

The background of the slide features a close-up, slightly blurred image of a vintage-style map. In the upper left corner, a portion of a compass rose is visible, showing cardinal and intercardinal directions (N, NE, E, SE, S, SW, W, NW) and degree markings. The map itself shows various geographical features and lines, though they are out of focus.

Aneta Szablowska-Midor

**Learning GISc
in the distance learning environment
– students' perspective**

**GIS Laboratory,
Institute of Geography and Spatial Management,
Jagiellonian University, Kraków, Poland
aszablowska@gis.geo.uj.edu.pl**

GISc & e-learning

Geographic Information Science (GISc) – educational goals:

- to deliver broad and multidisciplinary knowledge
- to develop highly sophisticated, practical, to a large degree technical, skills
- additionally: a need for a permanent update of the fast changing state of the art and skills

The way to achieve the goals: e-learning

How does this way of learning work in practice?

What is the effectiveness of this learning method?

learning effectiveness

The **learning effectiveness** informs about the learning process output in the relation to the established learning objectives.

Effectiveness constraints:

- specific character of GISc discipline
- constraints of the didactic process on the side of
 - a student
 - a teacher
 - an on-line course
- opportunities and threats, which arise due to the chosen learning environment.

effectiveness of e-learning in GISc

Variables identified in the distance learning programs according to *Lynch and Dembo (2004)*:

- **structure** - an effect of the course design
- **interaction** - the results of the way the course is conducted by a teacher
- **autonomy** - focuses on distance students

method

Measures used to evaluate the effectiveness of e-learning:

- performance of students documented by marks and quality of assignments
- opinions of tutors
- **perceptions of students**

An anonymous **questionnaire** – four themes:

- program of the studies
- e-learning technology
- e-learning methodology
- general opinion about studies

UNIGIS program at the Jagiellonian University

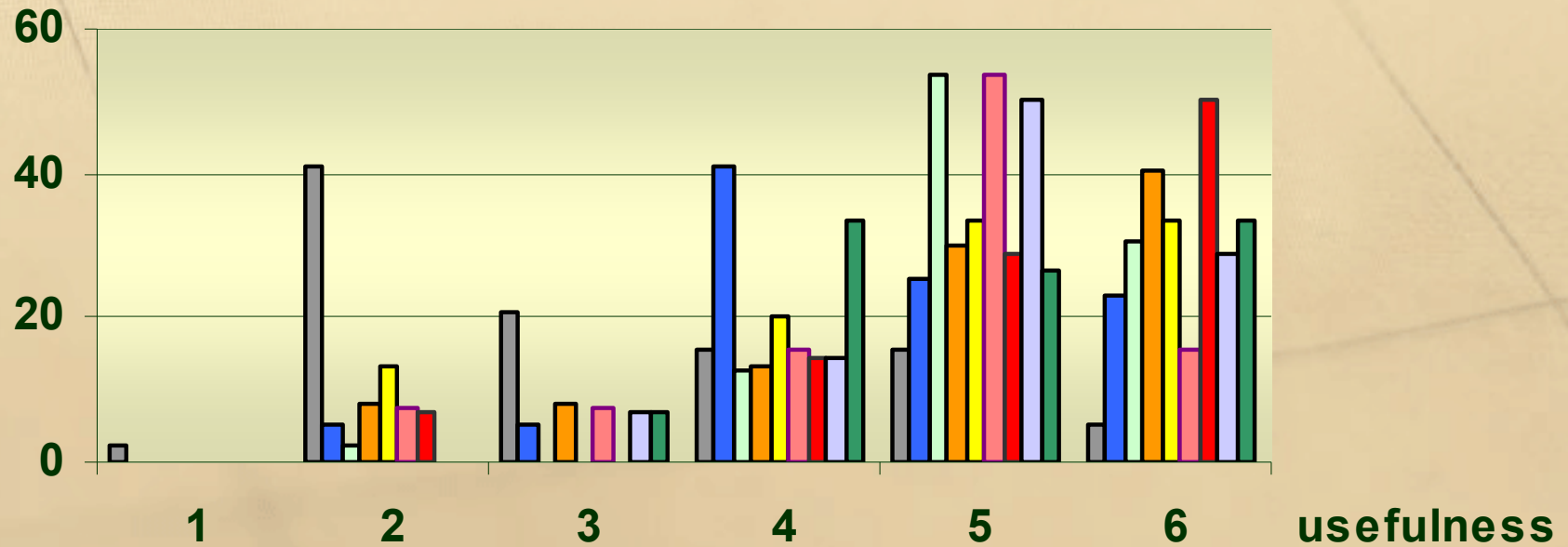
www.unigis.net, www.unigis.uj.edu.pl

No	Title of the module
Module 1 (M1)	Introduction to Geographical Information Science
Module 2 (M2)	Data Modelling and Data Structures
Module 3 (M3)	Data Sources and Data Acquisition
Module 4 (M4)	GeoDBMS
Module 5 (M5)	Spatial Statistics
Module 6 (M6)	OpenGIS and Distributed GI Infrastructures
Module 7 (M7)	Geographical Analysis
Module 8 (M8)	Visualisation and Cartography
Module 9 (M9)	GIS Organisation and Project Management

modules' content usefulness

■ M1 ■ M2 ■ M3 ■ M4 ■ M5 ■ M6 ■ M7 ■ M8 ■ M9

% of students



distribution of students' interests

Students are mainly interested in **advanced and sophisticated GISc knowledge** and skills:

- methods of geographical analysis
- geodatabase management systems
- geostatistics

Less desirable is:

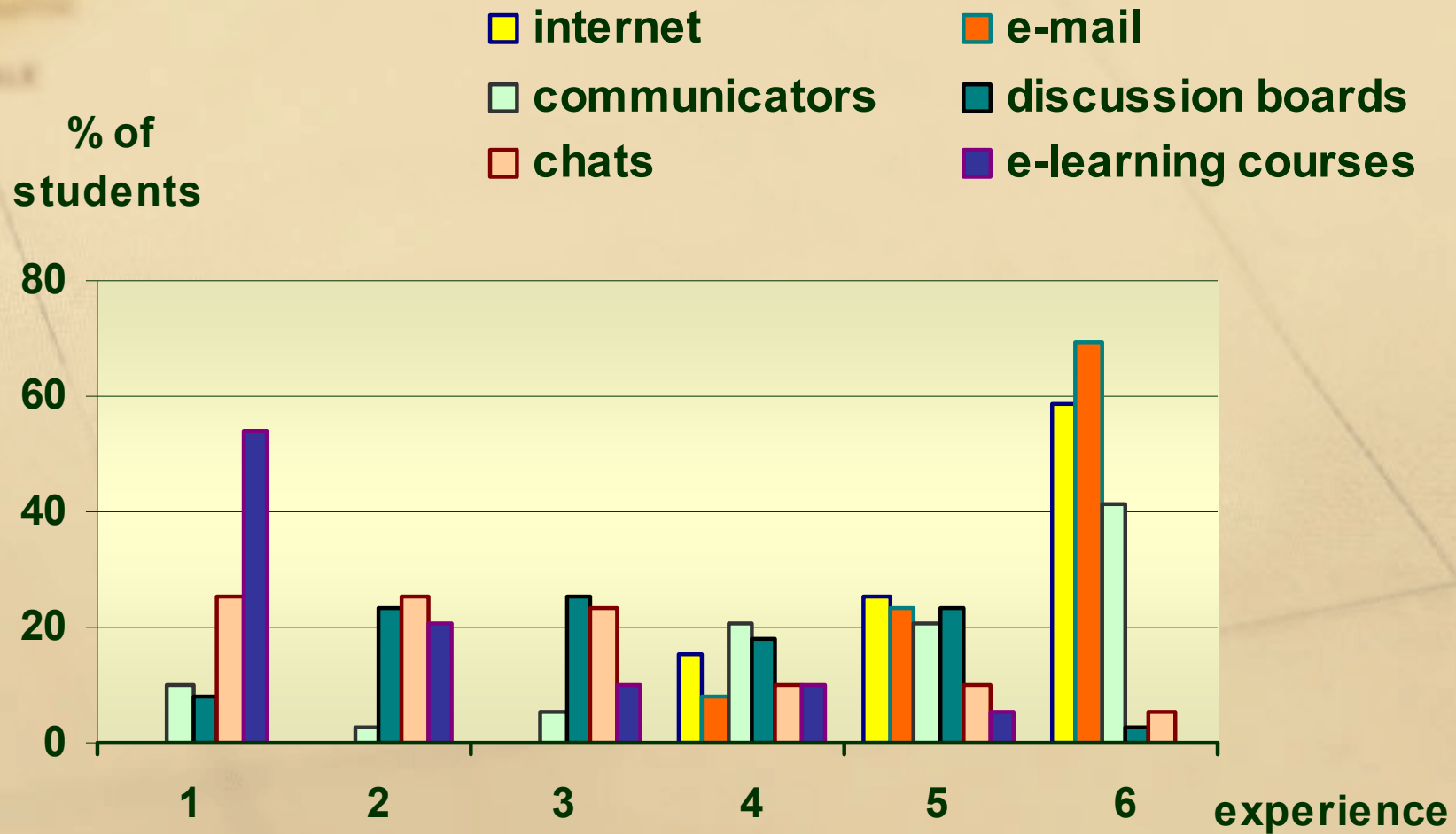
- the basic GISc knowledge regarding:
 - roots and development of GIS
 - different aspects of data and visualization
- organizational aspects of GISc:
 - standards,
 - infrastructures and
 - project management



students' expectations towards UNIGIS studies

- to rise the level of professional qualification as **GIS specialists**
- during the on-campus classes: practical exercises with the use of GIS software –the most desirable activity
- not interested in shifting into **GIS managers**

web activities experience





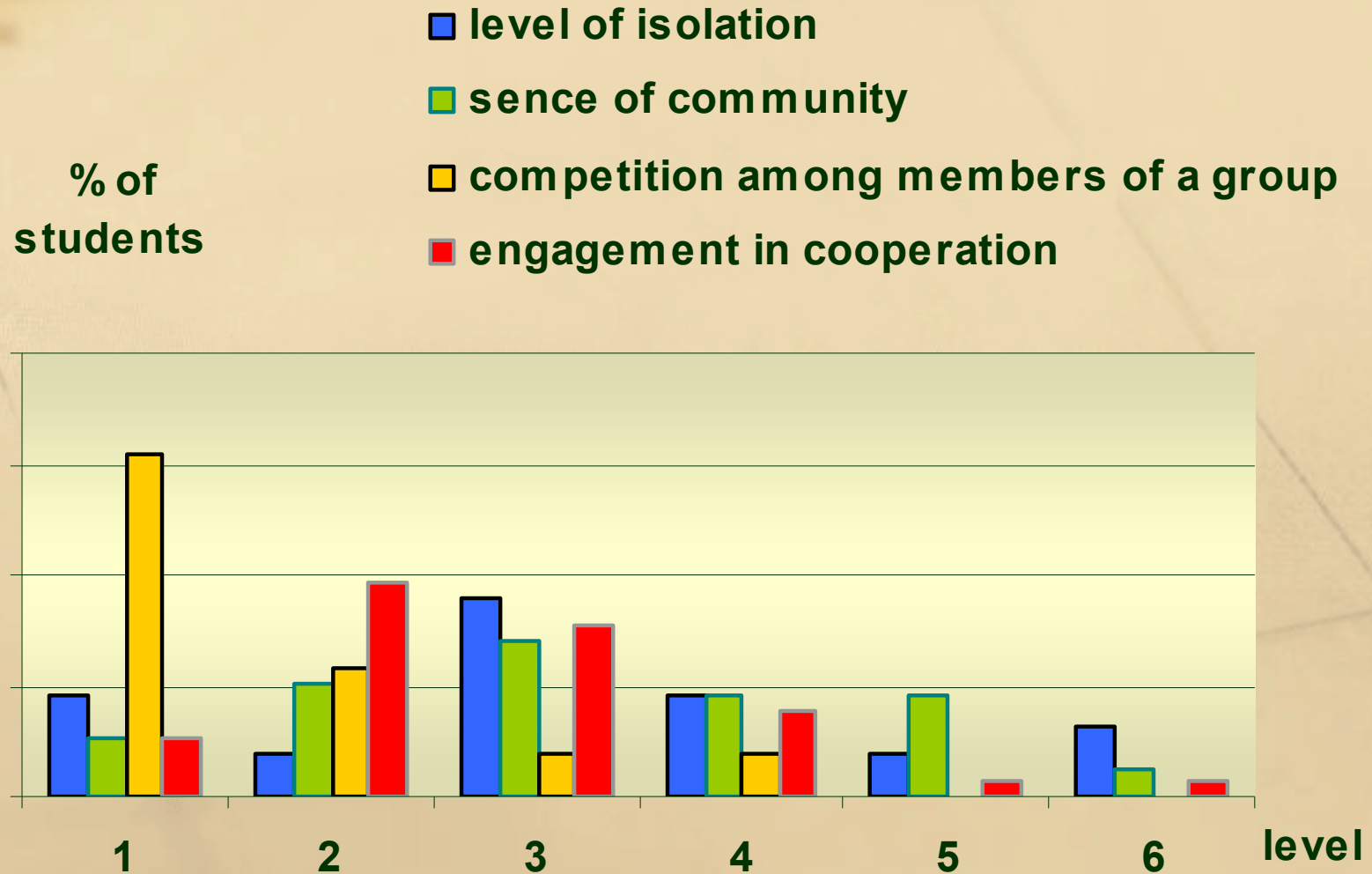
implications on students' learning styles

- students may prefer the e-mail as a basic tool to communicate with teachers and peers
- for many students UNIGIS studies are the first e-learning experience and at the beginning of their studies they are pretty unconscious about threats and opportunities of this way of learning

aspects of distance learning method



community characteristics



learning style

Learning style	Number of indications
reading only interesting parts	22
individual work	20
choosing own learning sequence	11
following the lesson sequence	10
group work	7
reading everything	6

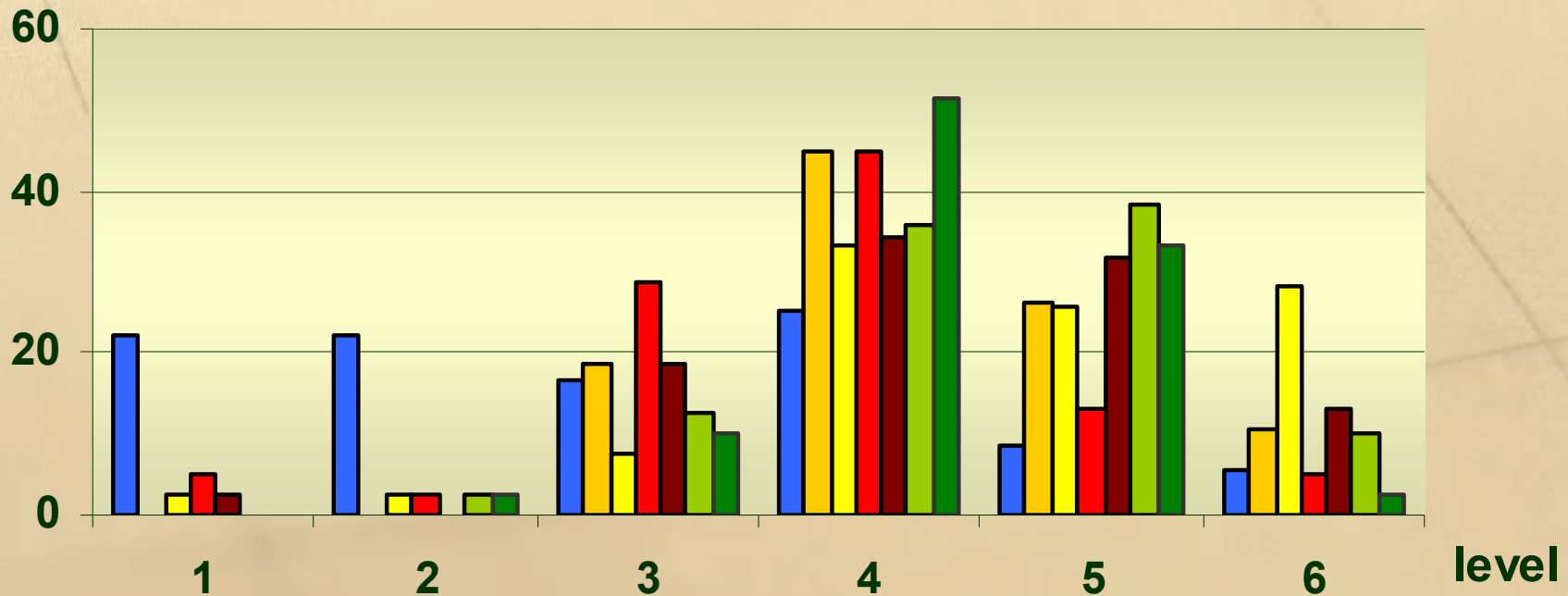
students' perception of the teacher's role

Teacher's role	Number of indications
guide	28
expert	26
discussion partner	23
evaluator	14
group creator	8
democratic leader	7
supervisor	4
autocratic leader	0

general opinion on studies

% of students

- frustration level
- satisfaction level
- workload
- effectiveness
- learning comfort
- GIS knowledge enhancement
- GIS skills enhancement



conclusions

Diverse interest put by students to the given subject:

- higher effectiveness in these activities, which correspond with students interests
- lower effectiveness in these subjects, which are less interesting for them.

E-learning was a new experience for many students

- a kind of introductory classes discussing different aspects of e-learning method with the relevance to studying GISc
- a questionnaire regarding an e-learning predisposition

conclusions

Three learning preferences scales (Sadler-Smith 1996):

- autonomous,
- collaborative and
- dependent.

An average UNIGIS student tends to represent **partly autonomous and partly dependent attitude** towards their studies **with rather negative attitude towards cooperation with peers.**



conclusions

Digital learning environment provides some opportunities like the development of autonomous learning as:

- self-planned,
- self-organized and
- self-assessed (Peters 2000)

Students do not take the full advantage of these opportunities.

conclusions

Lack of cooperation between peers - highly inadvisable in learning technical subjects (Rich *et al* 2000)

- working in groups is more effective
- the cooperation in a group strengthens students' motivation to complete their studies
- to achieve better results: new forms of communication like discussion boards and chats require some training and time for practice before they are used in the learning process

conclusions

permanent constraints:

- different students' interests in the learning content,
- the learning styles

appropriate teacher support and adequate course design, which address different learning preferences

temporal constraints:

- the lack of an e-learning experience
- ability to collaborate online

will decrease or even disappear with the development of technology and the e-learning method