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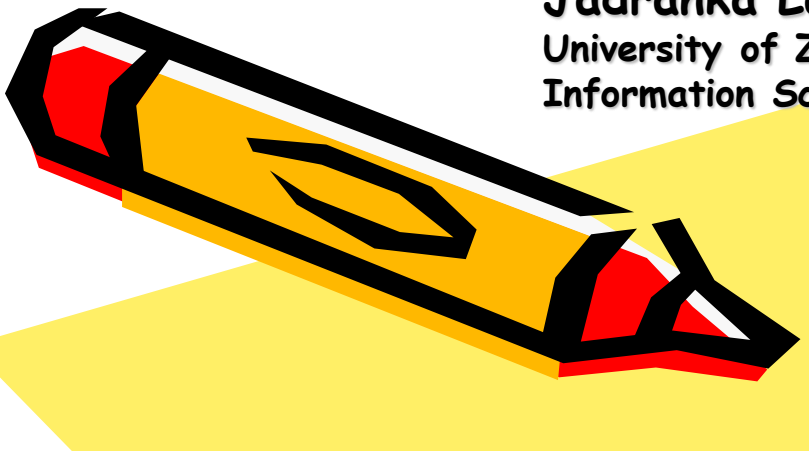
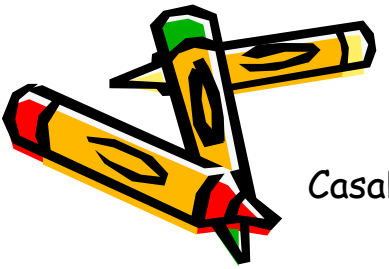


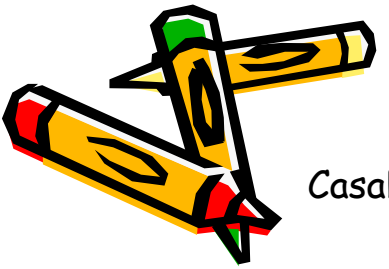
Applying the Bologna Principles in an Information Science Course

The subject of this paper has been suggested by professor Jadranka Lasić Lazić in the frame of her course on Retrieval and Indexing Systems at the Information and Science Departement, Faculty of Humanities and Social Sciences, University of Zagreb.



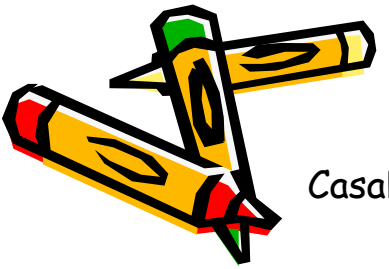
Reasons Why

- to introduce a Croatian National Educational Standard- and organize a lifelong learning system on the principles of the Bologna declaration
- to analyse the nature and extent of a major curricular change in LIS (Library and Information Science) education,
- to decide on methods used to collect data, including surveys, case studies, content analysis, and interviews.
- to verify all data collected interviewing were conducted with selected faculty members and students.

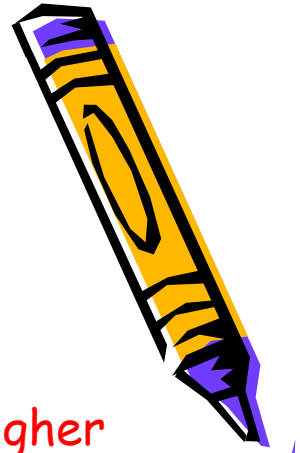


Perspectives for an information science curriculum acccording to Bologna Principles

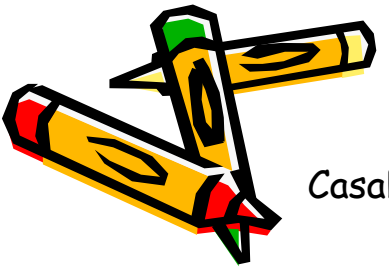
- stronger information technology infrastructure,
- more effective use of technology to support curricula,
- development of broader frameworks for examining information problems,
- increased interdisciplinarity,
- emergence of curricular innovations,
- more effective delivery of distance learning,
- greater flexibility in program delivery, and
- the emergence of a more student-centered curriculum.



On Bologna Declaration

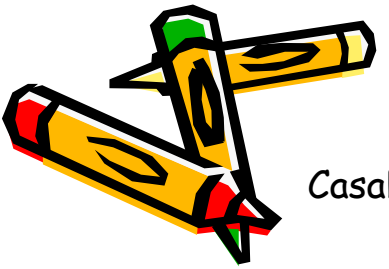


- A joint declaration of the European Ministers of Education,
- convened in Bologna on the 19th of June 1999,
- a pledge by 29 countries to reform the structures of their higher education systems in a convergent way.
- not just a political statement, but a binding commitment to an action program,
- increases the global competitiveness of European higher education.
- an organized follow-up structure and process,
- invites the higher education community to contribute to the success of the process of reform and convergence.



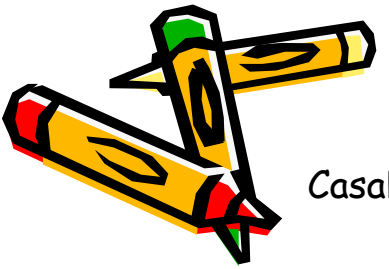
Bologna Declaration in Croatia

- It is a key document that marks a turning point in the development of European higher education.
- It is not a reform imposed upon national governments or higher education institutions.
- It is a commitment freely taken by each signatory country to reform its own higher education system.
- It aims at creating convergence and, thus, is not a path towards the "standardization" or "uniformatization" of European higher education.
- The fundamental principles of autonomy and diversity are respected.
- the Declaration reflects a search for a common European answer to common European problems



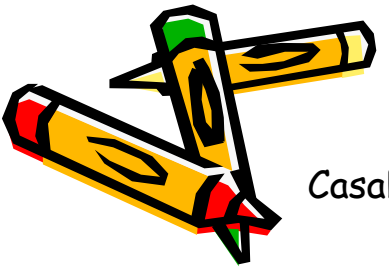
Bologna Declaration and Knowledge Society

- Knowledge society requires permanent education.
- A worker, particularly a specialist, should never stop learning.
- To keep up with technology and new ideas the need for lifelong learning arises.
- To increase support for it comprehensive reading is a very important means.
- To be remembered without life-long learning there is no life-long earning.



Scholarly articles

- They begin with an *Abstract* or summary.
- In the Introductory part the *Purpose, Problems, Hypotheses* are defined.
- The Methods & Procedures deal with why, where, and how the study was performed.
- Finally The *Results, Discussion and Conclusions* explain the findings
- and *compare* them with related ones.



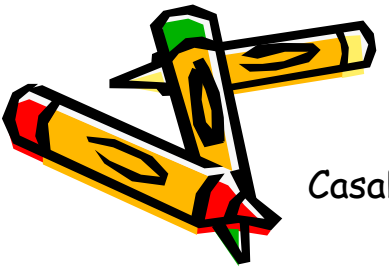
Longlife learning support based on comprehensive reading

How can we help our students develop lasting habits of reading comprehension?

How can we integrate helpful and motivating assessments?

How can we meet the information literacy needs of students with widely varied reading levels and backgrounds?

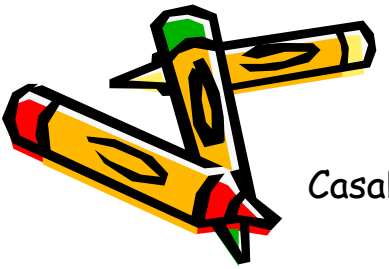
How can we make our students aware of the special reading skills required of an information specialist?



Comprehensive Reading

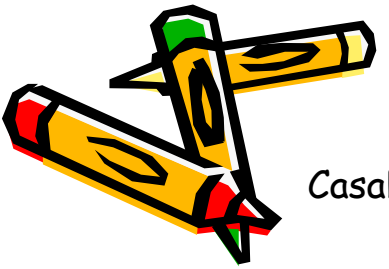
- is explained by some educators as a series of subskills, such as:

- understanding word meaning in context,
- making inferences about information implied,
- finding the main idea
- and distinguishing between facts and opinion.



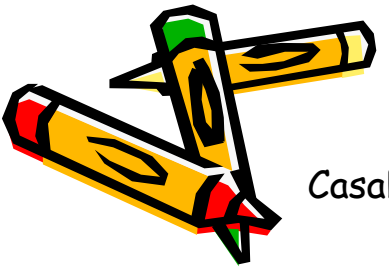
Understanding

- Reading materials become more abstract in high school and college
- and contain more technical vocabulary.
- The students must acquire new information
- but also they must critically analyze it.



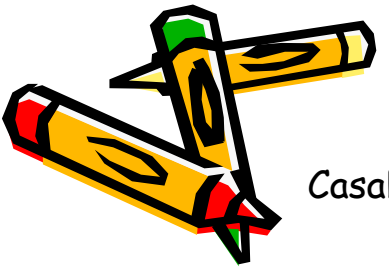
Comprehesive reading of scholarly (or scientific) articles

- A scholarly article uses a specific vocabulary.
- It is difficult to grasp the content.
- Some journals have their specific literary style.
- Their structure is standardized.



Objectives

- In a pilot study, we wanted to find out if the students have understanding and interpretation problems with some specific sections of a scholarly article.
- At the beginning level of the project, the students have been asked to choose for reading an article from an information science journals.
- After having read it, they had to photocopy it and attach to their term paper. The titles of the journals and their ISSN are given in our paper.
- In their term paper, they had to write a short overview of the subject of the article and supply bibliographic citations
- and answer the questions and subquestions in the given questionnaire to gather data for statistical processing.



Questionnaire

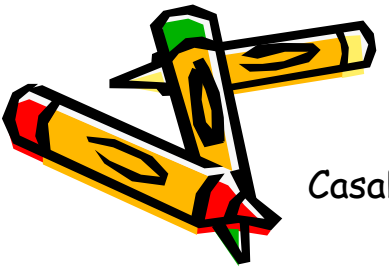
- *Title.* Was the subject of the article clearly expressed in its title?
- *Purpose*.What was the purpose of the introductory part of the article?
- *Problems*.What did you learn from its introductory section?
- *Hypotheses.*What was the problem or the question that was studied (or what were the hypotheses of the study)?
- *Methods&Procedures.* What is the theoretical base of the study?
- *Results*.What is the result of the study? What were the data and how are they presented?
- *Discussion*.What is said in the discussion section of the article? Are there some assumptions about the practical applications of the study?
- Conclusion.What is the achievement of this study in the field of information science?
- Abstract. Did you meet your expectations about the value of the article because you selected it for reading?

Procedures

The answers were given verbally, processed and presented in the Table in four categories:

- affirmative answers as Understood&explained,
- not clear answers as Vague or not understood,
- the remaining two as Not sure and No answer.
- Detection of differences among the categories was made possible by homogeneity of classification.
- It had to be established which sections of a scholarly article are easier to understand and which are more difficult.

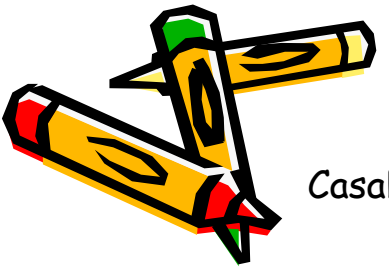
The statistical survey of the 270 answers to the 9 questions of 30 students follows in tabular and graphical forms.



Table

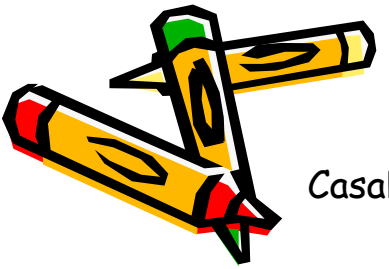
270 answers to the 9 questions of 30 students

1	2	3	4	5	6	7
Question .	Section	Understood& explained	Vague or not understood	Not sure	No answer	Numbers of the students
1	Title	20	10	0	0	30
2	Purpose	30	0	0	0	30
3	Problems	24	6	0	0	30
4	Hypotheses	10	7	13	0	30
5	Methods&Procedures	20	3	7	0	30
6	Results	15	8	0	7	30
7	Discussion	15	8	0	7	30
8	Conclusion	24	0	6	0	30
9	Abstract	15	10	5	0	30



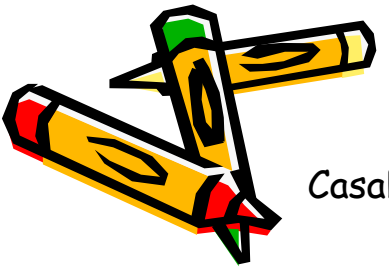
Methods I

- The population of 30 individuals in the pilot study makes it possible to apply some statistical measures based on the so called nominal scale.
- The names assigned to the categories in columns 3 to 6 of the table, (i.e. sections of an article) serve as a nominal scale.
- Classification is fundamental to any science, all measurement involves it as a minimal operation.
- Classification is the lowest level of measurement in the broadest sense of the term.

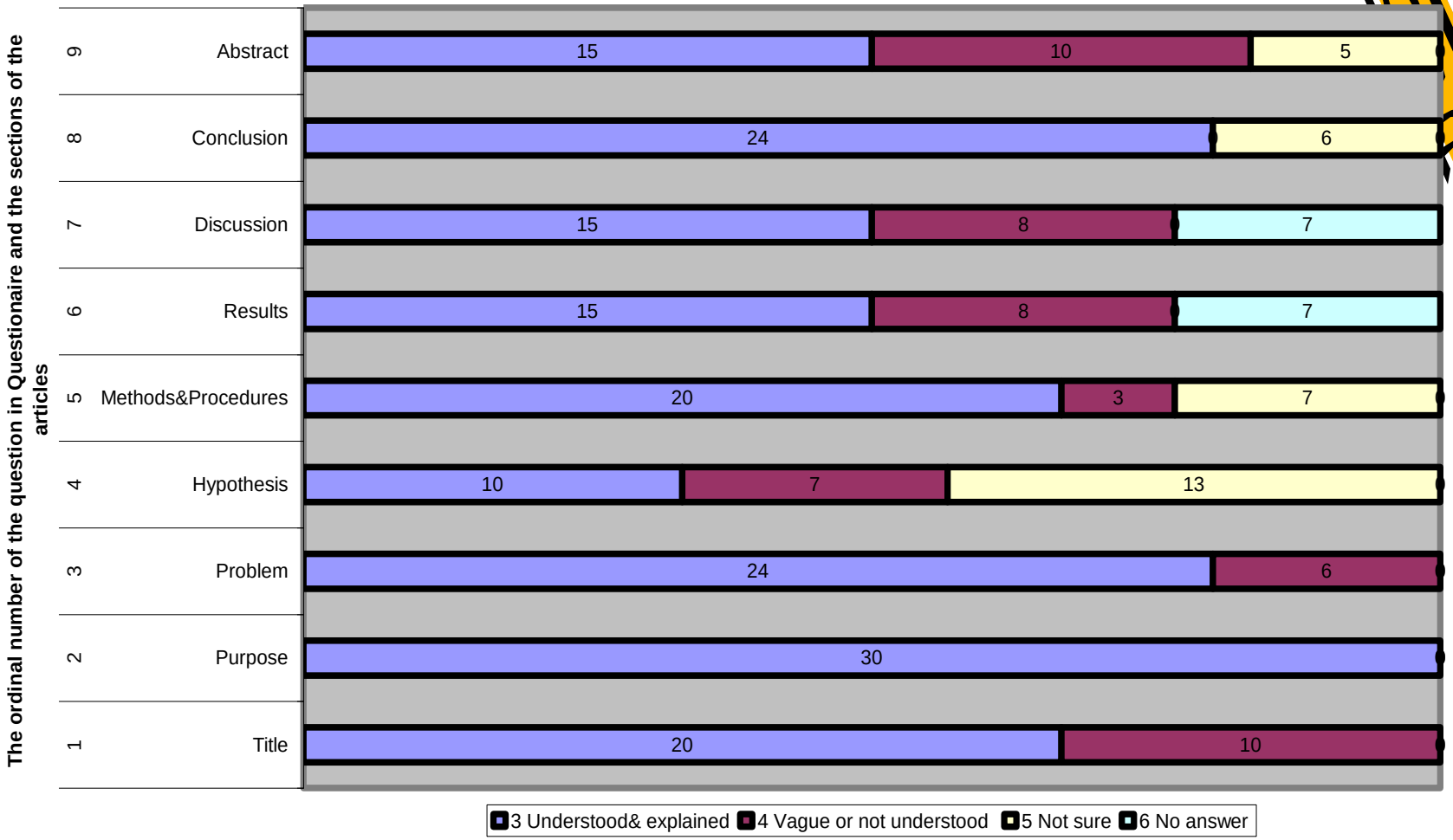


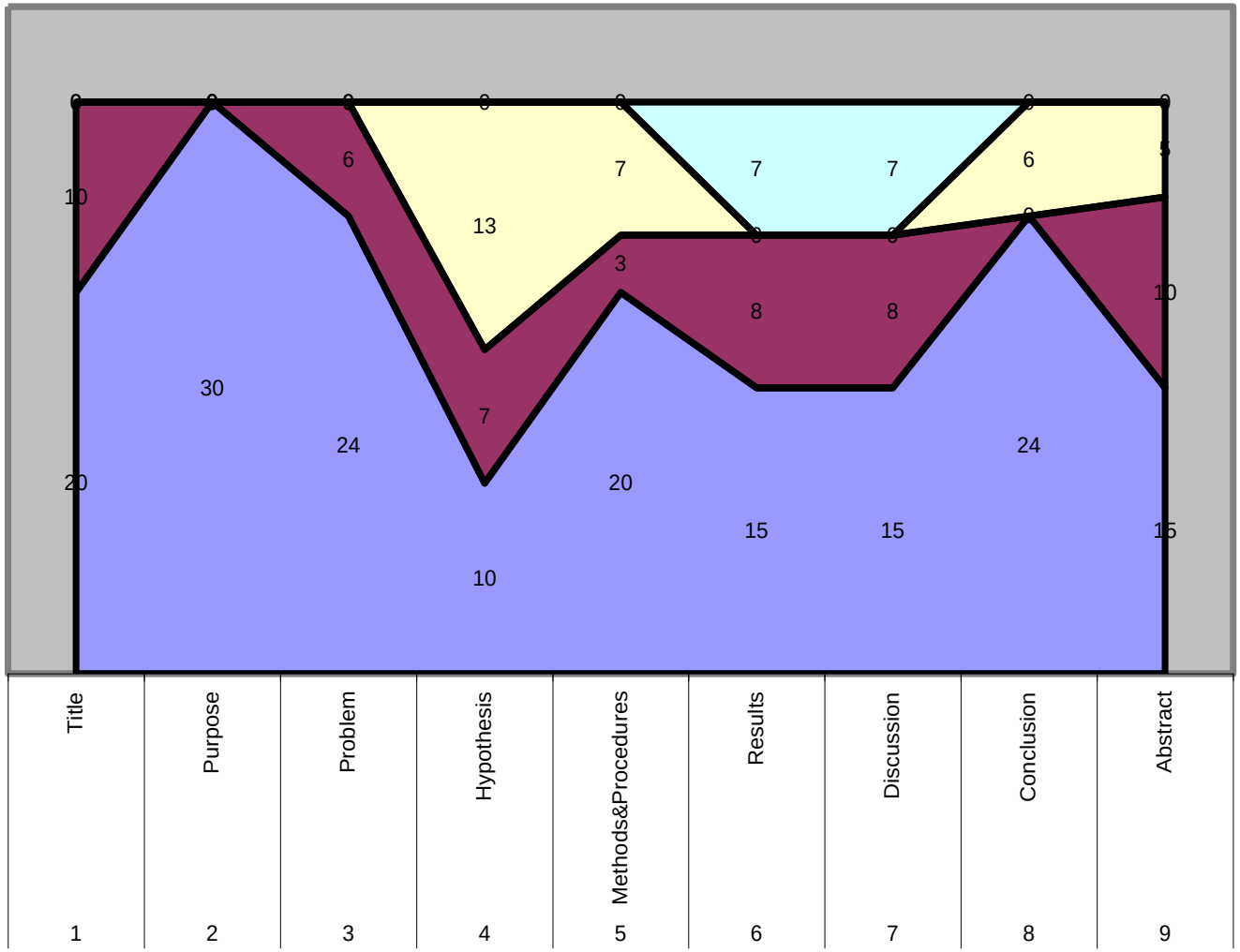
Methods 2

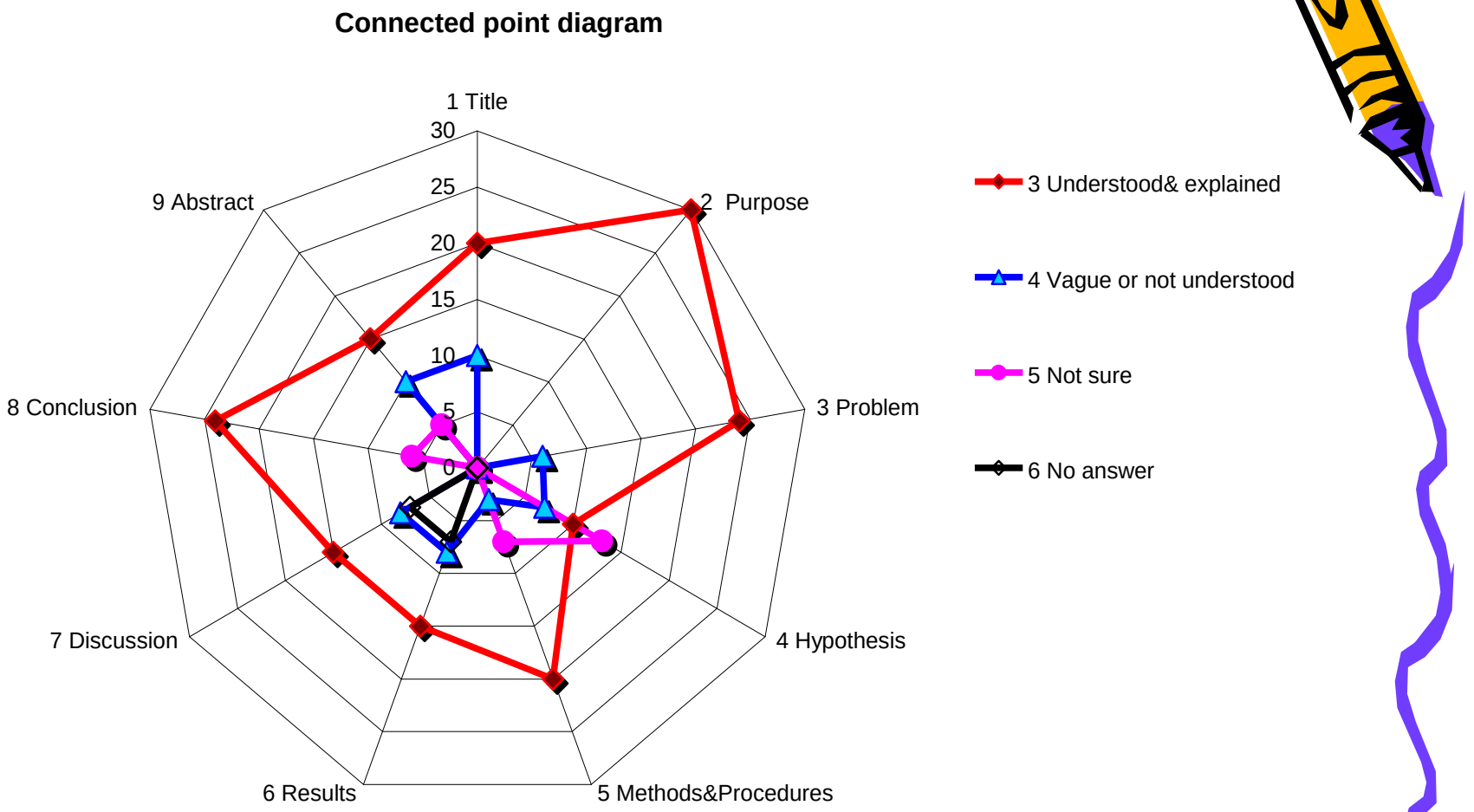
- The nominal scale constitutes the minimal condition necessary for the application of numeric statistical procedures.
- The nominal scale enables the counting and numerical processing the number of answers in the four categories in *Table*: *Understood & explained* column six *Vague or not understood*, column seven *Not sure*, and column eight with *No answer*.
- The categories are mutually exclusive and exhausted, i.e. each answer given by the participants is placed in one and only one category.
- The proportion of answers is defined as the quotient between the number in the relevant category and the total number of answers (30).
- The proportions make it posssible to perform a direct comparison among rows (questions) and columns (answers).
- *A* graphic overview of the results obtained is presented in charts accompanying the*Table*.

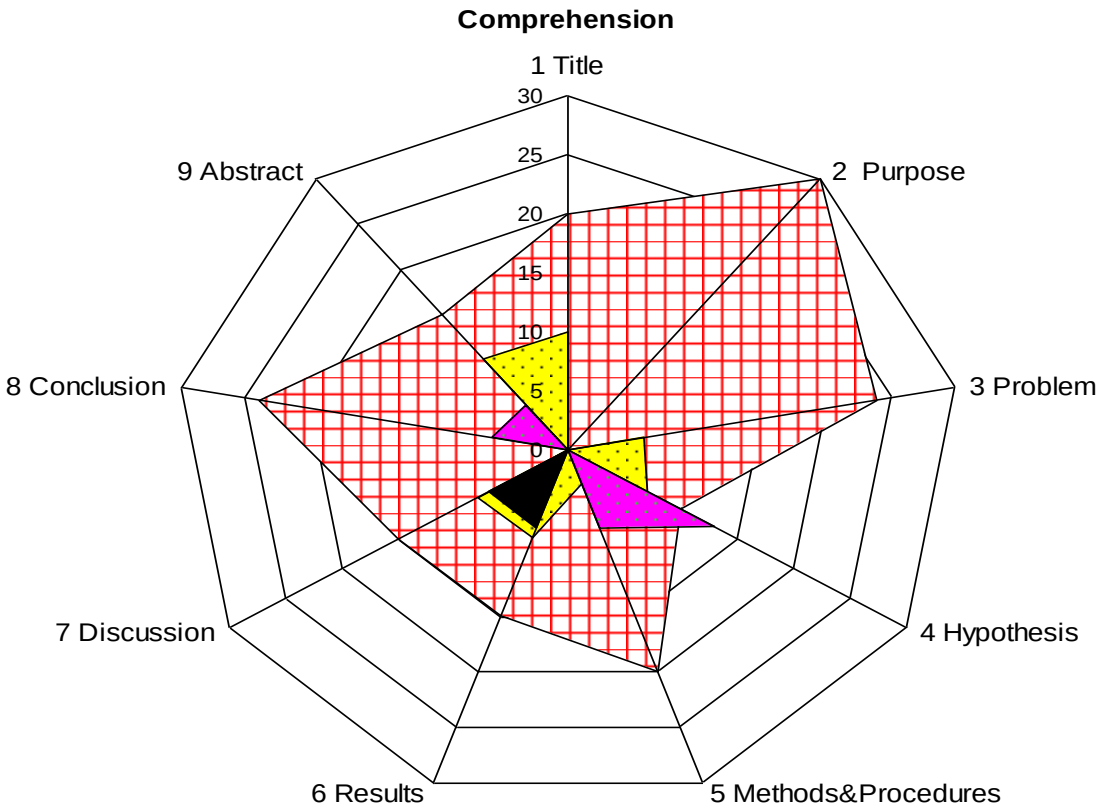


Percetange of understanding among the sections of articles




6 No answer
5 Not sure
4 Vague or not understood
3 Understood& explained
Title
Purpose
Problem
Hypothesis
Methods&Procedures
Results
Discussion
Conclusion
Abstract
1
2
3
4
5
6
7
8
9

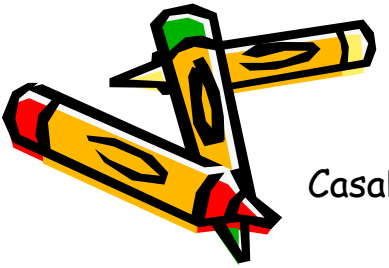

Connected point diagram
1 Title
2 Purpose
3 Problem
4 Hypothesis
5 Methods&Procedures
6 Results
7 Discussion
8 Conclusion
9 Abstract
30
25
20
15
10
5
0
3 Understood& explained
4 Vague or not understood
5 Not sure
6 No answer


Comprehension
1 Title
2 Purpose
3 Problem
4 Hypothesis
5 Methods&Procedures
6 Results
7 Discussion
8 Conclusion
9 Abstract
30
25
20
15
10
5
0
3 Understood& explained
4 Vague or not understood
5 Not sure
6 No answer

Retrospection

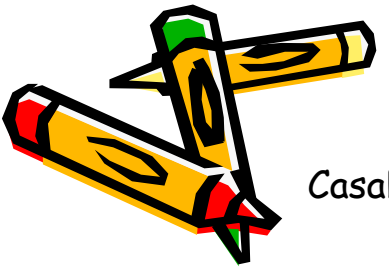
What would have been necessary?

- a larger population
- numerical measuring tools applied in addition to verbal
- predefined criteria for objective evaluation of the responses
- a more elaborate instrument (questionnaire) for the data collection
- more precise and reliable results by using a numerical scale



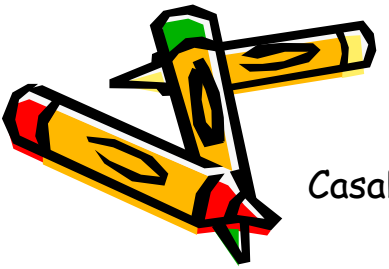
Conclusion

- In summarizing data by substituting very few measures for many words in the answers elicited from the examinees, certain information is inevitably lost.
- What is even more serious, it is very possible to obtain results which are misleading unless cautiously interpreted. The limitations of the summarizing measures must be clearly indicated.
- The students read different articles, not the same one.
- The questions were general in order to get insight about understanding scholarly articles.
- The descriptive responses of the examinees were interpreted subjectively. Statistical inference performed on the basis of these results may not be statistically reliable.
- It can still be useful for analyzing which sections of a scholarly article were most difficult to the examinees.
- The results can be instructive for orientation in devising curricula to make the students aware of how to achieve better understanding of scholarly articles.
- Relevant scholarly concepts had to be introduced with more details and examples.
- A highly sophisticated statistical analysis may be an aid to, but never a substitute for good sound thinking.



„It is not essential for the value of an education that every idea be understood at the time of its accession. Any person with a genuine intellectual interest and a wealth of intellectual context acquires much that he only gradually comes to understand fully in the light of its correlation with other related ideas ...

Scholarship is a progressive process, and it is the art of connecting and recombining individual items of learning by the force of one's whole character and experience that nothing left in isolation, and each idea becomes a comentary of many others."

Norbert Wiener (1894-1964)

American mathematician who founded cybernetics.