc.

#### **4. Purpose of the Study**

Therefore, it is quite obvious that bilingual training needs specific training strategies focusing on students' rapid and effective progress in Russian language proficiency in order to gain expertise and enrich their professional culture. There was put forward a hypothesis involving a set of assumptions that, firstly, the process of training international students will become more effective if Russian is taught not

only in Russian classes, but also in other subject courses figuring in the first year curriculum. Secondly, teaching Russian should not duplicate the work of a Russian language teacher, but should complement it with the use of special language-supportive methodologies. Thus, the main aim of the work is implementing this project to vocational training of international students to facilitate the learning of both subject content and language. To achieve the goal, teachers should highlight the role of different bilingual methods in their classes and solve the problem jointly by cooperation between teachers of Russian and content courses.

## 5. Research Methods

The experiment was conducted at the Volgograd State Medical University, at the faculty of General Medicine. Eighty first year students participated in the project. There were 40 students of immersion classes and 40 students of transitional ones. The pedagogical intervention consisted of the following stages: data acquisition, implementation of methods and tools, reflection upon the findings. At the first stage, there were developed diagnostic tools to assess language proficiency in four main aspects, determine students' academic performance in subject courses and elicit information about the difficulties they encounter, studying in Russian which do not allow them to switch with ease and adapt in the learning process. Then the teacher-researchers set the following tasks:

1. Compare language proficiency and academic performance in definite courses (Physics, Math, Medical Informatics, Chemistry in Medicine) in four focus and four control groups at the beginning and at the end of the experiment, taking into account the types of bilingual training programs the students enrolled in.
2. Implement a system of bilingual methods and strategies aimed at improving language proficiency via learning in science classes.

To diagnose the difficulties the students encounter studying in Russia, repertory grid technique was used (Fransella, Bell, & Bannister, 2004), where typical classroom situations were considered as evaluated elements, and bipolar constructs were used as reference axes: 1. *easy/difficult*, 2. *interesting/boring*; 3. *it takes a lot of time/it does not take much time*; 6. *useful for gaining expertise/does not affect expertise*; 7. *require good language proficiency/does not require good language skills*. The classroom situations were as follows: 1. Work at the lectures; 2. Work at practical classes in first year courses; 3. Unsupervised work with literature; 4. Work at Russian classes.

When analyzing the grids, significant differences were found between students of different bilingual programs. Most students in immersion classes (83%) noted it was difficult to work at lectures and practical classes in subject courses and (95%) that it requires good language proficiency. Many students (77%) assert that “work with literature” takes a lot of time. Students note that they cannot express and communicate their thoughts and ideas either orally or in written form. Their reports were as follows:

*Whenever I make a mistake in grammar or word choice the teacher asks me to repeat and explain again, but I cannot.*

*I have been studying Russian for 10 months and I was mostly focused on reading. And now, studying in the first course, it is difficult for me to express my ideas, thoughts and feelings.*

*I know that Russian is the key to my success in academic study but I still can barely understand what the teachers says at the classes and lectures, and it is difficult for me to ask follow-up questions.*

*Russian grammar and pronunciation are very complicated and it is hard for me to put my thoughts into words.*

Students of transitional classes describe learning the Russian language with the construct "difficult". Many students (88%) experience difficulties of communicating in Russian in public places and complain about language isolation. Their expressions were as follows:

*I think that I will never speak Russian. It is really hard for me to pronounce the words and understand the cases. I am not sure that I will cope with this stressful situation.*

*I worry about the consequences of failing my Russian learning.*

*I do not feel comfortable around native speakers of Russian. I am afraid of being unable to speak Russian.*

*One day I wanted to order snacks in a fast food shop but I did not know a single word in Russian, the worker was asking me about my order but I was like mind-blown at that moment and I did not know what to do. That was unforgettable!*

This reflects students' language incompetency in Russian and, thus, highlights the role of special language-supportive methods to foster progressing both content and language simultaneously. To assess listening, speaking, reading and writing skills in Russian we used the International Program of the Council of Europe: "Learning languages by citizens of Europe" (Council of Europe, 2001: 221). According to the assessment scale, there exist three principal levels of current language ability: Elementary: A1 – beginning speaker, A2 – early intermediate speaker; Intermediate: B1 – intermediate speaker, B2 – early advanced speaker; Advanced: C1 – advanced speaker, C2 – proficient speaker. Diagnostics of students was conducted by teachers of the Russian language. In immersion classes, most students showed low language proficiency - A1 (see Table 1). It is clear that the level of language development does not allow students to perform well in subject courses. Swain (2006) alongside Meyer (2015) et al. assert, that deep academic understanding cannot happen without appropriate academic language use. Hence, implementation of the project might create more accessible opportunities for developing language proficiency. In transitional classes, total language incompetency was noted, because these students come to the country without any knowledge of Russian. Students are only able to greet the teacher, say goodbye and thank you.

**Table 1.** Assessment scale of language proficiency of students at the initial stage of the experiment.

Language proficiency	Control immersion classes		Focus immersion classes	
	Number of students	Percentage	Number of students	Percentage
A1	7	35	9	45
A2	13	65	11	55
B1				
B2				
C1				
C2				

To determine the levels of academic performance in certain courses, oral and written interviews, tests, questionnaires and observations were used. In the present study we will discuss learning outcomes only in one course, consisting of two modules – Math and Physics due to a limited volume of



the article. Academic achievement in the courses was assessed as an ordered discrete measure of students' oral and written learning outcomes, ranging from 2 ("Bad") to 5 ("Very good") and leading to four categories (see Table 2.)

**Table 2.** Students' academic performance in Math and Physics in transitional and immersion classes at the initial stage of the experiment.

Academic performance	Immersion classes		Transitional classes	
	Control	Focus	Control	Focus
	Number of students / Percentage	Number of students / Percentage	Number of students / Percentage	Number of students / Percentage
<i>Bad</i>	6/30	7/35	11/55	12/60
<i>Not bad</i>	10/50	9/45	7/35	7/35
<i>Good</i>	4/20	4/20	2/10	1/5
<i>Very good</i>				

In other courses, the obtained indices in the focus and control transitional classes showed no fundamental differences as well. According to the data given, in both control and focus classes the largest number of students is at the low levels of academic performance (*bad/not bad*). Perhaps this is due to the difference in the basic levels of training of international and Russian students, the system of assessment and control. As practice shows, most international students are ignorant in certain branches of trigonometry, rules of logarithm, oscillations theory, electromagnetic waves theory and some other branches of physics. In reference to immersion classes (see Table 2), the level of students' academic performance shows no fundamental differences, but it is worth noting that academic performance in these classes is higher than in transitional ones. This is probably due to the fact that such students have taken a training course in the chosen subjects and they have already gained the lacking knowledge. However, the overall academic achievement is not very high. The reason is not just poor knowledge of the subject matter, but also insufficient Russian language proficiency and inability to formulate the answer correctly both orally and in writing. Taken together, these findings strongly confirm the need to embrace special bilingual tools and methods in the process of training international students.

## 6. Findings

The findings suggest (see Table 3), that in focus transitional classes, a larger percentage of students (35%) compared to focus immersion (15%) moved to a higher level of development of academic performance, despite a slight difference in favor of immersion ones at the initial stage of the experiment.

**Table 3.** Students' academic performance in Math and Physics at the final stage of the experiment

Academic performance	Immersion classes		Transitional classes	
	Control	Focus	Control	Focus
	Number of students / Percentage	Number of students / Percentage	Number of students / Percentage	Number of students / Percentage
<i>Bad</i>	3/15		9/45	
<i>Not bad</i>	12/60	10/50	7/35	5/25
<i>Good</i>	5/25	7/35	4/20	8/40
<i>Very good</i>		3/15		7/35

We suppose that is due to the opportunity of acquiring knowledge and solving certain learning problems with the means of a well-mastered language as well as the possibility to find information for academic purposes in two languages. Under the circumstances we can make an additional conclusion that transitional bilingual programs provide optimal difficulties and result in more effective development of expertise through supportive environment of a well-learned language. These findings also support the value of embracing bilingual methods in the learning process.

According to the data obtained, most students in the focus immersion and transitional classes, moved to a higher level of language proficiency compared to the control ones (see Table 4).

**Table 4.** Assessment scale of language proficiency of students at the final stage of the experiment

Language proficiency	Immersion classes		Transitional classes	
	Control	Focus	Control	Focus
	Number of students / Percentage	Number of students / Percentage	Number of students / Percentage	Number of students/ Percentage
A1			14/70	4/20
A2	15/75	5/25	6/30	13/65
B1	5/25	11/55		3/15
B2		4/20		
C1				
C2				

Students wrote in their final reports that the project positively affected their desire to learn Russian and communicate. Their explanations were as follows:

*The teachers helped me to practice saying Russian words in my Physics and Chemistry classes. They were so close to us that I feel quite sure of myself speaking Russian. Whenever I made a mistake, she kindly said that “you should say ... instead of ...” The project gave me greater confidence to master Russian.*

*When I came to Russia I wanted to study in English and did not have the courage to talk to foreigners in Russian. But I soon realized that it was impossible to live in the country and not know the language of the country. The project forced me to speak Russian and I found it was not so bad.*

*The project helped me to understand that it was not so difficult to ask questions in Russian and express our opinions and thoughts using special prompts and speech cliché. It also convinced me that we learned Russian not for memorizing a lot of words and passing the exam but for productive communication and effective learning. I understood that a high level of Russian proficiency is a key to my success in my future career.*

*By doing project, it turned out that it was easier for me to learn Russian in science classes than in Russian class. The topics were so interesting and useful for our future work that we did not noticed any difficulties in saying Russian words and in remembering them. We did labs and learn Russian.*

The reflections indicate that the project motivated students to use Russian in their science classes as well as see the language as a good tool for getting deep knowledge. Besides, during the project the students perceived the teacher as a person they could trust, talk to whenever they needed and count upon. This confirms that teachers should become supportive facilitators and establish a rapport with students, providing reassurance and drawing students into exciting collaborative instruction.

## 7. Conclusion

The conducted research permits a conclusion that the process of training international students has become more effective due to higher Russian language proficiency and better academic performance. The study found that the project offered rich opportunities to integrate content and foreign language in science classes to contribute to the development of students' expertise. Moreover, the students became more active and felt more motivated to use a new language; they managed their level of anxiety and showed a higher overall emotional satisfaction with the learning process as well. The study confirms that productive bilingual training requires a team of teachers who are ready to develop tasks, learning situations and manuals in two languages, and search for the best teaching strategies for each specific type of content. Teachers should arrange a supportive atmosphere in a class where students not only feel free to participate in the activities suggested but also feel they can create and propose new ideas and activities (cited by Garson-Diaz, 2018:10). The team should include leading specialists of the university who have sufficient experience in teaching and research in this content area, as well as specialists who are proficient both in English and Russian. It is necessary to make changes in the forms and methods of teachers' work. The use of strategies focusing on mechanical memorizing of educational content is completely unsuccessful and irrelevant with these types of learners. To be more interesting, joyful and effective, the training process should meet not only cognitive, but also individual goals of the students, taking into account their age, moods, feelings and attitudes. As Oxford and Shearin (1994:3) asserts 'any foreign language learner is not just a cognitive and meta-cognitive machine but rather, a whole person'. This means that active, interactive and problem-based teaching methods should be included in the training process, the proposed tasks should be selected in such a way that students should realize the importance of deep knowledge for the overall development of their expertise and personality.

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