FOLIA 197

Annales Universitatis Paedagogicae Cracoviensis

Studia ad Didacticam Biologiae Pertinentia V (2015)
ISSN 2083-7267

Smaragda Papadopoulou

Storytelling in teaching language arts as a representation of change in animation of science culture

Introduction

The language arts animation teaching plan that we present is connected to interdisciplinary teaching of science and language arts. Scientific animation is supposed to have tremendous potential as an instrument of insight and dissemination in education (Lowe, Schnotz, 2008). However, audiences are often unable to determine the degree to which visualizations are informed by scientific evidence and young children turn to lose verbal ability as long as they use the visual art of animation. Traditional animation, cel animation or hand-drawn animation is an eligible teaching tool in language and science classrooms. Individual frames of a traditionally animated film created by children are not a new idea. The completed character cels are photographs of children's drawing, first drawn on paper to create illusion and play. All we need in a simple class is a camera against a painted background by rostrum camera and a scanner onto motion picture film and children's scenario. Digital video can be used as an alternative tool to improve movement and effects. The final animated piece is output to one of several delivery media including digital video as a tragidal version of a storytelling presentation in language arts. (Musa, Ziatdinov, Griffiths, 2013) Stop-motion animation or puppet animation can be used to provide a source of learning language and environmental sensitivity. Clay animation is also a good choice in working with younger children. Although graphic animation and object animation is more usual with children of age 9–12 we can combine Pixilation in use of alive humans as stop motion characters that students can take as a role playing story. 2D animation and 3D animation and computer graphics may be used in case that there is a member of the school community to encompass a variety of techniques (Masson, 2007). Flip books can be designed in class and produce a language arts idea as an informative model of learning science and culture. In English this technique is mostly called flick book. From our point of view teachers can take advantage of illustrated story books to create flick books

and work on cognitive development of children in Science and linguistics. We can encourage our students to participate in academy awards for best animated short films in the country or in international settings. By providing a more detailed account of source use, developers can increase the credibility of animations as scientific tools. We try to figure out if children can improve their skills in language by creative use of books, storytelling and animation. From this perspective we designed a teaching methodology in a project called "Young environmental scientists searching in our culture". It was divided as a teaching process into four thematic units. This division may be more or less applied according to the number of students in an experimental class. In didactics, we give the educators the opportunity to try some of the activities described and transform these ideas in accordance with special interests and needs of experimental teaching. The production of this experiment in progress at schools from September 2015 till May 2016 will give us details of the importance and the results of the attempt. The units that were confirmed in cooperation with primary school teachers were as follows:

1. Water as a source of life on Earth.
2. Pollution and its effects on Earth.
3. Cultural peace and the effects of war on Earth.
4. Climate changes and technology.

In this study we present the teaching experiment as an original research work in progress at the University of Ioannina, Department of Primary Education and the laboratories of "Intercultural Education" and that of "Language, Didactics of Language and Cultural Studies" in Greece. Ten schools and 200 students between the age of 10-12 are involved in the experiment and another ten schools and 200 more students that work only in the traditional way are included as a control-group of our teaching experiment. Both groups come from ten different places of the country and we cooperate for this purpose. Since this is a work in progress we cannot assume results and conclusions but only present a didactic principle of language arts and the challenges of storytelling, animation and environmental education (Potyrala, 2004; Potyrala, 2008).

Methodology of our Study

Problem solving methods in language arts, social-emotional communication in groups and animation of science culture in creative storytelling language and teaching mother tongue in cross-cultural settings, interdisciplinary methodology. (Musa, Ziatdinov, Griffiths, 2013). A written story from the students is taught to have a definitive beginning, middle and end, relatable characters, a comprehensive plot, a compelling voice, a sense of rhythm, pacing, tone and style. This can objectively skims the surface of the requirements for solid storytelling learning. Since children can encompass in an animation any picture from their Phones we can take advantage of technology to concentrate on monologues and dialogues that can reflect a vivid story of what they have learnt from science and environmental

sensitivity. The goal of the story, the anticipation and the emotional words can lead to the appropriate effect through children's literature. Color and mood are connected in animation story boards. We can capture the history of human animation art by showing to the students examples of animation drawings in caves and the example of a phenakistoscope disk as designed by Eadweard Muybridge in 1893. The perception of motion and the language motion are combined in our experimental teaching suggestion as it follows.

Language tools – Sources from Greek Children's Literature

Each team takes one book to work on and tell a story. The books that the children decided to work on with the teacher as their coordinator were:

1. "The Giving Tree" a children's picture book written and illustrated by Shel Silverstein. First published in 1964 by Harper & Row. This book will be discussed at this article as a teaching example of a project

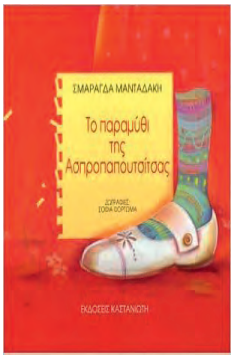
https://www.youtube.com/watch?v=32A31SzVhyw
https://www.youtube.com/watch?v=32A31SzVhyw
https://www.youtube.com/watch?v=1TZCP6OqRlE
https://www.youtube.com/watch?v=8wGhqtWR4uo
https://www.youtube.com/watch?v=JOGMzGDEQoU
https://www.youtube.com/watch?v=fbLaX20hNw8
https://www.youtube.com/watch?v=5paKczJn4IU
https://www.youtube.com/watch?v=2wttWU3T34o

The book is about the relationship between nature and humanity; a tree that always gives the boy everything he wants and the boy that always needs new things and does not visit the tree often enough and finally forgets to love it. The children book works as an "allegory about the responsibilities a human being has for living organisms in the environment as a kind of environmental ethics". From this point of view, the story ends with the boy as an old man who sits on the stump or what is left of this friendship. The tree represents how humans are constantly taking from the earth until there is nothing left. As we learn from Wikipedia "Jackson and Dell (1979) wrote an "alternative version" of the story for teaching purposes that was entitled *The Other Giving Tree*. It featured two trees next to each other and a boy growing up. One tree acted like the one in *The Giving Tree*, ending up as a stump, while the other tree stopped at giving the boy apples, and does not give the boy its branches or trunk. At end of the story, the stump was sad that the old man chose to sit under the shade of the other tree" (https://en.wikipedia.org/wiki/The_Giving_Tree retrieved December 6, 2015, *Bosustow, Nick, and Shel Silverstein (Producers); Hayward, Charlie O. (Director and Animator); Silverstein, Shel (Original Story, Music, and Narration) (1973). The Giving Tree (VHS). Chicago, IL: SVE & Churchill)*.

TEACHING CONCEPT: There are other interpretations and educational outcomes of interaction with the plot in class that can be symbolized from the

storytelling in any other plot that children create. Friendship, relations between children and parents, relation of woman and a man, religious consciousness of the giving attitude can be reflected in language lessons through discussion, writing activities and language arts as an interdisciplinary process of teaching methodology. Children design and create animation storytelling of the episodes in story map and in dialogues with descriptive language. They use their imagination and put another person in the story which is each one of us as readers/players and alive parts of the storyline.

2. "*The fairy tale of the little Whiteshoed* " by Smaragda Madathaki-Papadopoulou, in Greek, Athens, Kastaniotis ed.



In this story *the Little Red Riding Hood* has grown up and is an old lady. Her granddaughter wears white shoes. This is why we call her the Little Whiteshoed. She asks her grandma to tell her the fairy tale with the wolf before she goes to sleep. Each time she never listens to the end of the story because she falls asleep. Though, the old Red Riding Hood retells her true story to her granddaughter that adults have misunderstood. The story has messages about the forest as a natural environment of the animals that human beings destroy and kill animals because of their fear of everything different than them and their cupidity as if we are the kings of the earth. The Little Red Riding Hood says that she was a friend of the wolf, how he made her laugh because she was anxious about her grandmothers' absence. They were just playing and had fun, when the hunter appeared with her and shot the wolf. The Red Riding Hood in this real story had helped the wolf jump from the window and got spared. The Little Whiteshoed decides to meet the wolf's grandchildren and becomes a friend of them. But this happens in her dream and when she wakes up

TEACHING CONCEPT: We read and act out the book and create animation storytelling on the way that humans behave in the forest and the animals of a forest. Fear is the significant issue in problem solving discussion about the main characters' problem. We stop the story line to continue it in new versions which seem more fair and reasonable from the wolf's point of view.

3. Antoine de Saint-Exupéry, *The little Prince*, Original title*Le Petit Prince,* Translated (in English editions) by: Katherine Woods, Irene Testot-Ferry, D. Wilkinson, Illustrator: Antoine de Saint-Exupéry. France Language French Publisher: Reynal&Hitchcock (U.S.) Gallimard (France) [2] Publication date 1943 (U.S.: English & French) 1945 (France):

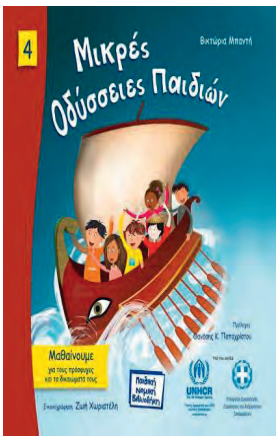
The well-known story brings a new reading of the planets that we imagine, different things happen and finally we build a planet that is exactly as we want it to be from the children's point of view and they choose how the environment should be so as nature is respected. Though ostensibly this book is styled as a children's book, The Little Prince makes several points about life and human nature. For example, what the fox says upon meeting the young prince during his travels on Earth: "On ne voit bien qu'avec le cœur. L'essentiel est invisible pour les yeux" (in translation: "One sees clearly only with the heart. What is essential is invisible to the eyes"). Other key thematic ideas are also articulated by the fox, such as "You become responsible, forever, for what you have tamed" and "It is the time you have given for your rose that makes your rose so important".

TEACHING CONCEPT: Children can read about and discuss human relations and also create science animation with information on astronomy and scientific details about the possibility of life on other planets or any other thematic union that the science teacher wants to explain to the students through a pleasant way of reading literature and using animation.

The plot is described in the following way (from: https://en.wikipedia.org/wiki/The_Little_Prince): "one day, his plane crashes in the Sahara desert, far from civilization. Here, the narrator is suddenly greeted by a young boy whom he refers to as "the little prince". The little prince asks the narrator to draw a sheep. The narrator first shows him his old picture of the elephant inside the snake, which, to the narrator's surprise, the prince interprets correctly. After a few failed attempts at drawing a good-looking sheep, the narrator simply draws a box in his frustration, claiming that the box holds a sheep inside. Again, to the narrator's surprise, the prince exclaims that this is exactly the picture he wanted. The narrator says that the prince has a strange habit of avoiding directly answering any of the narrator's questions... The prince begins by describing life on his tiny home planet: in effect,

an asteroid the size of a house (which the narrator believes to be the one known as B-612)... The prince has since visited six other asteroids, each of which was inhabited by a foolish, narrow-minded adult, including: a king with no subjects; a conceited man, who believed himself the most admirable person on his otherwise uninhabited planet; a drunkard who drank to forget the shame of being a drunkard; a businessman who endlessly counted the stars and absurdly claimed to own them all; a lamplighter who mindlessly extinguished and relighted a lamp every single minute; and an elderly geographer, so wrapped up in theory that he never actually explored the world that he claimed to be mapping. When the geographer asked the prince to describe his home, the prince mentioned the rose, and the geographer explained that he does not record "ephemeral" things, such as roses. The prince was shocked and hurt by this revelation, since the rose was of great importance to him on a personal level. The geographer recommended that the prince next visit the planet Earth".

4. Little Odysseys of Children (in Greek), a book by B. Mpantis, illustrated by Zi Choriatelli, edited by the Law Library of Athens, Greece.



Odysseus (Ulysses) and his best friend, Them have often seen children of other skin color when they play on the field or when they ride bicycles. "Where do they come from? Why they left their homelands? What is the weather like there? Why did they come to Greece? Did they also pass a small Odyssey like the mythical Odysseus, to arrive in our country?", the two friends wonder.

TEACHING CONCEPT: Their teacher as a *navigator* makes a great trip to the countries of their classmates refugees and learn about their small Odysseys. They work on their personal stories, awaiting not pity but your understanding. The Aziza, Fatima, Isaac, children of the neighboring benches invite you with tales to approach them, accepting their differences. Through this book you will learn, but also combine language learning vocabulary, science knowledge and information on international organizations that protect the rights of refugees. Children turn to animation parts of

the story book to give others more details on environmental and cultural awareness. Changes of climate during the time is discussed in a problem-solving approach.

Reading tips and storytelling – Interaction with the books

Each team decides what exactly they are going to present through animation on a certain thematic union such as our relationship with wild animals (the wolf of the story in the case of "The Little Whiteshoed" and the forest life, the disaster of war and its effect on environment, fantastic adventures of the "Little Prince" when he visits the planet Earth after fifty years and the stories that may have present as a biography of the story characters who are refugees in our country such as the case of the war in Syria which is a recent situation (events that children watch on the television). Moreover, there is a culture they are describing, emotions and thoughts about humanity and scientific progress on earth having children's literature and language as the fundamental initiative for activities in class (National Education Association, 2007).

Description of the activities animated by children and the procedure of the teaching plan.

Next, we intend to describe the work of one group on one selected book. Each book can give different ideas and activities for creative animation and science research through language and reading of children's books as an interdisciplinary perception of teaching methodology.

TEACHING EXAMPLE: of the "ANIMATED GIVING TREE"

Description/Animation and storytelling teaching plan

Title of the group "Young researchers"

Book involved with animation: "The giving tree" (see also Miller, 2012).

Students get involved in an active animation environment and the teacher works as co-ordinator.

A. Students get involved in an energetic digital teaching plan and communicate through literacy which may be verbal, visual, kinesthetic or other (See also: Radeva, 2012).

Aims of the teaching plan

Language acquisition through reading, storytelling and animation.
Positive activation of children in scientific research thinking and environmental problems.

The main aims are concentrated in three fundamental pillars.

Cognitive objectives (Bloom, 1956)

Students comprehend the value, utility, necessity and interplay between environmental components and creatures.

- to become socially alerted and work problem solving strategies on science and environment through the language of storytelling and animation (Barman, 1999),
- to create argumentation in writing and reading as a whole language approach of literature on ecological consciousness of them as future citizens.

Development of skills-objectives:

In teaching and learning through language students work on skills application and development of:

- communication (Reading, Writing, Listening comprehension, speaking abilities, critical thinking, imagination and animation, dialogues),
- co-operation and socialization in class,
- searching of information at the thematic union of Science,
- creative thinking and language expression.

Regarding the uses of digital animation in storytelling and teaching of the language students should learn to:

- use the computer to select animation materials related to the book that each team works on (WebQuest),
- create writing enriched with animation descriptions through language,
- design conceptual story maps and write stories inspired by the book characters and combining animation cards in the plot as they present their work to the other groups in class,
- to make use of webpages about articles on the environment and information or ideas for their storybook,
- to connect the book and the visual motion in expressing themselves as a stimulus for language improvement.

Duration of the Teaching Example

2 hours every week for a month (8 hours) and one day of presentation for each group in class. In our case: four days (8 hours).

Meanwhile, students put together a schedule of meetings for preparing their presentation – twice a week during "The Creative zone" of the Curriculum in Greek public schools, which gives the opportunity for each class to produce something

creative as a unit of activities and cultural-science research and artistic production from the students of primary education.

Pre-existing Knowledge:

Students can read, they are aware of grammar and syntax rules of the Greek language, know how to search the web, they have a basic vocabulary and orology on the science animation and the environment. They can describe and re-tell stories, they read or listen to them in a stimulating environment. (Barab, 2009; Bishop, 2006).

Teachers' obligation and attitude:

To be the coordinator of students in their groups during the procedure. (S)he brings teaching materials and explains how to use them in a positive and pleasant approach (Baker & Delacruz, 2012).

Description of the teaching procedure

1. **The application of a teaching plan on science storytelling and animation follows these guidelines as a whole** (Wells, 2012).

Select the topic
Define objectives in co-operation with children and in relation with their interests, decisions on who is going to do what in each group
Planning of work and establishment of small groups. Definition of problems to be solved and learn through the uses of science culture and storybooks
Award and implementation of work on individual and group level
Presentation of the books from the group members before the use of animation as book readers and presenters
Presentation of their story as they have created the plot with the use of animation and all the things that they found out through the science culture and the combination of the storybooks in expressing their thoughts and solve interesting problems
Discussion of results, reflective journal and description of the story maps as a procedure to express themselves verbally and in writing.
Rating of the work for each group and metacognitive comments of the participants

2. **Experimental problem solving with the problem of the story characters**

Students read the story but we stop the procedure at the critical scene of the problem that the story character faces in their environment Students identify and investigate the problem of the story character/the issue
Students set targets for the solution or participation in solution of the problem and get involved in the storytelling in creative ways
Students explore alternatives for the main character of the book and the problem itself
Drafting of criteria for the selection of possible/realistic solution or solutions
Students select the appropriate solution or solutions according to the principles of sustainability
They develop action plan

Animation is combined to do so as a picture and motion or an assistant character that can be the student as a person/friend of the boy that makes him change attitude about the environmental values. The assistant – a character of the storytelling can be an assistant case or magical helper as in traditional fairy tales. The key concept is that we change the story to change people's mind and have a better world and environment (Lowe & Schnotz, 2008; Tramell, 2013).

Implementation of action

Students read the story but we stop the procedure at the critical scene of the problem that the story character faces in their environment
Students identify and investigate the problem of the story character/the issue
Students set targets for the solution or participation in solution of the problem and get involved in the storytelling in creative ways
Students explore alternatives for the main character of the book and the problem itself
Drafting of criteria for the selection of possible/realistic solution or solutions
Selecting the appropriate solution or solutions according to the principles of sustainability
Developing action plan – animation is combined to do so as a picture and motion or an assistant character or case to help in finding solutions for the story characters and the problem Implementation of action Assessment and feedback process.

Activities – Description of activities

A) Teacher – Coordinator asks students to choose a picture card that fits to the word Environment. They make a sentence or a phrase that reminds the word concept. They communicate and have a dialogue as groups and then as a whole class with other keywords related to the environment and the way that they feel about the picture and the sentence they wrote (Paul, 2011).

We put the pictures down on the floor and play the sounds of nature. Students have the chance for a few minutes to walk around, see all the pictures and stand by the one that is most familiar or interesting to them. This happens when the music stops. We explain to children that these pictures are alive and can be seen in animation progress at their computer (Masson, 2007). They imagine and try to guess how it could look when there is motion in it. The picture-card will be explained in connection with the "The Red Hawk Effect" later.

B) The teacher-coordinator tells the students to create groups in accordance with the same interesting pictures that they chose or as they want. They pick the card from the floor and sit down as groups at their desks in a way that they can see each other at a round table (Adams et al., 2008a).

C) In relation with the books as they have been noted before, each group takes a book to read. They also see the Light tree in relation with the Giving tree (the first book) which makes children aware of the changes of the climate and the vocabulary of this problem (http://photodentro.edu.gr/ugc/r/8525/453. Beck et al., 2012).

D) Children read "The Giving Tree" by Shel Silverstein, Harper and Row publishers, 1964). Then they watch it from You Tube. They try to combine th animation-picture with the book and make their own story (see also: Lowe & Schnotz, 2008).

E) As the illustration of the book, on a symbolic tree made from paper children put their wishes for the tree and the salvation of the Trees from human greediness.

They make drawings and set a story map that can become animation book in a raw of pages. We scan the pictures and make an animation story book based on the giving Tree called "the beloved tree" as a version of the people who finally respect and love the nature of the forest.

The card referring to gif animation is used to assist the episodes of the story (Buttenfield, Weber, Mac Lennan, 2015). Finally, children write a letter to the main character of the book – the boy or the Tree. They can also put themselves in the story plot as a game strategy so they can change whatever seems problematic from their point of view (Barab, Arici, Jackson, 2005).

Problem-solving strategies and argumentation

Problems to be discussed can include: water as a source of life in danger, energy as a declined need, pollution, variety in biology of all creatures on Earth and accepting what is different, climatic changes and chances to keep the Earth alive (Baker, Mayer, 1999).

Each group decide how to present the book of their choice and the problem to be the issue of the storybook, as well as what they write as authors of a new option (Bennett, Persky, Wiss, Jenkins, 2007).

In this phase the students can also search in digital machines and find ideas and information as suggested by the teacher-coordinator.

They keep a reflective journal of what they read and the story book. They keep notes on related information. They write down reasons and consequences of the problem solving strategies.

They present what they learned and what the story should be like in case they do not feel interested in it (Behrens, 2009; Behrens, et al., 2008).

Metacognitive discussion is used as an evaluation tool

- children of the other groups come up with their own ideas and animation cards and design activities for the same creative and critical thinking issues through fairy tales and the stories they chose (Bewley et al., 2009),
- an event at the end of the project can be organized for parents and other students of other schools,
- students may send their animation storytelling books to the Major of the city or any other place, for example to the Ministry of Environment, the President of the parliament or a radio station to explore other people's awareness on

environmental problems by showing their work in a discussion with journalists (Barron, 2006, Baxter et al., 1992).

The giving tree and the cards: materials to be used in class regarding technology of gif

We select the work of a real person who started to lose his vision. George Redhawk started to work with computer at the same time he started to lose his vision. Since he could not do his job as a doctor he turned to work with the art and technology. The loss of his vision in different phases inspired him to create moving images as he kept vision as a memory in a cognitive development. The term "The Redhawk Effect" can be explained to the students before they start working with the animation to make their own stories. We start with the work of this Redhawk Effect that can also be printed by the Science-Language teacher as cards to play with students (Barabet al., 2005, Barab et al., 2007):

http://img.pathfinder.gr/CMAN/f/3309/I4511399/kain%2011.gif.
http://img.pathfinder.gr/CMAN/f/3309/I4511399/kain%2022.gif.
http://img.pathfinder.gr/CMAN/f/3309/I4511399/kain%2033.gif.
http://img.pathfinder.gr/CMAN/f/3309/I4511399/kain%2044.gif.
http://img.pathfinder.gr/CMAN/f/3309/I4511399/kain%2055.gif.
http://img.pathfinder.gr/CMAN/f/3309/I4511399/kain%2066.gif.
http://img.pathfinder.gr/CMAN/f/3309/I4511399/kain%2077.gif.
http://img.pathfinder.gr/CMAN/f/3309/I4511399/kain%2088.gif.
http://img.pathfinder.gr/CMAN/f/3309/I4511399/kain%20100.gif.
http://img.pathfinder.gr/CMAN/f/3309/I4511399/kain%2013.gif.

OTHER RELATED TEACHING-VISUAL LANGUAGE ARTS EXPERIMENTAL MATERIALS

- a short animated film of the book, produced in 1973, featured Silverstein's narration.
- silverstein also wrote a song of the same name, which was performed by Bobby Bare and his family on his album *Singin' in the Kitchen* (1974).
- silverstein created an adult version of the story in a cartoon entitled "I Accept the Challenge". In the cartoon, a nude woman cuts off a nude man's arms and legs with scissors, then sits on his torso in a pose similar to the final drawing in *Giving Tree* in which the old man sits on the stump.

References

Adams W.K., Reid S., LeMaster R., McKagan S.B., Perkins K.K., Dubson,M., Wieman C.E., 2008a, *A study of educational simulations part I – Engagement and learning,* Journal of Interactive Learning Research, 19(3), 397–419.

Baker E.L., Delacruz G.C., 2012, *A framework for the assessment of learning games,* [in:] H.F. O'Neil, R.S. Perez (eds.), Computer games and team and individual learning, Elsevier UK, Oxford.

Baker E.L., Mayer R.E., 1999, *Computer-based assessment of problem solving,* Computersin Human Behavior, 15*,* 269–282.

Barab S.A., 2009, *The Quest Atlantis project: A 21st century curriculum.* Paper commissioned for the National Research Council Workshop on Gaming and Simulations, October 6–7, Washington, DC.

Barab S.A., Arici A., Jackson C., 2005, *Eat your vegetables and do your homework: A design based investigation of enjoyment and meaning in learning,* Educational Technology, 45(1), 15–20.

Barab S.A., Dede C., 2007, *Games and immersive participatory simulations for science education: An emerging type of curricula*, Journal of Science Education and Technology, 16(1), 1–3.

Barab S.A., Sadler T.D., Heiselt C., Hickey D., Zuiker S., *2007, Relating narrative, inquiry, and inscriptions: Supporting consequential play,* Journal of Science Education and Technology, 16(1), 59–82.

Barman C.R., 1999, *Students' views about scientists and school science: Engaging K-8 teachers in a national study,* Journal of Science Teacher Education, 10(1), 43–54.

Barron B., 2006, *Interest and self-sustained learning as catalysts of development: A learning ecology perspective,* Human Development, 49(4), 153–224.

Baxter G.P., Shavelson R., Goldman S.R., Pine J., 1992, *Evaluation of procedure-based scoring for hands-on science assessment*. Journal of Educational Measurement, 29(1), 1–17.

Beck I.L., McKeown M.G., Kucan L., 2012, *Bringing words to life: Robust vocabulary instruction,* Guilford Press, New York.

Behrens J.T., 2009, *Response to assessment of student learning in science simulations and games. Paper prepared for the National Research Council Workshop on Gaming and Simulations*, http://www7.nationalacademies.org/bose/Behrens_Gaming_CommissionedPaper.pdf [access: 10.05. 2014].

Behrens J.T., Frezzo D.C., Mislevy R.J., Kroopnick M., Wise D., 2008, *Structural, Functional, and Semiotic Symmetries in Simulation-Based Games and Assessments*, [in:] E. Baker, J. Dickieson, W. Wulfeck, and H.F. O'Neill (eds.), *Assessment of problem solving using simulations,* Routledge, New York, 59–80.

Bennett R.E., Persky H., Wiss A., Jenkins F., 2007, *Problem solving in technology rich environments: A report from the NAEP technology-based assessment project.* NCES 2007-466. Washington, DC: U.S. Department of Education, National Center for Education Statistics, http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2007466 [access: 28.07.2010].

Bewley W., Chung G., Delacruz G., Baker E., 2009, *Assessment models and tools for virtual environment training*, [in:] D. Schmorrow, J. Cohn, and D. Nicholson (eds.), *The PSI handbook of virtual environments for training and education: Developments for the military and beyond, volume 1,* Greenwood, Westport, 300–313.

Bishop C.M., 2006, *Pattern recognition and machine learning,* Springer, New York.

Bloom B.S., 1956, *Taxonomy of educational objectives. Handbook 1: Cognitive domain,* David McKay, New York.

Buttenfield B.P., Weber Chr., Mac Lennan M., 2015, *Biliography on Animation of Spatial data: A Guide to Literature, Video and Movie Media* (91–22) State University of Buffalo, Elliot, J. Editors, http://escholarsip.org/uc/item/0d25h57v. [access: 22.08.2015].

http://www7.nationalacademies.org/bose/Gaming_Sims_Commissioned_Papers.html (access: 08.03.2014).

Lowe R., Schnotz W. (eds). 2008, Learning with Animation. Research implications for design, Cambridge University Press.

Masson T., 2007*, A computer Graphics Industry reference. Unique and personal histories of early computer animation production, plus a comprehensive foundation of the industry for all reading levels*, Digital Fauxtography, Williamstown.

Miller E., 2012, "*15: The Giving Tree and Environmental Philosophy: Listening to Deep Ecology, Feminism and Trees"*, [in:] P.R. Costello, *Philosophy in Children's Literature*, Lanham: Lexington Books, 251–266.

Musa S., Ziatdinov R., Griffiths C., 2013, *Introduction to computer animation and its possible educational applications*. In M. gallova,J. Guncaga, Z. Chanasova, M.M. Chovancova (eds.), *New Challenges in Education. Rettrospection of history of Education to the future in the interdisciplinary dialogue among didactics of various school subjects*, VERBUM: University of Ruzomberoc, 177–205.

National Education Association, 2007, Teachers' Top 100 Books for Children, Retrieved 18.05.2013.

Paul P. (September 16, 2011), *The Children's Authors Who Broke the Rules*, The New York Times, Retrieved 29.06.2015.

Peter R., *Philosophy in Children's Literature, Lexington Books: Lanham, 267–283.*

Potyrała K., 2004, *Interdisciplinary nature of genetics: educational implications, Science Education International, 15(2), 153–160.*

Potyrała K., 2008, *Media and Culture as civilizational challenges for biology and environmental Education*, Problems of The 21st century, 8, 97–104.

Tramell K., 2013, *Creating a Realistic Head in Blender*, http://cgcookie.com/blender/cgc-courses/creating-a-realistic-head-in-blender/

Wells P., 2012, *Animation and the Animated Film*, Oxford University Press.

Other Digital Sources on the Giving Tree as a teaching example

The Giving Tree: Based on the Book and Drawings by Shel Silverstein. YouTube. Churchill Films. 1973, Retrieved 16.05.2015.

Markstrom S. (June 18, 2010). *Giving Tree Band Takes Story to Heart. The Register-Guard.*Retrieved 19.09.2014.

Pramling Samuelsson, I. Mauritzson, Ulla; Asplund Carlsson, Maj; Ueda, Miyoko (1998). *A Mother and a Friend: Differences in Japanese and Swedish Mothers' Understanding of a Tale,* Childhood, 5(4), 493–506.

Radeva M., 2012, *16: The Giving Tree, Women, and the Great Society,* In Costello.

Rowe F.L. (2008), *At the Core of The Giving Tree's Signifying Apples, In Magid, Annette M. You Are What You Eat: Literary Probes into the Palate,* Cambridge Scholars. Newcastle, 284–306.

Fredericks A.D. (1997), *The Giving Tree. The Librarian's Complete Guide to Involving Parents Through Children's Literature Grades K-6. Libraries Unlimited: Englewood* 28.

Storytelling in teaching language arts as a representation of change in animation of science culture

Abstract

The subject of the article is connected to teaching strategies of storytelling, problem solving and social-emotional perspectives of communicating language through the animation of science culture. The importance of creative language settings as an early support within the context of the Greek national education policy is discussed. A modification of the animation of science culture to language arts' context with specific examples of applications and teaching practices in class (6-12 year-olds) are discussed. The need of an eligible curriculum to create cultural environment at school propose changes in primary education cross-culturally in a democratic human interaction of social organizations and school systems "Animus" as a key word of the working spirit and the soul in learning mother tongue or another language enables teachers to explore animation techniques and experience creative learning of being alive components of knowledge in new ways with their students.

Key words: Animation, culture, storytelling, language, teaching methodology

Smaragda Papadopoulou, Associate Professor
University of Ioannina, Greece
e-mail: smpapado@gmail.com