# I, Robot-Teacher II.

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## Introduction

In the previous leading article of the e-journal MIAU an important capability of a Robot-teacher got described: (<http://miau.gau.hu/miau2009/index.php3?x=e48>) – namely the capability of changing focus of attention/interest. In this article a new aspect of a Robot-teacher will be introduced. The central question is now: What should be educated in fact for pupils/students? This question is a sort of evergreen problems. The content of education is always influenced by ideologists. Is there an ideological neutral/independent set of keywords being necessary to educate at all? If the answer is yes, then how can be derived this keyword-set? Which principles can ensure a sort of acceptable objectivity? How can be adapted the set of keywords (necessary to educate) in time and in space? Which knowledge level and content can ensure the highest cooperation-potential in a society? How can be minimized the volume of the needless learning? All these questions were formulated in a talk about possibilities of a new manual/script about e.g. chemistry (and furthermore for each thinkable discipline)…

In the background of these questions following lamentations can be identified among pupils/students (c.f. quasi-citations):

* Though it is seemingly possible to learn a particular set of facts and/or rules, but a job/a person, where/who are using this knowledge with a relative high frequency cannot be identified in an easy way. Therefore: Why should be learned such a thing?
* If the logic of a discipline is to understand, let alone it is to transform to source code for computer, why should be learned the given phenomenon/complexity in deepest level?
* If a subjects has an insufficient volume of objectivity (c.f. some parts of human disciplines), what may be asked in frame of an exam aspirating objective evaluations?
* …

## Principles

* Nobody is able to know all the facts, rules completing by the society. Nobody can define the best set of keywords needed to educate in an objective way.
* The deficit of examined “knowledge” can be measured.
* The necessity of facts/rules/knowledge for given situations can be measured / estimated.
* The world is changing continuously. The needed knowledge should also be changed.
* Lack of knowledge in a particular situation can be detected.
* Facts can be queried from databases. Facts can be structured with pivot/OLAP technologies.
* Facts stored in the human brain can be used faster – in general than facts being searched for (in Internet).
* Volume of exercises to expand human capacities of the memory can/should be optimized.
* Intuition/association is a logical connection between parts of knowledge (facts, words, rules, etc.) in the human brain.
* The most words used by humans are incorrect according to a later checking/control process.
* The connection between words (like subordinated, superordinated, associated) are uncertain.
* Such a thing should not be learned, which can be queried from public databases.
* Such a thing should not be learned, which cannot be identified by very concrete persons, jobs.
* Such a thing may not be asked during exams, which can be queried in an easy way from Internet or especially from well-structured databases.
* Real (competence-based) knowledge is what in success reports of quality assurance or monitoring processes can be interpreted as lack of information/capability.
* Clarified disciplines are less valuable than interdisciplinary capabilities (c.f. border crosser).
* Objective solution for defining ideal learning contents should be based on a voluminous text corpus (like Internet).
* Neighborhood grades of words can be modeled based on graphs.
* …

## Suggested solution layers

* Although a lot of potential important written sources are not digitalized, yet it seems to be acceptable the Internet (especially databases of robotized searching – like by Google) to take as one of the most objective text corpus, which can be used for deriving neighborhood grades of words based on text mining tools.
* The connection forms and masses between words (derived by text mining processes) can describe the necessity of keywords according jobs.
* The text corpus is changing from day to day (from second to second) and the word-graphs based on it can be fine tuned with an arbitrary frequency.
* Necessary is to learn a word/phenomenon, if the nearness of this word to a job exceeds a given threshold.
* Necessary is to learn about a job, if it is more important for the society than a given threshold or the frequency of mentioning among the jobs is higher of a given threshold.
* Quasi “jobless” words can be involved into the needed knowledge pool through their association potential (c.f. proverbs according to relevant words).
* Special knowledge layers:
  + problem types and their potential solutions should be declared in the usual way
  + the capability to find out the best alternatives should also be educated in the usual way
  + solution fitting should always be measured
  + solutions should always be ranked by their fitting values
  + the situation-specific best solution should be derived by expert systems
* Unsolved problems should be catalogued continuously.
* Proving logics/mechanisms should be educated in the classic way.
* Proving should always be multilayered (c.f. expectations of consistency)
* Classic ways should be monitored and it should be search for innovative education methodologies permanently.
* Exceptional rules can always be declared.
* ...

## Summary

The Robot-teacher described above is a relative objective filter-system based on text mining analyses in order to make possible selection of the most relevant contents (words) according to importance for the value added processes of the society. Anomalies of the outlined automatisms will always be given and the available human resource (the set of active teachers and their motivations, competencies and changing potentials) will always influence the best implementation-strategies for a given situation. Exceptional rules and iterations for fine tuning will be necessary. Through similarity analyses the most ideal educational system and also the most ideal implementation strategy described through multiple attributes can always detected in an objective way. The system-oriented Robot-teacher being able to regulate basic parameters of the education system can also be called as Robot-Minister of Education!

## References

1. <http://miau.gau.hu/lexikon/> - Experiments about interpretation of words
2. <https://miau.gau.hu/mediawiki/index.php/Kateg%C3%B3ria:Lexikon_(special)> MIAU WIKI Special-Lexikon