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Let´s Not Be Scared of Comics (Researching Possibilities of Using Conceptual Comics in Teaching Nature Study in Kindergarden)

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Abstract

This study presents the results of a year-long project of students in master´s programme Preschool teacher training. This project focused on analysis and reflection on working with comics. Comics are a modern pedagogical strategy, which is starting to gain popularity in teaching nature study. It is used in research-oriented teaching, which develops psychodidactic concept of teaching. This study presents so-called conceptual comics, which help illiterate preschool children understand certain natural phenomenon. Study includes also observations of changing perception of children, and also didactic mapping of possible methods.

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Keywords: psychodidactics;conceptual comics; teaching nature study; research-oriented teaching

1. Theoretical background

Conceptual comics proceed from numerous research studies focused on identifying the situation of pupils´ alternative conceptions in various scientific fields and also from relatively limited research aimed to use of cartoon images in teaching science. According to experiences, using conceptual comics in school practice provokes changes in teacher´s instructional approaches and it supports constructivist approach to learning.

Researches based on experience with the positive effect of comics on learning and motivation of children are still primarily focused on the field of reading or on support of early literacy for preschoolers. Intense discussions on the advantages (but also on disadvantages, such as the risk of sticking on simplified texts) of comics have been taking place in the US since the 1940s (particularly the study by Sones, in Yang, 2003). Actually we can say that the children's

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interest in comics supports their interest in reading and creative work with text. Comics can revert contemporary children generation back to reading. A project based on transferring Czech national fairy tales into comic book can be example coming from our educational environment. Fairy tales will be more accessible to children this way (Národní pohádky v komiksech, 2012). As reported by Wilson (2013, p. 64): Why do I teach comics in school? I cannot conceive of a legitimate, research-based reason why I would not. Use of comics for the development of reading literacy and so related research studies don´t stagnate on the finding that it is an effective teaching strategy. From the discussions on using comics in education for the development of reading we move to focus on the children´s potential to create the comic´s composition for multimodal literacy development. By asking students to produce as well as read comics, we can energize the processes of invention, problem solving, design, and revision that may fundamentally influence their attitudes toward this literacy and abilities with diverse literacies. (Comer, 2015).

In addition to seeking potential of comics for multimodal literacy, pedagogical discussion focuses actually on a number of stimulating impulses to motivate not only children, but also their teachers. Comics become an interesting teaching strategy in science education.

The aim of this study is to point to less traditional use of comics for development of scientific literacy in early childhood when children usually don´t participate in creation of comics yet but it´s the part of teacher´s didactic strategy for working on topic from natural sciences. Available studies on connection of teaching natural sciences and comics deal with education in upper levels of primary education. A pilot study for the project "Using Web Comics in Education" might be an example of this approach (2008). Pupils (5th grade) discuss the comics in groups, the introduction had been prepared by teacher. Their task is to supplement the story in which "leading role" is played by fossil footprints observed by pupils step by step. Further aim is to develop pupils´ skills necessary for observation and interpretation in natural sciences. Pupils´ discussion on the role of these methods is supported by questions posed by cartoon characters prepared in teacher´s version of educational comics.

Comics are often a team work in their realization in primary and upper levels of education as well as in solving established problem-based group work in pre-primary education when it stimulates the discussion between teacher and children. Dialogue based on exploring the topic presented in a comic book does not work just with words but also sounds or recurrent symbols. Nevertheless, simplification of a topic to a number of images and brief text or representing symbols doesn´t mean the reduction of understanding of natural phenomena. Conversely, the child has the opportunity, first individually and then in discussion with others, to experience the present problem with the gradual uncovering of images that children perceive and complement with their own ideas.

2. How can we work with comics in kindergarten?

Working with comics is not a common didactic strategy in kindergartens. It brings difficulties even if used in elementary schools. It would therefore seem that their use is more complicated in kindergartens. However, it isn´t so. In contemporary busy world a picture has its importance and its information value. Comics are an ideal tool for the support of creating programme environment in kindergartens, too.

Working with comics belongs among the strategies which a teacher must prepare thoroughly. Obviously, this is not a strategy which would belong among shallow activities.

The comics demand exacting preparatory phase when teacher must clearly consider the topic to be conveyed to children. Technical processing of comics is an important part of following preparation. Comic image is always integrated into a concrete story. It usually concerns a few characters who debate the situation or phenomenon. It´s very useful if comics convey the real situation that provokes, suggests solutions and motivates children to their own thinking about the situation. Comic drawing should provoke, it should lead to reflection and discussion in a group of children.

It´s not efficient if comic drawing is set in a phantasy or supernatural story. Children would create an unrealistic concept of phenomena and such misrepresenting of natural processes has impact on incorrect approach movement of children´s view of the world around them. That´s why we shouldn´t use a fairy tale in comics, although its core is based on the victory of good over evil. However, fairy tale doesn´t stem from real description of situations and it is not considered to be an appropriate strategy for breaking natural phenomena to children. The current generation of children is different than ten or twenty years ago. Even the perception of fairy tales by children is now changing. According to recent British research on childhood, the work with fairy tales reflects attempt by adults to idealize the world of children, but this is not the correct approach (see Kehily, 2002 or Hunt, 2009).

Conceptual scientific comics must have following characteristics:

- visual representation of scientific ideas;
- a minimum of text in dialogic form;
- equal presentation of alternative views on the situation and scientifically acceptable perspective;
- scientific ideas are applied to everyday situations based on authentic experience of recipients;
- It needn´t contain only a single scientifically correct response – it often depends on defining the variables.

3. Possible methodological approaches

Working with comics is primarily unknown to teachers. We would vainly search for teachers in the Czech preschool institutions who use this educational strategy regularly. This was one of the reasons to realise the research focused on possibilities to use comics in the process of scientific education in kindergartens in academic year 2015/16. Research has involved 18 students of Master's degree program of Preschool Pedagogy. All participants worked in kindergartens, but none of them had experienced comics before. Even from that perspective, it was interesting to follow their progress, transformation and self-reflexive findings after intense preparation and verification. Reflective diaries and participated observation of students´ work with children were the basic research methods.

3.1. How should we choose the topics for comics and how to manage them.

Just the part of topic´s preparation was very difficult for the research participants. They were looking for the phenomenon that they could present in comic form for a long time. When asked why it is so difficult for them, they answered "that they can´t imagine a clear processing of it." This concern is understandable because they´ve never experienced comics before but also for that reason (as they expressed) "they wouldn´t choose comics because they´re looking for teaching strategies which aren´t unnecessarily burdensome for home preparation." However, interesting topics with the formulation in form of divergent questions were finally created by the participants. For example: Why nettle burns, why the sun is shining, why snakes shed their skins, etc.

Marking the objective to be achieved with the children belonged to other identified problems. They were searching for the natural phenomena which "they would be able to explain correctly and methodically in inappropriate way." This effect can be attributed to the fact that the students don´t feel erudite enough despite the fact that they all had passed adequate preparation and had attended few courses focused on practice-based activities in science education.

Participants´ own creativity, however, fully reflected in designing the comics. In other words, when they found the topic and they realised what they want to achieve, the work on the visual processing of comics didn´t trouble them. They didn´t even have difficulties with the story, which is a necessary part of comics. As an example, we present the comic story about: Why does a deer have antlers?

3.2 Reflection of students´ activities while working on comics

The author decided to work in groups of six children. The work was managed by reading the comic story together. When using the term "reading" we mean that the children followed the story in images. The author of comic story wrote then in her reflection:

> *During our work, the children spontaneously pointed to phenomena that they´re familiar with. Immediately after reading they started to talk about that they´ve seen a deer on a meadow etc. All the children come from the village surrounded by forests and meadows, therefore it´s not difficult to see a roe deer. I let them talk about their experiences but I also reminded them that they´ve probably seen a roe deer which has much smaller antlers (we showed it in the magazine called Small Hunting) because the occurrence of a deer is rare in our region. One of the girls mentioned that she knows this magazine and that her father is a hunter too. After short discussion, I asked the kids about the content of the story. One pre-schooler repeated the content in a few sentences and she was helping herself with pointing at the comic images. My next question was if they knew what purpose the antlers serve. The answers were that it was a trophy to be put on the wall. "And why does a deer need them?" "He fought with them. It´s his weapon. And then he defeated the other." „And*

what did he gain?" „He won and stayed in the wood, the other had to leave…" I left the comic story on the table for viewing it together with the magazines for children "Small Hunter" where we can find many pictures of forest animals. The theme of comics that I´ve chosen, was familiar to children as well as understandable. It concerned a real life situation and was based on children´s attention during our reading, I can note that it was quite attractive. (Š)

Fig.1. Illustration of comics on the topic: Why does a deer have antlers?

Work in groups was an adequate educational form. Children had already some experience, which they applied in discussion. The cooperation and learning from each other happened this way and the children developed the debate naturally. So the comics are not only teaching aids to convey the targeted knowledge (the importance of deer´s antlers in this case) but also a good motivation for other activities and exploring the nature. Given that the characters were not drawn in movement, many ideas arose. Children started to react spontaneously after reading the comics and to tell

their experiences about what their mother used to say when they wake up annoyed because the kids didn´t sleep enough etc. Most children explained their experience and so they summarized the whole content of the story on their own. Finally the author says:

> *Comics had great success and the work wasn´t difficult at all and children liked it. They would be able to retell it in their own words after the reading. The way that the comics is drawn is also very important.*

The author brought an interesting perception of comparing a so called common and conceptual comics. She explains:

> *It´s not as much text in comics like literary genre as it´s in this one. Classical comics often include interjections and the text isn´t so important and descriptive. So classical comics usually lacks the educational component. The educational impact was clear in conceptual comics.*

The use of comics in conditions in kindergartens depends on teacher´s belief of effectiveness of this tool. Neither of the students with whom we worked, were enthusiastic at first, but eventually they appreciated the value of working with comics.

> *There is a large number of diverse activities in kindergartens which can replace comics or which are more appropriate to explain the problems; that´s why it might not meet with acceptance. Although the comics that focus on these questions could become popular with teachers because they pass these information to children and the whole comic book can serve as information material. (G)*

> *The comics was used in educational activities during the week when my colleague discussed the wildlife animals in forest and meadow within the first of the two-week block and she focused on life of animals in rivers and ponds during the second week. They were talking about the life of fishes in water, they named a few of them and other water animals or animals living in the vicinity of water. I read the comic story in small groups of 4 to 7 children during leisure activities in the afternoon. Children could voluntarily choose the comics, which lay on one of the tables, together with some other books on the topic during the whole week. The comics caught children´s attention and they asked my colleague to read it them. During the reading, I was in the class and I observed children´s reactions (F)*

It was interesting to study students´ strategies to work with comics. Some participants decided to present the comic story on their own and to intermediate contained information but other students put the comics to children´s disposal and then they waited for children´s questions. Especially with the choice of the alternative (comics as an offer), the children began to invent new various endings for the story, they created new stories and they were looking for answers to questions outlined in the comics. This was the case of a student who prepared the comics on the topic: Why should we brush our teeth?

The author of this comics describes:

> *A boy ran up to me and he didn´t hide his amazement. He looked at me immediately. He had a knowledge based on initial reading literacy about that we read the text (as well as a story) form the left to the right. He even read the numbers under the pictures to me. Without asking him to comment on it, he started to retell the story from his point of view. (V)*

The work with conceptual comics is perceived positively. It provides feedback also from the children who aren´t usually willing to express their opinions and ideas. Moreover, it should be interesting for the teachers that the comics can help them in diagnostic process with children.

Science education in kindergarten is associated with the search for new opportunities for so called formative diagnosis. It´s characterized by certain spontaneity and quick evaluation of child´s activities in various situations. However the teachers in practice usually express the problems in micro diagnostic approaches, so in processing quick reactions to children´s initiatives or to situations which occur during scientific education. Science education should really be focused mainly on the active construction of knowledge, on the cultivation of mind and the children´s ability to argue identified and verified hypotheses.

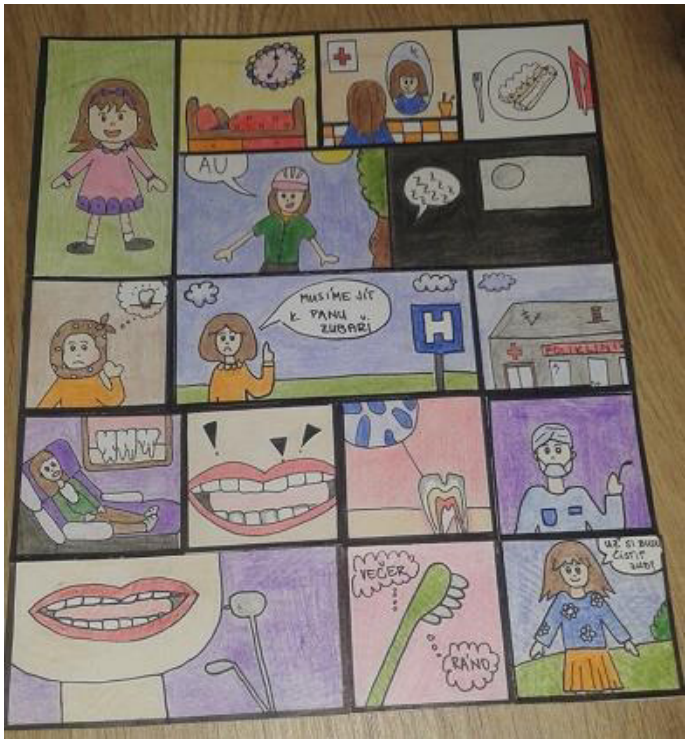

Fig. 2 Illustration of comics on the topic: Why should we brush our teeth?

4. Conclusion

In the process of science education it is important that children learn to develop their thinking, to learn to argue, to actively deduce and create the concepts. Based on their own experience, which is an important part of scientific discovery from child´s birth already, a child should learn to develop the knowledge through exploration, verification and constant search for scientific assumption and arguments. Comics can be very helpful in this effort. Nevertheless, also teacher has an important role in this process. The teacher is expected to:

- realize possible ways of concept development in the area under consideration;
- be competent to create tasks which stimulate and support educational process;
- have confidence in him/herself related to personal understanding of the topic, to be capable to accept different opinions and to react to them;
- be competent in organizing and managing the group of children the way that s/he supports conceptual learning.

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