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**ACADEMIC ENGLISH IN USE:
how to write a Project Proposal**

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в качестве учебного пособия*

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Учебное пособие представляет собой детальное изложение вопросов, относящихся к написанию научных работ на английском языке.

Издание включает материал – тексты, задания, упражнения, стимулирующие и развивающие навыки письменной академической речи на английском языке, изучение которого обучает магистров написанию и оформлению авторефератов по теме исследования.

Для обучающихся по всем гуманитарным и техническим направлениям подготовки магистратуры при изучении дисциплин «Иностранный язык в профессиональной деятельности» и «Иностранный язык в иностранной сфере».

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Introductory comments: What is a project proposal?

An academic project, i.e. a research work undergraduates present by the end of their final year. The main focus is on writing a brief outline of what is going to be investigated – a project proposal. It is much shorter than a project itself. Project proposal can contain from 1500 to 1800 words. It is different from a report as it is not aimed merely at description. However, it is a sort of a detailed plan of the research work. While writing a project proposal it is important to rely upon several organizational strategies. Having chosen the topic and formulated its title you formulate a thesis, and then structure the proposal along the following conventional lines: Introduction, Main body, and Conclusion. Usually you start with a working title which can be longer than its final variant and does not exceed 10 words; so try to avoid lengthy explanations which can be included in the introduction.

The structure of the project proposal is as follows:

Title page	The names of a university/college, and a department, The title of the project proposal, The names of the author and research supervisors/advisors, The city/town, year
Introduction	The brief abstract, The background of the study (also possible: justification, definitions and explanations of the terms or key concepts); The problem statement (also possible: delimitations and scope); The professional significance (also possible: aims and objectives)
Main body	The literature review (theoretical literature and the empirical research), Methodology, The brief report of the results anticipated
Conclusion	The brief summary, Acknowledgments (if necessary)
References	

Part 1. Introductions

Unit 1. Field of science and research

Text 1

SCIENCE AND SOCIETY

Exercise 1. Read the text and determine its main points

Science on the scale that it exists and is needed nowadays can, however, be maintained only with large public support. Largescale public support will be provided only if science and technology are meeting the crucial needs of society. Intellectual progress is not in itself sufficient to generate such support. Perhaps it should be, but it is not. Public support for science may be wise policy, but it is not an entitlement.

The central problem is that the costs of meeting the needs of society are too high, and the time scale for meeting them is too long. The main target of science should be based on improvement in the quality of life. We expect better health care, better education, and economic security. We expect progress towards the reduction of poverty, disease, and environmental degradation.

Progress towards these targets has recently been very slow and increasingly expensive. The heavy costs of providing and improving health care and education can serve as examples.

The situation has produced volatility in public opinion and mood reflecting a lack of confidence in the ability of government and other sectors of society, including science and technology, to adequately address fundamental social needs.

If this mood hardens into a lack of vision, of optimism, of belief in the future, a tremendous problem for science will result. Science, in its commitment to innovation and expanding frontiers of knowledge, is a thing of the future.

Exercise 2. Give Russian equivalents to the following words and word combinations

Research/study/investigation.

To do/to carry on/to carry out/to conduct a research.

To contribute/to make a contribution to.

To influence/to affect/to have an effect on/upon.

To study/to make studies/to investigate/to explore.

To put forward an idea.

To suggest an idea/a theory/a hypothesis.

To advance/to develop/to modify a theory.

To predict/to forecast/to foresee.

To accumulate knowledge.

Field of science/research/study.

A new area of research/study/science.

Current branch/field of study/research.

Latest/recent achievements/developments/advances.

An outstanding/prominent/world-known scientist/scholar/researcher.

Exercise 3. Make up 5 word combinations (verbal and attributive) with each of the two words: *research* and *issue*

Exercise 4. Give synonyms to the following words and word combinations

1) With regard to.

2) Due to.

3) So far.

4) To a certain extent.

5) For this reason.

6) Although.

7) Regardless.

Exercise 5. Translate the following sentences from Russian into English choosing words and word combinations from the given ones

1. *Группа учёных выполняет исследование в сфере нанотехнологий.*

Prominent scholars, an outstanding scientist, prominent researchers, a team of researchers, collaborating scholars	To make a contribution into, to explore, to carry out a study, to make a research, to develop	In the field of, in the sphere of, in the area of, in the branch of, in the district of
--	---	---

2. *Основным достижением в этой области считается выработка главной стратегии.*

The main contribution, latest developments, outstanding result, main achievement, current research	To have an effect, to develop, to contribute, to study, to carry on, to put forward	The streamline, the guideline, the strategy, the leading line, the headline
--	---	---

3. *Это наука, которая изучает процессы, происходящие в обществе.*

The field of study, the science, the branch of science, the area of research, the subject	To investigate, to research, to study, to develop, to carry out, to conduct, to make studies	Public issues, social processes, peoples' troubles, social issues
---	--	---

4. *Трудно дать прогноз, как достижения этой науки повлияют на общественный прогресс.*

It is impossible, incredible, difficult, easy, interesting, great	To accumulate, to predict, to foresee, to conduct, to contribute, to forecast	Developments, advances, results, achievements, investigations	To make a contribution, to conduct a research, to influence, to effect
---	---	---	--

Exercise 6. Paraphrase or give synonyms to the *italicized* words and word combinations

1. The *evolving* trend *generates much* interest.
2. This *problem* has become a *hot issue*.
3. Einstein's *view* has much *impact* on...
4. *Nowadays* there is the *increasing concern* for...

Exercise 7. Complete the sentences which contain the words from exercise 1. Speak about your fields of research

1. I do research in the field of ...
2. It is the science/a comparatively new branch of science that studies ...
3. Remarkable developments have been made in ...
4. The branches of science contributing a lot to progress in my field of study are ...
5. It's difficult/not difficult to predict/forecast ...

Unit 2. Research problem

Text 2.

THE PROBLEM STATEMENT

Exercise 1. Read the text, translate it paying attention to the italicized words

The problem statement is a very clear formulation of the research problem. Having justified your choice of the topic focus, you now turn to indicate some likely *hypothesis* – for quantitative research, or *research questions*- for qualitative research. The typical relation between the type of research and that of the problem statement should also be indicated. Defining *the scope* of the project presupposes stating delimit-

itations for the research with respect to the time period, subject area, regions and sample along with units of analysis (e.g. policies, programs, patterns of behavior etc.). *Delimitations of the study* are intended to emphasize that no claims to generalization beyond the limits indicated will be made.

Exercise 2. Give Russian equivalents to the following words and word combinations

To be the subject of special/particular interest.

To be studied comprehensively/thoroughly/extensively.

To be due to.

To arise from.

To increase/decrease considerably/greatly.

To be only outlined/ slightly defined.

To be mentioned in passing.

To be concerned with/to be engaged in the problem of.

To deal with/to consider the problem of.

To be of great/little/no interest/importance/significance/value/use.

To work on the problem.

To follow/to stick to the theory/hypothesis/concept.

To differ, to be different from.

The reason for the concern in the issue is ...

Exercise 3. Make up 5 word combinations (verbal and attributive) with each of the two words: *interest* and *problem*

Exercise 4. Give synonyms and antonyms to the following words and word combinations

1) To increase.

2) To follow.

- 3) To differ.
- 4) To be concerned with.
- 5) To be outlined.

Exercise 5. Make up noun phrases using the following verbs: to work on, to come to, to conduct, to provide, to place, to follow, to be similar to

Exercise 6. Translate the following sentences from Russian into English choosing words and word combinations from the given ones

1. В силу ряда причин наше внимание будет сосредоточено на ...

For theoretical/practical/following reasons, as will be explained/spelled out more fully in ...	Will be severely limited in the amount of information to be collected/have chosen to emphasize/put/place/impose restrictions/ restraints on/resort to questions
---	---

2. Акцент в работе будет сделан на ...

Here the emphasis, this research/the present investigation, it needs to be no concern of, it is relevant to	Will be aimed at/will largely be confined to/going into further details/to explore in any depth the problem/touch upon the issues concerning ...
---	--

3. Имеется ряд ограничений, которые будут учтены.

There is a number/variety of	Constraints /requirements/restrictions/ impositions/limitations to be	Considered/taken into account/imposed on/attributed to ...
------------------------------	---	--

4. Основная цель исследования будет заключаться в демонстрации необходимости разработки инструментария исследования.

The overall /ultimate goal /the general purpose of this project proposal is/will be to attempt to	Explore the approaches to the problem/further develop criteria for the definition and evaluation of .../provide a description of/contribute to the theory/research methodology and instrument/establish new understanding/show the necessity of considering
---	---

Exercise 7. Paraphrase or give synonyms to the *italicized* words and word combinations

1. As it will be *explained* below I intend *to put restrictions on* the number of issues.
2. It is *not within* the scope of the present study *to investigate* the issues concerning the main topic.
3. The *ultimate* goal is *to identify* the structure of the process.
4. *To provide better* understanding of the *issue*.

Exercise 8. Complete the sentences which contain the words from exercise 1. Speak about your research problem

1. The problem I am studying is concerned with ...
2. We have taken up the problem of ... to ...
3. The literature available on the problem only outlines/mentions in passing/thoroughly/extensively describes such aspects as ...
4. In solving our problem we follow the hypothesis that ...

Unit 3. The background of the research problem

Text 3.

THE BACKGROUND FOR THE STUDY

Exercise 1. Read the text; translate it paying attention to the italicized words

The background presents the context for the study and explains what external factors might influence or affect it. In identifying the background factors you may outline the general state of knowledge about the research problem very briefly and account for key reasons for your choice of the topic focus (i.e. *justify* it). *Justification* suggests the rationale for doing research on the topic chosen, in other words, you explain why the research needs to be done on this particular problem. In this introductory part you make a brief reference to the literature, gaps in knowledge, potential usefulness of a methodology and possible benefits of outcomes for understanding, practice and policy. You should also provide key references to support your case.

Exercise 2. Give Russian equivalents to the following words and word combinations

Associates.

Fellow workers.

Co-authors.

Experts.

Critics.

Recognized authorities on the subject.

At that time/in that period/as early as 1990.

By that time.

Since that time.

In recent years/recently/lately.

Over the past few years.
The first studies/investigations on the problem.
To be the first/to pioneer/to initiate.
To date back to/to go back to.
To pay attention to.
To observe/to consider.
To find/to discover.
To show/to demonstrate.
To assume/to suppose/to make an assumption.
To explain/to account for.
To confirm/to support.
To believe/to think.
To be poorly/well understood.
To require further effort/study/investigation.
To point out the shortcomings/weak points/drawbacks.
To stimulate interest in.
To lay the foundation for.

Exercise 3. Make up 5 word combinations (verbal and attributive) with each of the two words: *foundation* and *concern*

Exercise 4. Give synonyms to the following words and word combinations

- 1) As indicated at the start
- 2) Because of
- 3) Thanks to
- 4) To some degree
- 5) Despite of
- 6) No matter
- 7) Not to mention

Unit 4. The problem statement and scope of the study

Exercise 1. Translate the following words and word combinations

Purpose/aim/objective/goal/target.

A set of reasons.

The full exercise of the principle.

Conceptual issues.

Goal-attainment processes.

Theoretical constraints.

Structural limitations.

Systematic restrictions.

Strong impositions.

Empirical requirements.

To make an experiment/analysis.

To reveal/to find/to confirm/to prove evidence.

To study/to examine.

To collect data.

To refine the results.

To create.

To improve.

To work out/to develop/to design.

To verify/to check.

To approve/to disprove an assumption.

to use/to employ/to apply.

to allow/ to permit/to provide.

to have much promise/to be promising.

Exercise 2. Make up 5 word combinations (verbal and attributive) with each of the two words: *issue* and *approach*

Exercise 3. Make up noun phrases using the verbs below

To develop, to provide, to work out, to create, to improve, to employ, to examine.

Exercise 4. Translate the following sentences from Russian into English using the components from the table

1. *В силу ряда причин мы сосредоточимся на теоретических вопросах.*

(as will be explained/spelled out fully in ...), for the following/practical/theoretical/a set of reasons	Admit the theory/impose/place/put restrictions/restraints/constraints on .../have chosen to emphasize .../resort to practical/ theoretical/retrospective questions/issues
---	---

2. *Акцент в работе будет сделан на изучении основных процессов.*

I set myself the aim/it is my purpose/it needs to be concern of/relevant to the analysis/ here the emphasis it is within the scope of ...	To explore in depth the problem/will be aimed at .../will largely be confined to .../review/investigate/touch upon the issue/current problem
---	--

3. *Имеется ряд ограничений, которые будут учтены в ходе исследования.*

There is a number/variety of certain requirements/the constraints in question that ...	Structural, systematic/ rigorous/strong	Requirements/limitations/impositions/restraints	Considered/ taken into account/ imposed on .../ attributed to the research process
--	---	---	--

4. Основная цель исследования будет заключаться в углублённом исследовании ранее поставленной проблемы.

This project/proposal is/will be to attempt/the general purpose/overall goal of ...	Explore the approaches to the problem that .../contribute to the development/provide a description/greater depth of knowledge about a previously studied/an up-to-date account
---	--

Exercise 5. Paraphrase or give synonyms to the *italicized* words and word combinations

1. As it will be *explained* below I intend *to put restrictions on*
2. It is *beyond* the scope of the present research *to investigate the issues* concerning
3. The *overall goal* is *to reveal* the structure of
4. *To provide* better understanding *of the problem* and *initiate* new research ...

Exercise 6. Translate the following phrases into Russian

1. The variety of constraints across theories is striking ...
2. For practical reasons spelled out more fully in ...
3. To consider the mutuality of systematic impositions ...
4. The approach is effective from the perspective of
5. My contribution, if any, to the debate will consist largely in ...

Exercise 7. Supply an appropriate preposition from the box to the words below

A shift ..., a variation ..., to rate ..., to be different ..., a deviance ..., to be synonymous ..., an advance

With, in, of, among, from, on, to

Exercise 8. Complete the sentences with the words from exercise 1

1. Currently I
2. I make this set of experiments/analyses in order to ...
3. The experiment/analysis is performed with a view to ...
4. The purpose of my research/experiments/analyses is to ...
5. We undertake a set/a series of experiments hoping to ...

Exercise 9. Read and translate the following text

The problem statement is a very clear formulation of the research problem. Having justified your choice of the topic focus, you now turn to indicate some likely *hypothesis* – for quantitative research, or *research questions* – for qualitative research. The typical relation between the type of research and that of the problem statement should be also indicated. Defining the scope of the project presupposes stating delimitations for the research with respect to the time period, subject area, regions and sample along with units of analysis (e.g. politics, patterns of behavior, trends in economics, teaching technics etc.). *Delimitations of the study* are intended to emphasize that no claims to generalization beyond the limits indicated will be made.

Exercise 10. Write a paragraph describing blank spots in studying the research area

Unit 5. The professional significance of the research

Exercise 1. Translate the following words and word combinations

A matter/issue/problem of great/paramount/incredible interest/concern.

An issue of utmost social/public/global concern.

Issues/problems/subjects/items/topics for discussion.

Immediate aims.

Tasks to achieve.

The governing principle.

A crucial point/factor.

The case in point.

To stimulate interest in.

To make significant contribution to.

To add greatly to our knowledge of.

To lay the foundation for.

Exercise 2. Make up 5 word combinations (with adjectives and past participles) with each of the two words: *purpose* and *subject*

Examples: a general purpose, a purpose stated.

A key subject, a subject discussed.

Exercise 3. Match the adjectives of importance with their definitions

critical	Important and original
crucial	Decisive and important
integral	Important and deserving attention
intrinsic	Extremely important and basically characteristic
notable	Necessary and important as a part of a whole
pivotal	Extremely important and decisive
seminal	Important and having potentially decisive consequences

Exercise 4. Translate the following sentences from Russian into English using the components from the table

1. В рамках проекта предполагается решить ряд конкретных задач.

The overall goal/ the study of.../ in the framework of the project	Tasks to achieve/the governing principle of the analysis/a number of immediate aims/the first objectives to meet	Centre on /consist in/concern with/could be confined to
--	---	---

2. Необходимо рассмотреть основные тенденции в развитии отрасли.

It seems /is/will be/ to reach/achieve the goal set	Extremely/particularly important/worthwhile/helpful/ relevant to/useful	To reach/achieve the goal set/consider/investigate/follow and develop certain insights into/ main trends of the development in the area
---	---	---

3. Поставленные вопросы представляют значительный интерес для тех, кто занимается данными проблемами.

The question/problem/issue	Posed/studied/under consideration/considered	Is/can be/is said to be	Top priority/a matter of great/ paramount/interest/importance/significance	For all those who are engaged in/ various scholars researching the area
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4. Эта проблема является ключевой для понимания сути явления.

This problem/idea/view/trend/perspective	Is seen/considered as/became	Central/essential/essentially relevant/currently significant	For understanding/to better understand in interpreting/the essence of the phenomenon
--	------------------------------	--	--

Exercise 5. Translate the following phrases into Russian

- 1) To provide greater depth of knowledge about a previously studied phenomenon ...
- 2) To work through the fundamental consequences of these innovations ...
- 3) For analytical purposes the divisions should be drawn very precisely
- 4) To set upon the measurement scale ...
- 5) To extend a research methodology and instrument to ...

Exercise 6. Match the beginnings of the phrases in the left column with their counterparts from the right one

- | | |
|--|--|
| 1) The purpose of my work is to | A) better understand the dynamics of modern society |
| 2) My contribution, if any, to the debate | B) is powerless to provide answers to certain questions |
| 3) In the present investigation I | C) examine and consequently to determine the phenomenon more precisely |
| 4) This trend is seen as essentially relevant to | D) will be confronted with a number of complicated tasks |
| 5) This limited type of inquiry | E) will consist largely in submitting measurements and estimates of the data |

Exercise 7. Supply an appropriate preposition to the words below and translate them into Russian

- 1) An approach ..., attention ..., contribution ..., interest ..., relation ..., response ..., outcome
- 2) To attend ..., react ..., refer ..., pertain ..., address ..., confine ..., turn ..., amount ..., expose ..., reduce ..., trace ...

Exercise 8. Read and translate the following text

The professional significance explains in what sense the proposed study is worth doing and what contribution it will make to professional knowledge. Here you define your *aims* and *objectives*. The former are commonly treated as general statements on the intent or direction for the study, include reference to the methodological, practical and theoretical aims, while the latter is more specific. Objectives are clear and succinct statements of intended study outcome. When working on this part of the project proposal, attempt to give it some originality by isolating how the goals set in your study and questions it is intended to answer are different from what is already known about the subject.

Exercise 9. Write an introductory paragraph describing the professional significance of your study, both in Russian and in English

Part 2. The main body

Unit 1. The literature review

Exercise 1. Translate the following words and word combinations

A paper/an article.

A collection of articles.

A review.

A report.

A survey.

A monograph.

A popular discussion.

A scholarly debate.

A fields of study/research/investigation.

To address the question of.

To bear upon the fundamentals.

To undergo a root and branch transformation.

To narrow the focus of investigation.

A research adviser/supervisor.

An academic adviser.

Scholarship.

Theoretical/empirical part.

Critical evaluation.

Exercise 2. Make up 5 word combinations with each of the three words: *role, contribution, theory*. Those word combinations should be attributive and verbal

Exercise 3. Form the opposites for the words given below using negative prefixes

Adequate, advantage, balance, proportion, certain, convincing, conception, relevant, appropriate, matching, limited, interpretation, understanding, function

Exercise 4. Translate the following sentences from Russian into English using the components from the table

1. *Многочисленные попытки предпринимались для объяснения сути данного явления.*

Numerous/most attempts/much work on...	Are/have been made/has been done to	Accomplish the revision of/provide a solid basis/give a plausible/sound explanation/proof of the fact/the essence of the phenomenon
--	-------------------------------------	---

2. *Суть подхода состоит в отрицании общепринятой позиции.*

The essence/punch line/the key/core/central idea	Could be/is/are/was/were	Grasped/seen/defined as/based on/traced to/commonly accepted position/ assumption/idea
--	--------------------------	--

3. *Выдвинутые теории значительно повлияли на ход исследования.*

The new contemporary trend/concept/discipline/theory	Has had significant/great/fundamental/decisive/enormous/important	Implications/consequences for/influence on/effect over/towards the study/research/investigation
--	---	---

4. *Современные исследования представляют собой попытку поддержать существующую гипотезу.*

Studies on/resent investigations/traditional approach	Root in the most elementary fundamentals/disagreed/gave critical tools for/are/ is relatively new feature/have/has called into question/give profound support to the existing idea/topic/hypothesis
---	---

5. *Эти проблемы находятся в центре внимания учёных.*

It/the issue/article/subject/question	Has/have been/are/is	Analyzed and discussed/hotly debated time and again/ at the heart of discussions	Chief theorists/leading scholars/re-nowned scientists/professionals
---------------------------------------	----------------------	--	---

6. *Однако эта проблема требует дальнейшего рассмотрения.*

However the problem/the potential application /our knowledge/this question	Has/needs to be /deserves/requires/tends to be	Receive all the attention/carefully investigated/further analyzed/is based on/questionable from the point of view of....
--	--	--

7. *Представляется, что автор упускает из виду некоторые факты.*

The author/scholar/scientist	Has not/fails/ tends to	Elaborated/man- aged to ex- plain/fully realized	An important factor/a vital point/possible consequences/implications/facts
------------------------------	-------------------------	--	--

8. *Одним из возможных способов улучшить ситуацию является тщательный анализ имеющихся фактов.*

A better option/the alternative standpoint/one of the possible ways	Lies in.../undermine traditional ideas/gain accurate theoretical knowledge on.../develop/investigate/shift the topic of theoretical concentration to .../existing facts
---	---

Exercise 5. Paraphrase or give synonyms to the *italicized* words and word combinations

1. The study of this author *was linked to ...* and *seemed to bear directly upon*.
2. The scientist *offered* a new explanation for ... and *challenged* the widespread belief ...
3. *The punch line* of Darwin's studies *was grasped* as a *deviation* from the mainstream of science.
4. *Those elements* have not *so far* been *carefully investigated*.

Exercise 6. Give Russian equivalents for the following phrases

1. Research in the problem area.
2. To fully recognize potentially important implications.
3. A defection/deviation from the mainstream of science.
4. To refine the punch line of the theory.
5. To accomplish the revision of ...
6. To give a broader theoretical basis to the research.
7. It is worthwhile to dramatically narrow the focus of investigation.
8. The research addressed the question of ...
9. The problem has been subjected to scrutiny.
10. The approach often appears in academic arguments.

Exercise 7. Fill in the gaps with the adverbs of intensification from the box below

Highly, considerably, essentially, fairly, fully, completely, greatly

1. This notion often used in this monograph has a ... specific meaning.
2. The results obtained are ... more difficult to assess.
3. This study is famous for ... detailed analysis of social stratification.
4. This approach in question remains ... unchanged.
5. The technic developed by the author was found to add ... to the knowledge in the sphere of engineering.
6. It should be noted at the outset that I am ... aware of the importance of the investigation.
7. The approach, though ... irrelevant, is typical of author's reasoning.
8. The author introduced a ... appropriate definition for the properties considered.

Exercise 8. Match the beginnings of the phrases in the left column with their counterparts from the right one

- | | |
|--|--|
| 1. This part of the project proposal | A) I will examine both the theoretical and empirical studies in the field |
| 2. In the present literature review | B) I will explain the search process in reviewing the enormous literature on ... |
| 3. The following review | C) is provided by a large body of literature on ... |
| 4. The basis for the present study | D) will be developed through systematic way of studying the existing literature on ... |
| 5. Several theories have been advanced | |
| 6. The author's essential contribution | |

- | | |
|------------------------------------|--|
| 7. The author's work's influence | E) upon the field of ... reveals a shift in significance towards ... |
| 8. The list of questions can go on | F) to the progress of ... |
| 9. With some notable exceptions | manifests itself in ...
G) to explain the nature of the phenomenon |
| 10. All the above review | H) indicates that little advance has been achieved in ...
I) but the discussion of issues gets more specific
J) few recent works on this topic have appeared |

Exercise 9. Read and translate the following text

The literature review is aimed at setting your project proposal in the context of existing knowledge, to reveal the instances of linkage with what has been done before and those of new insights, and show the major issues of practical problems to identify the gap you intend to look at in your investigation. Thus, in conformity with a time-honored tradition of scientific research, you should briefly outline the general state of knowledge about the research issue (the history of the topic, key landmark studies which indicate the methodologies used and arguments made) and to present the knowledge base upon which the study is built, i.e. to show clear linkages between what was known in the past about the topic and what you intend to discover.

The major components to be outlined are *a discussion of the theoretical literature* and *a review of the empirical research*. The theoretical part briefly covers the main theories related to the problem, explicates in depth those most useful in the study and should be connected to the part to follow. The review of empirical

research should be effectively organized, its pattern made clear in one of the following ways:

- chronological (with a time pattern),
- conceptual (a conceptual analysis in which the major factors or concepts appearing in the literature are identified),
- opposing camps (when reviewing an issue about which researchers have reached different conclusions).

The studies should be described sufficiently for the reader to understand their findings, the key conclusions being brought together, and finally related to the proposed study making a clear connection between what has been learnt in the past and what is proposed to do. It is by no means a catalogue of references arranged in chronological order, each one briefly summarized. Rather, your study should pick out trends and patterns, offering and explaining reasons for and against a particular situation, attempt to relate theory to reality and argue why under certain conditions some established theories and ideas are or are not acceptable. In other words, the review should provide a critical insight into the topic under investigation.

Exercise 10. Write a paragraph on reviewing the literature, both in Russian and in English

Unit 2. Methodology

Exercise 1. Translate the following words and word combinations

A method/a technique/a procedure.

A rigorous technique.

A step-by-step procedure.

The method/methodology employed.

Detection/identification/observation.

Measurement/calculation/computation/approximation.

Consideration/generalization/deduction/assumption.

Modelling/simulation.

Advantages/merits.

Disadvantages/shortcomings/limitations.

Accurate/precise.

Accuracy/precision.

Reliable/valid/conventional/effective/useful/valuable.

Data/results/method.

To make an experiment/analysis.

To collect data.

To refine the results.

To create.

To improve.

To work out/to develop/to design.

To verify/to check.

To approve/to disprove an assumption.

An approach.

A specialist approach.

To use/to employ/to apply.

Within a unified frame.

A measurement scale.

A reference system.

A point of reference.

A frame of reference.

Exercise 2. Make up 5 word combinations (attributive and verbal) with each of the three words: *approach*, *analysis* and *method*

Exercise 3. Provide synonyms and antonyms to the following words and word combinations

To use a method, to work out a measurement scale, to check the results, to make an experiment, accurate measurements.

Exercise 4. Translate the following sentences from Russian into English using the components from the table

1. *В данной части проекта будут рассмотрены используемые методы.*

I aim/seek to/should like to/this part of the proposal/in this section/in my study	Explain the methods used in carrying out the study/give special emphasis to the analysis of data/focus attention on/pinpoint the key features of
--	---

2. *Существуют различные подходы к исследованию данной проблемы.*

There is/are	An indefinite multiplicity of ways to treat .../a broad contemporary consensus/a great variety of means at our disposal/different/various approaches to/methods for/of	Analyzing/treating/investigating/the solution of the problem
--------------	--	--

3. *В соответствии с поставленными задачами будет целесообразно провести эксперимент.*

It will help/simplify the analysis if/it will serve the purposes of the present inquiry	Divisions between/several instruments/the data/majority of questions/the criteria for	Is/are/can be	Subject to/set upon the measurement scale/make an experiment/conduct a research/allocate to a position in a system
---	---	---------------	--

4. *Такая методика имеет свою специфику.*

Such a politics/is framework/the strategy/the approach/ methodology used	Creates new sets of problems/raises the question/employs/helps to investigate/is to a certain extent an evolving/original/specific one
--	--

Exercise 5. Give Russian equivalents for the following phrases

1. In order to examine the emergence of that change ...
2. There is a broad contemporary consensus on ...
3. The issues are many and actually have achieved a kind of emergency in our times.
4. Such a politics has given rise to arguments about ...
5. This practice argues scholars to seek unified approach ...

Exercise 6. Match the beginnings of the phrases in the left column with their counterparts from the right one

- | | |
|---|---|
| 1) The most common method of research provides/suggests that. | a) differs from analogical approaches. |
| 2) The reason why I intend to use those methods. | b) what has to be understood is how to define the notions. |
| 3) The research method advocated here. | c) foregrounds questions of origin the event. |
| 4) The empirical research will be set within a frame. | d) where the content falls into one of the 3 categories. |
| 5) Considering those possible explanations. | e) is to correlate X with Z. |
| 6) In a theoretical/strict sense the answer of this question. | f) there is a reasonably objective criterion for selection. |

Exercise 7. Read and translate the following text

Methodology (methods) is considered vital for the project: the way you study the problem is no less important than the results you obtain. A balanced methodological approach based upon appropriate well thought-out and data collection techniques ensures that the conclusions and recommendations finally made are more valid and credible. In this part you are expected to give a concise justification (not a description) for the quantitative, qualitative or some other approach within the existing paradigm you intend to employ, or, in other words, to explain why alternative methodologies were rejected and to provide references in support of your case. You should also account for the use of data – or evidence-collection techniques and anticipation of problems and issues.

Exercise 8. Write a paragraph on the methodology used, both in Russian and in English

Unit 3. The results anticipated

Exercise 1. Translate the following words and word combinations

Results/findings/data/observations/evidence.

A dataset.

Comprehensive/extensive.

Detailed.

Remarkable/encouraging/convincing.

Preliminary.

Sufficient/insufficient.

Superficial.

Far-reaching effects.

Recent findings.

Contemporary evidence.

Logical implications.

The new theoretical developments.

Duly subordinated data.

Tentative conclusions.

Representative/random sample.

To collect/to get/to receive/to obtain data/results.

To treat the problem.

To succeed in/to make progress in/to be a success.

To fail in.

To be similar to/to be the same as.

To be consistent with/to coincide.

To agree with/to fit the assumption.

To support/to provide support/in support of.

To reach an understanding/to come to an understanding.

Exercise 2. Make up 5 word combinations (attributive and verbal) with each of the 2 words: *result* and *data*

Exercise 3. Transform the given verbs into nouns. Make up noun phrases using verbs make and give with the nouns

Describe, explain, illustrate, imply, assert, attend, claim, present.

Exercise 4. Translate the following sentences from Russian into English using the components from the table

1. *В заключительной части будут представлены ожидаемые результаты работы.*

In the part to follow/the final part of the proposal will	Be organized in terms of the specific research questions posed in part 1/ include graphs and drawings/report on the results which are likely to be obtained/some complex data
---	---

2. *Предполагается, что проведённое исследование позволит обнаружить новые факты.*

The findings of this study/analysis of the data/the results anticipated are intended to/it might be expected that this fact/pattern/the data-set	Indicate/reveal/show/confirm new facts
--	--

3. *Полученные данные будут тщательно проверены.*

The results/ data/facts obtained/described/mentioned ... will	Be carefully controlled/tested/assessed/based on/checked
---	--

4. *Для обеспечения достоверности данных предполагается провести серию экспериментов.*

To supply evidence/verify/support the details/reliably assess/ test the data	It is possible/informative to/I will/can	Shift attention to/focus on/re-examine/conduct/make/ series of experiments
--	--	--

Exercise 5. Paraphrase or give synonyms to the *italicized* words and word combinations.

1. In the presentation given some data *will be appropriately organized in terms of* ...

2. The *interim* results highlight the existence of the facts.

3. The *confirmation* of the hypothesis will be *borne out* by experiments.
4. To *test* the hypothesis I will *shift attention* to ...

Exercise 6. Translate the following phrases into Russian

1. As stated at the outset, the research reported here will consider in detail the problems encountered by the data analysis.
2. The presentation of the results will use an appropriate organizational pattern.
3. The results will be reported accurately and objectively.
4. The text will be integrated with tables, graphs and figures.
5. The project will have some practical implications.
6. The reliability of collected data is high enough to support the hypothesis.
7. The facts obtained rest on skill and care.

Exercise 7. Fill in the gaps with the adverbs from the box

Definitely, especially, specifically, exactly, regrettably, surprisingly

1. The study given is ... more informative than a number of previous attempts.
2. The review will focus on economic studies, ... with respect to economic analysis.
3. It seemed to be ... common to use these terms quite broadly.
4. Those data are ... absent in most of the recent publications on the subject.
5. My observations provided ... the same kind of evidence as those obtained before.
6. This concept should be considered ... from the point of the developing theory.

Exercise 8. Read and translate the following text

A brief report on the results anticipated commonly ranges from transcriptions of interviews to tables of raw data. The *results section* is actually the important section of the paper describing experimental investigation because the results, of course, are the truly significant thing. This is what you did it for. The results are maybe valuable even if the rest of the paper is completely wrong, inappropriate. So perhaps this is the one that you really have to concentrate your attention on. Present your data. The ideal thing here is to present every data point that you ever took. Sometimes this is inappropriate, this may be far too lengthy. You have to do some selecting. You have to display your results, you have to produce tables, graphs, figures and diagrams. All in all, you have to present the flavor of the results that you obtained and appropriate description as to what happened when you made the experiment.

And lastly, there is *a discussion section*, in which you relate the results that you have obtained both in terms of the theory and the state of knowledge at the time that you started the research. Discuss whether what you did was technically or basically a success or failure. Discuss how your results fit in with works of others, with earlier results of yourself, and in general, give the reader an impression as to your evaluation of the experiment.

Exercise 9. Write a paragraph describing the results anticipated, both in Russian and in English

Part 3. Conclusion

Exercise 1. Translate the following words and word combinations

To conclude/to come to/to bring to a conclusion/to make conclusions.

Generally.

Originally.

Typically.

Essentially.

Naturally.

Eventually.

Accordingly.

Admittedly.

In order to.

Finally.

As a matter of fact.

Exercise 2. Make up 5 word combinations (attributive and verbal) with each of the two words *object* and *conclusion*

Exercise 3. Give synonyms to the following words and word combinations

In fact, in essence, in short, in other words, in case, anyway, as a rule, in the same way, in general, to my very limited knowledge.

Exercise 4. Translate the following sentences from Russian into English using the components from the table

1. Из рассмотренного выше следует, что будущее, по-видимому, будет сильно отличаться от настоящего.

On the whole/ in general/in conclusion/it appears what has been discussed/from the evidence submitted	Serious attention should be paid to/it will be evident/it will follow/most reasonable to conclude/the future is likely to be very different from the present
---	--

2. Основные результаты позволяют сделать вывод, что существует другая версия явления.

Major points covered by my project/my efforts/the baseline results of the present research/investigation	Will indicate/illustrate/demonstrate that ...will lead to the following conclusion that .../there is another version of the phenomenon/surpass all my expectations
--	--

3. В ряде случаев можно констатировать прогресс в оценке результатов.

The most important results obtained/conclusions will/in the final analysis/ I believe/assume/that the method employed could/seems to	Become/provide a guideline for studying other aspects/rather unexpected/open up a whole range of new opportunities/have many unexpected practical benefits/be beneficial/while assessing the results
---	--

4. В целом проект можно рассматривать как попытку усовершенствовать существующую теорию.

To conclude/to sum up/to put it briefly/stated briefly	I can state that .../the project will be an attempt to .../it is possible to ...	Present some evidence/fertile area for further examining/confirm/analyze/perfect the existing theory
--	--	--

Exercise 5. Paraphrase or give synonyms to the *italicized* words or word combinations

1. It *follows* that there is only *general ground* of the given theory.
2. The evidence *offered* will *allow* me to *draw* some conclusions.
3. *In the end*, I *believe* that the method employed is *likely* to be effective.
4. *To recapitulate*, the project is an attempt to *push forward* the technical progress in the field.

Exercise 6. Give Russian equivalents for the following phrases

1. To consider the strong effects ...
2. My findings are generally in line with ...
3. The theory can be recognized as a key to understanding of the phenomenon.
4. My efforts have succeeded beyond all my expectations.
5. Contrary to popular belief ...
6. The ascertained fact can be explained by the hypothesis
7. On general theoretical grounds it can be explained by ...

Exercise 7. Fill in the gaps with the adverbs given in the box below

Actually, clearly, effectively, extremely, mainly, obviously, perfectly

1. There seems to be no ... clear explanation for the event.
2. This classification is based on ... large number of components.
3. I am not sure that those studies ... count as evidence.
4. Recent studies cover the gap between theory and reality.
5. There is ...a great deal to be done in proving the hypothesis.
6. In this case, current notions about the modern trends stem ... from the works of last century scholars.

Exercise 8. Read and translate the following text

Conclusion contains evidence of evaluation of the work. It refers back to the thesis statement and draws upon the comments made about the features described to provide a summative comment. Possible is reference to further analysis that might be carried out on the topic, or a theory about its future, and acknowledgments (if necessary). Notice that the number of conclusions should coincide the number of research tasks stated.

Exercise 9. Read and analyze the paragraph concluding the results of the research. Tell the class if the given conclusion match the conclusion rules or not

During operation the heating ratio “Fuel-air” automatic control system was implemented. Designing and analyzing the system it is possible to draw the following conclusions:

- 1) The system is able to regulate autonomously the supply of gas and air fuel in the correct ration.
- 2) The work was done by the selection of the optimal control parameters.
- 3) The transient simulation with frequency characteristics was designed.

The result of the work was the mathematical model, which satisfies the requirements of the system. The main tool for calculating the mathematical model is a package with the use of MATLAB Simulink library.

Exercise 10. Write a paragraph concluding the results of your study

Part 4. Abstracts

Exercise 1. Read and translate the following text into Russian. Note the main points

An abstract is a summary of the research topic. It summarizes the basic ideas developed in the paper. The abstract, as well as the title, helps readers decide to read or to skip the paper. There for, it should be accurate, concise, specific, objective and self-contained. Here you accomplish two goals: declare your argument (and the goal to be achieved) and place it within a broader context (indicating the area the research conducted ranks among). The thesis statement usually forms part of Introduction. At present, there seems to be no rigorously defined set of criteria as to what elements should necessary be present in an abstract – the choice largely depends on the goal set.

As a rule, the abstract is placed at the beginning of the paper, below the title. It is written last, when the final version of the paper is produced. An abstract should be short – about 60 words –like a conference abstract, since in both cases the time is rather limited. You need also carefully choose the aspects of your project to focus on; you will not be able to include everything.

There are two types of abstracts:

Informational abstracts, which usually follow a similar order to a scientific paper, i.e.:

- 1) Provide communicative contents of reports.
- 2) Include purpose, methods, scope, results, conclusions, and recommendations.
- 3) Highlight essential points.
- 4) Are short – from a paragraph to a page, depending upon the length of the report (10% or less of the report).
- 5) Allow readers to decide whether they want to read the report.

Descriptive abstracts, which describe the publication itself (e.g. surveys, review articles, book chapters, etc.), rather than report particular findings:

- 1) Tell what the report contains.
- 2) Include purpose, methods, scope, but NOT results, conclusions, and recommendations.
- 3) Are always very short – usually less than 100 words.
- 4) Introduce subject to the readers, who must then read the report to learn/study results.

While writing an abstract follow the following suggestions:

Do not repeat the information given in the title.

Do not include in the abstract any facts or ideas that are not in the text; eliminate unnecessary background information.

Decide the degree of detail you include (especially for informational abstracts).

Use direct, straightforward English, reduce wordy phrases; avoid jargon.

Use the past tense when describing what was done.

Finally revise the opening statement to emphasize the new information contained in the paper.

Exercise 2. Translate the following words and word combinations into Russian

To elucidate the issue

To provide/gain /give new useful/practical/theoretical insights into ...

To enrich the knowledge in ...

To yield useful/important predictions about ...

To become a topic of theoretical/practical concentration...

To improve/to bring about improvements in ...

To offer opportunities/space for further investigations ...

Exercise 3. Make up 5 word combinations (attributive and verbal) with each of the two words: *knowledge* and *insights*

Exercise 4. Translate the following sentences from Russian into English choosing the components from the table

1. *Настоящая работа относится к исследованиям в области экономики/робототехники и т.д.*

This/the present re- search/investiga- tion/study/project proposal	Refers to/belongs/ranks among/touches upon/is about/connected with/aimed at investigat- ing	A wide range of problems of/ questions concerning/major issues pertaining to the do- main/sphere/field/area of ...
---	---	---

2. *Данный проект является попыткой изучить имеющиеся тенденции в отрасли.*

The project/the general purpose of the project/the presentation	Will help/explain/attempt to reveal/an- alyze/examine/consider the trends in the sphere/domain/branch
--	---

3. *Исследования такого рода направлены на улучшение ситуации в сфере экономики.*

This issue/problem/studies/ investigations are intended to	Enrich our knowledge/yield more definite re- sults/new insights/useful predictions about/bring about improvements in the sphere of economics
--	--

4. *Представляется целесообразным в дальнейших исследованиях использовать данное определение.*

Further research in this field of stud- ies/in future it seems worthwhile to	Employ this method/technique/no- tion/approach/put theory into practice
---	--

Exercise 5. Paraphrase or give synonyms to the *italicized* words and word combinations

1. The *issue belongs* to traditional studies in the *domain* of economics.
2. The *techniques utilized* are powerful tools for *collecting data*.
3. The *investigation* is intended to lead to better *understanding* of the phenomenon and *shed more light on* the problem.
4. Further research would *stimulate* some actions and *result in* some discoveries.

Exercise 6. Give Russian equivalents for the following phrases

1. The project is intended to cover some major issues belonging to the sphere of ...
2. It pertains to a newly evolving branch of studies.
3. This is necessary method of evaluation.
4. The criteria must be flexible to account for ...
5. The results need ratification through further research.
6. Due to advances in technology it is possible to provide more accurate data.
7. The results suggest that the notion can help better understanding of ...

Exercise 7. Fill in the gaps with the adverbs from the box.

Basically, fundamentally, commonly, normally, practically, totally, typically

1. The transformation observed is ... the result of different side effects.
2. The presence of this notion is essential of ... all descriptions of the phenomenon.
3. The approach suggests the way for employing ... different methods.
4. The evidence submitted is ... superficial.

5. The pattern is more frequent than ... assumed.
6. It should be admitted this term is ... suitable in understanding the notion.
7. The supporters of this theory are ... in agreement of traditional view.

Exercise 8.

a) Render the given paragraph and write a similar abstract, corresponding to your research, both in Russian and in English

Nowadays there is a problem in limited functionality of systems of personnel services and in coordination of documents. The purpose of the following research is the enhancement of the software and a business process optimization, namely creation of the system "Personnel". The research stated the following tasks: structuring of document flow, taking into account confidentiality on divisions; simplification of coordination system. Novelty of work consists in development of the optimum development strategy of the enterprise in the field of personnel policy.

b) While writing your abstract pay attention to the following phrases:

The project describes ...while analyzing the data (its shortcomings)

It also discusses some recently proposed solutions ...

During the last decade significant progress has been made in a very short time in terms of ...

The project describes the main achievements in the field of ...

However there are certain problems/drawbacks such as ...

To deal with these problems several methods are being considered including ...

Due to advances in technology it is possible to provide variety of ...

It is very important therefore to develop ...

The project will begin with ..., then describe ...

Recent developments in the field of study are addressed at ...

It was found that the discussion raised issue such as the need for ...

Part 5. The language of a project proposal

The language used is often said to reveal the author's relation to the topic, the perspective it is viewed through. It is commonly accepted that authors cannot avoid taking a position on a subject; it is considered one of their responsibilities.

In this connection it should be mentioned that it is advisable to make a text understandable for the audience and everything is to be spelled out and discussed in detail. It is also noted that using the pronoun *I* an author is accepting responsibility for interpreting facts which often manifests itself in academic writing. Overusing *I*, however, might be considered as the author's personal opinion and therefore suggest inability to offer proof.

There is currently still another evolving trend: from time to time *I* is replaced by *we*. Previously it was not so common for writing in English, and Russian *мы* was translated by *I*. Note that Americans still consider using *I* by a single author's 'outrageously pedantic'. As to using *you*, it can be treated as if authors want to shorten the distance separating them from readers and thus invite a more subjective or intensely critical response – which is against the rules accepted. To be on the safe side, you should take care not to overuse those pronouns.

Some recommendations for writing an academic text

Try to avoid:

- Categorical statements (e.g. replace less dogmatic impersonal structures with modal verbs or *could* or *would* for *must* or *should* where appropriate);
- Clusters of abstract nouns which impede understanding;
- Lengthy sentences which can easily be broken into simpler ones (e.g. *which*, *whose*, *that* used to connect parts within a sentence could be replaced by *when*, *then*, *where*, *but*, *and*);
- *Of* to connect nouns within a chain using different ways of replacing it by:

- a) Corresponding verbs,
- b) Prepositions other than *of* with narrower meaning,
- c) Gerund or infinitive instead of verbal nouns.

Try to use:

- Active voice which is usually more precise and less wordy (e.g. for definitions, descriptions etc.);
- Impersonal passive structures instead of those with personal pronouns (e.g. when generalizing or insure in stating your own judgements);
- Tentative (indirect) statements (e.g. *there is a common opinion that ...*);
- Parallel structures (e.g. *N found the way to check the data and to change the index* – instead of *N found the way to check the data and how to change the index*);
- Future tenses where appropriate (since it is a proposal).

Part 6. Grammar in academic writing

Unit 1. Modal verbs in academic writing

Because of their range of meanings, these verbs play a significant role in academic style.

The table below contains verbs and adverbs that you can use to express the different degrees of certainty or modality of your opinions or argument. It also provides you with some examples of how to structure your sentence to use these words in your writing.

Certainty of Conclusion	Modal Verbs/Adverbs	Statement of Claim
Strong	is, will, can not, must, undoubtedly, always, never, definitely, clearly	It is certain that... It seems clear that... X is definitely...
Moderate	should, would, can, ought to, tends to, usually, likely, probably, regularly, majority, generally, often, frequently, rarely	It appears probable... It is usually the case that... In the majority of cases... The results suggest it is likely that...
Tentative	May, might, could, possible, conceivable, sometimes, occasionally, seldomly, perhaps, maybe, uncertainly, minority	Conceivably, ... It is possible that... Occasionally, ... It may be the case that...

Exercise 1. Select academic meanings

Which of the following core modal meanings are most useful in communicating academic information and ideas? Tick or cross.

possibility/ ability/ permission

obligation / necessity

intention / prediction

Academic writers are often unable to make very strong claims that something is definitely true or false. They build up an argument based on what may or may not be true, or on what can be done. They present hypotheses which they try to prove or disprove and, from the evidence, they suggest what must be the case, sometimes proposing from present evidence what will be true in the future.

Now look at the following paragraph and identify which of the meanings above is used.

When studying the advantages and disadvantages of learning methods, it may be necessary (*select your answer: possibility, ability, necessity, prediction*) to place learners in artificial situations, in order to observe how they might react (*select your answer: possibility, ability, necessity, prediction*) to different stimuli. This can most easily be done (*select your answer: possibility, ability, necessity, prediction*) via electronic media (e.g. virtual reality). If the reaction is positive, this must (*select your answer: possibility, ability, necessity, prediction*) indicate the likelihood that learners will (*select your answer: possibility, ability, necessity, prediction*) respond well in real life.

When studying the advantages and disadvantages of learning methods, it may be necessary to place learners in artificial situations, in order to observe how

they might react to different stimuli. This can most easily be done via electronic media (e.g. virtual reality). If the reaction is positive, this must indicate the likelihood that learners will respond well in real life.

Tentative claims

Modal verbs are often used to make the writer's claims more or less tentative, i.e. to suggest that the writer thinks something is more or less probable. One of the weaknesses of student essays is making strong claims that cannot be supported. In these cases it is useful to be able to vary the strength of a claim to suit the circumstances.

Exercise 2. Strength of claim

In these examples below, write the numbers 1-3 in the blanks to indicate how strong the claim is (3 is the strongest).

This may be the case where there has been a separation order, a decree nisi for divorce, a non-molestation order, or a separation agreement between the parties.

This might be the case with provocation, for example: there might be objections to some of the distinctions now drawn by the law.

It may well be the case that there is variation within one of these categories.
Hypothetical situations.

In academic writing it is often necessary to make claims about or describe a situation that is not currently real, unlikely in the future or didn't happen in the past. Writers sometimes need to speculate by asking "What if ...". This kind of meaning is often expressed through conditional sentences, using 'if' or 'unless'.

Hypothetical present or future: The past tense is often used in the 'if' clause and would in the main clause.

A creature that hunts by daylight would waste its energy if it rushed around in the night when its prey was hiding in a hole. [Present situation]

In 1943 the British government was aware that, unless rules were laid down in advance, the United States would use its enormous wealth ... to drive Britain and other countries off the international air routes. [Future situation]

Hypothetical past: The past perfect and would have are used to write about hypothetical events in the past.

One wonders how we would have lived if the car had not been invented.

Exercise 3. Fill in the gaps

In the following sentences fill in the gaps with an appropriate auxiliary verb.

1. It was clear that the two countries ... have to compromise if the conference ... not to degenerate into a complete fiasco.

2. Of course, this measure [reforestation] ... work only if it ... accompanied by efforts to reduce tropical deforestation.

3. What ... have happened if penicillin ... not been discovered?

Unit 2. Participles

Formal written English uses verbs less than spoken English. *-ed* and *-ing* participles allow verbs to be used nominally or adjectively.

Examples

Similar temptations overcame philosophers concerned *with establishing* a secure base for individual responsibility.

The Egyptians regarded time as a succession of *recurring phases*.

Doubts as to the proper division of property at death, as well as rights between partners *living together*, were resolved by having legal rules prescribing a formula.

It was only to be tolerated in a *controlled* and *formalized context*.

A frequent *change found* in proper names is syllable loss.

Table 1.1.

Forms of participles (формы причастий)

Participle I		Participle II	
Active	Passive		
Indefinite	changing 1) определение: изменяющий(-ся) (-вший) (-ся) 2) обстоятельство изменяя(-сь) 3) сказуемое изменяется	being changed 1) определение: изменяющийся, изменяемый, который изменяется 2) обстоятельство: будучи измененным сказуемым 3) глаголом придаточного предложения (когда, в то время, как) изменяют (-ся)	changed 1) определение: изменяемый, измененный 2) обстоятельство: когда (его) изменили, так как (его) изменили 3) сказуемое изменяется, изменено
Perfect	having changed обстоятельство: изменив(-шись)	having been changed обстоятельство: когда (его) изменили, после того как (его) изменили	

Table 1.2.

Values of participles (значения причастий)

Indefinite Participle I (active and passive)	Обозначает одно временное действие с глаголом - сказуемым	Seeing that I was late, I hurried.- Видя, что я опаздываю, я поторопился. Being written in Spanish, the article was not easy to translate.- Статью было нелегко перевести, так как она была написана по-испански.
Perfect Participle I (active and passive)	Обозначает действие, предшествующее действию, выраженному сказуемым	Having asked a question the teacher was waiting for an answer.- Задав вопрос, учительница стала ждать ответа. Having been asked the question the boy was thinking of an answer.- Мальчик задумался над ответом, после того, как ему задали вопрос.
Participle II (passive)	Имеет только одну форму, имеет пассивное значение и соответствует русскому причастию страдательного залога	At our excursion we saw a building built many years ago.- На экскурсии мы увидели здание, построенное много лет назад.

Functions of Participle I in suggestion (функции Participle I в предложении)

Сказуемое (переводится глаголом в соответствующем времени, лице и числе)	He is reading a book now.- Сейчас он читает книгу.
<p>2) Определение</p> <p>а) причастие I стоит перед определяемым словом (переводится действительным причастием)</p> <p>б) причастие I стоит после определяемого слова (переводится действительным причастием в составе причастного оборота)</p>	<p>They looked at the flying plane.- Они смотрели на летевший самолет.</p> <p>The engineer examining the new equipment works at this plant - Инженер, осматривающий новое оборудование, работает на этом заводе.</p> <p>The problem being discussed now is of great importance.- Проблема, которую сейчас обсуждают, имеет большое значение.</p>
<p>3) обстоятельство</p> <p>а) причастие I стоит в начале предложения (переводится деепричастием несовершенного вида или глаголом-сказуемым придаточного предложения)</p> <p>б) причастие I стоит в конце предложения (переводится деепричастием несовершенного вида)</p> <p>с) перед причастием I стоят союзы when; while (переводится либо деепричастием несовершенного вида, либо глаголом – сказуемым в составе придаточного предложения)</p>	<p>Continuing the exploration of space, the scientists have sent automatic stations to the Moon.- Продолжая исследование космоса, учёные послали автоматические станции на Луну.</p> <p>Being asked he answered all the questions.- Когда его спросили, он ответил на все вопросы.</p> <p>Having lost the key he couldn't enter the house.- Потеряв ключи, он не смог войти в дом.</p> <p>Having been published in the journal the article was discussed by scientists.- Поскольку статья была опубликована в журнале, она обсуждалась учеными.</p> <p>He spent the whole day preparing for his exams. - Он провел весь день, готовясь к экзамену.</p> <p>While reading a book he used to make notes. - Читая книгу (когда он читал, при чтении), он обычно делал заметки.</p>

Functions of Participle II are in suggestion (функции Participle II в предложении)

<p>1. Определение</p> <p>a) причастие II стоит перед определяемым словом (переводится страдательным причастием)</p> <p>b) причастие II стоит после определяемого слова (переводится страдательным причастием в составе причастного определительного оборота) (переводится страдательным причастием, стоит перед определяемым словом)</p> <p>c) причастие II стоит рядом со сказуемым в Past Indefinite (первая –ed форма является определением, переводится страдательным причастием; вторая –ed форма – сказуемое в прошедшем времени)</p>	<p>a) The described method is widely used in industry.- Описанный метод широко применяется в промышленности.</p> <p>b) The equipment used for this work is modern.- Оборудование, применяемое для этой работы – современное. The equipment tested requires further improvement.- Испытываемое оборудование требует дальнейшего усовершенствования.</p> <p>c) The methods introduced received general recognition.- Введенные методы получили всеобщее признание.</p>
<p>2) обстоятельство</p> <p>a) причастие II стоит в начале предложения (переводится глаголом – сказуемым в придаточном предложении)</p> <p>b) причастие II стоит в конце предложения с союзами if, unless, when, as</p> <p>c) (переводится глаголом – сказуемым в придаточном предложении)</p>	<p>a) Given the speed and the time it is easy to calculate the distance.- Если даны скорость и время, легко вычислить расстояние.</p> <p>b) The glass cube breaks into bits if heated or cooled rapidly. - Стекланный куб раскалывается на мелкие куски, если его быстро нагревать или охлаждать (при быстром нагревании или охлаждении).</p> <p>c) When asked this question the student could not answer it at once. - Когда студенту задали этот вопрос, он не смог ответить на него сразу.</p>
<p>3) Часть сказуемого</p> <p>a) страдательный залог (переводится кратким страдательным причастием или глаголом в соответствующем времени, лице и числе)</p> <p>b) времена группы Perfect (переводится глаголом в соответствующем времени, лице и числе)</p>	<p>a) Water is heated.- Вода нагрета. The chair is broken. - Стул сломан.</p> <p>b) She has just translated the article.- Она только что перевела статью</p>

Exercise 1. Translate the following sentences into Russian paying attention to the use of Participles

1. The man standing at the window is the world-famous scientist.
2. Having been sent to the wrong address the letter didn't reach him.
3. He sat in the arm-chair thinking.
4. She came up to us breathing heavily.
5. The hall was full of waiting people.
6. The reporting student was about twenty.
7. Having read the book I gave it to my colleague.
8. The large building being built in our city is a new research center.
9. Having finished the experiment the students left the laboratory.
10. Being busy, he postponed his trip.
11. Having been written long ago, the manuscript was impossible to read.
12. Having been built of concrete, the house was always cold in winter.

Exercise 2. Use the verbs given in brackets in the form of Participle 1 or 2

1. (To impress) by the scientific report, they kept silent.
2. (To lose) the book, the student couldn't remember the topic.
3. He spent the whole day (to make) an experiment.
4. (To travel) around America for a month, she returned to England.
5. He watched water (to boil) and (to evaporate).
6. The question (to discuss) now is very important.
7. (To pack) in the beautiful file the papers looked very attractive.
8. (To descend) the mountains, they heard a man calling for help.
9. (To reject) by everybody the idea was forgotten for decades.
10. (To show) the wrong direction, the researchers soon lost the way of reasoning.

Exercise 3. Use the verbs in brackets in Indefinite or Perfect Participle 1. Translate the sentences into Russian

1. (To write) out all the terms, I started to learn them.
2. (To buy) all necessary equipment, they left the warehouse.
3. (to bark) dog doesn't bite.
4. She entered the room (to smile).
5. (To drink) coffee the presenter was talking to the audience.
6. (To find) the key idea, we were able to make the experiment.
7. (To make) the report, the presenter left the room.
8. (To see) his colleagues he raised his hat.
9. My task (to finish), I turned to the next point of my research.
10. While (to learn) the pronunciation of the words we learned their meaning.

Exercise 4. Translate the following sentences into Russian paying attention to the use of Past Participles

1. He doesn't like shutting people.
2. I remember well his words said at the meeting.
3. We don't believe in results obtained last week.
4. The stolen papers were returned to the owner.
5. Asked about this event, he replied nothing.
6. The explanation given was not complete.
7. When burnt, coal produces heat.
8. The results obtained were of great importance for the further work.
9. When reconstructed the building looked more beautiful than before.
10. She showed us a list of the newly published papers.

Exercise 5. Use the verbs in brackets in the form of Participle 2.

Translate the sentences

1. The letter (to write) by him was very long.
2. We are interested in the goods (to produce) by this factory.
3. She didn't understand the word (to say) by him.
4. He didn't see the things (to keep) in the box.
5. I don't like the report (to hear) yesterday.
6. This is the house (to build) many years ago.
7. The question (to put) to the professor was important.
8. When (to offer) to work abroad, he refused.
9. The article on agriculture (to publish) in this journal was written by me.
10. You can get the book (to recommend) by our academic adviser in the library.
11. When (to use) for building purposes, concrete is very important.
12. When (to complete) the new building will accommodate 3000 students.

Exercise 6. Translate the following sentences paying attention to complex objects with Past Participles

1. He wants the documents sent by airmail.
2. They want the goods shipped on Monday.
3. I saw the letters received.
4. I must have my equipment cleaned.
5. She wants to have these documents sent off at once.
6. Why have you had the walls of your room painted blue?
7. They showed us a list of the articles published.
8. I found the key lost.
9. I heard it was said for several times.
10. He wants the work done immediately.

Exercise 7. Translate the following sentences into Russian paying attention to complex objects with Present Participles

1. The captain watched the sailors unloading the steamer.
2. I saw the workers packing the equipment.
3. We watched them repairing the device.
4. I heard him shouting something from the opposite side.
5. He watched them going down stairs.
6. We saw him walking along the bank of the river.
7. The people watched the goods being discharged.
8. I saw the professor reading my project proposal.
9. The students watched the presenter doing the report.
10. I saw my colleague talking to the world famous scientist.

Exercise 8. Translate the following sentences into Russian paying attention to the use of Participles

1. The article translated, the young scientist started writing an article on the field of the study.
2. The door closed, he couldn't enter the room.
3. The next day, it being Sunday, they all went to the laboratory for testing the device.
4. The hour being late, the scholar went to the lecture room.
5. There being a strong wind, the experiment was delayed.
6. The keys having been lost, the assistant couldn't open the door of the lab.
7. Lecture being over, the students hurried home.
8. You can set your mind at ease, all being well.
9. Radio was invented in Russia, its inventor being the Russian scientist A.S. Popov.
10. Then they heard the noise of the plane, its shadow passing over the open glade.

Exercise 9. Translate the following sentences into English using appropriate forms of the Participles

1. Не читай, лежа в кровати.
2. Оставленный один в лаборатории учёный приступил к эксперименту.
3. Статья, которую сейчас обсуждают, – последняя работа этого учёного.
4. Вот новые журналы, присланные для вашего офиса.
5. Взяв бумагу и ручку, исследователь начал писать.
6. Проводя эксперименты, учёные получили новую формулу вещества.
7. Это доклад, который обсуждали во время последней конференции.
8. Обсудив предыдущий доклад, учёные продолжили слушать своих коллег с выступлениями.
9. Заплатив за билеты, мы поспешили в зал.
10. Проводя эксперименты со взрывоопасными веществами, будь осторожен.

Exercise 10. Translate the following sentences into English using Participle 1 and 2 where appropriate

1. Ему нравится статья, которую сейчас обсуждают?
2. Войдя в лабораторию, он быстро подошел к установке.
3. Человек, выступающий с докладом, мой научный руководитель.
4. Здание, которое строят в нашем городе, будет новой лабораторией.
5. Студент, которого сейчас спрашивают, мой сосед по комнате.
6. Зная английский язык, ты можешь общаться с коллегами из разных стран.
7. Она сидела в аудитории, читая статью.
8. Заведующий лабораторией поставил задачи, которые сейчас выполняют инженеры.
9. Читая статью в английском журнале, я обратил внимание на новые факты.
10. Когда ее спросили о результатах исследования, она сказала, что они уже устарели.

Unit 3. The future: predicting and proposing verb forms

Exercise 1. Read the text below and underline all the future verbs

WORLD TRENDS

As we move towards the 21st century, cheap labor and plentiful raw materials are losing their status as keys to economic development. Instead of manufacturing, it is the information and service sectors that will provide new growth. Powering this change is the astonishing worldwide expansion of the computer industry. As automation makes armies of workers in heavy industry redundant, the successful nations will be those that can produce an educated population and a large pool of scientists and engineers. Good education explains, in part, the success of Japan, and the rapid rise of other South and East Asian nations. For the older industrialized nations, the provision of a constantly better trained and more flexible workforce is a growing challenge which the educational system will find hard to meet.

As the rapidly industrializing nations catch up, they can also expect to encounter other problems of the wealthy, including the need to adapt to a society containing a much higher proportion of old people. Japan will encounter the fastest demographic change of all.

Urbanization will continue at a rapid pace in the industrializing nations. By 2020 these countries will have caught up with the Western world; half their populations will be living in towns and cities. Growing wealth and urbanization can be expected to provide new opportunities and play a part in reducing inequalities between men and women, in education and in income. The extremes of poverty will also be eliminated in the early stages of development, but the gap between rich and poor is certain to remain. Traditional social structures will weaken bringing increases in divorce, births outside marriage and crime. As nations enter the post-industrial phase, long-term unemployment seems likely to be added to their problems, intensifying these trends.

Exercise 2. You should have found nine verbs containing the word *will*. How many different tenses are there among the nine cases?

Exercise 3. Look again at that text. Can you find any other verbs, which do not contain the word *will*, that are used to express the notion of the future? If so, circle them.

Note:

The way we describe future events, plans and possibilities in English is quite complex. Firstly, there is no single “Future Tense” in English; instead we have a variety of verb forms, such as Modal verbs, expressing different shades of meaning. Secondly, academic writing features a range of non-verb vocabulary (nouns, adjectives and adverbs) referring to the future.

LANGUAGE BOX: Verb forms expressing the future

(All the forms shown below are found in both Active and Passive)

I will [verb] to talk about what you think or guess or expect the future to be

The second phase of my research will be trickier than this one

I am going to [verb] to talk about decisions or firm intentions

I'm going to ask her for a meeting next week

Present Continuous to talk about fixed plans or arrangements

Did I tell you that we're getting a new computer on Thursday?

Present Simple to talk about timetables or schedules

Next term starts on 12 October

I am + TO (verb) to talk about fixed plans or decisions made by someone else

The Principal is to visit the new building in a couple of weeks

Future Continuous to talk about something that will be going on at a certain time in the future

By the year 2050 computers will be doing most housework tasks

Exercise 4. Find the most suitable form of these verbs, to go in the appropriate space in the sentences below

HAVE (twice) BE (twice) DISCUSS GIVE GO FINISH

1. Most universities _____ fewer students if the economic downturn continues.

2. I expect Friday's meeting _____ a long one, because we _____ next year's budget.

3. I'm sorry, but Dr Evans _____ very busy tomorrow. He _____ two lectures and then he _____ to the conference at York.

4. Do you think you _____ your project ready for Friday? I don't think I _____ mine by then.

Note:

In some situations you may need to be more precise about the relative timing of events in the future. Two further options are offered by the Future Perfect tenses.

LANGUAGE BOX: The Future Perfect

1. Simple

to refer to something that will have been completed by a specific point

I (shall) will have [verb+ED]

(Active) *He will have finished his project by the time you see him again*

(Passive) *The equipment will have been repaired by the end of June*

2. Continuous

to emphasise how long something will have continued by a certain time

I (shall) will have been [verb+ING]

(Active) *In July he will have been working at ELTC for 20 years*

(The Passive form of this tense is very rare)

Exercise 5. Maria is doing an MSc in Traffic Observation at KB. One of the course requirements is that the students have to spend 120 hours (in term time) on a traffic census, counting vehicles in Mayfield Road. They can put in a maximum of 8 hours in any one week. Maria started her observation in week 2 of the Autumn Term and intends to continue doing 8 hours a week.

Fill in the spaces to complete these statements about Maria

1. By the start of the Christmas vacation she _____ hours observation.
- 2 By the beginning of February she _____ traffic for _____ weeks.
- 3 By the time she completes her observation requirement, she _____ approximately 25,000 vehicles.

Note:

As you may have noticed since you came to Edinburgh, people tend in everyday speech to mix their use of the Future forms. In particular, you hear *will* and *going to* used interchangeably, even in the same sentence:

“We’re going to see quite a bit of heavy rain in most parts of the country over the next 24 hours, and that will continue through most of the next day or so in the far north-west, so it’s not going to be very pleasant at all” (BBC weather forecast)

However, in academic writing *will* is much more common than *going to*.

Exercise 6. The extract below comes from a television documentary about research into malaria by Dr. Manuel Patarroyo in Colombia. It shows a US Army doctor’s comments on the potential value of a vaccine developed by the project team.

Read what the doctor said and underline all the Future verbs he used. Which ones would you expect him to change, if he were writing instead of speaking?

Doctor I'm pretty sure there's a reasonable chance that we're going to find a positive response to Patarroyo's vaccine. Don't forget, though, that so far, even in his best studies, he's only finding 50 to 60 per cent protection. We just don't know whether that's going to be increased by making higher levels of antibodies - and perhaps new formulations will help - or whether this vaccine's going to have to be combined with another one, like sporozoite, to get the 80 or 90 or 100 per cent protection we're going to need.

Exercise 7 (optional). Re-write the doctor's comments in an academic style. As well as making changes to the Future forms, you will need to change some other features of his speech (e.g. informal expressions, redundancy) to make it acceptable as written English for the university context.

Verbs of intention

We can express the future not only by using a grammatical Future form, but also by choosing a verb whose meaning contains the notion of future action or intention to act.

Exercise 8. Put the following verbs into one of the two spaces below, depending on whether they are followed by the Infinitive (*to appoint*) or the Gerund (*appointing*):

is planning on / aims / is thinking of / intends / plans / is planning

The College to appoint a new Postgraduate Officer

The College appointing a new Postgraduate Officer

Are there any differences in the meaning of the verbs you have written in?

Exercise 9. The extract below is from the final section of a journal article on research into listening, where the author was discussing the possible directions for future research. He uses no Future verb forms. So how does he express the notion of the future? Underline the words he uses for that purpose

FUTURE DIRECTIONS IN LISTENING RESEARCH

This review has attempted to reflect the range of recent listening comprehension research. At this point it is appropriate to speculate about avenues for future work. Several have already been suggested: an expansion of research into the impact on listening comprehension of the visual element in electronic media; investigation in a wider variety of languages into the ways in which first-language speech patterns influence listening in a second language; and exploration of the link between listening level and listening strategies.

In addition, I foresee three likely strands of investigation into listening. Firstly, current research suggests a renewed interest in the way listeners monitor and remedy gaps in comprehension. Secondly, we can expect further research adopting a parallel interactive approach to listening, combining the tendencies known by the shorthand labels of ‘top-down- and ‘bottom-up’. Thirdly, we may see a continued momentum towards an ultimately more complete view of the listener, achieved through studies adopting the listener’s individual point of view, and in more naturalistic contexts.

Non-Verb Forms

Although people tend to think of the Future in terms of verbs (in that text: *speculate, foresee*), there are other grammatical devices for writing about events to come. Also in the text about listening research were examples of future-oriented nouns (e.g. *direction, avenue, exploration, and strand*), adjectives (e.g. *continued, further*) and adverbs (*ultimately*).

LANGUAGE BOX: Intentions, plans and outcomes.

There are some verbs, nouns, adjectives and adverbs expressing future intentions, plans and outcomes. They are as follows:

1. *Verbs*: arrange, organize, plan (ahead), draw up a plan, outline, succeed in, fail.

2. *Nouns*: schedule, plan, planning, proposal, success, failure.

3. *Adjectives*: unplanned, spontaneous (versus planned), involuntary (versus intentional or deliberate), (un)successful.

4. *Adverbs*: spontaneously, at short notice, involuntarily, according to plan, (go) smoothly.

The parts of speech mentioned above can be of great use while writing essays, project proposals and other scientific papers.

CONCLUSION

The offered course book "How to Write a Project Proposal?" is intended for undergraduate students of the second year of training involved in writing academic projects to be presented by the end of their final year, and also can be used for postgraduates by preparation of materials for the publication in English. The course book focuses largely on developing skills of academic writing – though the materials presented in this book can be used for writing of any academic text.

Realization of the course "Foreign Language in Professional Use" is shown in readiness of Master students and future scientists for communication in writing for the solution of problems of professional and scientific activity. The book is written according to requirements of the existing program for English for not language specialties of higher educational institutions.

The structure of the course book reflects the sequence of stages of work of the researcher on a scientific problem and generalization of results of a research in a certain measure.

Academic writing skills acquisition is based on studying quite a number of lexical units, their frequency of use in recent academic publications being the key criterion for selection. Those units are to make a bulk of active vocabulary, and different types of work are also aimed at developing the language awareness. Another important aspect of enlarging the students' vocabulary and developing writing skills is connected with peculiarities of academic style. To illustrate those features various clichéd expressions are introduced – to be practiced in future. Those clichés are grouped thematically in blocks (the material is rather flexible).

The main emphasis is laid on studying the patterns and varying the appropriate words that could fit into them. Different tasks and exercises are offered for mastering academic style, individual activities are based on the ability to work with the Internet or library sources – to prove the information obtained.

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Appendix 1. Some samples of project proposals

The numerical solution of the third boundary value problem for a parabolic equation

Abstract

Despite the fact that parabolic equations have a huge number of techniques for their solvation, majority of physical processes cannot be described by equations in their classical form. As a result, there is a need to seek for solutions for non-classical equations in mathematical physics. This study considers the non-classical equations in mathematical physics and software product using the difference method of solving such equations. Equations like those, under certain assumptions, can describe the motion of liquid in unsaturated porous medium. This is of great importance for drilling industry.

Literature review

This part of the project proposal is meant to study the theoretical sources on parabolic equations, linear equations, and different methods for their solvation. The research is provided by a large body of literature on the subject; however, in the following project proposal light will be shed only on some issues.

Over the past decade a great variety of works concerning parabolic equations were written. It is appropriate to highlight the works which significantly influenced the development in this field of science. A huge impact on my work was exerted by a study of E. G. Agapova. But other than that, other works will be taken into consideration, such as studies of V. F. Gilimshina and F. H. Mukminov who investigated dependence of speed of decrease of the linear parabolic equation solution on geometry of unbounded area. We can find a lot of material on this topic in the works of I. V. Pershin. He considered the third boundary value problem for a linear parabolic equation with singularity on the boundary.

G. I. Shishkina considered a difference scheme for a singularly perturbed parabolic convection-diffusion equation. In the work of M.O. Korpusov the third boundary value problem and the relaxation effect in a model of non-linear pseudo equation is considered. E. R. Andriyanova describes in her work the first mixed problem for a class of parabolic equations with non-power nonlinearities. There is an interesting fact in the paper of H.A. Bogolyubov that the equation is not linear but the non-linearity function is at right hand side, which leads to problems having the properties of ordinary differential equations. It is possible to conclude that in most cases linear equations are considered. In some works non-linear equations are analyzed, but for them only existence or uniqueness of the solution is examined, or the difference scheme is designed. But the equation does not contain the non-linearity at the time derivative.

Professional significance

The use of mathematical models often requires a fairly complex mathematical apparatus. Approaches using simple and accessible solutions for practical application methods are of significant value. One of such approaches is description of the processes by using approximate formulae derived on the basis of exact solutions for the original model. To the certain extent the following study is an attempt to consider such type of methods. Due to the rapid development of computer technology we have now an opportunity to apply in practice more complicated methods that have been previously difficult because of time consuming implementation of analytical and numerical solutions. The work is of significant importance for research in the field of non-classical differential equations describing fluid flow in unsaturated porous media and it will find its use in improving the drilling industry.

Methodology

This part of the project pays special attention to the methods employed. The major method when carrying out the research is the analytical one. Here it is necessary to describe data which will have to be analyzed.

The goal of the research will be achieved by investigating the solvability of a model of non-linear parabolic equations with implicit degeneracy of the derivative with respect to time and the existence of the solution. Exploring the works of E.G. Agapova the existence of solutions for the equation was proved. Due to the fact that the solution exists, the difference analogue for it was designed, namely, the implicit difference scheme. The main idea of these methods is that in the area of existence of solutions the grid is imposed, and the equation is replaced by the difference analogue. During the design the system of difference equation was obtained, which has been reduced to a system of linear equations. Huge number of different methods is applicable for this system, but in this study the area will be narrow to tridiagonal matrix algorithm and writing the software for this method. Tridiagonal matrix algorithm seems to be one of the most economical and fastest of all the numerical methods for solving systems of linear equations. The algorithm consists of two stages: forward and reverse. Forward run is used to find the tridiagonal coefficients and reverse run is required to find the immediate desired solution.

Results anticipated

This part of the proposal is organized to report on the results which are likely to be obtained with the methods mentioned. In the final part of the research results of the investigation of the use of the methods employed for solving the problem will be presented. Speaking about the results anticipated it should be stated that at the stage of preparing the project proposal a number of hypotheses were set which most probably are going to be proved. These hypotheses are about the existence of solutions for the equation, about the possibility of drawing up a difference

scheme for the selected method and about the possibility of writing software for this difference scheme. By accomplishing the research project it would be extremely interesting to receive information which is hardly presented in media sources and literature, i.e. the information concerning the use of numerical methods for solving differential equations with degeneration. The study might have some major theoretical implications, confirming and expanding the existing model, and along with other similar studies, it may provide some useful basis for practical implications.

Conclusions

In conclusion I would like to indicate briefly the main ideas of the research. It appears from what has been discussed that the serious attention should be paid to solving differential equations with degeneration. Similar equations are of great importance for mathematical physics and drilling industry in particular. This method, for example, describes the motion of liquid in unsaturated porous media. The punch line of the research is in studying the applications of efficient numerical methods for solving complex differential equations. The study is of great practical importance. However it should be noted that the implemented algorithm is not optimal for the task. The further activity assumed the more in-depth study and implementation of the subject given by more optimal algorithm or study of adjacent subject and study of solubility and implementation of solutions.

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Synthesis problems of structural and architectural shapes of the modern cities

Abstract

The project proposal is devoted to the study of architectural and structural forms; there is an attempt to identify their common and distinguishing characteristics by analyzing various architectural structures.

The research is focused, mainly, on the links and interrelations between architectural material and the shape of the structure. The analysis of key aspects of morphological image of the building depending on the architectural material; fundamental formative factors, namely structural materials and structural elements using as fundamental tool for the morphological object image is considered.

Background of the study

Nowadays the problem of synthesis of structural and architectural forms is crucial for the modern cities. In connection with gross of interference in the process of urbanization a building and its different forms contradict each other. Thus, the revealed key aspects of architectural forms relationship leads to harmonization of the modern city “fabric”.

The problem statement

What are the main problems connected with structural and architectural ideas? The first important problem is that the contrast between the inner and outer space is one of the main manifestations of contradictions in architecture. Nevertheless, one of the immutable principles of orthodox architecture is the principle of continuity between internal and external contents.

The study is aimed at identification the key linkages between the shaped object and its solution form. The main focus lays on identification the factors affecting the morphological features of architectural objects.

The problem of the internal space contradictions which is not consistent with the requirements of modern architecture in relation to the unity and continuity of all spaces is of great importance. Sequence of layers in depth is very important, particularly when combined counterpoint does not satisfy the requirements of efficiency and clarity ratios of forms and materials. Supersaturated complexity

within rigid boundaries (in case it is not a transparent frame) contradicts the modern doctrine stating that the building grows from the inside out.

Professional significance

Speaking about the novelty of the study, it is essential to mention that the approach employed is based on analysis of architectural materials without focusing on physic-chemical properties but mainly on existing form and constructive solution.

At first the problem of relationship between the architectural forms and the factors influencing them is highlighted and studied in various key aspects: from the image and the morphology of the object point of view, as well as the impact of cultural and historical background, and features and shaping the synthesis of structural and architectural forms is taken into consideration.

The present research is intended to deepen the understanding of the problems existing in the modern Russian architectural contracture.

Main body

The basis for the present study is provided by large body of literature on architectural morphology, namely form plaining, structure creation and metaphors. Thus, the research work was conducted mainly by architects and planners. The theoretical review starts off with the explanation the notion of architectural form and structure.

The development of architectural form and morphology of the object are widely considered in the works of contemporary Russian architects: Y. Jankowski, A. Rappaport, I. Dobritsyna.

The key ideas of the issue are defined in research works of Charles Jencks, J. Kipnis, G. Lynn, B. Massumi, E. Panofsky, M. Pearce, H. Spiller, M. Foucault, U. Eco, P. Eisenman, I. Dobritsyna, L. Starodubtseva.

The relationship between form, function and image has been widely studied in the works of A. Ikonnikova, G. Revzin, N. Saprykina.

“All picturesque forms begin with a dot which itself starts motion... The dot moves ... and there is a line – the first measurement. When the line in movement forms a plane, we obtain a two-dimensional element. In the transition from plane to volume a collision of planes creates body (three-dimensional). Sum of the kinetic bodies converts the dot in the line, the line in the plane, translates the plane into spatial dimension.” [6].

A form is the development of a dot in a line, and then in a three-dimensional volume. In the conceptual sense the dot, the line, the plane, the volume can be seen only in mind's eye. We can experience the dot as an intersection of two lines, the line as a contour of the plane, the plane as a bound volume, the volume as an object in space.

Francis D.K. Ching defines an architectural form as a three-dimensional massing which includes architectural aspects – space (image, color, texture, proportion, scale, organization, and relationship), technologies and Context. According to his view, the architectural form covers a variety of visual and relational properties: size, color, texture, position, orientation and visual inertia [2].

Francis D.K. Ching believes that there is the interaction of elements and systems having a coherent framework which creates a unified entity. In other words, the technologies, space and function are directly connected with a form which creates a single structure.

The same point of view is supported by the German designer Heino Engel. Building construction as a holistic concept defies simple interaction. The reality of a building structure consists of three essential elements: function, form and technology. Three main supporters (power flow, geometry and material) mutually cause each other, and each element is oriented for its implementation to the other two. Each of the main supporters helps itself by specific content – determinants. One of the determinants is a support system.

Force is content and criteria for the support structures and support systems – the dynamic load distribution system; geometry – the descriptive system; which determines the shape of the supporting structure and the path of the forces; material – material system which controls the force and converts the geometry.

Limited definition of an architectural form, excluding structures, is often reflected in the modern design. There is the concept of “integrated architecture”, when the bearing elements are separated from the shape.

Structural or engineering form is a constructive nature of the building. Structure is of essential importance for architecture. It provides safety, durability and stiffness. Structure should not be dumb. Structure is endowed with a voice revealing architectural sense and wealth. Pointed structure would infinitely enrich the urban “fabric”. We can design a structure to endow it with new metaphors and make it elaborate. Structural form can play a leading role in the formation of the interior and the exterior.

The relationship between structural and architectural forms has changed over the long historical period. They were selected in a wide range of complete domination of the architectural form of engineering to be neglected. There are several positions of the structure, such as “form following” and “form giving”. These ones vary depending on the historical context. For example, Viollet-le-Duc supported structural views of the rationalists: “Tie me to the structural system, I will give you the forms which are derived from it. But if you change the design I will be forced to change the shape”. He referred to the Gothic architecture where masonry bearing walls and buttresses grew up the building envelope. The Gothic style is characterized by a very close interrelation of structural and architectural forms.

With the appearance of new technologies the position of the structural form evolved. Primitive dwellings in the form of a set made of natural materials developed in domed churches had a round shape and later transformed into more complex structures which rested on a set of rectangular plan. The usage of various technologies enables to construct new forms and employ them in reality.

Violet-le-Duc, a French architect of the 19th century, the ideologist of the Neo Gothic defined structure as “form giving”. His opinion was also supported by Pier Luigi Nervi, an Italian architect, a “poet of concrete” in 1950: “I am convinced – and this belief is supported by the most important buildings of the past and present that the appearance of a good building can only be an effective structure or expression of the building in reality. In other words, the form is a necessary result, rather than the initial basis of the structure”.

Architecture liberated from a wrapping architectural form in structure. New systems and technologies made it possible to combine different design schemes. Construction of building corps is often separated from the structure to the extent that the structure is unexpected.

Structural shapes may be divided into several structural families: the active form, the vector, the cross section and surface elevation.

Methodology

The goal of the research will be achieved by the deployment of a qualitative sociological method, and namely particularly semi-structured interviews are going to be conducted.

When writing the work in terms of methodology the following set of scientific methods was applied:

- Collecting information about architectural forms;
- Searching for analogues (reviewing literature, scientific publications, internet resources, covering the research issue);
- Analysis and synthesis (analysis of various buildings, identification and classification of the data synthesis);
- Employing the method of analogies (identifying similarities and similar features in analyzed research material);
- Comparison (comparative multivariate analysis of different data collected during the study);

- Ranking (selection of individual factors and features in the data, distribution of the most important of them);
- Employing the method of simulation (designing the model of the object based on the findings of the study and investigation its properties on the basis of the model constructed);
- Generalization (systematization and generalization of the results obtained).

Introductory interviews allowed the author to gather broader information on the research topic, to analyze the research issue in depth, to formulate the main hypothesis of the research and to modernize the structure of the guide for the future expert interviews.

The structure of the guide (the first and the second stage of the study):

1. To identify the genesis of formation based on the evolution of architectural materials.
2. To expand the terminology of architectural and structural forms, and identify their common and distinctive features.

Conclusion

It follows from what has been said above that the problems of connection of the structural and architectural forms still exist. The attitude to the architectural engineering has changed over a long period of time. Architectural styles have formed, technologies have developed, new construction schemes and their modifications have been introduced. The form went side by side highlighting the structure.

Even before the 17th century it was impossible to separate the architectural form from the structure. The structure modelled the form determined by space being active.

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The effect of pollutants generated in course of construction in waterbodies on hydrobionts

Abstract

This project is intended to cover the major issues of ecotoxicology. Though the topic ranks among traditional studies - there are theoretical and empirical works on the study in question – it seems to be always of interest. Different pollutants affect differently living organisms, and this issue is very important. This study aims at considering the reaction of living organisms on the different pollutants which are generated in course of construction on water bodies.

The project will review some of the classical and contemporary approaches to understanding ecotoxicology. Following this, the author's own approach makes it possible to consider the effect of low concentrations of pollutants on physiological processes in the tested objects. The results of the study will be of use in assessing the impact on hydrobionts of anthropogenic activities.

Introduction

A bioassay is the use of a living organism to test for the presence of a compound or to determine the amount of the compound presenting in a sample. The organism used is sensitive to the compound for which the test is conducted. Thus, the effect observed is typically the death or deteriorated health of the tested organism.

In the given project the impact of polluted water on water snails (orb snail) has been studied to determine parameters of mortality, growth and reproduction. As the tested substances suspended solids and petrol were selected. This choice of substances is based on environmental monitoring data. According to the data obtained in course of construction of bridges, pipelines and other facilities in water bodies, the turbidity caused by suspended solids has increased. Also, the fuel from the construction machinery falls into water. These are the most common pollutants.

The peculiarity of the work is that investigated small concentrations of pollutants, which do not exceed maximum allowable concentration, can influence the tested hydrobionts.

The hypothesis of the study is as follows: even small doses of pollutants have a negative effect on the aquatic biota and water ecosystems.

The specific purposes of the project can be formulated as follows:

1. To conduct a toxicological experiment (bioassay);
2. To evaluate the impact of pollutants on the tested objects according to the criteria of mortality, growth and reproduction.

The problems posed are of great interest for those engaged in ecology and toxicology. At the same time this study might be useful for laymen who are not indifferent to the environmental problems.

Literature review

This part of the project is meant to examine theoretical studies in the field of ecotoxicology and bioassay. The study is provided by a large body of literature on the subject, yet, in this project light is going to be shed only on the some studies.

The issue of the book by Rachel Carson “Silent Spring” in 1962 affected the separation of environmental toxicology – and, subsequently, ecotoxicology – from classical toxicology. This book was among the first descriptions of the negative side effects of the increasing use of synthetic pesticides that started during the World War II. The book mainly focused on pesticides effects on birds, especially on singing birds which apparently became silent due to the effects of chlorinated pesticides accumulating in their food chain. The revolutionary element in Carson’s work was her extrapolation from single-organism effects to effects on the whole ecosystem and on the “balance of nature”.

The term “ecotoxicology” was introduced by Rene Truhaut in 1969 who defined it as “the branch of toxicology concerned with the study of toxic effects, caused by natural or synthetic pollutants, to the constituents of ecosystems, animals (including human), vegetation and microbial”.

Although initially devoted to the study of anthropogenic toxicants, the term is now used to describe the research into the ecological effects of diverse abiotic and biotic stresses, thereby integrating secondary effects of anthropogenic activities (such as ocean acidification resulting from increased dissolution of carbon dioxide in the surface waters of the oceans). It has been proposed that this broadening of focus from purely toxicological effects to the consideration of more general stressors moves beyond the definition of “ecotoxicology”. Van Straalen (2003), in particular, argued that the field had diversified to become Stress Ecology and that, as the effects of anthropogenic toxicants compound existing, natural stressors, exclusive study of their effects in an ecological context was nonsensical. Whilst this proposal is well argued, it is odd of Van Straalen to

have specified solely “ecology” as the field when the original field of ecotoxicology was intended to cover all levels of biological organization from molecular-level causes to ecosystem-level effects. Therefore, the term “Stress Biology” would seem more appropriate.

The first ecotoxicological studies date back to the 1960s, reporting observations on the negative effects of pesticides on soil invertebrates (e.g. Fox, 1964; Edwards, 1969). Similar to developments in aquatic ecotoxicology, these observations triggered the performance toxicity tests with selected organisms to enable prediction of such side-effects in the field. First results of such toxicity tests, using *Collembola* and earth worms, were published by the end of the 1960s (e.g. Ghabbour and Imman, 1967; Scopes and Lichtenstein, 1967). In the meantime, the Organization for Economic Co-operation and Development (OECD) started developing Guidelines for the testing of chemicals, to support the chemical risks assessment and pesticide registration procedures developed in the most Western countries. It took another 15 years before the first toxicity test with soil invertebrates which was internationally standardized by OECD, using earth worms and only on short-term (acute) responses like survival (OECD, 1984). In the 1980s and 1990s the development of soil ecotoxicological tests received more attention, e.g. in the SECOFACE project funded by the European Union, that explored the possibilities of developing toxicity tests with different soil invertebrates, including earth worms, enchytraeids, nematodes, *Collembola*, bugs-stafilinids, mites, centipedes, millipedes and isopods (Lokke and Van Gestel, 1998). Several of the methods developed in the SECOFACE project have never been standardized, but the project laid a basis for testing new species, using sub-lethal endpoints including interactions between species.

Over the past decade, there has been renewed attention for the effects of chemical mixtures in water (Van Gestel, et al. 2011), while the interaction of chemicals with other stress factors, like water temperature, also came into focus (Holmstrup, et al. 2010). In addition, the available test methods outlined below

are nowadays applied to new and emerging chemicals, using hydrobionts (e.g. Shoults-Wilson, et al 2011; Heckman, et al. 2011; Hooper, et al. 2011).

Methodology

This part of the project proposal will explain methods being used in carrying out this research.

The main method is an experiment (bioassay). The tested objects were placed in reservoirs with different concentration of pollutants. Each concentration had two replications. In addition, a “zero probe” was created. In the reservoir with “zero probe” there was favorable environment for the objects tested, without pollutants.

The method of observation was used to monitor the changes in the health and reproduction conditions of the objects tested.

The measurement method was used to measure the growth parameters and their changes.

The methods mentioned above will keep track of changes in the physiological parameters over time.

The comparative method was used to summarize the results of the experiment. Physiological parameters were compared in a series of replications, in different concentrations and with “zero probe”.

Conclusions

In order to prove the hypothesis stated the ecotoxicological experiment was made. Its duration was one month. Using the results of experimental observation straight relationship between environmental conditions and physiological indicators of the objects tasted has been identified. This proves the idea that even small concentration of pollutants has a negative impact on living organisms and the eco-

system as a whole. While a single project cannot provide a solid basis for generalization, this study would reveal the fact that additional research seems to be needed on the problem in question.

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The development of the expert assessment system of design products for increase in its quality

Abstract

The project proposal is intended to cover the actual problem of quality indicators development for design products. The solution of the problem seems to

be effective in the development of the expert assessment system of indicators at output quality control at the enterprise.

The goal of the project is going to be achieved via generalization the experience of design and research works, as well as the problems associated with the lack of design work management, which is often considered as an instrument separated from the quality management system operating at the enterprise.

Introduction

In the project the problems of design production quality are considered.

The purpose of the research consists of:

- examination the theoretical and methodological foundations of the formation of organizations in the field of sustainable development, based on QMS;
- development of methods for assessing the quality of design and research products in the design and research organizations;
- development of the range of indicators of design production quality through expert assessment system.

To achieve the research goals the following tasks are stated:

- 1) To identify the factors of external and internal environment influencing the formation of sustainable design and research organizations;
- 2) To analyze the theoretical and methodological regulations concerning description, construction and classification of quality assessment processes;
- 3) To develop a range of indicators to assess the quality of design products.

The *subject of the study* is a set of theoretical, methodological and practical related to the formation of the system of quality management activities aimed at sustainable development of design and research organizations.

The *object of the research* is the design and research organization “Dalgi-protrans”.

Design work represents a necessary part of the investment cycle. It is crucial stage and requires highly skilled professionals. Not accidentally among those employed in this field are a lot of specialists with candidate and doctor degrees. However, it is a quite difficult stage in the construction cycle because it involves in parallel the staff of different specialists: engineers, designers, architects, electricians, economists etc. The qualification and skills of those specialists determine the quality and safety of the future facility.

Therefore, the coordination of their work and management represents an urgent task. There is an opinion that the design work related to the creative process cannot be in any way placed under control and cannot be time-bound. The work of the designer, according to many views, is not a subject to careful planning. At the same time work on a specific project, carried out in the framework of a legal contract, defines timing, scope and quality of the final project design.

So question arises how to perform the process control design in the best way taken into account its comprehensiveness, staging, uncertainties and other unpredictable obstacles that arise in the course of the design? Besides monitoring, it is also required to optimize the design process to ensure the possibly minimum terms of accomplishment of all necessary units of the project without loss of quality of the project documentation. Nowadays different types of reports used for this purpose which are performed by the middle managers represent not objective assessment, as it is difficult to evaluate the amount of the part of the work done. As a result, it generates overesteem of the amount of the work done, and subjectivism prevails, which excludes objective control over the design phases, and therefore it affects the design quality.

One of the major constraints is time limit. The designer is always limited in time to make a decision. Since any decision of a designer is a constraint for his colleagues joining the project, the greatest opportunities for creativity has a specialist who starts the project.

Except restrictions design process is influenced by a set of events which the organization has no opportunity to manage. They are, for instance, changes in the state economy, in state and local legislature, in the activities and solvency of the customer, changes in range of available products and materials used in projects. All this can be considered as the random factors exerting greater or smaller influence on design process.

Literature review

In the course of investigation it has been shown that the theoretical and methodological foundations of activity in design and research organizations is based on fundamental and applied studies of researchers and specialists in the spheres of general management and quality management in particular.

Fundamentals of design and operation of quality management systems is based on different concepts providing effective and sustainable development of organizations. They are represented in the works of Russian and foreign scholars and experts. Among them are the works of P. A. Arkin, V. V. Bragin, G. G. Azgaldov etc.

Process approach implementing requirements of international standards in the field of quality management is considered in the works of A. I. Orlov, I. V. Badyaev, Yu. V. Vasilkov etc.

At the same time, a number of problems related to the theoretical and methodological aspects of the design of integrated system management of the organizations with sustainable development are based on the principles of quality management, including the process approach. All this causes need of their further development.

Methodology

The goal of the research will be achieved by the deployment of an expert method which is intended to solve the problems. This method is characterized by the following features:

- 1) A group of people participate in the problem solution;
- 2) Those people all are experts;
- 3) The task is aimed at obtaining new information;
- 4) The information is of great public importance;
- 5) In solving the problem shared by all the experts algorithm is not used;
- 6) The final decision is based on experience and intuition of experts, rather than the direct results of the calculations and experiments.

The problem solution is given in the form of a collective expert judgment obtained through aggregation of individual expert judgments. If the expert judgments are expressed in quantitative form or according to their character can be interpreted as evaluating ones (much – few, better – worse, further – closer etc.), they are called expert esteems, collective or individual. The process of identification of individual expert judgments (or esteems) is called an expert poll, and all set of the procedures necessary for receiving collective expert judgment (esteem), including also an expert poll, is determined as examination. Such practices and theoretical researches demonstrate that expert judgments at observance of the correct methodology of their receiving comprise rather reliable information which use allows making quite reasoned decisions. The extensive experience is accumulated in expert assessment of product quality. At present different methods of expert measurements are developed. More complete classification of expert methods is given in the work of G.G. Azgaldov which includes 16 methods for assessment of project quality.

New original ideas, technologies, and solutions can be the basis for innovation in organizations and industries including design and research institutions. In order to be creative, these creative products must be useful in the context of assessment techniques. The ability to adopt and apply new original novel ideas is closely related to innovativeness, which is an important determinant of the development in any sphere of design and research activities.

To obtain a proper technique in expert assessment of design production will be a success in the field of quality management. Hopefully this project proposal will contribute in the problem area.

Conclusions

Literature review on the topic of the research revealed that significant amount of preoccupations for the development of design production quality system was created. G. G. Azgaldov in his book “Qualimetry in architectural design” paid special attention to this issue.

In the course of the research the following targets were reached:

- 1) The external and internal environment factors influencing the formation of sustainable design and research institutions were identified;
- 2) The theoretical and methodological regulations concerning description, design and classification of quality assessment processes were analyzed;
- 3) The range of indicators for quality of design products assessment was developed.

When properly applied, the expert method is sufficiently reliable for obtaining information about the quality of a project.

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The inclusive public spaces for disabled children

Abstract

In this project the formation of inclusive public spaces inscribed in the environment of Khabarovsk city will be considered. The research touches upon the problem of availability of urban environment and playgrounds for children with disabilities as a part of their social adaptation. In Russian cities disabled people are invisible – the urban environment is totally unadapted to their independent movement, without mentioning disabled children. So there is their replacement into special places and their total exclusion from the social life of the city. Their contact with ordinary children – their peers is limited. This study is aimed at analysis the current environmental situation, problems of disabled children in the urban environment and their perception those problems. The purpose of this work is creation of the project of inclusive public space for this category of children.

Background of the study

Children's disability has been and still is one of the most serious health and social problems in our country. According to reports of the Russian Ministry of Healthcare in 2015 the number of children under 18 years with limited vital and social functions is about 600 000. Consequently, this social pathology is an indicator of deep trouble on many levels of social life. Disabled children in varying degrees are limited or even isolated from the culture and art, education, active participation in social life. Researchers, practitioners, rehab specialists, designers and architects are seeking for ways and forms of integration disabled children in healthy society, the possibility for their adapting in big and small society.

Problem statement

One of the ways to integrate children with disabilities into society as full participants is the creation of inclusive public spaces. These spaces will allow special children to interact with people of different ages and levels of development. They will have opportunities to study, explore, acquire new skills, thereby to become full-fledged members of society. At the inspection of the situation in Khabarovsk it has been revealed that there is no such kind of inclusive public spaces on its territory. Therefore, the study was conducted to focus attention on this issue. Also the study is aimed at search and formulation of new and up-to-date ways for solvation of the problem.

Professional significance

The novelty of the research can be formulated as follows: for the first time the analysis of public spaces in the city of Khabarovsk was carried out and the study revealed the absence of inclusive public areas. The results of the study can be applied for creation a network of inclusive spaces for disabled children in every major city of Russia and the development of a functional program, to determine the methods of reconstructive measures of the existing sites. The results

can be also of great use for the development of regulations on the design of new spaces for disabled children, for the preparation of functional programs and space-planning solutions.

Main body

Methodology

The purpose of the study can be achieved by application the combination of methods of scientific research. They are as follows:

- search for analogues and examples (review of scientific works and papers, project documentation and materials, use of Internet sources);
- comparative analysis (assessment of project proposals, according to different conditions and methods);
- graphic visualization and prototyping (creating drawings, diagrams, plans and sections, 3D-models, the layout and viewpoints);
- generalization (systematization and generalization of the results obtained in course of the study, creation the list of rules and guidelines).

Literature review

Quite broad body of literature including theoretical papers covers the problems of designing accessible environment for people with limited mobility. The results and conclusions on the features of barrier-free design are considered in the works of sociologists, economists, philosophers and educators: R. Arnheim, N. A. Bernstein, B. G. Borisovsky, J. Gibson, M. S. Kagan, M. Montessori, E. N. Savelieva etc.

Some works are mainly normative, methodological or of journalistic character. They are devoted to the issues of the development of accessive environment for people with additional needs.

An important basis for the research was constituted by works of foreign scholars on the topic of inclusive spaces developed by Play CODE.

In the course of the research it was also necessary to consider the problems of social adaptation of disabled children, some of the points of child psychology and art therapy which are elucidated in the works of R. Arnheim, A. A. Grashin, K. Day, M. Montessori, S. L. Novosiolova, A. G. Subbota etc. The works concerning composition and spatial organization were of importance in the course of the research work also the works on history of art, aesthetics and urban planning: O. V. Butkevich, K. Alexander, G. B. Borisovsky, V. Papenek, L. N. Stolovich etc.

The investigation of this topic in Russia and in the Far East in particular, was poorly conducted.

Results anticipated

In the course of the study the tasks posed were successfully solved. The foreign and domestic experience of designing barrier-free environment and inclusive spaces was analyzed. The factors influencing the absence of barrier-free environment and the exclusion the people with additional needs from full-fledged members of the urban environment were identified. The analysis of comfort and accessibility of the Khabarovsk city inner territory in terms of convenient movement for people with limited mobility was conducted. It was found the specific of designing the spaces and equipment for disabled children. In view of the analysis the proper territory for inclusive spaces was defined. The project of inclusive public space in Dynamo Park was designed. This project consists of visual parts, drawings and sections to scale, zoning scheme, plan tactile tile, common and interior viewpoints. Prototype part consists of general layout of the territory, models of equipment and interior of halls. There was also developed a list of recommendations and rules for creating inclusive public spaces.

There are some special features for inclusive public spaces for disabled children. They are as follows: **inclusive space for children includes** social/emotional, physical, sensory, cognitive and communicational aspects.

Social/emotional wants are organized for play to be fully inclusive, children need to be socially included. As children play together, they learn to cooperate, take turns, and engage in meaningful dramatic and imaginative play experiences that create lifelong remembrances. Providing places for children to feel emotionally secure allows them to belong to a game and choose how and when join a game.

- Under deck activities and dramatic play elements encourage children to think creatively and use their imagination.
- Seating areas under and on play structures offer a place to socialize, rest, or observe until children are emotionally ready to join.
- Signage and unique play elements can create an atmosphere of respect and acceptance and promote cultural/disability awareness.

Physical wants.

All children need opportunities to be physically active through playing. Play environment providing a variety of appropriate activities for development. They can include risk for health and challenge children of all abilities. They create places where everyone wants to play.

- Pathways, natural elements, loose parts, ground level, and freestanding activities encourage higher level of physical activities.
- Play activities developing fine and gross motor skills and other skills requiring varied operating efforts and provide choice for how to play.
- Beginning, intermediate, and advanced level of play events encourage children to improve their skills.

Sensory wants.

Play is the most meaningful in sensory rich environment. It encourages the discovery and exploration spirit. Sensory play through tactile, visual, auditory, smells and tastes, vestibular, and proprioceptive experiences help children understand the world around them. Therefore the following elements are of great importance:

- Consistent multisensory hints, using contrasting colors, landscaping, and textures for orientation and exploration help organize the play space.
- Crawl tubes and under deck activities provide spaces for sensory relief, while such activities like spinning, rocking, or swinging satisfy sensory wants.
- Natural materials such as child friendly plants, sand and water provide elements which stimulate senses.

Cognitive wants.

Children learn through play and interaction with other people the world around them. The support of the intuitually understandable game and their behavior in the course of the game can help children to be involved in the game for a long period of time. The children's capability to solve the tasks, to think abstractly, and to investigate cause-effect relations and other skills should constitute not only on the bases of their own experience but on the experience of other people.

The following kinds of activities are important in accordance with these wants:

- Activities that appeal to a variety of interests give children ways to make choice and demonstrate what they know.
- Play activities that provide auditory, visual, or tactile feedback strengthen and develop the understanding of cause and effect.
- Creative opportunities to bring learning outdoors can support development in a new way and existing ones.

Communication wants.

Playgrounds can support the development of receptive and expressive language, allowing children to demonstrate what they know and the opportunity to express themselves. Language and communication development occurs through manual play behavior and routine and is enhanced through appropriate play elements, details which can be moved freely and well-designed outdoor space.

Play activities, “talk” tubes, and interactive games encourage children to communicate, cooperate, and even to sing.

Music activities provide children the way to contribute to the sounds on the play environment.

Creative play elements enable children demonstration of understanding and vocabulary development.

There are 7 principles of inclusive playground design with was taken into account in course of the research work. They are as follows:

1. Be fair

The play equipment should be available and convenient for people with different abilities and provide opportunities to enjoy their right to play.

Benefits: play environment designed to be fair allows everyone equal participation with their siblings, neighbors and family members so they can be involved in the fun.

2. Be included

The play environment should support participation of individuals of different ages, with different disabilities and abilities in social and physical activities for inclusion and integration through play processes and interactions. The play environment designed socially and physically inclusive will provide everyone the opportunity to participate in games independently and equally with their family members, friends and neighbors.

3. Be smart

The play environment is easy to understand, allowing individuals success and confidence through play.

Benefits: play environment designed to be understandable, intuitive and appropriate provides opportunities for everyone to discover and demonstrate their intelligence, capabilities and ability to take risks and successfulness.

4. Be independent

The play environment allows children to effectively explore and participate in play at their own level.

Benefits: play environment uniting and linking information in many sensory kinds supports a child in general and independent participation of everyone.

5. Be safe

The play environment addresses current safety standards providing development opportunities needed for exploration and challenge.

Benefits: safe play environment addressing physical, social and emotional needs allows children of different abilities to develop their skills through fun and challenging play opportunities and to take appropriate risks.

6. Be active

The play environment supports various degrees of social and physical participation in play minimizing unnecessary fatigue.

Benefits: play environment designed to offer various degrees of challenge and alternatives to extraneous, sustained physical effort allows everyone to participate more actively in stimulating physical and social play.

7. Be comfortable

The play environment should be usable for individuals with different sensory wants, sizes, poses, mobility and locomotions.

Benefits: play environment designed for comfortable use and movement of people with different wants and disabilities will allow everyone to participate in a play independently and equally with family members, friends and other users.

Conclusion

In course of the investigation it was revealed that at present in Russia there are no public spaces which fully comply with all required guidelines and standards of inclusive environment. The problem of physical and social integration on disabled children in the city environment is not solved. Based on the data obtained in the course of the study the list of rules and guidelines for creation of

such spaces in the future was compiled. The list given will adapt those rules and guidelines to desired area and population structure. Designing the environment, taking into account the given recommendations will not create barriers for ordinary people and for people with additional needs.

The project of inclusive public space in Dynamo Park is designed in accordance with the requirements for this type of environment. The project assumes existence of three pavilions (seasonal indoor pavilion and two outdoor), children's playground, Book Crossing areas, recreational and calm areas, the presence of art objects and street furniture, multi-functional and transforming spaces.

The indoor pavilion is designed for seasonal use. The project foresees its installation in the central part of the inclusive space. It can perform such functions as: lectures, workshops, exhibitions, art therapy, that is social adaptation and integration into society by means of interaction with peers, professionals and volunteers.

The interior concept resonates with the general concept of all inclusive space. It focuses on the theme of unity with nature. In the interior the streamlined and plastic equipment is used as well as the element of a touch wall. This all is used for uniting the internal and external spaces. The developed interior solutions are based on modular elements that will allow to quickly change the space depending on the situation. The main principle of the organization of the interior of the pavilion is the presence of play element.

The interior space is equipped with all necessary elements of a barrier-free environment for different categories of disabled people which allows to create necessary environment of comfortable and friendly atmosphere. For example, the touch layout of the room for the blind and cecutient visitors is created. The width of doorways is adjusted and the bathrooms are equipped for wheelchair access. The zones of privacy for children with disorders of the authentic range are created. For parents of special children lectures are provided to help them better understand and interact with their children.

All the areas are merged by the touch wall. It serves as a guide, play equipment and lighting. The wall includes luminous elements, game elements which affect different sensory feelings, navigation elements and relief items. Also the sign language alphabet and chalkboard are placed on it. All items are signed in Braille's font. Art objects also serve as play equipment. All outdoor furniture and equipment have a universal design, friendly for people with different abilities.

Contact among children with different abilities is often not enough to get them playing together or to create really inclusive play experience. Therefore, the project provides the presence of specially trained staff, who will help children and guide them. They will inspire children to create their own inventions, environments and activities.

The project can help to create truly inclusive play environment in which the children of different abilities can employ all the skills to play together independently. All the children can feel nurtured, encouraged, respected, and active physically and socially while playing. That will create a sense of community among all the children.

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Appendix 2. Useful vocabulary

Анализ, анализировать, подвергать тщательному анализу	Analysis, to analyze, to undergo the scrutinize analysis
Актуальный/актуальный вопрос	Ongoing, current/topical issue
Актуализировать, делать приоритетным, выносить на передний план	To foreground, to prioritize, to take priority over
Вводящий в заблуждение, неправильный	Confusing, misleading
В настоящее время, недавно	Currently, recently
Взаимосвязь, взаимозависимость	Correlation, interrelation, interdependence
Вклад, делать вклад	Contribution, to contribute
Включать	Include, involve, subsume
Влияние, воздействие	Influence, impact, effect
Влиять	To influence, to effect
Возрастать	To increase, to rise, to grow
Возрастание, рост	Increase, rise, growth
Выбирать	To opt for, to choose
Выбор	Option, choice
Выдвигать, представлять	To advance, to present, to put forward
Выполнять, осуществлять	To carry out, to conduct, to fulfil, to perform
Главным образом, преимущественно, в основном	Largely, mainly, primarily, substantially
Данные, факты, свидетельства	Data, facts, findings, evidence
Допускать, предполагать	To assume, to accept, to presume, to suppose, to presuppose

Достигать	To attain, to achieve, to reach
Зависящий от, обусловленный	Subject to
Заменять, взаимозаменять	To replace, to substitute, to interchange
Заявлять, отмечать, указывать	To state, to indicate, to mention, to point out
Значение, роль	Sense, significance, meaning, value, role
Значимый, важный	Important, meaningful, significant, urgent, of top priority
Значительный, существенный, резкий	Dramatic, drastic, essential, radical, sharp
Изменять(ся)	To change, to alter, to transform
Изучать, исследовать	To examine, to investigate, to scrutinize, to study
Интерес, внимание к чему-л., озабоченность	Concern, preoccupation with smth.
Использовать	To employ, to use, to utilize
Использование	use, usage, utilization, application, utilization
Исследование	Investigation, inquiry, research, study
Конкретный, специфический, частный, отдельно взятый	Certain, particular, specific
Концентрировать на чём-л.	To centre, to focus on, pinpoint
Коснуться, затронуть (вопросы, проблемы)	Be concerned with, dwell on, touch upon
Краткий обзор	Overview, outline
Лежащий в основе	Underlying, lying behind

Научное направление	School, trend
Начинать, инициировать, побуждать	To Initiate, to instigate
Недоставать, нехватка	(To) lack, to want, shortage
Недостаток	Disadvantage, drawback, flaw, shortcoming
Недостающий	Missing
Неполный, разрозненный, фрагментарный	Incomplete, sketchy, fragmentary
Непосредственный	Direct, immediate
Неясный, нечёткий	Ambiguous, diffuse, illegitimate, vague, uncertain
Обеспечивать, предусматривать	To provide (for), to ensure, to guarantee
Область, сфера	Area, domain, field, sphere, scope
Обнаружить, выявить	To reveal, to unveil
Обоснованный	Grounded, justified, proved, valid
Обуславливать, предопределять	To condition, to precondition
Общеизвестный	Common, common-sense
Объяснять что-л.	Explain, account for ...
Ограничения, рамки	Constraints, limitations, restraints, restrictions
Ограниченный	Confined, limited, restricted
Ожидаемый, перспективный, многообещающий	Perspective, prospective, promising, suggestive
Определять, обозначить	To define, to determine, to denote, to identify

Опровергать, подрывать (основы, теорию)	To disconfirm, to disprove, to refute, to undermine, to upturn
Освещать (вопросы, проблемы)	To cover, to elucidate, to shed light upon ..., to highlight
Основания, основы	Basis, foundations, grounds
Основной, главный, центральный	Basic, central, core, guiding, key, major, main, prime
Основываться на ...	To be based on (upon), to rest on, rely on
Особенность, характерная черта	Feature, peculiarity
Осознание, знание	Awareness
Оспаривать, подвергать сомнению	To question, to put to question, to challenge
Откладывать, переносить	To defer, to delay
Отличать(ся), различать(ся)	To differ, to differentiate, to discriminate, to distinguish, to draw a distinction
Отличный от..., отличающийся от ...	Different from ..., distinct
Относительно	Comparatively, relatively
Относить(ся), быть связанным	To bear upon ..., to pertain, to refer, to relate
Отношение, соотношение	Attitude, relation(ship)
Охватывать	To cover, to comprise
Оценивать	To assess, to estimate, to evaluate
Очевидный	Apparent, evident, obvious

Ошибочный, некорректный, неполноценный, несовершенный, не отвечающий требованиям	Inadequate, incorrect, erroneous, error prone, mistaken
Перейти к ..., обратиться к ...	Move on to ..., turn to ...
Пересмотреть	To reconceptualise, to rediscover, to rethink, to revise
Подтверждать	To bear out, to confirm, to support, to verify
Подчёркивать, акцентировать, выделять	To emphasize, to lay/place emphasis on ..., stress on ...
Понимать, осознавать, проникать в суть	To grasp, to have an insight into, to realize
Понятие	Concept, construct, notion
Посвящать	To dedicate, to devote
Появляться, возникать	To appear, to emerge, to occur
Пояснение, комментарий	comment
Предмет, тема, вопрос, проблема	Issue, topic, subject, matter, point, question
Предполагать, подразумевать	To imply, to mean, to signify, to suggest
Предположение, гипотеза, предпосылка	Assumption, hypothesis, premise
Предпринять попытку, усилие	To attempt, to make an effort at ...
Преимущество, достоинство, ценное качество	Advantage, benefit, merit, strong point
Приводить к чему-л., вызывать что-л.	To bring about, to cause, to incur, to induce, to generate, to lead to..., to result in ...

Признавать	To acknowledge, to recognize
Признанный, знаменитый, ведущий	Famous, leading, recognized
Причина, подоплёка	Cause, reason, rationale
Проверка	Assessment, test, check
Проистекать из чего-л., явиться следствием чего-л.	To result, to follow
Происходить, корениться в ..., восходить к ...	To date back to, to originate, to root
Противоречивый, несовместимый, непоследовательный, несостоятельный	Controversial, contradictory, conflicting, inconsistent, untenable
Развивающийся, эволюционирующий	Developing, evolving
Размещать, ранжировать	To allocate, to place, to rank along
Рамки, пределы, границы	Boundaries, framework, scope
Рассматриваемый	Considered, discussed, in question, under consideration/debate/discussion
Рассматривать, принимать во внимание, учитывать	To attend, to consider, to draw attention to, to deal with, to make a point about, to take into account, to treat
Рассуждения	Reasoning, speculations
Результат, последствие	Consequence, effect, implication, result
Связанный с ..., относящийся к ..., посвящённый	Bound/tied up with, concerned with, linked with, connected with
Событие, обстоятельство, вывод, заключение	Development

Сокращаться, убывать	To decline, to decrease, to diminish, to fall, to reduce
Специалист, учёный, авторитет	Expert, scholar, authority
Сравнивать, сопоставлять	To compare, to contrast
Средний	Average, middle
Сталкиваться с ...	To encounter, to face/be faced with ...
Строгий	Rigorous, strict
Текущий, современный	Ongoing, current, modern, up-to-date
Точка зрения, взгляд	Outlook, perspective, stand point, point of view
Трактовка	Interpretation, treatment
Требовать	To demand, to necessitate, to require
Трудный, сложный	Complicated, complex, difficult
Уместный	Relevant
Упускать из виду	Fail to see/realize, to overlook
Устанавливать	To establish, to set up
Утверждать, заявлять	To argue, to assert, to contend, to hold, to maintain
Утверждение	Assertion, contention, statement
Уточнять	To specify
Фактически, действительно, на самом деле	Actually, in fact, in effect
Формировать	To form, to shape
Хотя, не смотря на ...	Although, despite, notwithstanding
Целесообразный	Expedient, worthwhile
Часть, пропорция	Part, proportion
Чёткий, ясный	Accurate, exact, neat, precise

Appendix 3. Useful phrases for writing essays and presentations

To begin with – Начнем с того, что ...

You can – Вы можете (Можно) ...

Firstly, ... / Secondly, ... / Finally, ... – Во-первых, ... / Во-вторых, ... /
Наконец, ...

The first thing that needs to be said is ... – Первое, что нужно сказать,
это то, что (Прежде всего, следует сказать, что ...)

First and foremost ... – В первую очередь ...

It is true that ... / clear that ... / noticeable that ... – Это правда, что ... /
Ясно, что ... / Примечательно, что ...

One should note here that ... – Здесь следует отметить, что ...

Another good thing about ... is that ... – Еще один положительный мо-
мент ... заключается в (том, что)...

The second reason for ... – Вторая причина...

It is often said that ... – Часто говорят, что ...

It is undeniable that... – Нельзя отрицать, что ...

It is a well-known fact that ... – Хорошо известно, что ...

What is more, ... – Более того, ...

Besides, ... because it is ... – Кроме того, ... потому что

Doubtless, ... – Несомненно, ...

One cannot deny that ... – Нельзя отрицать, что ...

On the other hand, we can observe that ... – С другой стороны, мы мо-
жем наблюдать, что ...

One should, nevertheless, consider the problem from another angle –
Тем не менее, следует взглянуть на эту проблему с другой стороны.

One should, however, not forget that ... – Тем не менее, не следует за-
бывать, что ...

If on the one hand it can be said that ... the same is not true for ... – И если с одной стороны, можно сказать, что ... , то же самое нельзя сказать о ...

On the other hand, ... – С другой стороны, ...

Although ... – Хотя ...

Besides, ... – Кроме того, ...

Moreover, ... – Более того,

Furthermore, one should not forget that ... – Кроме того, не следует забывать, что ...

In addition to ... – Кроме (того, что) ...

Nevertheless, one should accept that ... – Тем не менее, следует признать, что ...

However, we also agree that ... – Однако, мы также согласны с тем, что ...

Many people think ... but others do not agree. – Многие люди думают, (что)... , но другие не согласны.

Let us consider what the advantages and disadvantages of ... are – Рассмотрим, каковы преимущества и недостатки ...

Let's consider some pros and cons of it. – Давайте рассмотрим некоторые плюсы и минусы (этого).

Let us start by considering the facts. – Начнем с рассмотрения фактов.

It is generally agreed today that ... – Сегодня общепризнано, что ...

One argument in support of ... – Один из аргументов в поддержку ...

The first thing that needs to be said is ... – Первое, что нужно сказать, это то, что ... (Прежде всего, следует сказать, что ...)

It is true that ... / clear that ... / noticeable that ... – Это правда, что ... / Ясно, что ... / Примечательно, что ...

One should note here that ... – Здесь следует отметить, что ...

Another good thing about ... is that ... – Еще один положительный момент ... заключается в (том, что) ...

The second reason for ... – Вторая причина ...

It is often said that ... – Часто говорят, что ...

It is a well-known fact that ... – Хорошо известно, что ...

For the great majority of people (scholars)... – Для подавляющего большинства людей (учёных)...

We live in a world in which ... – Мы живем в мире, в котором ...

A number of key issues arise from the statement. For instance, ... – Это утверждение затрагивает ряд ключевых вопросов. Например, ...

One of the most striking features of this problem is ... – Один из самых поразительных аспектов этой проблемы ...

First of all, let us try to understand ... – Прежде всего, давайте попытаемся понять ...

The public (the academy) in general tend to believe that ... – Общественность (научные круги) в целом склонна(ы) полагать, что ...

What is more, ... – Более того, ...

Besides, ... because it is ... – Кроме того, ... потому что ...

Doubtless, ... – Несомненно, ...

It is (very) clear from these observations that ... – Из этих наблюдений (абсолютно) ясно, что ...

On the other hand, we can observe that ... – С другой стороны, мы можем наблюдать, что ...

The other side of the coin is, however, that ... – Однако, с другой стороны, ...

Another way of looking at this question is to ... – Чтобы взглянуть на эту проблему с другой стороны, надо ...

One should, nevertheless, consider the problem from another angle – Тем не менее, следует взглянуть на эту проблему с другой стороны

One should, however, not forget that ... – Тем не менее, не следует забывать, что ...

If on the one hand it can be said that ... the same is not true for ... – И если с одной стороны, можно сказать, что ..., то же самое нельзя сказать о

Furthermore, one should not forget that ... – Кроме того, не следует забывать, что ...

In addition to ... – Кроме (того, что) ...

Nevertheless, one should accept that ... – Тем не менее, следует признать, что ...

However, we also agree that ... – Однако, мы также согласны с тем, что ...

Experts... – Эксперты ...

... believe that ... – ... считают, что ...

... say that ... – ... говорят, что ...

... suggest that ... – ... предполагают, что ...

... are convinced that ... – ... убеждены, что ...

... point out that ... – ... отмечают, что ...

... emphasize that ... – ... подчеркивают, что ...

According to some experts... – По мнению некоторых экспертов, ...

Perhaps we should also point out the fact that ... – Возможно, нам также следует отметить тот факт, что ...

It would be unfair not to mention that fact that ... – Было бы несправедливо не упомянуть тот факт, что ...

One must admit that ... – Надо признать, что ...

We cannot ignore the fact that ... – Мы не можем игнорировать тот факт, что ...

One cannot possibly accept the fact that ... – Трудно смириться с тем фактом, что ...

From these facts, one may conclude that ... – Из этих фактов, можно сделать вывод (о том), что ...

Which seems to confirm the idea that ... – Что, по-видимому, подтверждает мысль (о том), что ...

Thus, ... / Therefore, ... – Таким образом, ... / Поэтому ...

The most common argument against this is that ... – Наиболее распространенным аргументом против этого является то, что ...

In conclusion, I can say that although ..., ... – В заключение я могу сказать, что, хотя ..., ...

To draw the conclusion, one can say that ... – Подводя итог, можно сказать, что ...

So it's up to everybody to decide whether ... or not. – Так что каждый должен решить для себя ... ли ..., или нет.

The arguments we have presented ... suggest that ... / prove that ... / would indicate that ... – Представленные нами аргументы ... предполагают, что ... / доказывают, что ... / указывают на то, что ...

From these arguments one must ... / could... / might ... conclude that ... – Исходя из этих аргументов, надо ... / можно ... / можно было бы ... прийти к заключению о том, что ...

Appendix 4. 10 ways to improve academic writing

1. *Write to the level of the intended audience*

Concentrate on the main points rather than rehashing information your readers already know.

2. *Build on the past*

Expand on the existing literature to explore your topic in a fresh way and introduce new research.

3. *Get to the point*

Establish the structure of your paper with an introductory paragraph or abstract that outlines your main points.

4. *Take a stand*

Present your thesis statement and then outline the supporting evidence with persuasive arguments.

5. *Provide supporting evidence*

Help colleagues evaluate and build on your work by including a complete list of your sources.

6. *Inform the audience*

Avoid personal opinions. Instead, support your point with research and credible evidence.

7. *Avoid literary clichés*

Convey your points with clear and concise language rather than flowery metaphors.

8. *Show a little style*

Format your writing and references according to recommendations of the appropriate style manual for your field.

9. *Edit, edit, edit*

Edit your work to eliminate wordiness and clarify your points for readers.

10. *Proofreading leads to perfect papers*

Work with a qualified proofreader to receive feedback and eliminate errors in your writing.

APPENDIX 5. Useful prepositional phrases

Above all	Прежде всего
Along the same lines as	В том же направлении как
Aside from	кроме
At any rate	Во всяком случае
At random	Наугад, случайно
At this juncture/point/stage	В этой связи
At variance with	В противоречии с
By analogy	По аналогии
By contrast	В отличие
By far	Безусловно, намного
By means of	С помощью, посредством
For short	Для краткости, если коротко
For the most part	Большей частью
For want of	Из-за отсутствия
From ... perspective	С точки зрения ...
In the same way	Таким же образом
In a way	В некотором роде, в известном смысле
In a word	Одним словом
In accordance with	В соответствии с ...
In any case	В любом случае
In brief/short	Кратко, коротко
In case	В случае, если
In comparison with	По сравнению с ...
In conjunction with	В связи с ...
In contrast to	В отличие от ...
In detail	Подробно

In effect	В действительности
In essence	В сущности
In fact	Фактически, в действительности
In general	В общем, в целом
In line with	В соответствии с ...
In most respects	Во многих отношениях
In other words	Другими словами
In parallel with	Параллельно с
In particular	В особенности
In principle	В принципе
In question	Под вопросом
In some part	Частично, в каком-то смысле
In spite of	Кроме
In terms of	С точки зрения
In the first place	Во-первых
In the language of	На языке ...
In the process of	В ходе, в процессе
In the strictest sense	В самом строгом смысле
In the ... context	В ... контексте
In turn	Свою очередь
On a par with	Нравне с ...
On occasion	При случае
On the whole	В целом
To a great/certain extent	В большей/определённой мере
To some degree	В некоторой степени
Under consideration/debate/discussion	Рассматриваемый, обсуждаемый
Up to the point	По теме
With respect to	Относительно