Android Russian Language Learning Tool

by

AzatShahanov

Dissertation submitted in partial fulfillment of

the requirements for the

Bachelor of Technology (Hons)

(Information Communication Technology)

January 2012

UniversitiTeknologi PETRONAS

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CERTIFICATION OF APPROVAL

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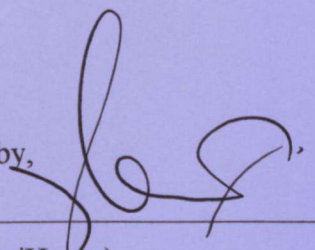
Approved by,



(MsNazleeniHaron)

UNIVERSITITEKNOLOGI PETRONAS
TRONOH, PERAK
January 2012

CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgements, and that the original work contained herein have not been undertaken or done by unspecified sources or persons.

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AZAT SHAHANOV

ABSTRACT

This is project is about developing Android Application that will carry the target of mobile learning inside, throughout implementing language learning theories and methods with proper usability and native-speaker pronunciations.

First of all the author of project has carried out research about language learning strategies and identified some common-used methods that are used in learning second language. It was decided that the most appropriate method to be integrated into mobile learning is Audio-Lingual Method, which will provide fast learning and efficient speaking skills.Later, research continued on mobile learning. How learning theories and tactics could be implemented in mobile application.

After the research part was finished, author switched to learning Google AppInventor web application, which helps to develop software for running on Android OS.

Application was developed and graphical interface was implemented. After downloading apk file into the phone's memory, software ran successfully.

Surveys were conducted and 9/10 people reported satisfactory functionality of the system, 10/10 reported good usability features, 7/10 reported good design of the interface.

ACKNOWLEDGEMENTS

First and foremost, I thank and praise Allah, for His guidance and blessing, definitely without it I would not have been able to complete my final year project lasting for two semesters.

It was a long journey of studying, researching, analyzing, comparing and developing, in which a lot has happened – many problems were faced and many solutions were implemented. I am infinitely thankful to a lot of people who has helped in the completion of this project. My deepest gratitude goes to Ms. NazleeniSamihaBtHaron, my supervisor who has guided me through the whole process of project development and helped in suggesting the suitable approach and methods for solving all the problems and challenges encountered during the timeframe of the project.

My salutation would be incomplete without giving credit to UniversitiTeknologi PETRONAS, especially the Computer & Information Sciences Department that provided me such opportunity on developing an Android application that might partially benefit society.

Thank you all for all the help and support in completing my final year project.

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CHAPTER 1

INTRODUCTION

1. BACKGROUND

There is no person in the world who speaks no language, though without having any writing skills everyone are able to communicate verbally if there is no any physical disability. Some people can speak two or more languages, where some of them are have learned foreign language due to their demographic conditions or required professionalism in their business or study area. However it's not only necessary to learn language in business and study cases, but also you might be required to have a slight knowledge while traveling to the country, where that particular language is mainly spoken.

There are different strategies and methods on learning foreign language. Some of them are being learned in class rooms, some are learned online from the desktop with internet connection, and others are learned from various media. However since mobile technology is growing so rapidly these days, everyone tries to transfer their computer needs on mobile devices, which are powerful enough to carry out some of the daily tasks such as e-mail, IM messaging, games, travel maps, educational tools.

These days some mobile phones are equipped with double core 1 Gigahertz processors for even faster and more convenient application running.

Using mobile applications can be more efficient and effective for most people, because these applications can be used any time of the day or night and anywhere you are. For example, if you are driving back home, then you can use Route Mapping applications that can sketch the fastest way to your destination.

On the other hand,language learning mobile tool can be used if you are traveling to foreign country, in societies that widely speak that particular language, or even for your personal knowledge.

2. PROBLEM STATEMENT

Language learning is not easy task and requires long time for learning. But knowing foreign language not only doubles information resource available in the internet, but also allows language speakers to communicate easily with people that do not understand English. According to the Richard M Felder [1], every student learns language in various ways, some learn by seeing and hearing, othersby reflecting and acting, third parties by logically and intuitively reasoning, and last ones learn through memorizing and visualizing. Language teaching techniques are also different. Some instructors make lectures, others demonstrate or discuss in real life situations; some focus on examples of grammar and stylistic rules; some emphasize memory and others understanding.

But not everyone is able to attend lectures due to time limit, as they busy with more important things; some don't have sufficient funds to pay tuition fees, others might not need that language at all, expect using it once on the spot while traveling to somewhere.

Based on the research done few problems were identified in foreign language learning:

- ✓ People always have limited time and resources for learning second language;
- ✓ Most of the current softwareexisting in the market have limited or unused vocabulary that in some cases does not meet needs of students and learners;
- ✓ Lots of software existing in the market do not follow any language learning theories and strategies, without taking issues that may arise while learning second language.

Importance of this project is illustrating set of theories and acquired principles of second language learning used in mobile learning. Apart from meeting current requirements and needs, project aims its linguistic goals of getting needed knowledge for adequate communication of language learning staffs and students who use mobile technology in acquisition of second language.

3. PROJECT OBJECTIVES

The main objective of this project is to develop mobile language learning system that will accommodate general needs of every second language learner with improved usability, portability and with followed audio-lingual and communicative competence method.

Meanwhile other objectives of this project are:

- ✓ To build a platform that can provide enough knowledge for basic needs communication with native speakers for language learners, who only need language for certain cases and time period.
- ✓ To provide mobile language learning solution for mobile devices that run on Android Operating System (OS).
- ✓ To minimize learning hoursthat is usually required for learning certain language by using Audio Lingual Method.

4. PROJECT SCOPE OF STUDY

This system is build and meant for fast and simple language acquisition that will provide learner with basic communication knowledge used in various areas. Following are the scopes of study:

- ✓ Language learning theories and strategies
- ✓ Software development for Android OS
- ✓ Software interface with usability methods implemented

5. PROJECT RELEVANCY, FEASIBILITY AND TIME FRAME

These days on current market mobile devices are being operated by several operating systems in a row, depending on which devices they are running. Among the most popular are Android, Symbian, Apple, RIM, Bada and Microsoft. According to the Gartner [2], as shown in Figure 1, for the Q2 2011 Android OS reached 43% of Global market share.

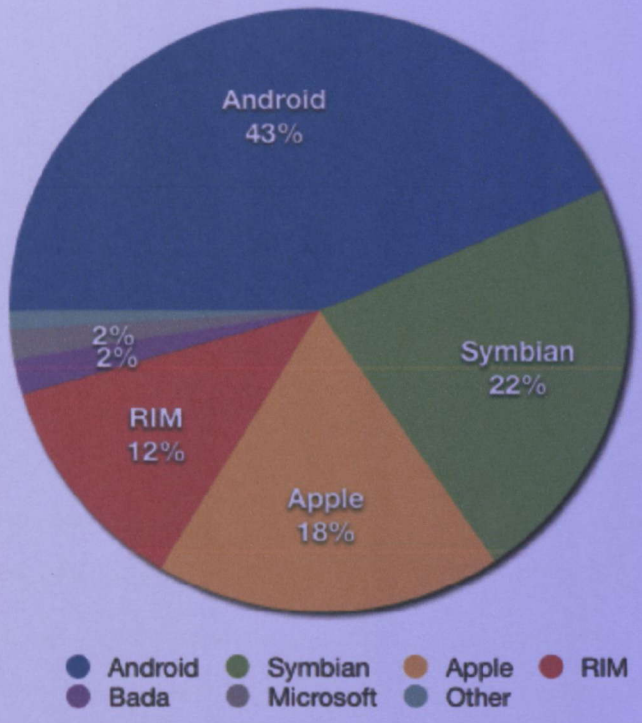


Figure 1: Graph showing global smartphone market share forQ2 2011

Hence PDA-s, smartphones and other mobile devices running on Android Operating System are really popular these days there is a big demand for various Android applications.

Research author's background of studies were held in Information and Communication Technology, where he have already obtained courses in programming such as Java and C++, which are crucial in developing Android application.During his studies, author himself and in collaboration with other students have developed several software applications on Java and C++. All the previous projects were successful, thus giving an author brilliant experience in developing application.

Time frame devoted to project is equal 32 weeks, where half of them – 16 weeks will be spend on research about mobile language learning strategies and second half will be occupied by developing an application on Android OS.

CHAPTER 2

LITERATURE REVIEW

1. INTRODUCTION

This research is mainly focuses on language learning strategies that can be implemented in a mobile device application running on Android OS.

2. LANGUAGE LEARNING STRATEGIES

Language learning strategies and theories are the actions and thoughts taken by learners for achieving their persuaded goal. In this part of research author is going to look at basic language learning strategies. This research is about researching one of the most efficient strategies and methods existing in language learning to be applied in mobile application development. According to Griffiths and Parr (2001) [3]over the past years lots of various techniques and methods are being used in order to teach and learn foreign language by and to the speakers, and each of the approach has its "personalized" theoretical concept, which remains "fuzzy" as it's described by Ellis Rod [4].But famous linguistic scientist O'Malley (1984, p.22) [5]says:

> *There is no consensus on what constitutes a learning strategy in second language learning or how these differ from other types of learner activities. Learning, teaching and communication strategies are often interlaced in discussions of language learning and are often applied to the same behavior. Further, even within the group of activities most often referred to as learning strategies; there is considerable confusion about definitions of specific strategies and about the hierarchic relationship among strategies.*

But after reading Tarone (1980) [6], new suggestion on language learning is overcoming, which says that every student is needed to be taught whatever that will benefit him in the future.

As you can understand from above there are various strategies, methods and approaches are appearing. Trying to combine them all into specific categories,Oxford (1990)[7] suggested some basic types of learning strategies, which include:

- ✓ Meta-cognitive

  Strategy that relates how language learners manage to handle their learning process;
- ✓ Cognitive

  Relates the ways how students percept their learning;
- ✓ Memory

  Relates the methods and approaches used by student for memorizing language;
- ✓ Compensation

  Relates how learners compensate their limited knowledge;
- ✓ Affective

  strategy that relates to the feelings of student and his feedback about learning;
- ✓ Social

  involves learning process through interaction with language speakers.

According to the study "Evaluating Students' autonomous learning through their uses of a Self-access Centre" published in Colombian Applied Linguistic Journal one of the commonly used strategies is Meta-cognitive(Figure 2).

6 (most frequent)	Meta-cognitive
5	Affective
4	Social
3	Cognitive
2	Memory
1(least frequent)	Compensation

Figure 2: Frequency of language learning strategies

Page 49 of Oxford research (1990) [7] justifies that above listed strategies "help learners become more fluent in what they already know and lead learners to gain new information about what is appropriate or permissible in the target language". However MadamEllis (1994, p.17) [4] puts her argue again on that:

> *there is no complete agreement on exactly what strategies are; how many strategies exist; how they should be defined, demarcated, and categorised; and whether it is - or ever will be - possible to create a real, scientifically validated hierarchy of strategies....Classification conflicts are inevitable.*

The caricature in Figure 3 clearly describes arguments and doubts rousedabout language learning strategies:

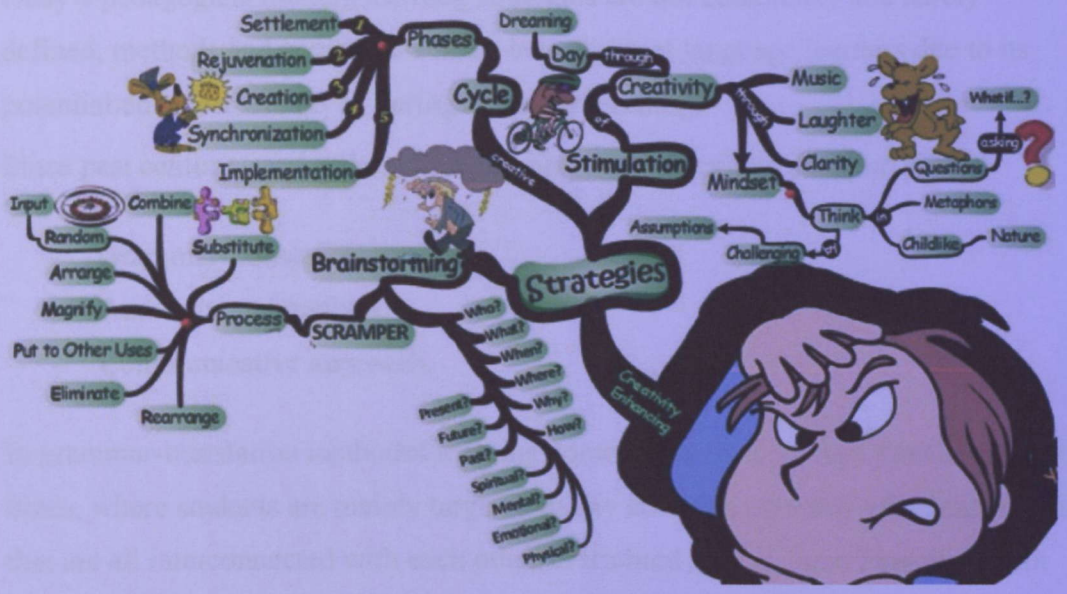


Figure 3: Confusion on language learning strategies

However regardless what Ellis Rod told [4], after getting closer to Social language learning strategy it becomes true in a real life.For example in case if the Russian language learner is traveling to the Russia, this research author also thinks that learner doesn't need to know all the grammar and writing rules, as long as he have limited knowledge to reply some questions on the customs, to buy food and other staffs, to communicate in cases of traveling within the country in a public transportation for navigational purposes. And these exactly surrounding social factors will enable learner to learn language more and faster compared than sitting in class and studying grammar. Because author's in the opinion, this method can be also considered as one of the helpful language learning strategies, which indeed are really effective, because author himself with limited knowledge in English was sent to United States of America (USA) for living in American family in duration of nine months, where in 30-40 days his language knowledge level rapidly grew, compared to previously attended Intensive English courses in duration of continues 6 years before going to USA. After one month being there, author was fluent in expressing his thoughts and participating any conversation carried on a literature language and as well as on the street slang.

3. LANGUAGE LEARNING APPROACHES AND METHODS

Regardless how "fuzzy" and uncertain are the language theories, there are several approaches and methods that narrow wide strategies into exact actions. Though in today's pedagogical matters learning strategies are not completely and surely defined, methods and approaches listed below attract language learners due to its potential enhancement given during language learning.

Since past century trend of language learning techniques was made up [3] by:

- Grammar-translation method;
- Audio-lingual method;
- Communicative approach.

In grammar-translation methodof learning comes to us from ancient Greek and Latin times, where students are mainly targeted to pay attention on many grammatical rules that are all interconnected with each other as Richard Jack C, John Platt and Heidi Platt say [8], regardless whether they going to use it or not. Main focus that is done in this approach is writing and reading with almost no attention paid for listening speeches and trying to express your ideas through speaking.Learningnever-ending grammar rules is always long procedureand author's target users do not require fluent knowledge in second language. That's why author thinks that grammar-translation method is not applicable for his software to be developed in the future.

As it can be understood from its name, audio-lingual method is based audio - listening and linguistic – speaking out approaches, which has substituted all the limitations and disadvantages aroused with grammar-translation methods. This method was really popular during war times for fluent language speakers who knew Japanese, German and Italian languages. This "Army Technique" was used for developing military recruits with conversational skills in a targeted language. Though the wars were finished, this method attracted lots of linguists that were looking for an alternative and efficientapproach to being used grammar-transitional method. That has given an Audio-lingual name for particular language learning method. In accordance with [10] audio-lingual method was spread across the world in the middle of previous century.

Audio-lingual method is purely depending on acoustic patterning, where learner needs to keep repeating words and phrases told to him.Stern [11] says that this

method is used for minimizing importance of precisetheorems considered as strategy in language learning flow.This method breaks all the barriers and removes limitations that include long hours spend on translating of uninteresting texts, endless lists of vocabulary with hundreds words in it andmind-numbing grammar rules.

Commutative approach or communicative competence, as it was defined by Hymes [12], its ability of speaker to express himselfand explain the meaning of what he is trying to tell. But communicative competence method doesn't cares about the form or structure sentences told. However this method is being tightly used together with other two methods described above for getting three-sided proficiency in learning language.

As the author is trying to implement effective and efficient language learning theories in application that can be used on any Android OS running mobile device or technology [13], this research will continue on mobile technologies and mobile learning.

4. MOBILE LEARNING

These days mobile learningis getting more powerful from day to day due to various applications offered in the market. Mobile learning is getting over traditional class learning approaches and even e-learning, because people try always try to keep themselves mobile, switching their locations from several meters up to several thousand kilometers, so not everyone can be attached to the classroom desk or personal computer.But implementing language learning theories in mobile application requires pedagogy aspects, where mobile learning is driven by learner-centered and constructivist principles [14], being aimed for long-life learning [15] and collaborative [16].

Next aspect covered by mobile learning is mobility, which is really crucial and gives an intensive advantage to mobile devices over technologies that don't have mobility. Not only mobile devices such as smartphones and pads are considered mobile and portable, but laptops are too. However laptop can't fit into the vision of mobile [18]device due to its sizeand weight, while compared to the phones with maximum 3-4 inch screens and pads with 6-7 inch screens that are used for communication while the owner is on the move.But if the learner is mainly attached to desk with Personal Computer (PC) on it, then of course laptops and desktop PCs will be the

first choice since being more versatile and powerful. Students always require mobility, who are always on the move all across the campus, travelling from one lecture room to another.

Before author can start implementing and developing mobile language learning tool, needs of the target users should be established with chosen technology, which enable to satisfy needs and requirementsbecause overestimation of technical possibilities, project will be switched into "waiting mode" till technological enhancement comes. As noted by Milrad [17], main issue that developers face is thinking that current technology is entirely designed for meeting the needs, but after getting failure, ones will identify that needs are met by technology at the hand!

Developers should identify what needs can be met and carried out on the technology chosen and whether will these needs be enough for satisfying project?

It's clearly known for everyone that all the learning needs are served by sophisticated functionality [19], such as computers, web pages, videos, spreadsheets, PowerPoint presentations and word-processed documents.But implementing them inside of Android application will not be feasible, because not every Android OS running mobile device is having powerful Central Processing Unit (CPU) to process them. But including static images and audio files, which will be closely related to language learning strategies [7] and methods [3] described above, will create a great value to our communication [20].

Next needs to be identified include project costing and reliability. According to the survey conducted in [21], students or learners are not willing to pay due to their limited finance, that's why using final project output should be at the lowest possible cost or be totally free.Reliability needs must be met also, because project must cover the wide range of Android running mobile devices and to be preliminarily adopted for different screen sizes and carious resolutions.

Table 1 shows comparison of learning methods that are commonly used:

Learning methods	Mobility	Usability	Cheap or No Cost	Needs of learners
Classroom learning	No	No	Yes	Partially
E-learning	Partially	Yes	Depends on source	Partially
Mobile learning	Yes	Yes	Yes	Yes

Table 1: Comparison of language learning methods

Learning strategies and mobile learning are described in Table 2:

Learning methods	Preferences	Mobile Learning Tool
Grammar-translation method	○ Mainly targeted to pay attention on many **grammatical rules** ○ Main focus is writing and reading ○ Almost no attention for listening speeches and expressing ideas through speaking ○ Learning never-ending grammar rules is long procedure	Partially
Audio-lingual method	○ Based on **audio - listening** and **linguistic – speaking out** approaches ○ Substituted all the limitations and disadvantages aroused with grammar-translation methods ○ Popular during war times **("Army Technique")**	Yes

	○ Used for developing conversational skills in a targeted language ○ Spread across the world in the middle of previous century ○ Depending on **acoustic patterning** ○ Used for **minimizing importance of precise theorems** considered as strategy in language learning flow	
Communicative competence	○ Ability of speaker to **express himself** and **explain the meaning** of what he is trying to tell ○ Doesn't care about the form or structure sentences told ○ Tightly **used together with other two methods**	Yes

Table 2: Language learning methods and their preferences

CHAPTER 3

METHODOLOGY

1. RESEARCH METHODOLOGY

Main methodology activities held during the research is acquiring information and knowledge about language learning strategies and mobile learning though reading books, journal and conference papers and researches that were previously done in related area. All the research materials were obtained over the internet through Google Scholar and Questia Online Library. But before starting this research, the authorestablished the project goals and scopesfor defining "course" of the research. Next step taken was reading, comprehending and analyzing literature reviewed and matching information obtained to existing language learning applications for defining weaknesses and overcome with improvements. This research emphasize on Android application quality, which include mobility, effective language learning strategies and methods, usability, user-friendly interface, reliability, costing and meeting needs of target users.

2. KEY MILESTONES

Key milestones are shown in the graph below.

ID	Task Name	Duration	Start	Finish
1	**Research on Mobile Language Learning**	**56 days**	**Wed 05.10.11**	**Wed 21.12.11**
2	Project title selection	6 days	Wed 05.10.11	Wed 12.10.11
3	Literature review	14 days	Thu 13.10.11	Tue 01.11.11
4	Extended proposal submission	1 day	Wed 02.11.11	Wed 02.11.11
5	Preparation for proposal defence	6 days	Tue 15.11.11	Tue 22.11.11
6	Proposal defence	1 day	Wed 23.11.11	Wed 23.11.11
7	Interim report preparation	8 days	Fri 25.11.11	Tue 06.12.11
8	Submission of Interim report	1 day	Wed 07.12.11	Wed 07.12.11
9	Technical report preparation	9 days	Thu 08.12.11	Tue 20.12.11
10	Submission of Technical report	1 day	Wed 21.12.11	Wed 21.12.11

ID	Task Name	Duration	Start	Finish
1	**Development of Mobile Language Learning**	**49 days**	**Mon 06.02.12**	**Thu 12.04.12**
2	Research on Project and Planning	6 days	Mon 06.02.12	Mon 13.02.12
3	Requirements definition	1 day	Tue 14.02.12	Tue 14.02.12
4	Designing in App Inventor Designer	21 days	Wed 15.02.12	Wed 14.03.12
5	Development in App Inventor Blocks Editor	12 days	Thu 15.03.12	Fri 30.03.12
6	Integration and Testing into Android Emulator and phone	5 days	Mon 02.04.12	Fri 06.04.12
7	Installation and Acceptance	4 days	Mon 09.04.12	Thu 12.04.12

The figure 4 below show the 6 stages that fall under the waterfall method:

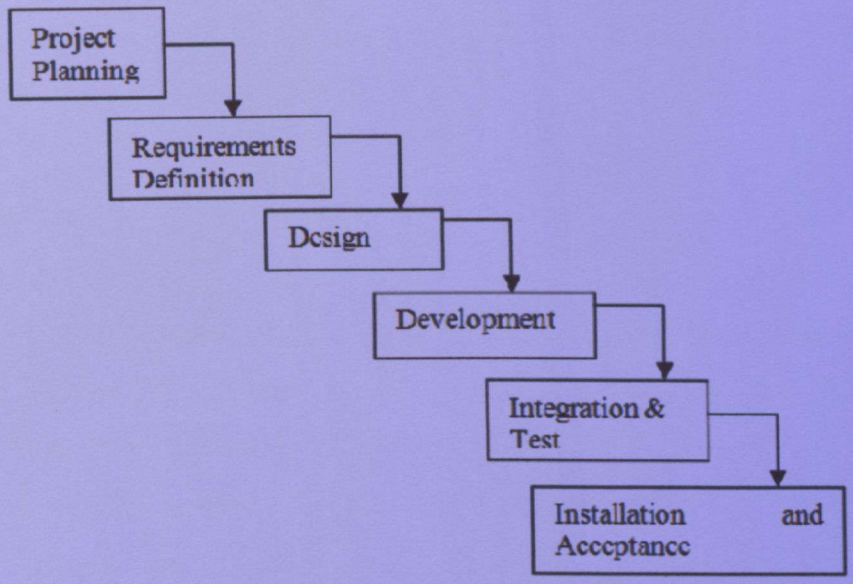
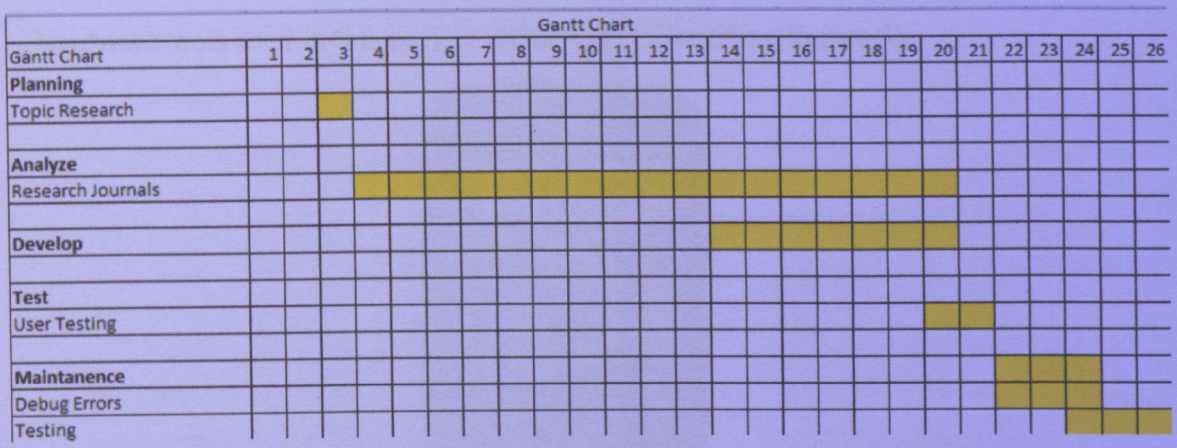


Figure 4: Waterfall model of Application development

3. GANTT CHART

Tasks to be carried out during 24 weeks



4. TOOLS

4.1 Hardware Tools

Hardware tools used in this project include HTC Wildfire (Figure 5)

Figure 5: HTC Wildfire

The HTC Wildfire is a smartphone developed by the HTC Corporation that was announced on 17 May 2010. It is powered by a 528 MHz Qualcomm processor and runs the Android operating system, version 2.2. It includes Thin Film Transistor Liquid Crystal Display (TFT LCD) capacitive touchscreen. This superphone that lets author share everything, surf the web in style with multi-window browsing, pinch to zoom with auto text reflow, and enjoy flash video support.HTC Wildfire enables author to explore thousands of applications on Android Market™ and test to be developed language learning tool.

4.2 Software

Android Froyo 2.2:

used for running application on the phone. Android is an operating system for mobile devices such as smartphones and tablet computers. It is developed by the Open Handset Alliance led by Google.

Google App Inventor Beta (Hosted on MIT servers):

used for designing, developing and testing application.

Adobe Photoshop CS 2:

used for designing graphical elements such as buttons, background images.

Free Sound Recorder:

used for recording pronunciations of the phrases, numbers and words.

5. PROJECT ACTIVITIES

Before starting project, deep research was held over the language learning strategies that can be transformed into mobile learning though the critical analysis, reviewing previously done projects of similar knowledge area,. Though the research carried, author managed to define theoretical and philosophical framework of the application to be developed. After the research, studies on learning Android programming will be taken before the author can start application development. To develop software, the author will need to deals with many phases from planning until deploying the system.

The waterfall model is a sequential software development process. It is a steady flowing progress from one stage to another stage downward. There will be 6 stages for this model, they are:

- Research on Project and Planning
- Requirements definition
- Designing in App Inventor Designer
- Development in App Inventor Blocks Editor
- Integration and Testing into Android Emulator and HTC Wildfire mobile phone
- Installation and Acceptance

5.1 Research on Project and Planning

According to the result of research, author has identified that the fastest and easiest way to learn second language would be implementing Audio-Lingual methods in mobile application. That's why including grammar rules or learning alphabet letters would be redundant and negatively effect on learning time. Thus all the main functions interconnected with Audio-Lingual methods should contain speaking out of Russian words or phrases, while pressing on the buttons with English phrases.

During a planning process, author identified methodology of the research, project development, timeline and main milestones.

5.2 Requirements definition

The main page of mobile application that author is developing will be giving a choice of two: choosing numbers or phrases.

Page with numbers should contain numbers from 0 to 9 and also big numbers such as 10, 100, 1000 and 1000 000.

Page with phrases should be giving another choice of choosing phrases that are devoted to certain category such as Basic phrases, Leisure phrases, Travel and others. Each phrase category will be having several phrases with its native-speaker pronunciation. According to the survey held among English-Speaking individuals, 98.7% of them have reported that slower pronunciation of the phrases will let them get the sense of what is being told and what sounds are used for speaking out particular phrases. Thus all the pronunciations should be emphasized on slow speed speaking-out.

Being originally provided by Google and currently maintained by Massachusetts Institute of Technology, App Inventor is browser-based software that allows its clients to develop application running on Android OS. By using graphical interface, App Inventor lets people develop applications even though they don't have JAVA coding skills. With graphical interface of a great usability and drag-and-drop functionality, will allow to create application that can run on the Android system, which runs on many mobile devices. Creating App Inventor for Android, Google drew upon significant prior research in educational computing, and work done within Google on online development environments.

5.3 Building application in App Inventor

Building application in App Inventor consists from 2 phases:

1. Designing Application outlook in App Inventor Designer
2. Development in App Inventor Blocks Editor

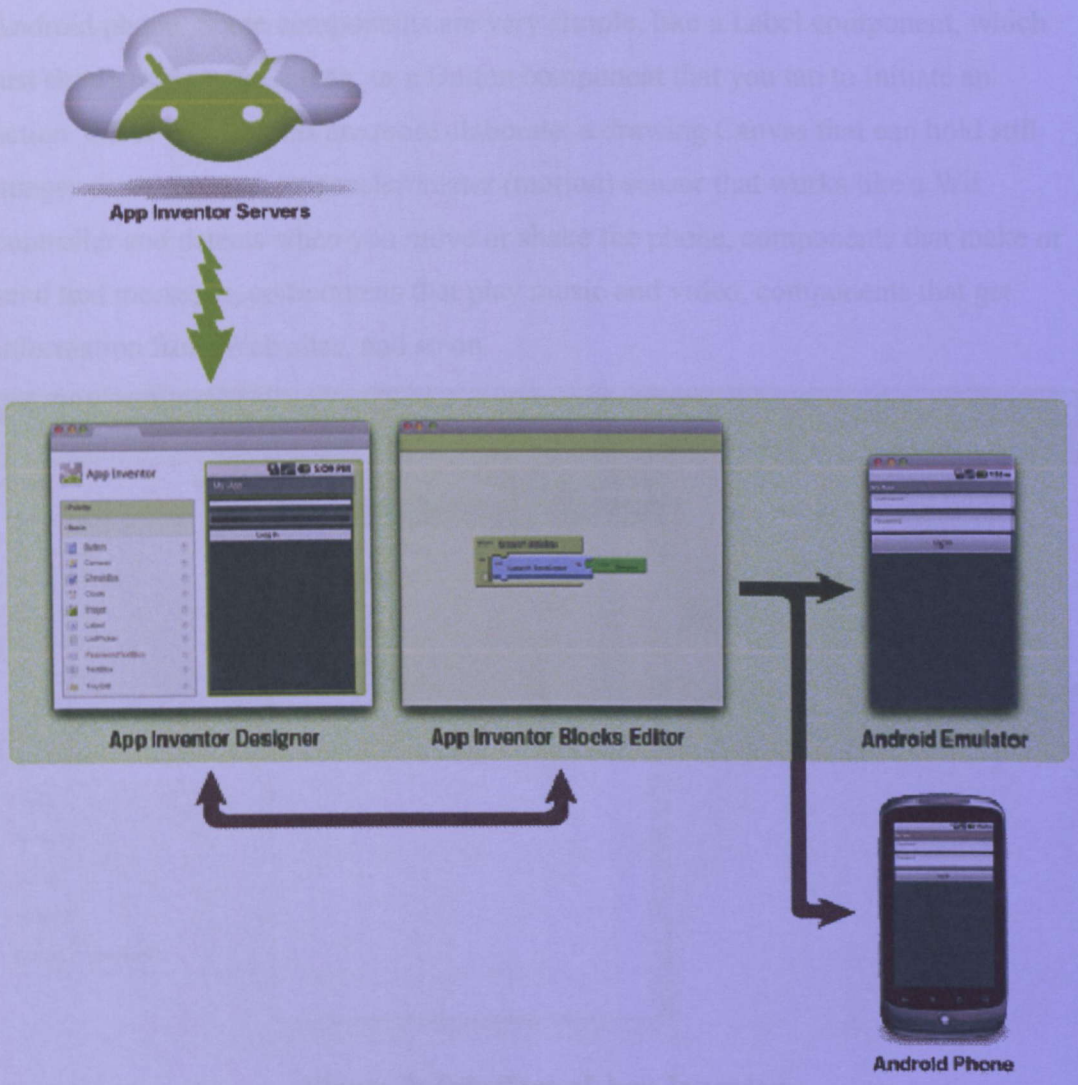


Figure6: App Inventor development diagram

5.3.1 Designing in App Inventor Designer

App Inventor Designer is browser-based application, where you select the components of your application, which are separated into six categories. App Inventor components are located on the left hand side of the Designer screen under the title Palette. Components are the basic elements you use to make apps on the Android phone. Some components are very simple, like a Label component, which just shows text on the screen, or a Button component that you tap to initiate an action. Other components are more elaborate: a drawing Canvas that can hold still images or animations, an accelerometer (motion) sensor that works like a Wii controller and detects when you move or shake the phone, components that make or send text messages, components that play music and video, components that get information from Web sites, and so on.

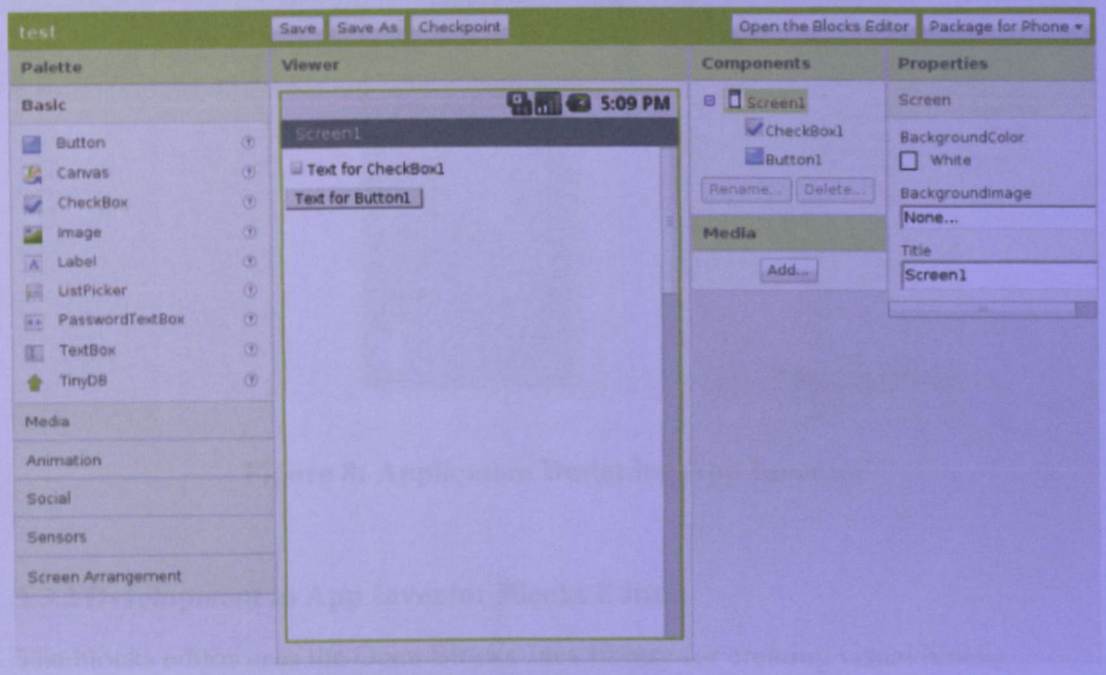


Figure 7: Interface of App Inventor

5.3.1.1Phase 1: Designing in App Inventor Designer

To use a component in your app, you need to click and drag it onto the viewer in the middle of the Designer. When you add a component to the viewer, it will also appear in the components list on the right hand side of the viewer.

Components have properties that can be adjusted to change the way the component appears within the app. To view and change the properties of a component, you must first select the desired component in your list of components.

Basic category contains several components such as buttons, image, canvas, checkbox, label, list picker, password text box, text box and tiny database. Other categories that might be useful in mobile application development are Media, Animation, Social, Sensors and Screen Arrangements. In App Inventor Designer developer needs to drag and drop elements from the given categories onto the screen, where they can be arranged vertically or horizontally, assignment label text or background image, component visibility, size or color. Settings for editing particular components vary from one to another.

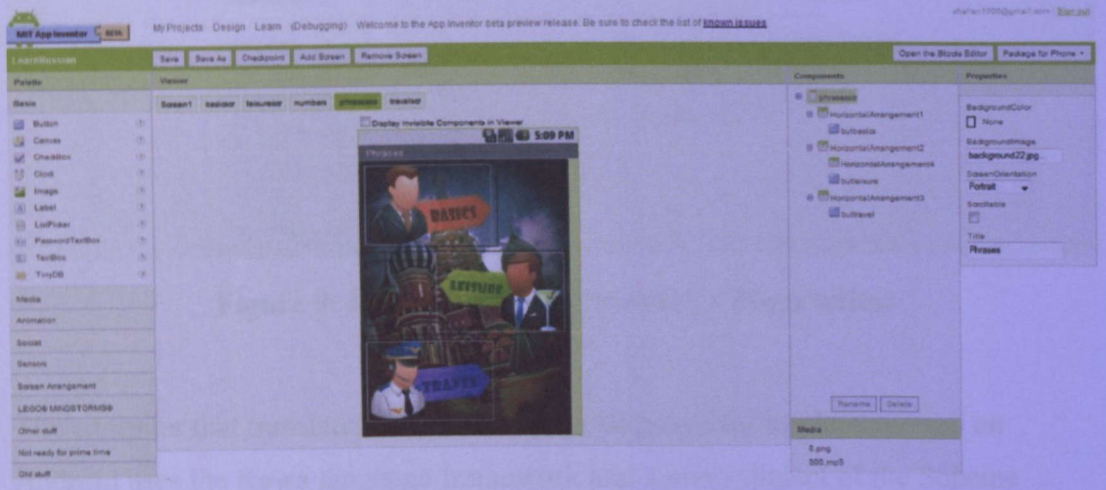


Figure 8: Application Designing App Inventor

5.3.2 Development in App Inventor Blocks Editor

The blocks editor uses the Open Blocks Java library for creating visual blocks programming languages. Open Blocks is distributed by the Massachusetts Institute of Technology's Scheller Teacher Education Program (STEP) and derives from master's thesis research by RicaroseRoque. Professor Eric Klopfer and Daniel Wendel of the Scheller Program supported the distribution of Open Blocks under the MIT License [22]. Open Blocks visual programming is closely related to the StarLogoTNG, a project of the Klopfer's STEP, and Scratch, a project of the MIT Media Laboratory's Lifelong Kindergarten Group. These projects are themselves informed by constructionist learning theories, which emphasizes that programming can be a vehicle for engaging powerful ideas through active learning.

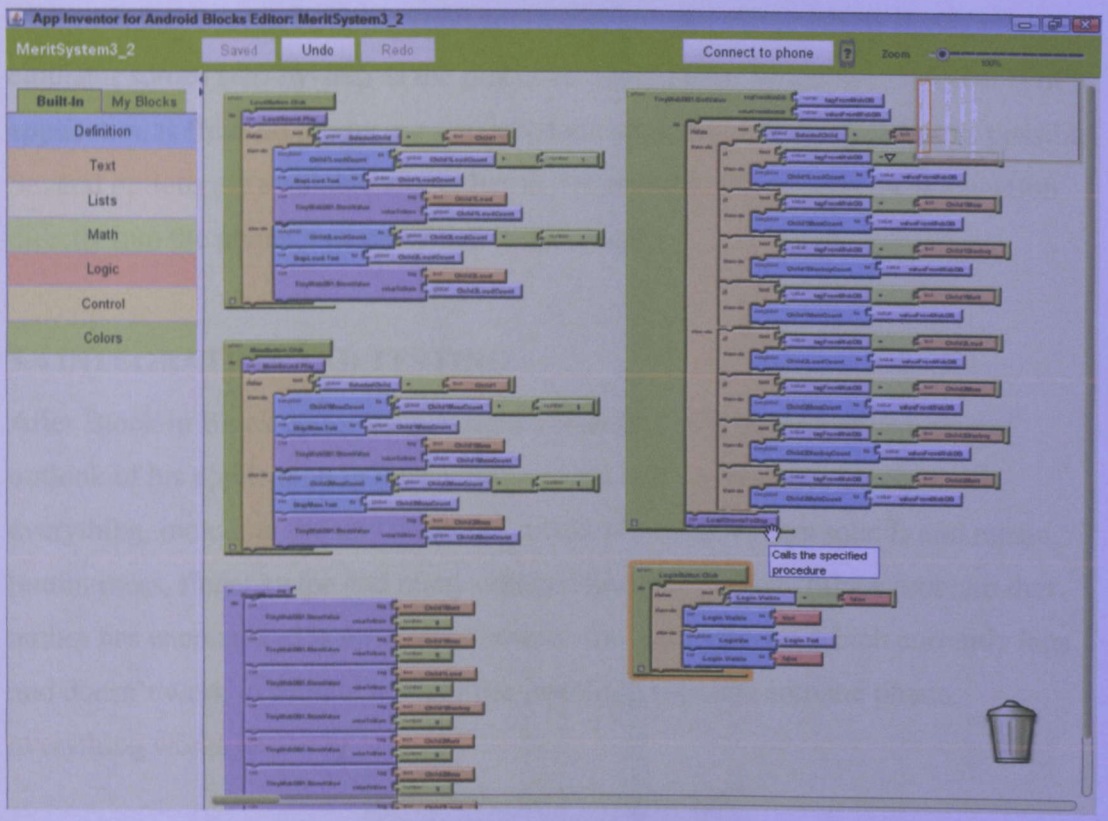


Figure 9: Interface of App Inventor's Block editor

The compiler that translates the visual blocks language for implementation on Android uses the Kawa language framework and Kawa's dialect of the Scheme programming language [23].

5.3.2.1 Phase 2: Assembling program blocks

The Designer is one of three key tools you'll use in creating android application. The second is the Blocks Editor. The third is the phone or emulator. Blocks Editor is used to assign behaviors to your components, such as what should happen when the user of your app taps a button or image.

The Blocks Editor runs in a separate window. When you click Open the blocks editor from the Designer window, the Blocks Editor's Java program file should download and run.

It's advised to run emulator or connect phone to the PC after that click on "Connect to device" button, which will load your software onto the screen of your emulator or

phone, where you will be able to test it simultaneously in the process of development. Your developing application will be appearing on the phone or emulator screen step-by-step as the pieces are added to it. When development is of application is finished producing a stand-alone application for installation is possible. Several options are available too, either to download to PC or send the application directly into the phone's memory and install there.

5.4 INTEGRATION AND TESTING

After Block in Block editor were assigned with its tasks, developer can review outlook of his application in the emulator and test it. In emulator you can test everything, including the tiny database, media player that plays sounds and music, button press, finger swipe and many others. However the only minor problem that author has encountered is switching between multiple screens, which currently lags and doesn't work in Emulator. But after installing software into the phone, everything works perfectly.

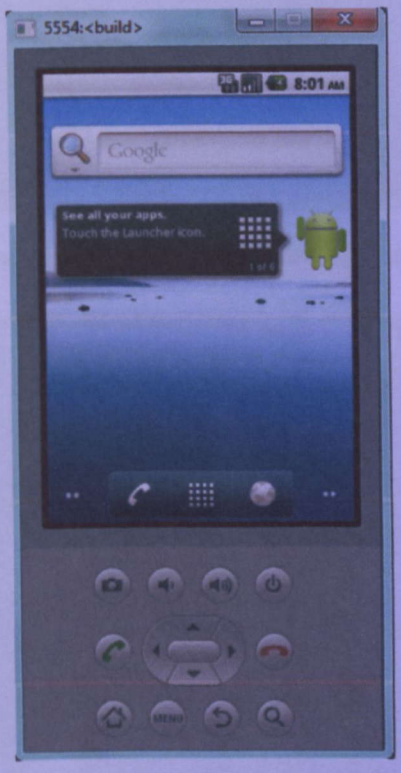


Figure 10: App Inventor's Android phone emulator

App Inventor lets you develop applications for Android phones using a web browser and either a connected phone or emulator. The App Inventor servers store your work and help you keep track of your projects.

5.5 INSTALLATION AND ACCEPTANCE

After the application was installed was on the phone, below are two screenshots of the main screen and the screen for choosing category of the phrases

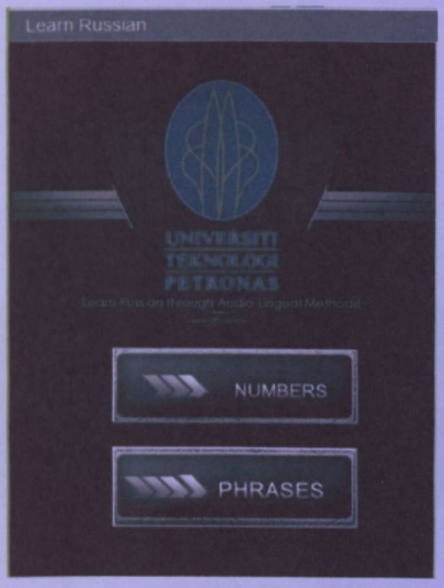


Figure 11:Main screen of the application

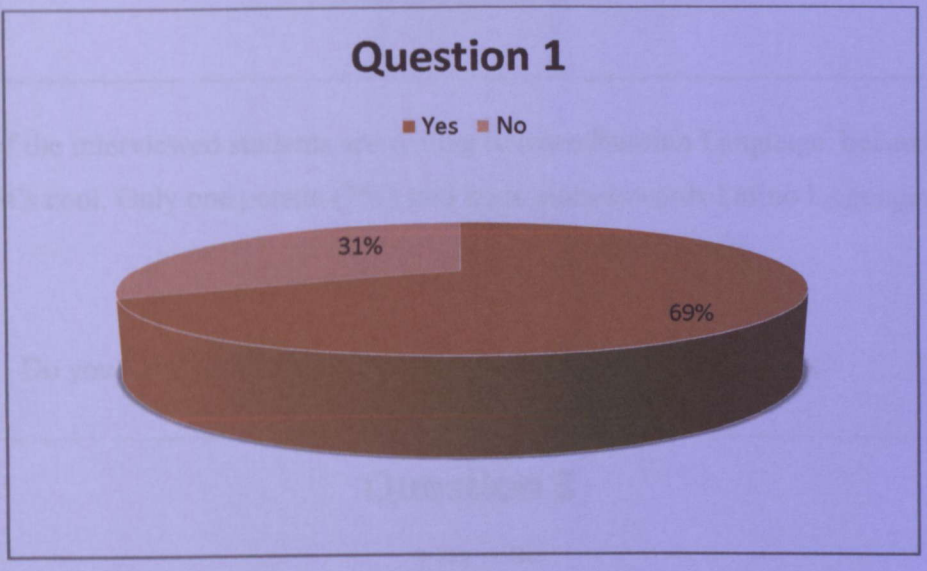
Figure 12: Screen for choosing category of the phrases

5.6 QUESTIONNAIRE BASED SURVEY ANALYSIS

Questionnaire with questions below was distributed to the group of English-speaking people who don't know Russian Language. Targeted group was university students, mainly studying in a final year. Total there were 14 interviewed people. Questions were simple and the answers were based only on "Yes" and "No"

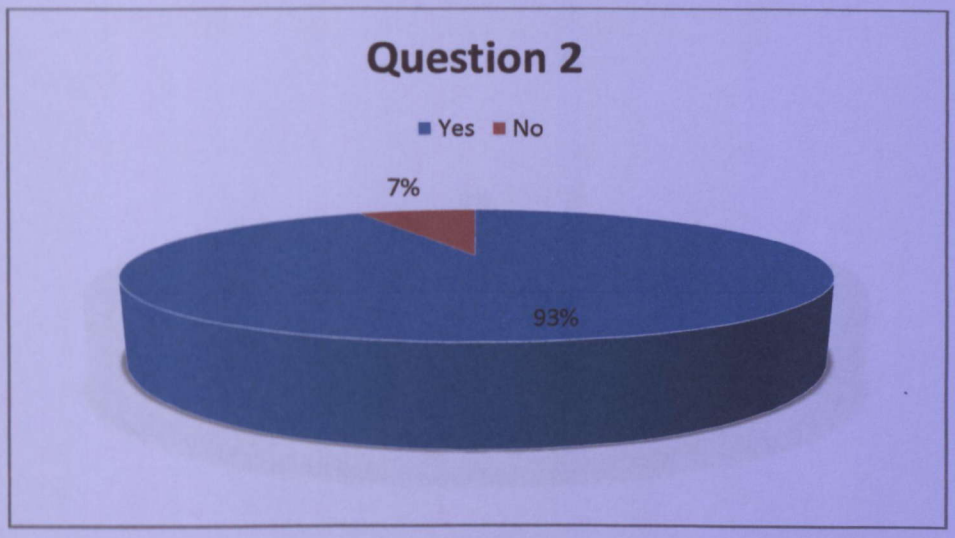
Questions of the interview:

1. Do you have mobile phone with Android OS? (such as HTC, Samsung, Motorola, and etc.)



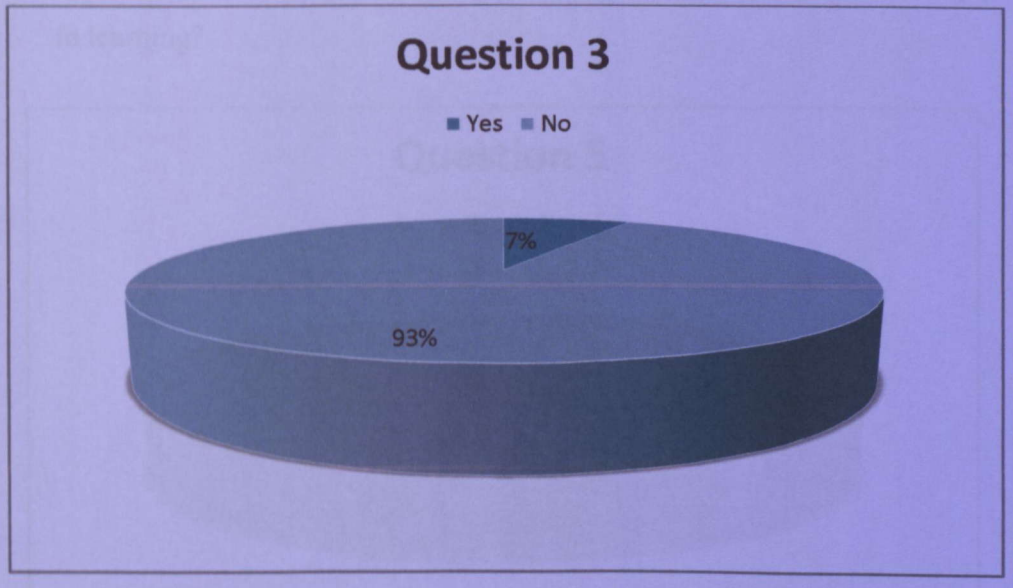
69% of the interviewed students are having mobile phones with Android OS, while others are using phones such as Apple, Nokia running iOS, Symbian or Windows Mobile

2. Do you wish to learn Russian language?



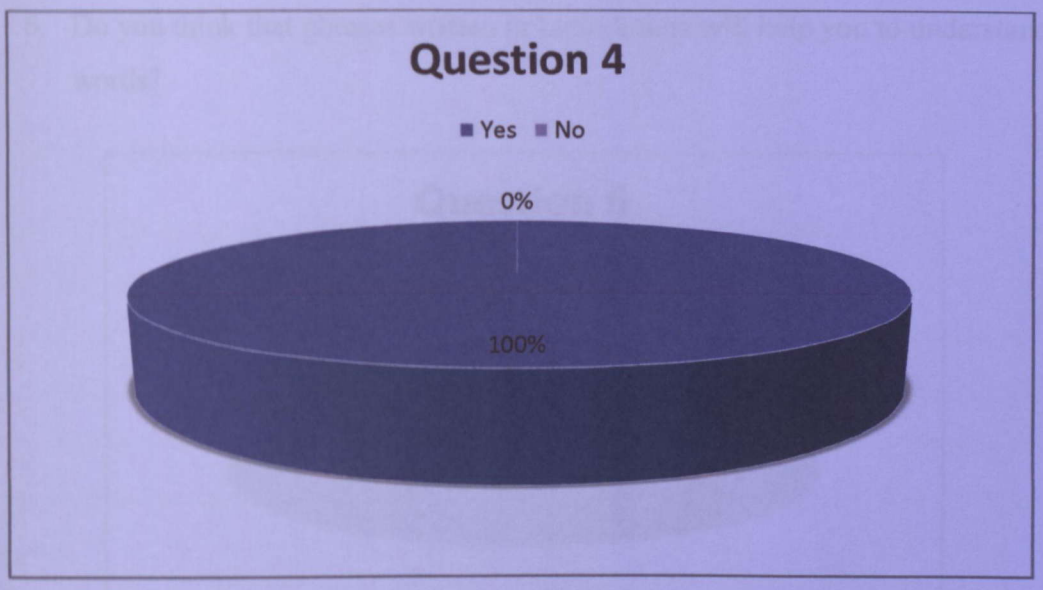
93% of the interviewed students are willing to learn Russian Language, because they think it's cool. Only one person (7%) said he is more towards Latino languages.

3. Do you have extra time and money to attend additional classes?



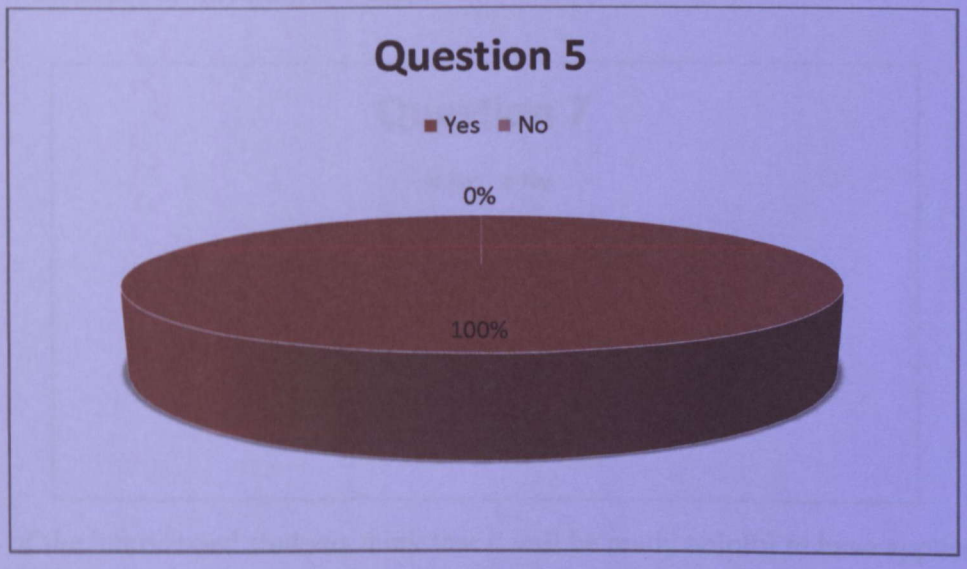
93% of the interviewed students are not willing to pay for language learning courses and don't enough time for that, due to their current university studies.

4. Will you use your mobile device for learning Russian language fast and free?



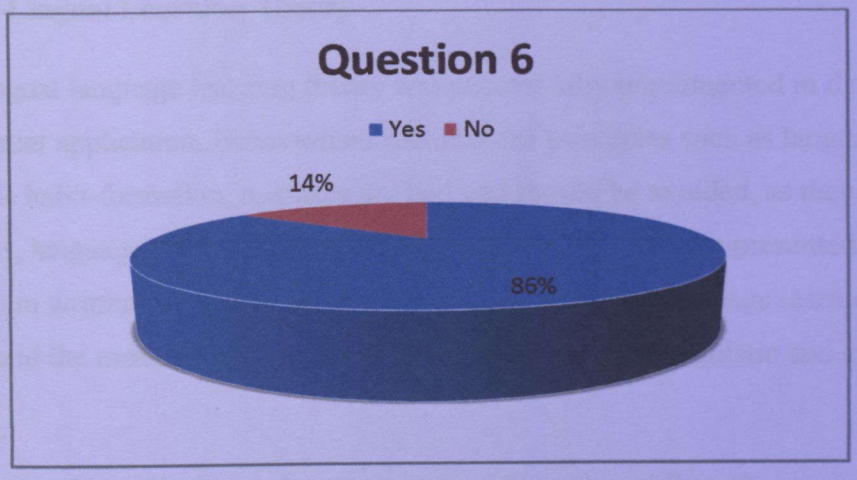
100% of the interviewed students are willing learn Russian Language if it's based on mobile learning and free.

5. Do you think that graphical interface and slowly pronunciation will help you in learning?



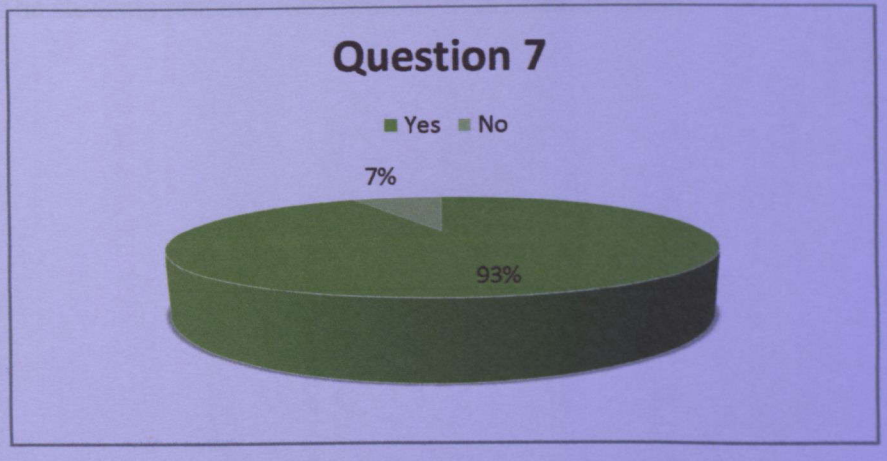
100% of the interviewed students think that clear graphics and image representation of some objects will add more usability and make learning language more fun compared to reading articles and books.

6. Do you think that phrases written in Latin letters will help you to understand words?



86% of the interviewed students agreed that Latin letters will bring better "image" of what they are repeating. Only 14% of students prefer to learn reading in Cyrilic, without knowing how complicated Russian alphabet is while adding letters and making up words.

7. Do you think similar application will be useful for you while talking with Russians or traveling to Russia?



93% of the interviewed students think that it will be really helpful to have application with you while traveling or speaking. Only 7% of students think that nothing rather than human translator won't benefit them.

CHAPTER 4

RESULTS AND DISCUSSIONS

1. Audio-Lingual Learning Theory

Audio-lingual language learning theory was successfully implemented in the development application. Behaviorism includes the principles such as language learning is habit-formation, mistakes are bad and should be avoided, as they make bad habits, language skills are learned more effectively if they are presented orally first, then in written form, analogy is a better foundation for language learning than analysis and the meanings of words can be learned only in a linguistic and cultural context.

Typical procedure of language learning method through mobile technologies was implemented in the developed software, which carry outs followings:

- ✓ Students hear a model phrases or words
- ✓ Students repeat each word of the phrase
- ✓ Certain key words or phrases may be changed
- ✓ Key structures from thedialogue serveas the basis for pattern drills of different kinds.
- ✓ The students practice substitutions in the pattern drills

2. Deliverable application interfaces

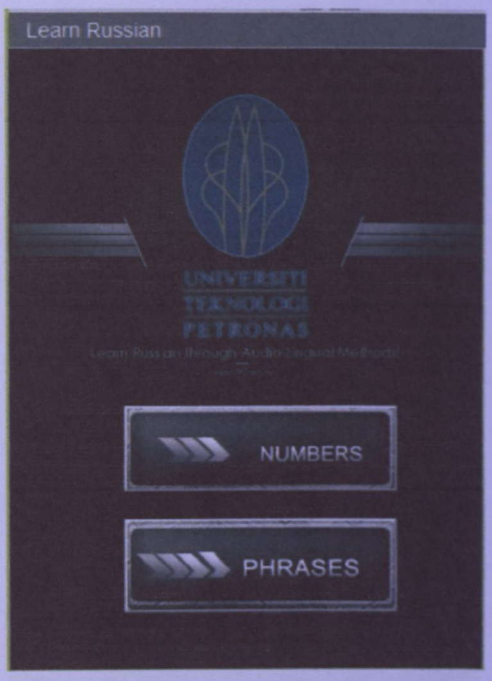


Figure 13: Main screen of the application

In this screen users can choose one of the any categories: Numbers or Phrases

Figure 14: Screen with main numbers

In this screen users can click on the numbers and they will said in Russian

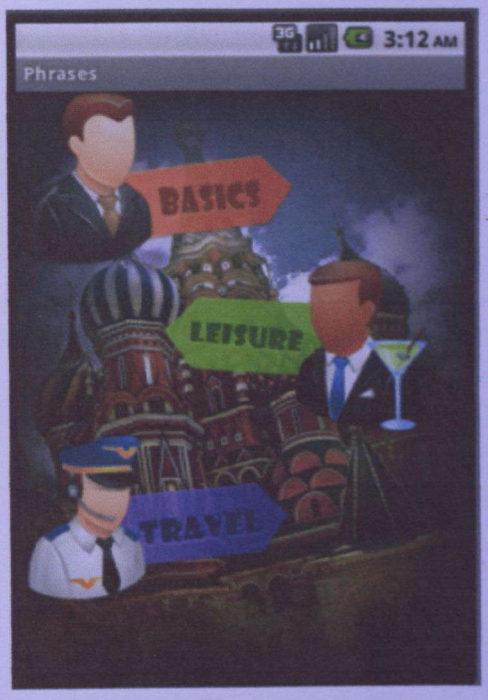


Figure 15: Screen phrase categories

In this screen users can choose one of the any phrase categories

Figure 16: Screen Basic phrases

In this screen users can choose one of the phrases from Basic category

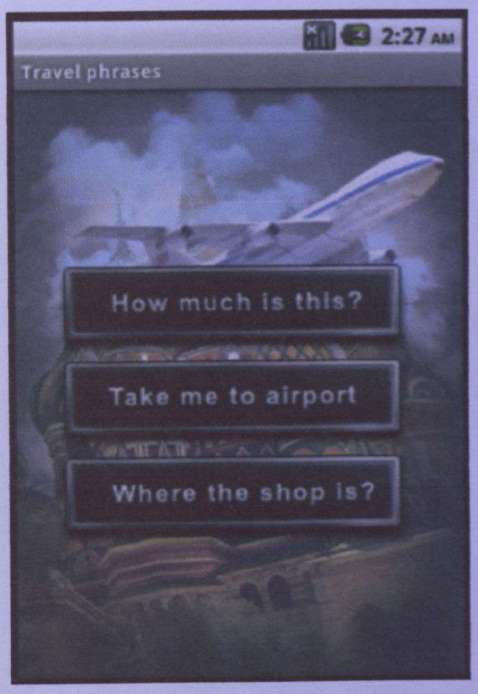


Figure 17: Screen travel phrases

In this screen users can choose one of the phrases from Travel category

Figure 18: Screen leisure phrases

In this screen users can choose one of the phrases from Leisure category

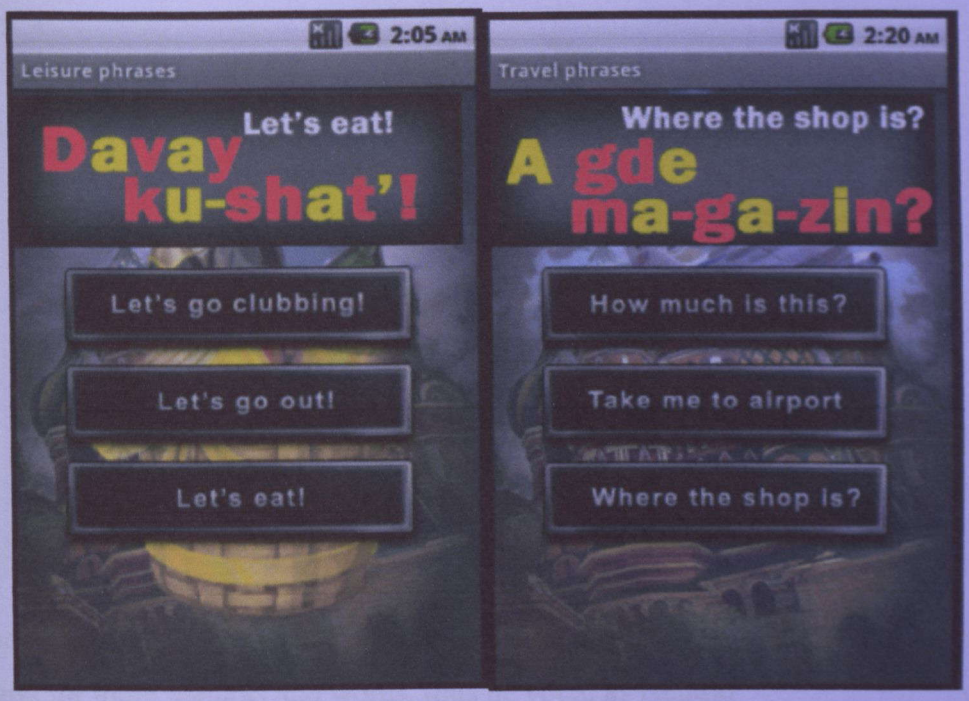
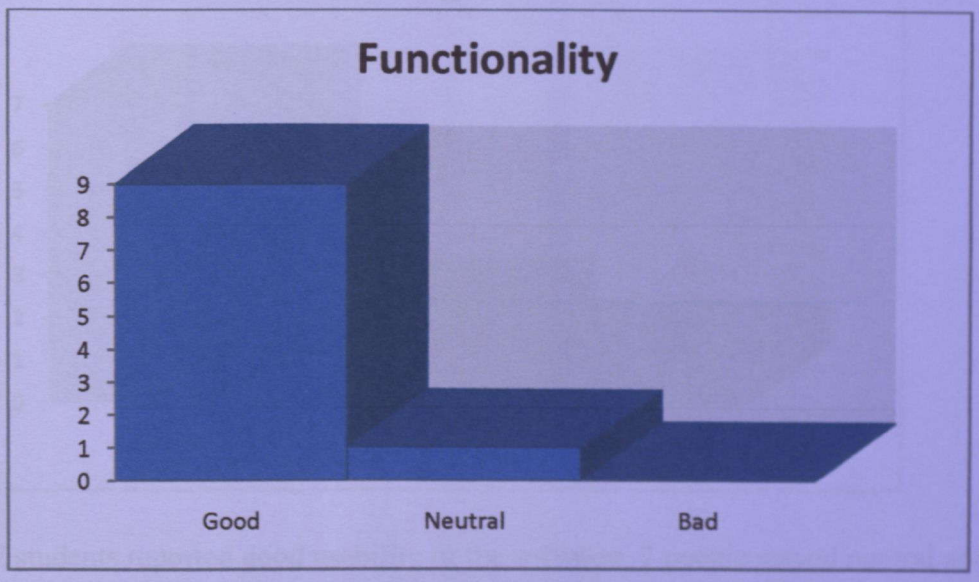


Figure 19: Screens Leisure and Travel phrases chosen

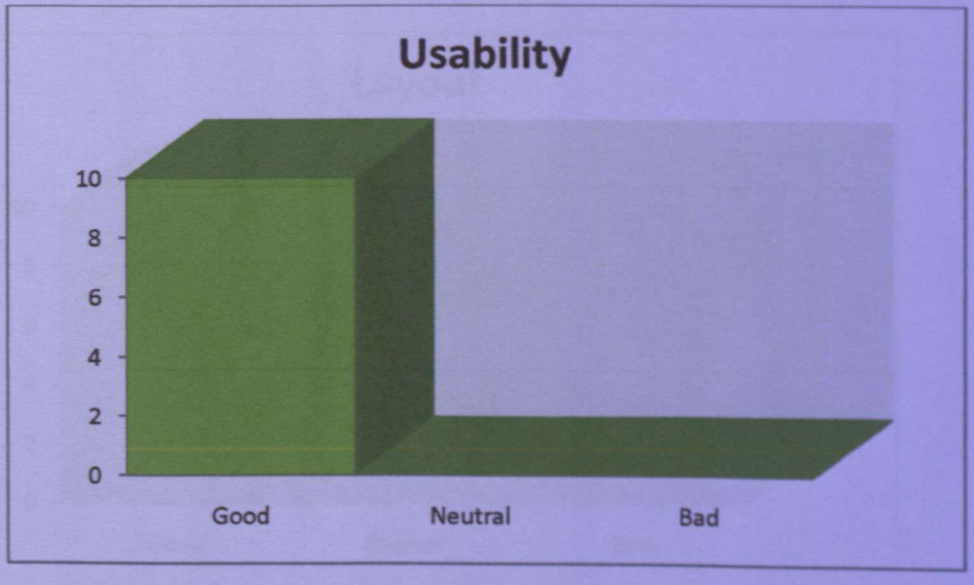
Buttons with particular phrases were pressed, pronunciation started playing and the way of reading appeared about the buttons in different colors for differentiation vowels and consonants.

3. User testing results

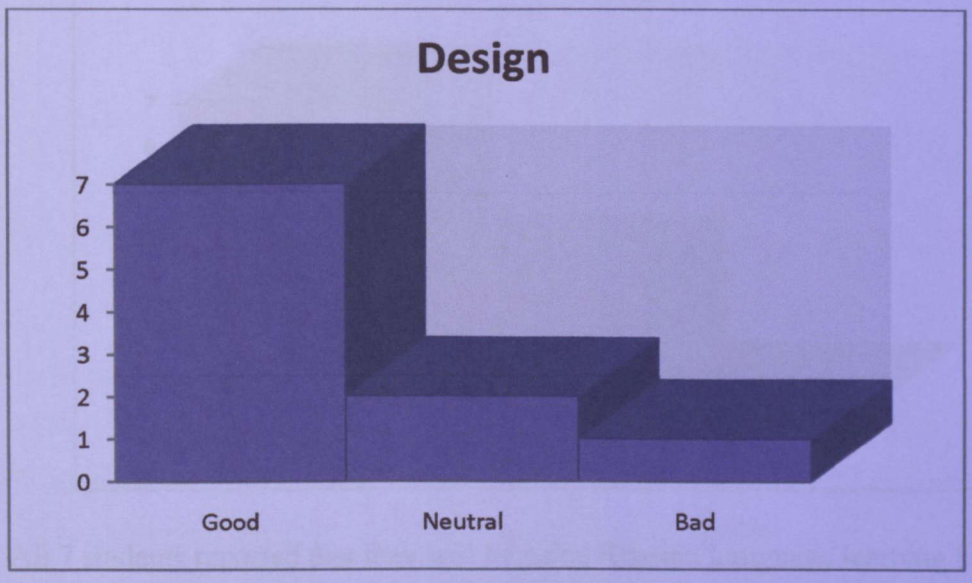
For testing purposes total 10 students were involved.



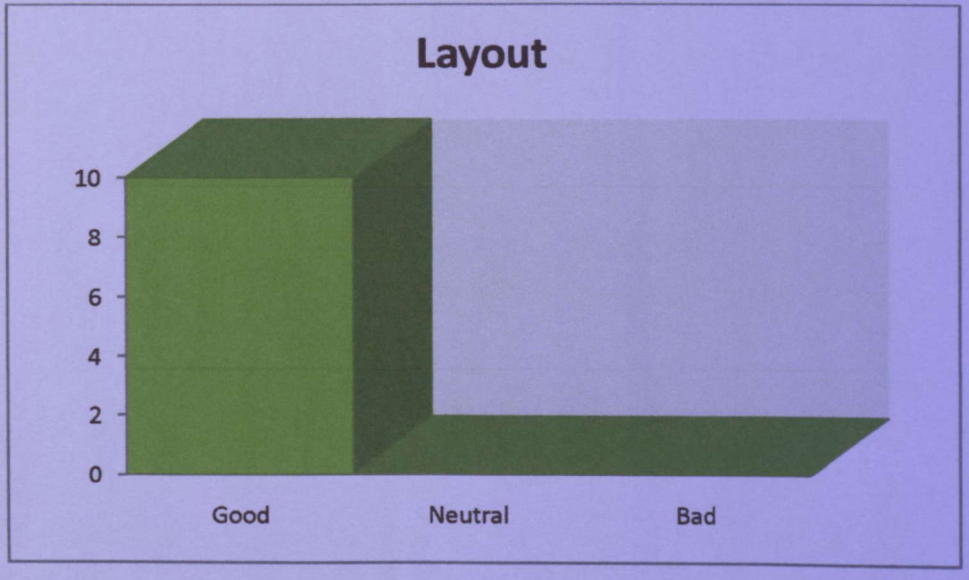
9 students reported application's good functionality, while one of the students was looking for more features and words, thus he voted as Neutral



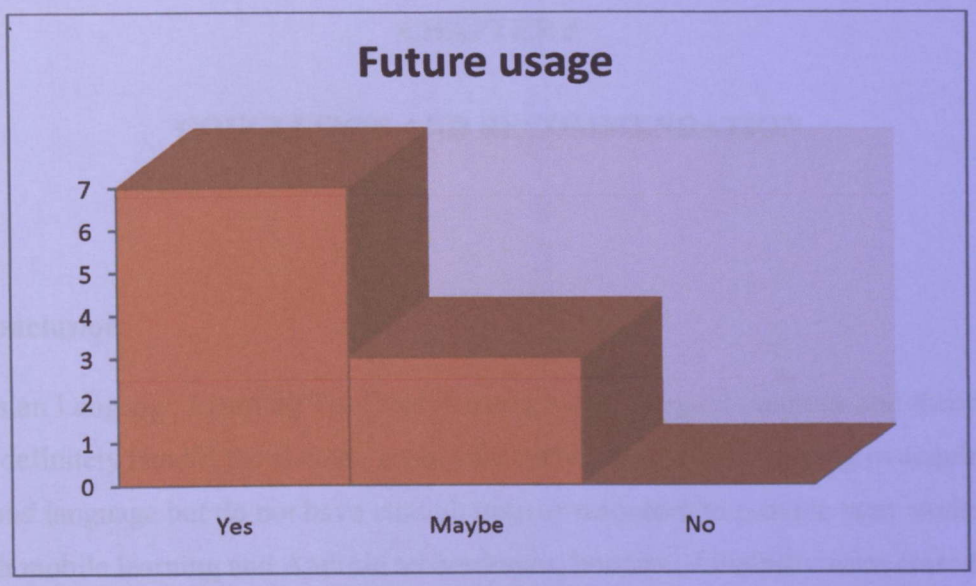
All 10 students reported good usability of the software with clearly drawn buttons and simple interface that can be understood intuitively.



All 7 students reported good usability of the software, 2 people stayed neutral and only one didn't liked red buttons of the digits for Numbers section. Comments were as follows: clearly drawn buttons, eye-pleasing interface, big sized buttons and easily seen writing.



All 10 students reported good layout of the software. All the buttons and sub-screens are designed consistently, simple to press and operate.



All 7 students reported that they will be using Russian Language learning tool in the future for improving their knowledge in Russian. 3 students stood Neutral commenting as they are currently do not see any perspectives of learning second language, but if in the future they might need it then they might change their minds.

According to the statistics above, 70% of the users will be using and 30% haven't made any "stable" decision yet.

CHAPTER 5

CONCLUSION AND RECOMMENDATION

1.Conclusion

Russian Language Learning Tool that is using Audio-Lingual methods and theories can definitely benefit the society, especially individuals that are willing to acquire second language but do not have enough time or resources to provide their studies. With mobile learning and Android technologies, borders of inability were erased by chance of learning "on the go" with little time spent on learning process. This will more benefit people, who are travelling to Russia Federation and do not speak Russian language, especially in public places such as customs, markets, airports and etc. As the testing successfully passed, Russian Language Learning Tool can be successfully lunched into the Google Play (Android Market) totally for FREE.

2. Recommendations

Russian Language Learning Tool can be given some name or label that will be easy-remembering and sounding.

Another recommendation is more phrase categories can be added and current categories upgraded with more phrases. It would be useful for a learner who can include communicative-competence approach while learning the language.

If the technology will grow well enough and speech-recognizing synthesis will be properly developed speech-recognizing function will be useful. Especially when the phrases are played by the mobile phone and user repeats it, speech-recognizing synthesis checks whether the phrases was correctly pronounced or not.

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