Abstract

Every person has creative capabilities. Creative inclusive education has to recognize and support the development of the creativity of people who also have some specific learning disabilities (SLD), taking into account their distinctiveness as a result of certain developmental disorders. In the paper, we analysed the possibilities for offering creative and instructional support to students with dyslexia, to develop alternative and compensatory strategies, which lead to the realization of established goals in their daily and academic activities. The basis of a multisensory approach in the process of learning and training students with dyslexia has been an integral part of many programs for remedying and overcoming reading difficulties. A creative use of ICT tools in teaching should be organized to promote student participation and cooperative learning with and without SLD. There are some examples of the creative use of ICT as a teaching support for students with SLD.

Keywords: specific learning disabilities; creativity; teaching; e-education,

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1. Introduction

Imaginative activity fashioned so as to produce outcomes that are both original and of value (NACCCE, 1999). While there are different views and definitions of creativity, perhaps the most important one for the pedagogical implications is to primarily consider the creative potential of every person and the ways in which the educational process can assist in their development. When it comes to the analysis of the creative product, it is also very important to consider both, the great achievements of eminent persons or geniuses, but also small everyday creative activities of ordinary people (Richards, 2007). We believe that every person has creative capacities, that it can be shown in all areas of human activity, and that it is possible to make the school environment “friendly” for the expression and development of different and innovative approaches and activities. In other words, there is a need to make a creative school environment and it is a possible way to awake and allow the creative potentials of students to grow. Teachers’ roles in the process of creative teaching are important. Teaching creatively is one way of teaching for creativity. According to National Advisory Committee on Creative and Cultural Education in UK (NACCCE, 1999, according to Jeffrey & Craft, 2004: 77), teaching creatively is defined “as using imaginative approaches to make learning more interesting and effective”, and teaching for creativity is defined “as forms of teaching that are intended to develop young people own creative thinking or behaviour”. For that reason, we agree with and adopt the definition of creative education made by Loveless (Loveless, 2003): creative education represents “forms of education that develop young people’s capacities for original ideas and action”. From that point of view, for all the students, with or without specific learning disabilities, it is our duty to find and promote forms of inclusive education that can make it possible for all of them to find and develop their creativity.

2. Specific Learning Disabilities and Creativity

Improving the educational process involves the formation of a broad, flexible and motivating educational system, ready to recognize and develop individual qualities and talents of each participant in this process. Creative inclusive education has to recognize and support the development of the creativity of people who also have some specific learning disabilities, taking into account their specificities as a result of certain developmental disorders. In this paper, we will not analyze if there is a connection between specifically altered cognitive functioning of people with dyslexia, and giftedness and creativity, although it is an issue that has attracted the attention of many scientists in recent decades. But, it is important to mention that the emergence of the world’s minds had unexplained difficulties in reading and writing, despite the extraordinary intellectual potential. With all the difficulties they had in education, and in defiance of the whole social system which is based on the transmission of information in writing, they have, however, reached a peak in their fields. It is possible that creativity is what allows student with dyslexia, despite their learning difficulty, to develop alternative and compensatory strategies, which lead to the realization of established goals in their daily and academic activities.

The traditional approach is that dyslexia represents an unexplained reading difficulty that exists despite normal intelligence, appropriate sensory and motor functioning and adequate conditions for learning. It is a quite frequent disorder which is identified in about 5-11% of schoolchildren, depending on the environment (Birsh, 2005). It is known that amended, atypical processing of information is the basis for difficulties of people with dyslexia, and giftedness and creativity, although it is an issue that has attracted the attention of many scientists in recent decades. But, it is important to mention that the emergence of the world’s minds had unexplained difficulties in reading and writing, despite the extraordinary intellectual potential. With all the difficulties they had in education, and in defiance of the whole social system which is based on the transmission of information in writing, they have, however, reached a peak in their fields. It is possible that creativity is what allows student with dyslexia, despite their learning difficulty, to develop alternative and compensatory strategies, which lead to the realization of established goals in their daily and academic activities.

According to many findings, such afference of phonological processing (degraded representations of words, phonological working memory deficits or difficulties of recalling verbal stored materials) is not accompanied by analogous difficulties in processing visual material (Spaulding et al., 2008; Archibald & Gathercole, 2006, 2007). Asymmetry in the quality of processing visual and verbal information in people with dyslexia might contribute to the visual preferences in relation to verbal information in various stages of automated data processing, but also to gaining access to the data in the learning process, or - in the style of learning. In recent years, there are opinions (Davis, 2010) that dyslexia itself carries a particular learning style, which is characterized by global perception, thinking in images, intuitive and multi-dimensional thought and curiosity, which significantly affects the frequent occurrence of innovative and creative solutions in all scientific and artistic fields,
as well as top achievements in different professions than in the general population. Hence, it appears that creativity
is more pronounced in people with dyslexia, than in those without it. On the other hand, creativity is by definition
Renzuli (1984) an integral part of talent. Can we say that some people are gifted with dyslexia? Giftedness,
according to some generally accepted guidelines, implies an ease in learning, the rate of progression and acquisition
of knowledge and skills, and difficulties in identifying the talent in dyslexia lies in the fact that they are usually
unsuccessful in school activities.

The classic way of teaching is not helpful for students with dyslexia/specific learning disabilities (SLD). This is
the reason why there are many multisensory programs for students with dyslexia in the last decades and a space for
the creative use of ICT in their education.

The bases of a multisensory approach in the process of learning and training students with dyslexia have been an
integral part of many programs for remedying and overcoming reading difficulties (e.g. Palinscar & Brown,
1984; Temple et al., 2003; Tei, 2003; Joyce, 2004). The multisensory approach refers to any learning activity that
provides simultaneous input or output through two or more sensory channels. The material taught this way is easier
to remember. This approach is considered to be very suitable for people with dyslexia and bilingual persons who
may have difficulty in understanding verbal instructions. That is, by assumption, due to a failure in people with
specific learning disabilities, a sensory channel may have restrictions, so it is sometimes very difficult for them to
receive information from only one sensory modality properly.

At the end of the 1990s, this notion that students with dyslexia have different patterns of hemispheric processing
of data has led to the expiration of their presumed preferences for visual-spatial learning strategies. This idea is
further developed by West, and perhaps it could be said that the examination of modal preferences of people with
dyslexia were best initiated by West’s highlighting (West, 1997); the positive aspects of dyslexia that can be used in
the process of learning in small groups, and contributing to the achievement of more efficient results in the whole
group and especially the students who have reading difficulties. West has used the Galburda’s research to show that
persons with dyslexia who rely on data processing in the right hemisphere have practical advantages over the typical
population in certain learning situations, pointing out the positive aspects of dyslexia and underlining that people
with dyslexia have developed the ability to visualize creative thinking, developed visual-spatial skills, a holistic
rather than an analytical approach, and developed skills of practical problem-solving.

3. Information-Communication Technology and Teaching Students with SLD

Recently, there has been a great deal of interest and research about the use of ICT in educational process. New
technologies can be used in educational settings to enhance learning, and many researchers found that the
application of ICT across a range of school subjects can provide a different, creative and collaborative process in the
classroom (Gall & Breeze, 2008; Sutherland et al., 2004; Wheeler et al., 2002; Tacchi, 2005). ICT is an important
tool of teaching creatively and of teaching for creativity. The concept of constructivism and socio-constructivism is
the basic frame for different types of inclusive teaching (Bjekic et al, 2012). At the same time, these concepts are the
base of current e-learning technologies. Therefore, the integration of e-learning/e-teaching as the technologies
supported in teaching students with disabilities is useful.

What is creative education and a fruitful e-environment for the students with SLD? The curricula changing and
assessment methods are the part of the teaching adaptation. Since learning is a social activity and understanding is
socially constructed, teaching creatively through the use of ICT tools should be organized to promote participation
and cooperative learning of students with and without SLD, and this is a way to make the most creative e-learning
solutions, content and teaching processes. Psychological fundamentals of e-courses designed for students with SLD
are the next (Bjekic et al. 2014: 130): the integration of different media options and the involvement of different
perceptual processes; transformation of information into different representatives (students with disabilities,
especially students with SLD, learn better if the learning contents are presented to them both verbally and
graphically; then they can form parallel mental models and engage multiple perceptual system reception); using
some Gestalt psychological principles of stimuli organization in multimedia e-learning support. Creative interactive
activities, visual presentations, project-based learning, school experiments, which are based on student engagement
and activities, are suggested to the students with SLD. As we mentioned, the multisensory teaching approach is very
suitable for students with SLD. E-learning as an educational technology simultaneously uses different sensory channels, visual-auditory-tactile perception channels. Then, e-learning is suitable teaching technology for students with SLD/dyslexia (Bjekić et al, 2012, Bjekić et al. 2014; Obradović et al., 2011; Obradović et al, 2014). In accordance with the preferable channel of stimulus reception, individuals with SLD develop compensatory learning strategies, too. Teachers and school staff can help these students using different mnemonics techniques and adapted teaching materials. Some forms of teaching material adaptations: using visual and illustrated instructional materials, changing fonts and letter size, voice support etc. According to Price, there are useful strategies for auditory learning, visual learning, kinaesthetic learning for students with SLD. Strategies for auditory learning for students with SLD: tape recorder including child’s own voice, mnemonics, discussion, songs, rhymes, reciting information, discussing ideas in groups, explaining ideas to someone else. Strategies for visual learning of SLD: colorful displays/paper/post etc, colorful pens/highlighters, visualization, use of pictures, posters, videos, games. Strategies for kinaesthetic learning of SLD: real life activities, role play, hands-on experience, writing out in their own words, drama/play, feeling learning rather than looking, jigsaws, games etc.

As a matter of fact, there are a lot of programs specially designed to facilitate reading ability (f.e. text to speech, speech-to-text, and spell check software.), but what is quite neglected is the fact that by using a new technology, there is a chance to achieve something really important. A sequestered academic achievement is much less important than the opportunity for collaborative and cooperative work in small groups and social interaction in which people with dyslexia can express their creativity and a different direction to tackle the problem, which can bring them an affirmation within a group and boost their self-confidence and self-respect. The major benefits of developing e-learning courses for students with SLD, the positive effects of e-learning and education in an environment on them and accessibility are (Klomp, 2004, and ETTAD, according to Bjekić et al., 2014): peer support by using computer-mediated communication tools and possibilities for peer-to-peer collaboration and to avoid social isolation; web-based education enables users – students with disabilities to be proactive and self-reliant, rather than reactive and dependent; controllability of learning; flexibility in time and space afforded by ICT modalities can address the special educational needs of students, it allows students to progress at their own pace and to use their own direction in solving problems; multimodal communication, or wide range of e-learning communication tools allows presentation of information in the way adaptable to specific disability; individual student-teacher communications can take place efficiently and easily; asynchronous communications is the benefit for students with disabilities; etc. Some authors emphasized the efficacy of using music as a remedial strategy to enhance reading skills of students with SLD (Register et al., 2007).

As teachers are central to the creative-collaborative process and they are responsible for planning and realization of the creative, collaborative inclusive work in the classroom using different software, they should have very specific education in that field. Gall, M., & Breeze, N. (2008) found that the use of ICT in school is not so easy for the teachers, it practically creates barriers, not only psychological barriers: missing the guidance on how to use e-learning content, failure to relate to the real world experience of the user, course developers do not know enough about learning disabilities, adaptation to the learning disabilities is not sufficient, teachers do not develop relevant e-teaching competencies, etc. Other researches point out the existence of some more problems (Levinsen, 2008): the idea that children with learning disabilities should be transferred from special classes and included in the regular classes in primary schools is not applied correctly. In the beginning of this process, the children with special needs were present in the classroom with their compensational aid, e.g. e-learning, ICT and special teacher support, and they were rarely included in the socially organized learning activities. Consequently, class teachers and subject teachers were not aware of the existence and potentials of the special compensational e-learning and ICT tools.

So, what we need to do in the classroom is to make a creative and cooperative atmosphere and let our students with SLD think in their own way. We can support student memory by providing taped instructions, using technology, interactive white boards, producing the talking worksheets and using the PowerPoint in lessons. When we design a worksheet, we have to take care that it’s simple, with pictures (but not too many of them), changing fonts and letter size in text, we should give them information in small chunks, columns or boxes and it is preferable that the paper should be pastel colored. Then, when using ICT support, it is easier to work with tape recorders, checking text programs, word prediction, using keyboard stickers, projectors, word processors and Power Point, because that way, we can support limitations of working memory and distractibility, and give students with SLD space to make their own projects and presentation using colors, pictures and voice, instead of text. We split the
students into small collaborative groups in which their roles are changing, not repetitive, so sometimes a central role in the group is assigned to the student with SLD. Then we give them a task, a specific topic and allow them to solve the task in a way that is close to them, without limiting their creativity or imposing on their ways of solving problems. Teachers must be open for giving and receiving information in a different way. The result of their activities can be an experiment, design, model, construction, music, presentation, album, photography, film, or anything else, and not necessarily a pencil-paper solving task.

During the project, every type of material and reward innovative solutions should be allowed, thus forming the freedom of expression and creating a positive atmosphere for the students’ creativity.

We can also use art-designed software’s because it is a widely accepted opinion that dyslexia is associated with remarkable artistic creativity. As Wolff & Lundberg (2002) found in their research, according to self-reports of the students combined with objective testing, the incidence of dyslexia was far more spread among art students than in non-art disciplines.

4. Conclusion

As we know, the creative teaching with ICT support for children and adolescents with SLD isn’t in the focus of the school system. But, based on the evidence that the development of a “friendly” school environment has positive effects both on typical students and students in special educational groups, it is necessary to work systematically on changing and adapting the school society.

Some directions for the adequate modification of the teaching material presentation for the students with SLD are presented in the paper. Implementation of creative e-learning is perhaps one of the most effective forms of the support. Furthermore, it is necessary to teach student teachers to apply specialized platforms, software and equipment.

Development of a creative school environment for students with SLD is based on the teachers’ personal engagement and competence, their organized cooperation with psychological-pedagogical services (in the school or in the resource centre), multidisciplinary cooperation, and, in the first place, adequate pre-service and in-service teacher education. Finally, it is time to change goals of the teaching process and move the focus from the acquisition of encyclopedic knowledge to the development of student’s personality and competence.

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