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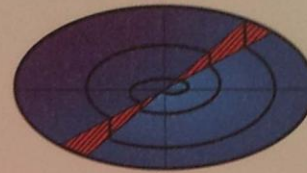


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Figure 2. Multiple regression analyses for potential of speech telephone traffic

$$\begin{cases} a + b_1 \cdot 0.276655 + b_2 \cdot 0.165883 = 1.211256 \\ a \cdot 0.276655 + b_1 \cdot 0.01281 + b_2 \cdot 0.006302 = 0.037904 \\ a \cdot 0.165883 + b_1 \cdot 0.006302 + b_2 \cdot 0.00546 = 0.003802 \end{cases}$$

Recalling that the multiple regression equation for Darhan-Uul aimag,

$\hat{o} = 0.147518455 + 0.000652501x_1 + 0.09671343x_2$ , was designed to be such an estimate for two variables.

$a = 0.147518455$ ;  $b_1 = 0.000652501$ ;  $b_2 = 0.0967134$ ; these can be estimated using the method.

It is  $\hat{o} = 0.147518455 + 0.000652501x_1 + 0.09671343x_2$ . These partial  $b_i$  coefficients indicate that for

Any given values of the others, an increase of 0.01 in the number of population weight is associated with a potential of telephone traffic increase of **0.00065**; an increase of 0.01 in  $x_2$ , and hence the average difference in potential of telephone traffic (holding constant the others) is **0.0967**.

Note also that  $a = 0.1475$  is the estimated potential of telephone traffic.

#### IV. CONCLUSIONS

The regression analyses equations in Table 1 and 2 are useful in defining information potential in the information network, in research of information flow future tend, optimization modeling of network structure in the transmission network and rural network.

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#### Trend of teaching technology of mathematics

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##### Abstract

I aim to focus some issues that will obligatory considered for a teaching on this report about opportunities improving of teaching quality. From it new trends of teaching technology of mathematics will be introduce so opportunities that these trends will be introduce into the teaching are considered specially.

##### Preface

In order to improve the teaching quality, need to pay attention to the following issues.

A. Although high developed western countries reformed education sector as various ways, most of them could not achieve their wanted goals. Besides it learning achievement of students did not improve so much. Researchers explained about it "Because education reform was not directed that much to factors that can influence directly the learning success". Closest **variables** to studying process of students are *psychological, methods of teaching, conditions of teaching and their families*. Also important variables are to clarify learning needs of students, to increase active participation of students during the teaching and learning process and to actually improve quality of teaching and learning process between teachers and students. [3]

*Factors, influence negatively learning success*

**A. Guiding principles to conduct seminars:**

- To be free students
- To be easy beginning of a lesson
- To be created creatively knowledge by students (enter into process)

*To be free students.* As observation teacher determines difficult what students know or not know (holding themselves in check, fearing, self-unconfident and not verbal ability) because students can not express their opinion or view. It creates subjective influence to teaching and learning process. Students need to be study to express or ask freely about not understable themes from teachers and others and teachers can listen to them and teach how to converse freely them but not treat at themselves regular view and own discretion in order to students will be opened.

*To be easy beginning of a lesson.* Learning methods will be acquired from the beginning of a lesson, and lesson will be started easily and gradually got heavier for a purpose not getting away lesson.

*Entering students into active process.* Teacher leads generally seminars and guides students. Exercises (different) will be given to each student. Seminar is devoted that student implements exercises using lectures, text-books and handbooks. Student who implemented his/her exercises will explain its to other students. So they will discuss mistakes. One of the main goal of seminar is that any student talks for increasing lesson's result and students are acquired methods to decide problems as themselves search and efforts.

**B. The main forms of teaching mathematics with computers are:**

- Web teaching and learning systems

Using ICTs, many Universities have established virtual education and distance learning systems in the field of mathematics, offering all new possibilities for students.

- Mathematics software packages

Many mathematics software packages have been developed, which are very powerful and have numerous functions, such as:

- Instantaneous numerical and symbolic calculations;
- Data collecting, analysis, exploration, and visualization;
- Modeling, simulation, and prototyping;
- Presentation graphics and animation in 2D and 3D;
- Application development. [2]

*Computer Algebra System* (CAS) is a type of fully interactive math software that possesses certain capabilities: performing algebraic operations, carrying out calculus operations, plotting 2 and 3 dimension graph and programming. These can be used to get numerical, symbolic and graphic solution of mathematical problems. [1]

*Interactive geometry software* (IGS, or dynamic geometry environments, DGEs) are computer programs which allow one to create and then manipulate geometric primarily in plane geometry.

CAS, IGS are educational, dynamic mathematics software for both teaching and learning mathematics from middle school through college and University level. Computer algebra systems (such as Maple, Mathcad, Mathematica and so on, e.g.) and dynamic geometry software (such as Geometer's Sketchpad, GeoGebra, Cabri Geometry, and so on, e.g.) are powerful technological tools for teaching mathematics. Numerous research results suggest that these software packages can be used to encourage discovery, experimentation and visualization in traditionally teaching of mathematics.

Students can use simultaneously a computer algebra system and an interactive geometric system; so, in this way, they can significantly increase their cognitive abilities.

However, researches suggest that, for the majority of teachers, solely providing technology is the problem for the successful integration of technology into teaching (Ruthven & Hennessy 2004). [2]

Students can generate changes through manipulating techniques of the free objects, and then they can learn how the dependent objects will be affected. In this way, students have the opportunity to solve problems by investigating mathematical relations dynamically.

**C.** In education sector "measuring instrument" means examination. Type of examinations that has maximum measuring precision is test. Best way to refine upon assessment is to not negate test examination but improving the process methodology it [Itgel M., 2007]. Assessment that not meet with the definite criteria or standards is not assessment. Assessment according to research methodology is systematic, significant and actual. There are various kind of Quiz Makers (Flash, Powerpoint, Internet, CAS) but we have the following

Teachers' process	Teaching process
<ul style="list-style-type: none"> <li>- Teachers put pressure on</li> <li>- Limited opportunity expressing freely their viewpoint as any issue for students.</li> <li>- Relations between teachers and students</li> </ul>	<ul style="list-style-type: none"> <li>- Teaching methods and process of teachers do not regard to students' characteristic, needs and different.</li> <li>- Inadequate and poor quality status of teaching environment and audio-visual aids</li> </ul>

B. Getting faster of information technology reform and unlimited status of its space by region and borders of countries have been globalizing the reform of teaching technology more. This process requires to weasel out of polarisation reproducing directly teaching technologies of western countries or developing technology suitable for only Mongolian but doing comparative studies in the leading trends of teaching technology in the world and Mongolia level and developing it.

In accordance with report of commission "Education in XXI century" of UNESCO, students in XXI century have to learn thoroughly the following ability. Including:

- Think creatively
- Using information and technology
- Enter into relations with others
- Produce high quality products (only nonmaterial knowledge, new idea and innovation)

Modern days if workers in any sector do not acquire skills to seek and find, assess and process information, they will experience hardship like illiterate persons, so can not contribute to social development so can not clarify their position.

Therefore future important trend to develop the teaching technology is using optimally and widely new technology of information and communication on it. It is not only using computers for the teaching but also it is wide conception to find, enter into relations with and process information and to create new knowledge result of this relationship. [4]

C. One of the basis means of management of any activity is control-analysis and assessment. Teaching quality depends considerably on its control-analysis and assessment because educational control-analysis and assessment can clarify teaching and learning process, achievement and success of result, and mistakes, determining ways to organize effectually the teaching and choosing and assist to others. [3]

### Introduction

The level of students who enroll in college or university from high school is various and they did not acquire well learning methods. That time as professional basis subjects or Linear Algebra & Analytic Geometry (LAAG) are taught well and sufficiently, learning methods are acquired rightly, foundation is provided for qualifying learning in the further. According to the curriculum, lectures of 48 hours and seminars of 32 hours are taught to students at the 1st course. Seminar hours that understand, process and strengthen much information, getting from lectures, are not good enough and helps and supports for students to study independently are most important issue.

We have been working with aim to create the teaching aids ourselves the following ways for LAAG since 2006. [5, 7]

1. Lecture tools [6]: To increase knowledge, provided to students in unit of hour by means conducting lectures of LAAG through Multimedia,
2. Teaching tools for seminar and independently studying: To research ways, working out LAAG problems as CAS, so processing methodologies, using them to seminars for teachers and students. Also processing multimedia and interactive program for students' independent studying and strengthening their knowledge.
3. Teachind tools for student assessment: Refining upon the studying process and seasonal examinations to use information technology, researching carefully ways of assessment student knowledge and, becoming really assessment and implementing them in the teaching.

Last years we have been experimenting partially on teaching tools and observing, and doing continuously mechanical and deductive amendment or improvement. We found some opportunities to use open materials and technologies of other countries on the internet more than creating the teaching aids ourselves. In order to do it, we will research ways and experience how to introduce into the teaching process and make comparison, so alternate and use possible ways suitable for our educational condition.

problems to get test examinations.

- Writing mathematical theories and equations
- Using many kinds of tests (complete, choose, fill and adjust etc)
- Concluding or scoring information of test answer by each student and each exercise.
- To analyse and do statistical process the examination result.
- High fee

We have chosen Excel Program that most suitable program for solving above problems.

### Conclusion

**Teacher:** When teachers will reform teaching process, need focus the following activities on *teaching trends*.

- Closest variables to learning process
- Developing to become the teaching technology to important lever that teachers develop continuously themselves and enhance their ability and profession.
- Teachers develop their ability of information and technology, prepare teaching aids and utilize freely mathematical package
- Placing control-analysis on the teaching process and, correcting and improving it.
- Assessing and analysing assessment is most important.

### School:

- Including LaTeX, CAS, IGS in the content of basis subjects of information and technology.
- Improving teachers' ability of information technology, conducting CAS and IGS, and methodological training, using for teaching process.

Teachers need meet with the following requirements when they use the teaching aids in the *teaching process*.

- Definite and rational teaching aids in which teaching stage.
- Supporting actually in teaching and learning process and having activating influence.
- Meeting with display composition and color harmony, and requirements of methods of teaching.

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