Visual Information in Chemistry Course

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Introduction. Visualisation in chemistry has a special role as it is necessary to be able to operate with hypothetical statements and concepts. Visual images create ideas of microworld which are made visible by using multimedia tools. In addition to serving as illustrations, visual representation also has a cognitive meaning since information is being selected and combined, i.e. new knowledge is integrated with an existing knowledge in a clear manner. Visualisation also transforms the way we think since by representing textual information graphically, a certain part of descriptive information is lost due to focusing only on the most essential parts and combining chemical regularities in easily understandable structures.

Aim, Material and Methods. Within this research, it was evaluated and analysed how to use information visualisation in combination with and as one of critical thinking development methods in order to ensure medical chemistry course is mastered to the maximum possible level in current situation. After questioning students at the beginning and the end of the semester, it was found that most students require an illustration together with a concise explanation of a certain phenomenon rather than a detailed description.

The role of information visualisation within medical chemistry course is greater than in other subjects. Not only is it important to schematically represent facts, but also to represent quantitative regularities as tables, graphs and schemes. Students must learn to correctly interpret visual information, i.e. read graphs and conversely practically visualise newly obtained results according to regularities of chemical processes. So far it was determined that students are able to remember the provided existing schemes; therefore, it is necessary to emphasise the importance of self-dependent creation, verification and comparison of schemes and graphs within practical lessons. It is a vital skill since it is not possible to master the following course of biochemistry without being proficient in schematic representations of processes. By knowing that the same chemical process can be represented differently within books by different authors, it is necessary to have a personal interpretation in order for the information to be understood. However, there are students to whom it is difficult to understand schemes due to having no basic knowledge in chemistry.

Results. For young people non-verbal communication is more significant than for previous generations. Texts as main sources of information which are supplemented by images lose their significance compared to visual information supplemented with short comments. In order for fundamental information not to become simply as a "picture with a comment", it is necessary to channel this change of proportion between visual and textual information in the desired direction by making the schematic representation as a manifestation of reflection. It is within the context of modern life and education that the system theory proves itself as a concise, clear and exhaustive representation of complex phenomenon, both in human consciousness and in information carriers.

Conclusion.

1. Results of the questionnaire show that new information must be schematic and easily perceivable.
2. Perception or creation of graphical images conforms to a higher level of reflection than text analysis.
3. Representation of causes and consequences, comparison and opposition of concepts, representation of quantitative solutions and digestion of information can be effectively mastered by developing graphical forms of expression within chemistry course.