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THE PARADIGMS OF STUDENTS' POTENTIAL AND THE EDUCATIONAL CAPITALIZATION OF LIFE LONG LEARNING

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Abstract: *The paper reflects on the development of the concept of potential as approached in psychology, education, anthropology, sociology and cultural studies with emphasis on the educational capitalization of it. From bio-psychological traits to intelligence, values, attitudes and competences of various degrees and levels, from unexperienced to expert level a whole universe and diversity makes the raw material education has to approach and shape. The paper has as point of departure key concepts since the emergence of modern psychology to cognitive psychology with reference to representatives such as Alfred Binet, Jean Piaget, Robert J. Sternberg, Howard Gardner and examples from educational practice specific to the Romanian educational context. The examples reflect upon the application of multiple intelligences theory in a secondary school and the attitude to finality model based on competences, values and attitudes specific to teachers' training programs (kindergarten and primary school teachers, secondary and high school level) within the Romanian educational system. The present challenges such as actual threats represented by the sharp drop of birth rate, decrease of school population, emigration, functional analphabetism, social, cultural and economic transformations since globalization bring to the front line once again the importance of a flexible and dynamic educational system able to respond to ideals and threats. A review of specific literature, application of multiple intelligences theory and the questionnaire method for the attitudes towards competences, values and*

attitudes of students in study programs for a career in education are the methods that provided data from the field in order to support the paper.
***Key words**: potential, intelligence, training, education, profession.*

Introduction

Pedagogy has as its object of study education. But education in turn and as such is a manifold concept ranging from subjective to objective manifestations and accomplishments. None of these are possible outside the human being groups and its individuals. These as well are subject to diversity, grades and degrees of characteristics from age to age, from period to period from one culture to another, from one group within a culture to another within the same culture or different one. What is characteristic to an individual and a group and may be representative to them could be less relevant and relevant to other individual or group therefore uniqueness and representativity are situated between subjectivity and objectivity. Whatever at the core of the individual as subject of and to education rests its characteristics which from an evolutionist point of view are contained and described in and by genotype and phenotype. Although these are generic terms the casual discussion amongst people prefer more sophisticated terms and more appealing such as talent, adroitness, smartness and a whole range of terms from this family of words above which genius reigns. In deed even these terms have various connotations and meanings and although they represent the full part of the glass there is a whole variety at the opposite side and between these two psycho-pedagogical terms and their related sciences and practices have their action ground. Therefor it is appropriate to discuss in terms of potential and its dynamics although both terms are derived from the classical Greek (*dynamis* - force, *dynamikós* - strong, *dýnamis* - power) and Latin heritage (potence - *potens*, *potentis*, potential - *potentis*). Very few are aware at any level of the discussion of the importance of these meanings. Talent, adroitness, smartness, genius represent a potential. Dynamics is a characteristic of its manifestations from emergence to fully accomplishment. Although people tend to see the positive and optimistic side of the potential's dynamics there is also regression, there is also set back, unexpected factors which can slow it down, break it, stop its progress, destroy it or throw it into oblivion due to other priorities of its age. Students' potential is at the core of a fam-

ily's concern, educational system policy, society's aim and ideal in order to sustain its development and fulfillment for individual and social progress. But from desire to proper realization is a long way very often paved more with good intentions than actual responsible measures to support its growth and development in from of many perils that threat its favorable course. One of the reasons which contribute to the capitalization of the potential in a proper way is the departure from the scientific way which psychology and pedagogy reveals us in relation to potential and its diverse complexity. Parents and educators, experts and members of the society concern with are not excluded from going astray when it comes to approaching it is a right way if there is such a guaranteed path or way.

Intelligence and its surrounding world of conceptual diversity

Although a favorite topic and term that raises great interest among parents, students and educators the history of intelligence is vaguely a substantial part of curriculum for teachers, educators or other specialists in and of the field. Despite the great interests for such a term and concept when it comes to associate it with a particular meaning usually the discussion comes to an end amongst educators and those concern with. The popularity that short intelligence test gets in the boulevardier press does not help the core of education where it lays. Psychology curriculum deals mainly with the primary and superior processes and measurement and tests comes later on when one chooses to specialize in psychometrics. Another aspect of the matter is represented by the industry intelligence tests rests on. The acquisitions of test and the whole software are an extra addition to school budgets linked to the difficulty of having provided enough specialists trained and certified for the batteries of tests in use. All in all the practice of testing and grounding instruction of some proper measurement seems doomed for objective reasons. If the test industry is developed in some parts of the world more or less the transposition of these in different cultures implies makes appeal to more complex issue namely the validation of one approach different typology of subjects that originally developed. These are not estranged problems and barriers to the specialists. These are barriers for educators and communities whose hopes are not sustained by all the peculiarities of psychometrics, software and instructional design based on a more accurate

knowledge of the nature and level of potential although this knowledge does not represent a guarantee for its future fulfillment. What is quite sad is that in the absence of these sometime educators and those concern being subjects or their parents seek refuge and ground their action on more empirical thought and sometime even practices. A simple philosophical approach would enlighten the matter which only to take as a starting point the Greek philosophy represented a permanent concern for philosopher from Socrates to Kant. The instructional models of them hold intelligence at the core of heuristic approach, maieutic technique or the whole Kantian range of taxonomy of truth belonging to his classic by now criticism. As the 19th century draws to a close it not only establishes the Psychology as a science but from pre-evolutionary background (i.e.: Erasmus Darwin(1731-1802) and Johann Wolfgang Goethe (1750-1832) and its fulfilment in the theory of evolution (Charles Darwin (1809-1882) and Alfred Russel Wallace(1823-1913)) it mark also the progress from phrenology and study of characters (Johann Kaspar Lavater (1741- 1801)) to eugenics, anthropometry(Sir Francis Galton(1822-1911)) and psychometry. This is the background for the pioneer work of Alfred Binet (1857- 1911) and Joseph Simon (1873-1961) and Robert Yerkes (1876-1956). The first attempts to measure intelligence have established a direction and a fundamental background that is difficult to challenge. The role played by linguistic and logical mathematical intelligence and direction for curriculum as were emphasized by the constructs the first tests took to consider as fundamental. From this line of developement it is easy to follow all the developments that took place in the 20th century. And the challenge via the work of L.L. Thurstone (five factors of intelligence) to Howard Gardner (multiple intelligences). To these other planes of research need to be added the multiple models of thinking developed by J.P. Guilford, the models and contributions of digital computer and nuclear technologies for medicine which extended our knowledge of brain functioning among other aspects. The emergence of such a level of technology and diversity of theories makes it difficult for the educational systems to be able to embrace and apply them in all their depths. However didactic models are applied and during training sessions and seminaries programmes for teachers are designed and developed and in order to ensure the applications of these in educational and instructional activity. Therefor exaggerated hopes places upon one or the other of such theories is doomed form the start as only a coherent policy with regard to instruction can ensure the success of such

complex scientifical issues when applied to system level. Despite these individual initiatives on research and applications of such issues are still important as they are meant to maintain the research competences in practice and to offer fresh examples of the situation here and there at one or another moment and to inform the system about its functionality at various level and stages.

Multiple intelligences applications an example of educational practice

Application of the theory is bound to the challenges the educational systems are caught in worldwide. If during the last decade of the 20th century and the first decade of the 21st century a wide interest towards this theory was manifested the administration of PISA tests and reports generated a different subject of debate and transformation. European paradigm of Life Long Learning and the cardinal model based on eight key competences are two fundamental backgrounds against such developments in educational science has to stand up. Other emergent themes are blended learning, active learning, emotional and social intelligence. Another aspect that has to be emphasized is the relationship of all these models with past issues in psychology and education. It is disappointing to see that in relationship to these concepts and theories very few links to their historical and scientific development is done during preparation of students and future teachers and during the programmes regarding continuous training of teachers. Mist of the issues seem real novelty meanwhile from an ontological point of view they are but a continuation of long-term research activity. The application of the theory I approached was based on MIDAS Questionnaire although many are reluctant as to test measurement. The groups applied to were students in the secondary school grades5th to 8th. The Questionnaire produced profiles that made evident the eight types of intelligence and their constructs according to the structure considered through them for each type of intelligence. The results were used I the main stream curriculum with activities design for three subject Romanian Language and Literature, English Language and Mathematics. Observations were conducted for students that were studying a musical instrument and overall extra-curricular activities and other results from competitions and various other activities with educational and cultural relevance students were doing. The whole activity took place while in the educational system were taking place various changes specific

to the educational reform. The instructional system used was basically grounded in the theory of educational objectives (B. S. Bloom)(cognitive, affective– attitudinal, psychomotors) and was about to chance several years after this application to the model based on competences (general and specific), values and attitudes. A comparison of MIDAS profile to the students' results yearly and overall was done. A stroking observation from those less concern with was the relationship of correspondence between scores and educational and instructional results. Most parents expected high scores in most situations. Beside the activity conducted in the classroom some meetings with teachers and parents took place and there was a little bit of the theory and education theory for everybody. Such enterprises of course require a little bit of apostleship work but it is worthwhile to be part and generate such an experience. In research and applications schools these may be the norm and the general routine but otherwise the main stream of schools within the system are less exposed to such novel activities and events. Classroom activities were another source of data - the scores provided by the profiles were used both in the frontal activities and in level groups. Comparing test and re-test results provides data on changing the composition of levels within each type of intelligence. The problem is the large number of students - the difficulty of being able to strike a balance between the number of students who solve exercises or problems on the board (the number of students who want this is large) during an hour (or) of classes. Group activities were preferred by students. The problem is how many references can be made directly to aspects of the theory of multiple intelligences. What would be the reason - the desire to solve as many exercises and problems as possible, correcting mistakes, etc… I do not think the theory should be exposed in every hour - the problem is to emphasize the practical importance of the contents that are used to achieve within each discipline. One can appeal to the proverb "*We do not see the forest because of the tree*." The preoccupation with doing a lot neglects the practical aspect of using what is learned. The classical pedagogical principles (from simple to complex) prove their efficiency - frequently used - in mathematics classes there is a graduation from simple to complex of their exercises and the problems approached and proposed to be solved every hour. The difficulty arises at the complex level (which requires critical thinking and divergent thinking) - here were noted a number of 4-6 students (S 6, S11, S 18, S 23, S 20 and S 21; S = student, according to the grade catalogue/register from experi-

mental/application group) who managed to solve these problems , to find more solutions to analyze them, to explain them. On the one hand, the need for students to have a better training in learning techniques was highlighted (calculating a result is different from finding two alternative solutions to a problem - hence references and explanations to what the exercise is, problem solving, the role of small tasks, and emphasizing the danger posed by "routine"). A positive aspect was the request for students to compile lists of questions on issues they did not understand and to discuss these questions. In the situation of linguistic intelligence, the Romanian and English language and literature classes highlighted other aspects. First of all, teachers use differentiated treatment and group activities to a greater extent. A first explanation consists in the fact that they have participated in training courses in this regard and capitalize on these experiences, a greater personal concern in this regard as well as the use of internet resources. he "big problems" are also the tendency of students to achieve a lot and hence inattention to "tasks" and "small steps" in performing work tasks. Another aspect is the presentation of the answer or the paper - even if he knows the answer or can give an explanation, make an analysis, proper comparison there is a tendency to give short answers believing it is enough - hence the attention of teachers in explaining the importance of communication, detail. In the case of English language and literature, a problem is the fact that students take different terms from TV shows, writing materials, books - and use them either in the lesson or in homework or work, often incorrectly. This aspect is frequently emphasized by the teacher - students receive appropriate explanations. Although the test results take into account 3 items (linguistic sensitivity, writing, reading) a more comprehensive interpretation must take into account the correlation with the scores obtained on the items aimed at communication, and last but not least interpersonal and intrapersonal intelligence. The aspects related to mathematics classes must also be correlated with the data provided by the scores on spatial intelligence. During the geometry classes, the students demonstrated that they use very well the tools for drawing geometric figures, they build and represent correctly. Last but not least, I would emphasize the teacher's pedagogical style and a special predilection for teaching geometry. A special situation is represented by extracurricular activities. There is a large category of extracurricular activities that students carry out. Some are of a lasting nature, others are temporary. On the one hand, they also reflect the students' searches and desire to explore.

The problem is the time allotted to them and their relevance. There is an impression that sometimes they fall between two limits of spending their free time efficiently and that of adding to the effort. Discussions were held from this perspective with both students and parents, as well as questions regarding these activities were included in the interview and the questionnaire for parents. Last but not least, the type of these activities is determined by the possibilities and the local offer (Sports School, Sports Clubs, Students' Club). Interpretation of the results after the test and retest if at first sight it does not seem to show a change in high quantitative level in the case of the two intelligences (linguistics, mathematics) there is a change in naturalistic intelligence and on the other hand a change in interpersonal intelligence (S 6 and S 18 professional orientation towards communication). I also understood the results of the initial test regarding naturalistic intelligence as a concern for the natural environment, love for nature, desire to be in the middle of nature caused by social living conditions, long time spent indoors due to the climate of the area (long winters, rainy springs and autumns, short summers; the Jiu Valley, Hunedoara county, Romania area having the highest percentage of humidity). There is another finding, however, on the one hand a real interest of students in natural sciences, love for animals. In this sense, the desire of at least two students (S 10 and S 15) in this category to orient towards a professional career in the field of natural sciences is manifested.

Conclusion

One conclusion is that these applications show before everything that if their results are to last these need to be a part of the educational policy be as it may the school is in a centralized system or is part of autonomous educational policy. Whatever these managerial situations are they have to provide the resources and regulations the school as such has the human and material resources to carry on such activities as part of an activity that sustains the curriculum at that particular moment of time. From the instructional point of view such an application it helped to view, correct and ameliorate practices while making relevant the actual activity. I was fortunate to be able to perform this application within a secondary school with very cooperative staff and students whose enthusiasm from testing to activities was encouraging and uplifting.

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WORK OF A DANCE TEACHER AS A PROCESS OF CREATING A WORK OF ART

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Abstract

In the literature of dance and dance pedagogy a main emphasis is on such important components of dance composition as: time, space, graphical solution and others, but the understanding of artistically creative process, the activity of choreographer's consciousness or even subconscious before creating a dance and in the process of creation is only mentioned briefly. The authors of this article describe the stages of artistically creative work of a dance teacher as a choreographer and the way these stages lead up to the work of art. The aim of this article is to analyse the artistically creative work of a dance teacher witch results in a work of art – a dance. The aim is carried out in the analysis of literature and on its base promoted evaluation indicators and levels of a dance teacher as a choreographer. The evaluation indicators and levels are approbated in expert interviews. The content of approbation results is an important basis for dance teacher practise by influencing and improving the integration of dance creating process in the work of a dance teacher. Often dance teacher do not realize that their professional activity is the creation of an artwork. Teachers are limited to a range of movements in some genres or the requirements of their work place, but above all dance teachers are representatives of art un they have a potential to create new, original artistic value.

***Key words**: art of dance, artistically creative work, dance pedagogy.*

Introduction

In today's wide and extensive process of information exchange, it is even more difficult to create and find something totally unprecedented that the human eye has never seen before. Therefore, creative activity can be considered a wide range of activities, which includes non-standard solutions to a certain problem, solving problems with interesting means of expression. M. Ashcraft (2006) divides creativity by types of origin, which include: expansion of borders, innovation (new creation, tearing down borders) and aesthetic organization.

Often dance teachers do not realize that their professional activity is the creation of an artwork. Teachers are limited to a range of movements in some genres or the requirements of their work place, but above all dance teachers are representatives of art un they have a potential to create new, original artistic value. The aim of this article is to analyse the artistically creative work of a dance teacher witch results in a work of art – a dance. The aim is carried out in the analysis of literature and on its base promoted evaluation indicators and levels of a dance teacher as a choreographer.

Method

The content of this article was created using the theory of hermeneutically oriented analysis. The essence of the artistically activity work of a dance teacher is a creative process emphasized as the interaction of cognitive and personality processes, which results in the creation of an original product (Rogers, 1967, Torrance, 1988; Steinberg, 2011). Researching the creative process, emphasis is put on the processes such as diverging thinking, synthesis, association building, creative perception, creative thinking, (Lyubart, 2009; Runco, 2009; Sternberg, 2006). According to A. Maslow (1999), freedom, spontaneity, courage (daring), self-acceptance contribute to the creative potential personality .A. Starko (1995) claims that ability to break away from restrictions, stencils, is a way of having and finding a new look on things, not relying on ready-made samples. This type of creative thinking is flexible with orientation in innovations.

The awareness of the integrated link between the activity of a personality (in cognition, work, play, sport, etc.) and "entering" the world of values become especially significant if we are truly aware that art includes all the main types of human activity. On the contrary, in art, in the creative process of art, organically includes - as if "disappears", all the main human activities, in order to create a completely new quality - artistic work (Anspaks, 2006).

If the creative process, according to the analysis of literature, is the interaction between cognitive and personality processes with an original result, which results in the creation of an original product, various types of activity, which includes non-standard solutions to a problem, solving tasks with interesting means of, etc., then it can be presumed that the creative work of a dance teacher include a range of different types of innovation in exercises, the creation of an original training system, the creation of a new dance style, the ability to solve problems quickly and creatively, both in everyday professional work and in concert activities, as well as many other processes with the above-described conditions of creative process.

However, not all activities of creative process lead to a work of art. Innovation can be genius, however, it may not be an art work, hence there is a need to highlight artistically creative work as a separate term.

By studying artistically creative work, as one of the most important perspectives in the explanation of this concept I.Briška (2011) puts forward the interaction of the artist's personality and art work. Given that art is created by man and is associated with a sensually perceptive form, a subjective component (artist's personality) and an objective component - the work of art itself - are found in artistically creative work. However, the opinions of researchers differ in the formulation of the artistically creative work itself. Some of the most well-known views on artistically creative work: the materialization of artist's creative imagination (Выготский, 1991), the presentation of a particular psychological content in physical or imagined material, intensified by imagination (Spranger, 1928), the allocating an objective form to a subjective structure, i.e., the artists sense, thought, mood (Арнхейм, 1974), objectification of a subjective artist's personality in art forms (Zeile, 1987; Каган, 1997), the incarnation of an idea in a sign system,

thus alienating from the author and making it available to others (Борев, 1988), the development of the artist's world of feelings and thoughts under the influence of creative work (Bebre, 1982).

Artistically creative work of the dance teacher is reflected in the original choreography, therefore the dance teacher will be mentioned also as a choreographer in this article, and the artistically creative work is considered from the perspective of developing the dance composition.

Findings

At the moment, when the aesthetics of choreography has changed and continues to change, there has emerged a need to develop a modern "artistically -creative" type of thinking, both in the process of dance teacher and choreographer training in higher education and further education. V.Nikitin (2011), a researcher of contemporary (modern day, new) dance theory and corresponding didactical methods, believes that the need for these changes occurs from contradictions in the existing model of choreographic training. In this model, professional training is based on the predominant rationally-logical type of artistic thinking that works, for example, in classical choreography. It is formed on the basis of theoretically intellectual thinking, where it is typical to use artistic expressions such as: dramatic characters, created unrelated to movements, a complex of codified dance language managed by the choreographer (mainly in classical or folk dance).

V.Nikitin (2011) argues that the artistically creative thinking of the choreographer is a specific external manifestation of the personality's unified psychological function. It manifests itself in the creation and transfer of artistically imaginative content of choreographic work. In turn, the researcher of dance pedagogy in Latvia R. Spalva (2004) concludes that the composition of the artistic work is associated with the formation of an imaginative form.

Discussion

On the basis of the research on the phases of creative process and the concepts of stages of creativity V. Nikitin (2011) created a model of the stages of the creative process for choreographer working with an artwork. The model allows determining the stages and succession of the study process (figure 1).

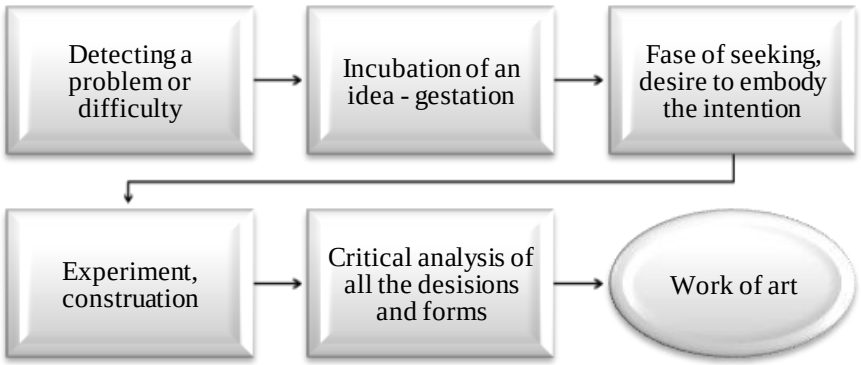

Figure 1. Stages of the creative process for choreographers working with an artwork (P.Gorobeca by V.Никитин,)

As a first stage in this model is the identification of problems or difficulties. The problematic situation is the beginning of the thinking process. It is a determined psychological condition of the subject, which is formed under the influence of objective circumstances, where the inner activity of a person is important - the setting of new goals, the formation of new strong desires and the dynamics of motivation.

S. Hodes (1959), analysing choreographic formation motives and impulses, indicates that they can be varied and also differ depending on the tasks of the future composition. A source of inspiration is music, a painting, a literary image, an event, the dancers themselves. But the motives and intentions of artistic work are difficult to analyse. V.Nikitin (2011), analysing this approach to the creative work of the choreographer, agrees that the stimuli that determine the beginning of the creation can be of a very different nature. It can be different types of motivation, desire of self-realization, an effort

to find something new in an individual creative work. R.Spalva (2004) separates audio stimuli (music, sound, voice, rhythm), visual stimuli (painting, sculpture, object, form, pattern), kinetic stimuli caused by any movement, created by natural, technical or artistic movements and can influence the style, dynamics and mood of the production, tactile stimuli arise from associations caused by sensations and the idental stimuli are influenced by the concept of the production, the idea, the event, and by the influence of it the movement and choreographic expression acquire meaning, intonation, creativity, and become perceptible and understandable.

The second stage of the creative process is unconscious; incubation of an idea, intention. A certain tasks are put forward for the realization of the problematic situation, its formulation and decision making are commenced. In the creative activity of a choreographer, this stage is called intent. Realization of the idea provides for verbalization of the intuitive decision. However, in the creative work of a dance teacher, we cannot verbalize feelings or a new ideas, hence this verbalization can take the form of imaginary paintings, pictures, musical or motion intonations (Никитин, 2011). G.Burceva (2000) believes that dance movement is a conditional choreographic-plastic sign, much more abstract than words. In this sense, upcoming choreographer training involves the use of a given sign and dance language in a broad sense.

The third stage is the transition from subconscious to consciousness, the phase of search, the desire to embody intention with certain artistic means. The transition from subconscious to consciousness is perceived as a kind of enlightenment, which is more applied as scientific creativity or inspiration in art. The choreographer, with the help of improvisation and search of motion solutions, tries to express his inner feelings in a visible form. In artistic terms, this is the most intense work process, because the means and techniques of real expression may not coincide with internal feelings and images.

The fourth stage - experiment, design, perfect final product creation. This process has a deliberate character since the motion search process and the combination of elements have ended. Beginning a search for structural "frames", forms, connecting them with other components of visual stage activity. Much at this stage is changing when the choreographer begins to work with performing artists who offer their solutions and transform the choreographer's chosen artistic expressions into real vision of dance.

Smith-Autard (1992) attaches great importance to this stage, describing it as one of the elements of formulation. She concludes that during the attempts the composition is recalled, repeated, enriched, corrected and summarized. This process brings the composition closer to the performance.

The fifth stage is a critical analysis of all decisions and forms, control of the created artwork. Usually this stage is related to the presentation, and often, depending on the viewer's and critic's point of view, the artwork created must or can be corrected (Никитин, 2011).

Evaluation of the final result or presentation of a composition can take place in two ways - as a structural analysis or determination of emotional intensity (Spalva, 2004). The first type of evaluation refers to the use of professional appraisal criteria in the competition jury, or the assessment of other dance professionals, while the latter relates more to the viewer's assessment. The viewers are usually influenced by the emotional performance and message of the dance composition. However, there should be no delimitation of these types of evaluation, since evaluating only dance composition by structure means denying its artistic and emotional qualities, which in turn is an integral part of the art work. As well as evaluating only emotional influence also won't be possible in cases where the composition and structure of the dance is poor quality and interfere with emotional perception. Therefore, it can also be concluded that the true work of art must be formed in unity of both talent and knowledge.

Results and recommendations

On a basis of theoretical and research analysis there are determined evaluation indicators and levels of artistically creative work of a dance teacher as a choreographer.

Artistically creative work viewed in three indicators whose development is marked by the division into levels and the corresponding attitude of the dance teacher. "Revealing a story or theme in a dance" reveal the presentation of storyline, theme, and idea of an artwork, with the help of original dance composition techniques up to the lack of a compositional vision of the dance teacher resulting in plagiarism.

Motivation is an important indicator of artistically creative work. It determines whether the creation of a work of art for a dance teacher is an inner necessity or the composition of the dance is pragmatic, without the desire to create an art work, but, for example, avoiding problems at the workplace or condemnation of the students' parents.

	Indicator	High level	Medium level	Low level
1.	**Revealing a story or theme in a dance.**	reveals different ideas, reflect different stories and themes topical in society and personal life and he does it with original methods.	The artistically creative techniques are similar and original solutions are revealed rarely.	has a lack of compositional vision – uses other choreographer's creative work or plagiarism.
2.	**Motivation for a dance creation.**	wants to create a work of art (dance) regardless of circumstances.	creates a dance composition led by an inner necessity but often also as a formality without a motivation.	creates a dance composition only to avoid problems in a work place (under the pressure of a work place).
3.	**Innovation**	creates a new dance with original compositional methods and range of movements. Creates innovation in these methods and movement.	creates a new dance with original compositional methods and range of movements – original to him but not to the wold of dance.	struggles to create a new dance, uses movement combination and ideas of other choreographers.

Table 1 Evaluation Indicators and levels of Artistically creative work.

Innovation reflects the originality of compositional techniques, the expansion of the range of movements, the linguistic diversity of the movement and the ability to create new values in the dance industry.

The evaluation indicators and levels are approbated in expert interviews. Information and results gained on a basis of given indicators can contribute to, for example, higher education programs, study process of choreography/dance composition, thereby enriching the art of dance and cultural space.

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ADVANTAGES AND DISADVANTAGES OF ASSIGNMENTS ACCORDING TO PARENTS' OPINIONS OF PRIMARY SCHOOL STUDENTS

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Abstract

The aim of this study is to examine the opinions of the parents of elementary school students in term of advantages and disadvantages of home assignments. The study group of this study consists of parents having students in primary schools in the central districts of Konya in 2017-2018 academic year. 24 students' parents selected with maximum diversity sampling from the purposive sampling methods were included in the study group. Research data were collected by interview. The researchers prepared the semi-structured interview form for the interviews. The research adopted a qualitative approach exploring a case study and data were analyzed by content analysis technique. The themes obtained as a result of the research; the meaning of homework, the nature of homework, the positive aspects of homework and the negative aspects of homework.

Keywords: *Student Assignments, Parent Opinions, Case Study, Content Analysis.*

Introduction

From past times to the present, homework has been a cause of concern for teachers and students in education and teaching processes. When the relevant literature is examined, an assignment is defined as the school tasks that teachers give to students to complete outside school hours (Cooper, Steenbergen-Hu and Dent, 2012) and is also seen as an important teaching tool (Fernández-Alonso, Suarez-Ávarez, and Muñiz, 2015; Hagger, Sultan, Hardcastle, and Chatzisarantis, 2015; Marzano and Pickering, 2007). The homework process is complex and sometimes has three actors who are misaligned and have goals and behaviors that can lead to conflicts; students, parents and teachers (Cooper, Robinson and Patall, 2006; Núñez et al., 2015; Trautwein and Köller, 2003; Warton, 2001). Homework can improve communication between parents and schools (Center for Public Education, 2007). The discussion of the assignment contributes to some of the immediate and frequent dialogues between families and schools. (Gilliland, 2002).

Homework is a task given to the students who are asked to be done by teachers after school hours. Epstein & Voorhis (2001) investigated information from various sources and analyzed the effects of the assignment as follows; practice, preparation, participation, personal development, parental relations, parent-teacher communication, peer interactions, policy, public relations and punishment. According to Alanne & Macgregor (2009), a common goal of homework is to enable students to apply the materials presented in the classroom outside the school in order to strengthen learning and gain the mastery of specific skills.

Recently, Epstein and Van Voorhis (2012) stated that homework is an important part of homework's ability to maximize the impact on students' learning and academic success. According to these researchers, when homework tasks are devoid of explicit homework objectives, students are more likely to miss their homework. Some researchers believe that homework is necessary for the student's success, while others think there is no consistent relationship between homework and time spent on academic success (Center for Public Education, 2007). However, it has been found that the assignment significantly

increases the success for the students and the teachers regularly give homework and when the students make them carefully, the success of the students is increased (Black, 1996; Paulu, 1998).

Another aspect of the assignment is about how the student fulfills his / her homework with his / her discipline and responsibility. Homework helps in the development of motivational skills such as responsibility, persistence, trust, goal setting, planning and postponement of pleasure (Corno & Xu, 2004). A positive effect is the better protection of factual information and a greater understanding of the content material (Cooper, Lindsey, Nye & Greathouse, 1998). In fact, homework is considered to be one of the most important applications for the creation of a successful academic environment (Olympia, Sheridan, Jenson, and Andrews, 1994, p. 85). One of the most important benefits of giving homework is learning to take responsibility. Homework therefore encourages and develops self-discipline in students (Oak, 2009).

Ramdass and Zimmerman (2011) stated the additional benefits of homework. Students learn how to set goals, manage time and environment, participate in a task and self-efficacy. There are long-term academic interests to do homework. Students show that they learn during their free time, which helps show that learning can occur outside the classroom (Cooper, Robinson & Patall, 2006). Other positive effects of the homework are the development of critical thinking skills, concept formation and information processing (Epstein & Voorhis, 2001, p.192). Homework can be defined as any task given by teachers intended to do after school (Cooper, 1989). In general, there is a positive relationship between homework and school results.

In general, research on this topic examined the purpose of homework in three main groups: Instructional, communicative and political (Epstein and Van Voorhis, 2001; Van Voorhis, 2004). Although there is disagreement over the value of the assignment, the majority of parents, educators and policy-makers support the implementation of homework at all grade levels (Vatterott, 2009, p.2).

The concept of homework is an indispensable process of influencing the education of a student. There are some research-based purposes to give homework (Center for Public Education, 2007):

1. To give students the opportunity to review and apply what they have learned.
2. To prepare students for the next lesson.
3. Allow students to explore and encourage their external resources and to encourage them.
4. To disseminate what students have learned to new contexts.
5. To enable students to carry out gradual and deep studies on a project.

The assignment, which is not directly related to education, has other objectives. The first is to help students develop their time management, work and organizational skills (Black, 1996). Students with built-in homework assignments strengthen and improve their time management and study skills (Scholastic Parents, 1996).

How can students be motivated and encouraged to complete homework? Helping with homework and encouraging the completion of homework will be a habit of parent support, a sense of responsibility in which many life skills develop in a positive way (Chen, 2009). There are several homework tips suggested for both parents and teachers. Parents should be informed and supported during the stage of assignments (Paulu, 1998). However, parents and teachers think that they can contribute positively to the child's learning by providing autonomous behavior, structure, motivation and competent counseling (Cooper, Lindsay and Nye, 2000).

Parental support and participation will improve the student's success. According to Loucks (1992, p. 19), research shows that parental participation at school leads to improved student achievement. Van Voorhis (2003) states that tasks with a component that interacts with other students or parents are important factors in ensuring homework efficiency. Parental or family assistance related to homework provides an interest in the education of their children (Hoover-Dempsey et al., 2001). In a study by Cooper, Lindsay, Nye and Greathouse (1998), it is argued that family participation has more behav-

ioral benefits than academic interests. Parental attitudes related to homework can have a direct effect on the attitude of a child to homework and therefore on class achievement (Hoover-Dempsey, 2001).

Trautwein (2007) also states that the completion of the assignments has a positive effect on the students' achievements. Paschal et al. (2003) indicate that if the homework is supported by effective feedback, the desired goal can be reached more easily. According to Bempechat (2004), homework makes it easier to understand the value of time that the student needs to deal with difficulties and to improve learning habits.

Doing homework may direct students to develop their capacity to balance activities in their lives and guide them in managing their time (Booth, 2010). Then why don't more students do homework? There are many notable reasons and excuses, including: (Case, 2008):

1. Boring materials.
2. The instructions are unclear.
3. Very difficult.
4. Very easy.
5. Not priority.
6. Forgotten.
7. Wrong time management, extracurricular activities and / or work after school.
8. Unaware of the usefulness and purpose of homework.
9. Lack of tranquility and tranquility for the student to work.
10. Lack of access to the necessary equipment and / or technology.
11. Family obligations.
12. Self-assessment skills and / or lack of habits.

Teachers can also help by following a number of principles to encourage students to better align students with the completion of assignments (Black, 1996):

1. Identify homework activities to learn strong curriculum ideas.

2. Give students homework assignments that are appropriate for coercion without causing frustration and / or confusion.
3. Provide students with the necessary resources and tools for doing homework.
4. Consider the benefits of the homework with the time and effort required to complete it.

Time spent with homework is a variable that attracts attention from researchers (Keith, 1982; Trautwein and Lüdtke, 2007; Trautwein, Schnyder, Niggli, Neumann, and Lüdtke, 2009). For example, Keith (1982) reported a positive relationship between the time spent for homework during high school and the academic achievement of students, while other authors found low, null or negative relationships at the first, middle and high school levels (Cooper et al., 2006; Núñez et al., 2013; Rosário et al., 2009, 2011; Trautwein et al., 2009). In contrast, studies investigating the frequency of homework have consistently demonstrated a positive relationship between homework frequency and academic achievement (Coleman, Hoffer and Kilgore, 1982; Dettmers, Trautwein, Lüdtke, Kunter and Baumert, 2010; Farrow, Tymms, and Henderson, 1999; Fernandez-Alonso et al., 2015). However, there is limited research on the relationship between different types of homework and academic achievement (Hallam, 2004; Warton, 2001). In fact, despite the importance of the subsequent stages of homework, the stage of homework preparation (eg the design and purpose of tasks) has not been extensively studied (Bang, 2012; Epstein and Van Voorhis, 2012; Warton, 2001). The aim of this study is to examine the opinions of the parents of elementary school students in term of advantages and disadvantages of home assignments. It is thought that this study may be useful in terms of awareness of the field. Since the qualifications of the assignments given in the schools are a very controversial topic nowadays, it is expected that various ideas will be presented about the assignments which should be given to the students in the future.

Research Design

This study, which was conducted to determine the advantages and disadvantages of homework according to the opinions of parents, was found to be suitable for the study

of qualitative research designs. A case study is a qualitative approach in which the researcher presents a situation description or situation themes in which he / she collects in-depth and in-depth knowledge of multiple sources of information about real life, a current limited situation or multiple restricted situations over a period of time. A case study begins with a special case study (Aydın, 2016). The situation can be an individual, a role, a small group, a community or an organization (Aydın, 2016; Punch, 2014). In this study, parents who are students in primary schools have been determined as a special situation. The advantages and disadvantages of the assignments are described according to the opinions of the parents.

Participants

The study group of the study consisted of 24 parents who had students in primary schools in the central districts of Konya (Meram, Selçuklu, Karatay) in the academic year of 2017 and 2018. Parents of 24 students selected with maximum diversity sampling from the purposeful sampling methods were included in the study group. In a case study, it is possible to represent different situations with maximum diversity sampling (Transfer from Creswell; Özsevgeç, 2016). Different gender and class levels were taken into consideration in the study. The characteristics of the parents in the study group are shown in the table below.

Table 1. Characteristics of the working group

Parents Gender	n	Class level	n	Student Gender	n
Female	16	1. class	6	Girl	14
Male	8	2. class	6	Boy	10
		3. class	6		
		4. class	6		
Total	24				

Data Gathering

Research data were collected by interview. Interview in qualitative research is one of the basic data collection tools and is one of the most powerful methods used to under-

stand others (Punch, 2014). The semi-structured interview form prepared by the researchers was used in the interviews. This type of discussion involves asking a number of pre-determined questions and addressing specific issues. These questions are usually asked in a systematic and consistent manner to each participant, but the interviewers have the freedom to go out of them (Som and Ekşi, 2015). There are five open-ended questions in the interview form used in the interviews. All of the interviewees were asked the questions in the same order and their responses to the interview questions were not limited. The face-to-face interviews were conducted with the parents in the study group, which lasted approximately 40 minutes.

Data Analysis

In this research, data were analyzed by content analysis technique. The data that are similar to each other are brought together within the framework of specific concepts and themes and these are organized and interpreted in a way that the reader can understand. Four-stage content analysis technique was used in the analysis of the data of this research (Yıldırım and Şimşek, 2013). In the research, firstly, the sections that constitute a meaningful whole are coded. Based on these codes, themes that can explain the data at a general level were found. The data obtained is explained in a way that readers can understand after editing. While the data are presented, the information of the participants is given in parentheses (Participant number, class level, parent gender FP = Female parent; MP = Male parent, student gender FS = Female student, MS = Male student). Finally, the findings described and presented in detail were interpreted by the researchers and the results were obtained.

Validity and Reliability

In order to ensure the validity of the research form, two experts from the Department of Educational Sciences were consulted. The reliability of the research was provided by the researchers by creating the themes separately and identifying the issues that were agreed between them.

Findings

The results of the content analysis are presented in Table 2. One-to-one quotations from the interview forms regarding these themes are given below. The opinions of the parents of the students are considered as important in the research.

Table 2. The resulting themes

1. The meaning attached to the concept of homework
2. Requirement of homework
3. The quality of the assignment
4. Positive aspects of homework
5. Negative aspects of homework

1. The meaning attached to the concept of homework

According to the opinions of the parents of students, the categories and interviews that fall under this theme are given below.

1.1. Reinforcing information and making repetitive responsibility

Almost all of the (21 people) parents of the students see the concept of homework as reinforcement for the purpose of reinforcing the knowledge learned in the school and for the purpose of providing repetitive responsibility.

(1, 1S, FP, MS): Homework is the work given to reinforce the knowledge learned at school.

(7, 2S, FP, MS): Homework is a study to reinforce what students have learned at school in a specific place or at home. Sometimes it may be a repetition of the ones given, or it can be composed of studies that involve the student.

(12, 2S, MP, FS): Homework is not to forget the lessons learned in the school, to better understand and reinforce in home to reinforce. Homework is to do exercises about the subjects learned. In addition, it provides them with the responsibility of giving the teachers the responsibility given to them in a timely manner.

(19, 4S, FP, MS): Homework is an important situation in terms of reinforcing the knowledge the student learns at home. It also plays an important role in bringing responsibility to the child.

1.2. Works to be done outside school hours to ensure the permanence of knowledge

It was seen that the majority of the (19 people) parents of the students interpreted the homework as the studies that should be done outside the school hours in order to ensure the permanence of the knowledge and skills taught in the school.

(3, 1S, FP, MS): Homework is the whole of the studies that the students are expected to do outside the school hours to ensure the permanence of the knowledge and skills learned at school.

(4, 1S, FP, FS): Homework is all of the activities that should be done outside the school so that students can learn more about the new information they have learned in school.

(13, 3S, MP, MS): Assignments are the tasks that ensure the permanence of the information given and learned in the house for the activities that cannot be done at school.

1.3. Development of academic research skills

It was seen that some of the (6 people) parents of the students defined the meaning attributed to the assignment as the activity of developing their research skills throughout their educational lives.

(20, 4S, MP, FS): It is a study that provides a more effective learning of a subject taught in the school, contributes to the academic development of the student, prepares the infrastructure about how the student should reach the information and enables the student to increase his knowledge by his own efforts. .

1.4. Exercises to prepare for the next lesson

Some (5 people) parents described the assignment as the activity that the students had to fulfill in order to prepare for the course on a later day.

(15, 3S, MP, MS): Homework is all of the preparatory work of the teachers in order to enable students to better understand the information they have learned in any class in the classroom.

1.5. Activities to complete missing information

A few of the (4 people) parents described the assignment as studies aimed at completing the missing learning of the student in the knowledge and skills shown in the school.

(18, 2S, FP, MS): These are the studies that increase the knowledge and improve the knowledge of the teacher in the school and classroom.

(21, 4S, FP, FS): These are the exercises given in order to teach the missing information determined by the teacher for the purpose of fully learning any subject described in the class.

2. Requirement of homework

According to the opinions of the parents of students, the categories and the excerpts from the interviews are given below.

2.1. Consistency in learning, awareness of responsibility, reinforcement, success

Almost all of the (23 people) parents of the students were observed to think that it is necessary for the students to improve the knowledge they have learned about the

homework given in the school, to ensure the permanent permanence and to gain the consciousness of responsibility.

> (12, 2S, FP, FS): Homework is necessary because it enables students to reinforce the knowledge they have learned in school, thus ensuring persistence and achieving success by achieving responsibility skills.

> (17, 2S, MP, MS): Yes, homework is necessary, because if there is no homework, the student can forget the issues. It also has the chance of completing student deficiencies through repetition and feeling the responsibility of this has a significant impact on the student's success.

> (18, 2S, FP, MS): Homework is very necessary for me. It enables the student to repeat what he has learned at school, and if he has any, he can see his shortcomings and this way the longevity in learning can be provided better.

2.2. Inclusion of the parent in the education process

It has been observed that most (17 person) parents think that homework assignments are necessary in order to ensure that the students have a lack of knowledge in the classroom and that they can follow the students in their educational life closely.

> (3, 1S, FP, MS): Yes, homework is required because it makes it easier for the students to see what they are learning at home so that the parent is included in the training process so that the desired result can be reached more easily.

> (19, 4S, FP, MS): Homework is really necessary. Individual studies at school can be very small. But when parents do homework with their children, they spend both individual time and quality time. This will have a positive impact on student learning.

> (23, 4S, FP, FS): I think that homework assignments at school are necessary because children may not be the same at every moment and they can understand

some subjects more at once and better understand some subjects with individual helpers. We, as parents, can take the time to see where the students are missing and direct them correctly.

2.3. Planned and good use of time

Some of the parents (14 people) were also required to do homework in the school, and as a result, it was observed that the students had to learn how to turn their free time into quality time during their education, to learn to do planned work and to be able to use time in a good and effective way.

(13, 3S, MP, MS): I think homework is necessary. Thanks to the homework, the student learns to work planned, to solve the problem of time, in other words, to learn to use time well. Effective time use also offers the student the desired success.

(22, 2S, FP, FS): In my opinion, homework is very necessary for students to turn their free time into a better quality time. With the help of the homework, the student is responsible for time and this will help him to solve the challenges more effectively.

2.4. Inquiry, research ability and creativity

Some parents (12 people) are absolutely required to do homework, because by doing homework, the student learns to question newly learned knowledge in his / her academic life, to explore research methods and, most important, to develop individual creativity.

(7, 2S, FP, MS): I think the assignments at school are absolutely necessary. Homework enables the student to develop a questioning ability about learning and to find a variety of ways of research, and most importantly, it provides great support to the student development in terms of creativity.

(15, 3S, MP, MS): I think homework is necessary, because in our country conditions, the classrooms are crowded, and it may not be possible for our teachers to deal with each student individually in class. For this reason, our student should learn to work on their own thanks to homework and be aware of research skills and have a better learning.

2.5. Improve self-confidence

A few of the parents (9 people) of the students emphasized that homework is an absolute necessity because they provide the awareness of what they can do in students.

(4, 1S, FP, FS): Homework is absolutely necessary, because my student is happy when she repeats what she has learned at school with homework, especially when she has questions about newly learned topics, and her confidence is growing. I think that this self-confidence in my child is very important in his education life.

3. The quality of the assignment

According to the opinions of the parents of students, the categories and the excerpts from the interviews are given below.

3.1. Fun homework that does not take time

Almost all the parents of the students (22 people) observed that the homework assignments in the school should be well adjusted, the students do not cool the subject, do not overuse them and have fun assignments.

(3, 1S, FP, MS): It should be given considering the time that the student can do his / her homework, the student should not be given homework which requires a lot of time and get away from the lessons.

(12, 2S, MP, FS): Doing long hours of homework every day does not mean that you understand the subjects very well. It is important that thanks to the homework given to the student to have a better understanding of the topic of that day. I think it's enough for them to do the homework on average 1 or 2 hours a day. Sometimes overtime takes hours to do homework assignments.

(16, 2S, FP, FS): I would rather have a funny homework that can be completed in a short time for my child.

3.2. Developing research skills and revealing creativity

The vast majority of the parents (18 people) were observed to think that there should be assignments in the school that improve the students' problem solving skills, constantly improve their research skills and reveal their creativity skills.

(1, 2S, FP, MS): It should support the child's creativity, problem solving and questioning concepts.

(15, 3S, MP, MS): Homework should not make children adapt to memorization, it should make them think and allow them to do research.

(22, 2S, FP, FS): In my opinion, homework should make the students think and lead them to research.

3.3. Proper to the student level, clear and understandable

Some of the students' parents (13 people) were observed to think about the nature of the assignments given at the school, to be appropriate to the student level, to be clear and understandable, and to assign homework to students' interests and abilities.

(4, 1S, FP, FS): For me, homework should definitely be clear and clear from the simple to the complex in accordance with the age and developmental characteristics of the children.

(13, 3S, MP, MS): Assignments should be given in accordance with the interests and abilities of the students, it is important that the assignment should be short-term, comprehensible and qualified.

(23, 4S, FP, FS): For me, homework should be prepared according to the student's age and interests, because children of primary school age do this kind of homework quickly and fondly.

4. Advantageous aspects of assignment

According to the opinions of the parents of students, the categories and the excerpts from the interviews are given below.

4.1. Accelerates learning, provides repetition and permanence.

Nearly all of the parents (23 people) think that it facilitates the learning of the students about the positive aspects of the assignments given in the school, that they have the chance to consolidate what they have learned through the subject repetitions and that they provide the permanence of the information.

(4, 1S, FP, FS): It is an important factor that provides permanent learning in our students. In addition, homework is an important tool for the students to find and learn their own deficiencies.

(20, 4S, MP, FS): Thanks to the assignments, our students have the chance to repeat what they have learned and reinforce the issues. This allows our children to learn the subjects better and facilitate the achievement of the desired success.

(13, 3S, MP, MS): Homework helps to reinforce the knowledge learned at school. It allows persistence in learning the desired information.

4.2. Providing responsibility, learning research skills and working independently

The majority of the parents of parents (20 people) stated that the assignments developed an individual sense of responsibility in the students and helped them learn to work independently.

> (3, 3S, FP, MS): I think that the assignments given in the class are positive for my child, because the responsibility is supported by the help of the homework and the students learn the ways of working independently.
>
> (6, 2S, FP, FS): Our students learn to make research and prepare homework by means of homework assignments. In doing so, I think that they have discovered their own ways of working independently, and this sense of responsibility is also evolving.
>
> (17, 2S, MP, MS): In an environment where there is no homework, I think that our children will be incomplete for taking part in and sense of responsibility. Thanks to the assignments given at the school, I believe that my son has learned to work independently and to stand on his own feet.
>
> (19, 4S, FP, MS): It is very important to educate our children as responsible individuals in the future thanks to the assignments given in the school. Learning to study different sources and to study on their own is a big factor on the road to success.
>
> (24, 4S, FP, FS): I believe that the effective assignments given at school improve my child's sense of responsibility after school. It is also very important for my student to learn to work independently on the road to success.

4.3. Provides good time management.

Some of the parents (15 people) think that the assignments in the school develop an effective time management skills of students.

(5, 1S, FP, FS): I think that the assignments given in the class teach our students the efficient use of time outside the school. Students learn to plan time in this way and spend their leisure time more effectively.

4.4. Enables the parent to participate in the education process.

It has been observed that some of the parents of the students think that they are involved in this process thanks to the assignments given in the school and that it is beneficial to have a successful school-family cooperation.

(13, 3S, MP, MS): We have information about what our children have learned in school through homework assignments. In this way we help our children to share with them a more effective time period. Learning will be better in environments where school-family cooperation develops.

(23, 4S, FP, FS): Thanks to the assignments, we can see the missing aspects of our child as parents and what we can do better. We are informed about the level of our students through assignments.

5. Disadvantageous aspects of assignment

According to the opinions of the parents of students, the categories and the excerpts from the interviews are given below.

5.1. Extreme time-consuming assignments and negative academic development

Nearly all of the parents (21 people) think that the long time-consuming assignments given in the school cannot be completed by the students and this situation negatively affects the learning development of the child and even creates a sleep habit.

(2, 1S, FP, MS): When our children realize that they cannot complete their homework, they do random homework. When homework cannot be done, telling lie begin. Children get used to this kind of a lie. Because of the homework that

cannot be done in school, they have negative behaviors such as seeing themselves underestimated among their friends.

(23, 4S, FP, FS): Excessive time assignments at school are overwhelming our children. Students who can not spend time to relax can become complaining about school. This leads to a negative personality development.

5.2. Decrease in motivation due to extremely difficult tasks

The majority of the parents (19 people) think that the heavy and difficult tasks given in the school lead to reluctance in the students' studies and therefore the motivation of learning decreases.

(3, 1S, FP, MS): The heavy assignments given in schools lead to a disaffection and unwillingness for the students in the school. Our children are accustomed to the feeling of failure because of the assignments that cause the loss of motivation which is the most important key of success.

(6, 1S, FP, FS): I think there is a burden on the student to make the extremely difficult assignments. Even a student who is willing to go to school can be reluctant to do the homework. Therefore, the student may have a low motivation against the school. Assignments for success may also result in failure. We prefer qualified, less compelling and understandable assignments.

5.3. Lack of self-confidence

Some parents (12 people) state that students can't do their homework and this situation creates lack of self-confidence.

(4, 1S, FP, FS): I can see that the self-confidence in our students is reduced when students can't complete their unsuitable homeworks in schools. I think that lack of self-confidence of my student may lead to great negativities in the future of education.

> (24, 4S, FP, FS): My child is losing confidence because of over-compelling and time consuming assignments. She does not want to go to school and classes because of her lack of confidence with the reluctance fot the school.

5.4. Being stressful

One of the parents of the student states that the students are not able to raise the heavy duties given in the school and the students feel a constant feeling of stress because of the fear of being angry of the teacher at the school.

> (13, 3S, MP, MS): I think that our students feel a strain because of homework that is not appropriate for their level and age, or even feel a sense of failure. At the end of the assignments that can not be made to think that school teachers will be angry at my child causes a great stress and I believe that this will lead to very bad results in the future.

Result, Discussion and Suggestions

According to the results of the survey, the meaning of the assignment is the activities that reinforcing the knowledge and gaining the purpose of repetitive responsibility, activities to be carried out outside school hours in order to ensure the permanence of the information, activities to improve the academic research ability, the exercises necessary to prepare for the next lesson and the completion of the missing information according to the views of the parents. In parallel to this conclusion, according to a survey, homework is defined as one of the most important applications for creating a successful academic environment (Olympia, Sheridan, Jenson and Andrews, 1994). In addition, teachers can help students define their homework goals by emphasizing the importance of homework tasks by helping students achieve their learning goals (Núñez et al., 2013). At the same time, teachers have a duty to make assignments meaningful; As Hill and Nave (2009) imply, the quality of the assignment is more important than their quantity. According to another study, the most common form of homework seems to be the main task of practice, to practice the knowledge gained in the previous lessons taught in

school (Ludtke, Niggli, Planck, Schnyder and Trautwein, 2009). Parents often believe that helping their children with homework is a parental responsibility (Epstein and Van Voorhis, 2012; Hoover-Dempsey, Bassler and Burow, 1995). Homework can improve communication between parents and school, and discussion of assignments contributes to some of the urgent and frequent dialogues between parents and school (Gilliland, 2002).

As a result of the study, the reasons for the homework are required according to the opinions of the parents; to improve persistence in learning, to develop responsibility awareness, to reinforce what is learned and to provide success, to involve the parent in the education process, to be planned and to use time well, to increase questioning, research ability, creativity and self-confidence. In a similar study, preliminary information was identified as an important variable affecting the relationship between homework and academic achievement (Trautwein et al., 2002; Trautwein, Schnyder et al., 2009). According to a study by Schunk and Zimmerman (1994), one of the reasons for the necessity of assignments is the ability of students to develop their time management and study skills and help them to become autonomous. Similar to this conclusion, students with a built-in homework routine strengthen and improve their time management and study skills (Scholastic Parents, 1996). Students who spend their free time with homework assignments can show higher success (Trautwein, Köller, Schmitz & Baumert, 2002).

The qualities of a good assignment according to the views of the parents; shouldn't take too much time and cool from the course, also it should be fun, clear and understandable, develop research skills and creativity that reveals the student level. In parallel with the result, in another study, it was stated that the assignments, which were adjusted according to the level of the students, had a positive effect on the students' performance (Zakharov, Carnoy and Loyalka, 2014). Epstein and Van Voorhis (2001) concluded that the students perform better in school when they spend more time in their homework. According to another study, teachers are obliged to strengthen both what they teach in school and to give students the task of restructuring and expanding new and richer areas (Corno, 1996). Studies investigating the frequency of homework have shown a continu-

ous positive relationship between homework frequency and academic achievement (Coleman, Hoffer and Kilgore, 1982; Dettmers, Trautwein, Lüdtke, Kunter and Baumert, 2010; Farrow, Tymms and Henderson, 1999; Fernández- Alonso et al., 2015).

At the same time, the advantages of the assignments given in the school according to the opinions of the parents who are students in elementary school; to accelerate learning and to ensure repetition and persistence, to gain responsibility and to learn the skills of learning to work independently, good time management and parents to include in the process of education while the disadvantages; excessive time to take a negative impact on academic development, because of the excessive demand for motivation to reduce motivation, and to create stress. In fact, the stage of homework preparation (eg the design and purpose of assigned tasks) has not yet been extensively studied, despite its importance to the subsequent stages in the homework process (Bang, 2012; Epstein and Van Voorhis, 2012; Warton, 2001). The active participation of students in homework encourages students to become advocates of their own learning (Chen, 2009). A positive effect is a better understanding of factual information and a better understanding of content material (Cooper, Lindsey, Nye & Greathouse, 1998). Homework behaviors of students can lead to students' interest and motivation for students to perform their homework (Ramdass & Zimmerman, 2011). The other positive effects of the assignments are the development of critical thinking skills, concept formation and information processing (Epstein and Voorhis, 2001). According to another study, it was found that there was a strong positive relationship with primary school students in completing homework on the academic achievement in upper class levels (Theodore, Dioguardi, Hughes, Aloiso, Carlo, Eccles, 2009). According to the researches, it is stated that homework which is well designed and meets the needs and interests of the students play an important role in developing positive attitudes and effective academic skills towards the school (Bembenutty, 2011; Bempechat, 2004; İflazoğlu and Hong, 2012). Many studies have shown a positive relationship between homework and success; however, in a study by Farrow and Tymms (2000), the idea that, more homework is better, is not always appropriate. However, it can have a negative impact on students in such a way that students can feel physical and mental fatigue, be prone to deceit, and develop a

negative attitude to school (Cooper and Valentine, 2001; Warton, 2001; Cooper, Robinson and Patall, 2006; Rudman, 2014).

The following recommendations can be made in accordance with the research results:

- It should be kept in mind that it should be appropriate for the student level, careful, entertaining and understandable in terms of timing when assignments are given in primary schools.
- Homework assignments should be at the level of improving students' research skills and creativity.
- Similar studies in the future can be done in different types of schools and the results can be compared.
- Similar studies can be done comparatively by taking student opinions.

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IMPACTS OF EARLY SELF-STUDY ON MATHEMATIC ACHIEVEMENT OF ADOLESCENTS

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Abstract

Regular and adequate sleep is an important factor that has impact on performance on cognitive tasks. Investigators assumed that through the evolution process for hundreds of thousands years people sleep when it was dark and woke with sunrise. That is why, our daily rhythm programmed according to sun. Therefore, current study assessed the impact of regular sleep cycle and early self-study on mathematic achievement of high school seniors. Thirteen students six in experimental group and seven in control group completed the study. The experimental group was send to bed at 22.00 pm and they were waked up at 06.00 am. They had self-study time between 06.15-07.45 am. Participants' mathematic achievements were measured before the intervention and four weeks after the intervention. While control groups did not show any increase, experimental group showed significant increase in mathematic achievement. However, difference between group's posttest did not reach to statistical significance.

Key Words: Sleeping cycle, self-study time, early study, mathematic achievement.

Introduction

Since the beginning of time there is a daily cycle that is determined by the orbiting of the world around the sun. This daily cycle caused occurrence of so called circadian rhythm (Folkard and Monk, 1980). When we compare with the evolutionary development of human kind invention of light seems like a recent development. Concurrently, invention of electric lamp is even more recent development. Therefore, we think that through evolution process humans' circadian rhythm had been determined by daily cycle of the sun. We assumed that people adjusted their life according to daylight. They went to sleep when it is dark and they woke up with the sunrise. This evolutionary nature of the human kind cannot be reversed in a few thousand or hundred years. Therefore, it is reasonable to think that people would be more productive if they abide this evolutionary cycle of sleep. That is why we think that in different times of day people's learning performance can vary.

Many studies examined impact of time of day on behavior, attention, cognitive performance and learning (Antrop, Roeyers and Baecke, 2005; Lotze, Treutwein & Roenneberg, 2000; May, Hasher, Stoltzfus, 1993; Davis, 1987; Badenhausen, 1990). Studies strived to find which time of the day is better for learning. They could not reach a straightforward linear answer for the question. Impact of time of day showed variety according to the learners' age groups (May, Hasher & Stoltzfus, 1993; Klein, 2001); learners' characteristics (Lawrence, & Stanford, 1999; Natele, & Lorenzetti 1997); nature of task that is being performed (Manly, Lewis, Robertson, Watson, & Datta, 2002; Lorenzetti & Natale, V. 1996; Davis,1987, Folkard & Monk, 1980; Folkard, Monk, Bradbury & Rosenthall, 1977).

Even though there are several factors that are affecting performance level of the learner, generally it has been accepted that beginning from the morning performance level gradually increases and it reaches its' peak afternoon hours. Also, being agreed is people perform better on immediate recall in the morning and elaborative tasks in the afternoon. Lorenzetti and Natale, (1996, 1997) claimed that there are morning and evening type learners. Their findings supported their claim. Both typologies performed better

on elaborative task in the afternoon and immediate recall in the morning. However, morning type learner showed better memory performance in the morning vs. afternoon and vice versa was true for evening type learners. Folkard, Monk, Bradbury and Rosenthall (1977) tested 12-13 years old pupils immediate and delayed recall performance on a listen story that they listened from a tape. One group of children listened the tape in the morning at 9.00 am and other group listened the tape after noon at 3.00 pm. They found that morning group performed better than afternoon group on immediate recall. On contrary afternoon group was superior on delayed recall. In a further study Folkard and Monk (1980) indicated that arousal level of the learner during learning was important for immediate and delayed recall achievement. When we think of arousal we have to consider daily sleeping cycle as an important factor.

Studies revealed that regular and adequate sleep has positive impacts on learning and academic achievement (Kubow, Wahlstrom, & Bemis, 1999; Dahl 1999; Wolfson & Carskadon, Quine, 1992). Wolfson and Carskadon (1998) conducted survey with 3,120 high school students whose ages were ranging from 13 to 18. Their participants reported significant decrease in their daily sleep because they were going bed later than they used to and their rising time was consistent. Academic performance of less and irregularly sleeping students were significantly worse than their regularly and more sleeping peers. Regular and adequate sleep is vital for all age groups. However it has greater importance for adolescents because due to hormonal and social changes, most of the time sleeping cycle of adolescents becomes irregular and they start to sleep less even though they do not have decreased need for sleep (Dahl 1999). Therefore, in this experimental study that we intervened sleeping cycle and self-study time of the participants, we targeted adolescents.

Even though sleeping cycle is of great importance for learning and cognitive performance of any kind none of the studies to the authors' knowledge attempted to intervene sleeping cycle and self-study time of the participants. Therefore, purpose of this study was to examine impacts of regular night sleep (from 22.00 pm to 06.00 am) and early morning self study time (6.15-07.30 am) on high school seniors' mathematic achievement. Accomplishing the purpose of the study required addressing following

research question: Will intervention with students' sleeping cycle and study time increase their mathematic achievement?

Participants

This study's population included Turkish senior high school math and science students residing in Erzurum, Turkey. In this population 42 senior high school math and science students from Erzurum Anatolian high school participated to pretest. High school senior students were targeted in the study because they were preparing for the university entrance examination. The university entrance exam consists of two steps. First one is Entrance to Higher Education Examination (EHEE) and the second one is Entrance to Bachelor Program Examination (EBPE). Student can enter to two years vocational school with EHEE. Students who want to attend to a bachelor program at university have to enter and get required score from EBPE. Therefore participants of this study were chosen among those students who were preparing for EBPE. Of the 42 participating students 18 were boarding students therefore they were assigned to the experimental group. It was not possible to control sleep hours of the daytime students. Eight participants from experimental group quitted the study because they did not want to awake up early in the morning and 4 of them did not come to school at the day of posttest. Control group participants did not want to take the posttest therefore only seven of them respond to posttest. Finally, six participants from experimental group and seven participants from control group total of 13 participants completed the study and responded to the posttest.

All participants in the experimental group were male because there were no female boarding students. Of the seven participants in the control group, 3 of them were girls (43%) and four of them were boys (57%). All participants were science students. Ages of the participants in the experimental group range from 16 to 18 years, with a mean age of 17.4 years (SD=0.8). Concurrently, the ages of participants in the control group ranged from 16 to 18 years, with a mean age of 17.3 years (SD=0.7).

Measure

In this study one measure was used. Mathematic part of the 2009-2010-university examination test was used as a pre and posttest. It is a central standardize test that is prepared by governmental institute so called Measurement, Recruiting and Placing Center (MRPC). This test was the former test that the participant would enter at the end of the semester. The test contained 50 mathematic questions and 30-geometry questions total of 80 questions. Students have 2 hours to complete the test.

Design and Procedures

Study utilized a pretest-posttest control group design. There were no random assignments because study requires the control of sleeping time of the participants in the experimental group. Therefore, boarding students were assigned to the experimental group because it was not possible to control the sleeping hours of the day students.

Investigator visited the classroom and explained the purpose of the study. He told that they would receive 2010 EBPE mathematical test as a pre-test and than for four weeks students in the experimental group would go to sleep at 22.00 pm latest and they will wake up at 06.00 am study for the university entrance exam and at the end of four weeks they would receive posttest. In fact, investigator demanded to send students to their bed at 21.00 am and wake them up at 05.30 however school administration did not authorize it. Investigator did not tell that the pre-test and posttest were the same in order to prevent cheating after the pretest. After the explanation investigator listed the students who wanted to participate the study. Pre-test day and place were arranged with the help of school administration. Forty-two participants received the pre-test at the school library. Participants were given 2 hours from 10.00 am to 12.00 pm to complete the test.

After the pre-test for four weeks (including weekends) investigator monitored sleeping hours of participants in the experimental group. Every morning the investigator went to participants' dormitories and woke them up at 06.00 am. From 06.00 am to 07.45 am, investigator stayed with the participants while they were having their prep time for university entrance exam. Every night investigator went to dormitories to con-

trol bedtime. He made participants went to bed latest at 22.00 pm. After the pre-test no intervention occurred with the control group during the four-week control phase.

At the end of four weeks participants responded to 2010 EBPE mathematical test in the school library. Participants were given 2 hours from 10.00 am to 12.00 pm to complete the test.

Results

In the EBPE test each mistakes were canceling 0.25 points. Therefore, calculations were made over the net scores. Due to small number of participants parametric tests cannot be used in the data analysis. Wilcoxon Signed Rank test, for both groups, compare means of the pre-test and post-test scores within the group. Also applied was Mann-Whitney U in order to discover any differences in post-test scores between the experimental and control groups.

The mean score for the experimental group's pre-test was 35,75, with the mean ranging from 10,00 to 64,75, and an SD of 19,3. The mean score for the experimental group's posttest was 43,7 with the mean ranging from 15,25 to 65,5, and an SD of 18,6. There was 8 points difference between pretest and posttest scores. Wilcoxon Sign Rank revealed that this difference reach to statistical significance ($N=6$, $p<0.05$).

The mean score for the control group's pre-test was 37,3, with the mean ranging from 27,5 to 57, and an SD of 11,8. The mean score for the control group's posttest was 35,5 with the mean ranging from 25,25 to 46,5, and an SD of 7,8. Wilcoxon Sign Rank revealed that the mean difference between pretest and posttest was not significant ($N=7$, $p>0.05$)

Groups' posttest means were compared with Mann-Whitney U. Statistical analysis did not revealed significant difference neither between pretest scores $z=-.143$, $p>0.05$ of the groups nor posttest scores $z=-1.003$, $p>0.05$.

Discussion

Pretests comparison revealed that there were no differences between groups in terms of their EBPE mathematic test achievement at the beginning of the study. Exper-

imental group's EBPE mathematic test performance significantly increased. Contrary control group's EBPE mathematic test performance slightly decreases. This finding is consistent with findings of Pincback (as cited in Klein, 2004, p. 443) where he found college students showed more progress in algebra in the morning than in the afternoon. Our emergence point was human beings natural evolution process. We thought that for hundreds of thousands years people sleep when it was dark and woke up with sunrise. Therefore, we assumed that attention level of the students would be high during early in the morning if students have adequate sleep. Reports from several studies (Klein, 2001; Morthon & Kershner, 1991 as cited in Antrop, Roeyers, & De Baecke, 2005; Biggers, 1980 as cited in Klein, 2001) supported heightened attention assumption. Therefore, while control group could not show any increase in mathematic achievement, regular sleep and early self-study time can be factor in the explanation of the significant increase in experimental groups mathematic achievement. Of course we have to be very careful while we are interpreting these findings because of the limitations that will we address below.

Even though experimental groups performance significantly increased this increase did not reach statistical significance when we compared it with the control group's performance. This fact may be explained with the limitations of the study. First of all sample size was not large enough to apply parametric statistics and many participants did not respond to posttest. Second of all, researcher had to leave the dormitories after experimental students went to their beds. After researchers left because students were not accustom to sleep early they might stay late and this extended adaptation process. Therefore, one month of intervention period may not be adequate for occurrence of significant difference in the performance. Finally, as we mentioned in procedure school administration did not authorize for waking students up at 05.30 am and sending them to sleep at 21.00 pm. This was important because those hours were more compatible with the daily cycle of the sun at the time the study was conducted. That is why we believe that there is need for further research on the issue with the consideration of limitations.

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COMPARISON OF THE ATTITUDES OF ACQUIRING NUMBER CONCEPT OF THE CHILDREN EXPOSED TO TRADITIONAL AND MONTESSORI METHODS IN PRESCHOOL EDUCATIONAL INSTITUTIONS[1]

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Abstract

For decades, researchers and teachers have investigated the most effective teaching methods in educating children at every levels. This study aims to compare the effectiveness of Montessori and Traditional Teaching Methods to make the preschoolers acquire mathematical concept. Therefore, the preschoolers attending Ihsan Dogramaci Practicing Preschool under the title of Faculty of Vocational Education of Selcuk University are taught "Mathematical Concept" via Montessori and Traditional Teaching Methods to investigate the effectiveness of them.

[1] This study was produced from the master thesis accepted in Selcuk University, Institute of Social. Sciences, and was presented in the 14th International Teacher Education for Sustainable Development, Culture and Education congress 12-14 May, 2016 Konya / TURKEY

The study is planned as an experimental one. The sample is 20 for 4 years old (10 for experimental and 10 for control groups) and 20 for 5 years old ((10 for experimental and 10 for control groups), totally 40.

At the beginning of the research, 40 preschoolers are given pre-test to display the groups are equal to each other. Following pre-test, the experimental group is taught by Montessori while the control group is taught by Traditional Teaching Methods.

Mann-Whitney U test Statistical under the title of Programming for Social Sciences SPSS 15.0 version is practiced to analyze the data. At the end of the training, both of the groups are given post test to analyze the outcomes of the methods.

At the end of the research, it shows that there is significant differences between experimental and control groups for experimental one.

Keywords: Preschool, Montessori Method, Number Concept, Traditional Method

Introductıon

Preschool period is the period when the child actively acquires basic concepts and the development is the fastest. By means of the concepts, information is grouped and organized. When we observe children in natural environments, it is possible to see how the concepts are structured and how situations requiring problem solving are implemented. The beginning of scientific studies is based on problem solving. For this, math skills are needed (Arı, 1993).

In the curriculum about teaching mathematics in preschool period, grouping, matching, sorting, counting, numbers (between 0-20), ordinal numbers, basic shapes, location and dimensions in space are included (Güven, 2000).

One of the concepts that should be given in mathematics activities in this period is number concept. Different opinions, different teaching methods and different techniques have been used on the gain of number concept so far.

Fidan (1985) and Aydın (1997) defined the teaching method as a way of teaching, which includes all of the observation, experiment, planning studies application and

study techniques that are aimed at providing students with knowledge, skills and attitudes by creating an integrity of the techniques, subject to be covered, tools and resources in order to reach the goals in teaching. Bilen (1989) and Aydın (1997) stated that teaching technique is a special way followed to organize the equipment and teaching activities to be used to convey a certain content to students.

According to Piaget, for number concept to be developed, the child must be able to perform one-to-one correspondence function and conserve the numbers. Contrary to Piaget, Gelman and Gallistel (1978) suggested that the skills related to the number concept can be gained by providing guidance in preschool period.

Maria Montessori who said *"I started this job like a farmer who had a good quality seed and a fertile field that he would only plant as he wanted. But when I touched the soil, I found gold instead of grain. This land hid a valuable treasure. That showed me that I was not a farmer as I thought: I was like Alladdin, who opened the doors of hidden treasures and held the magic lamp in his hands"* initially gave importance to the education of the senses in her work she started without knowing what she would find and based her observation on the method she developed (Wilbrandt et al., 2008).

This observation is the one where the child is free in his activities and where it is made under natural conditions (Cited Aydoğan Akuysal, 2007). Emphasizing that movement is of great importance in the development of living things, Montessori provided an arrangement that would allow children to use the material freely in accordance with their own development in the training program she prepared. What matters to Her is the natural movements of the child. Thus, the interaction of the child with his environment reveals his physical and mental unity (Çağlak, 2005). Working with the sensory materials developed by Montessori helps the child to grasp what he sees, hears and touches. These materials sensitize the child's impression of hearing, seeing, tasting, touching and smelling. The child does important mental exercises not only by sensitizing his emotions but also by means of recognizing, matching and grading emotions. While in the mathematics system taught by traditional methods, by introducing “numbers and zero” to the child, the child is expected to perform operations with them, the concepts of mathematics are grasped by the child through embodiment with the materials developed by Montessori, one of which constitutes the infrastructure of another (Wilbrandt et al., 2008).

1.1. Problem

Is there any difference between Montessori teaching method and Traditional teaching methods in the gain of number concept in children attending preschool education institutions?

1.1.1. Sub Problems

1. Is there any difference between Montessori teaching method and Traditional teaching methods in the gain of number concept in 4 years old children attending preschool education institutions?
2. Is there any difference between Montessori teaching method and Traditional teaching methods in the gain of number concept in 5 years old children attending preschool education institutions?

1.2. Purpose and Importance of the Research

This study aims to compare the effectiveness of Montessori and Traditional methods in making the 4-5 years old children attending preschool education institution acquire number concept.

Years ago, Galileo said, "*Science is written in that magnificent book called the "universe", which is open to our eyes. However, we cannot read this book without learning the language and abc (alphabet) in which it is written. This language is math; without this language it is impossible to understand a single word of the book*". (Cited Ersoy, 2002) Mathematics education was given great importance in every age, and there was a need to reform from time to time. Despite this, problems in the mathematics education process have never been few, and mathematics has become a difficult, feared subject for most people. Although this difficulty is somewhat due to the abstract and symbolic character of mathematics, the problem is largely due to the insufficiency of teachers, the

presence of loaded and routinized programs and the lack of guidance service in schools (Çepoğlu, 1994). Skills related to number concept, which is one of the concepts of mathematics and accepted as the basis of arithmetic, are important in preschool and primary school years. In a period between the ages of 2 and 8, children become ready to use them in their daily lives by developing these concepts and skills.

The famous pedagogue Maria Montessori (1870-1957), the first female medical doctor of Italy, who maintained that preschool years cover sensitive periods that should not be wasted, proved by her method that mathematics can be taught to the child with due regard and through endearment. Montessori observed that a child would develop many mathematical abilities in an entertaining way in the case of working with mathematics materials at an early age and developed various materials for mathematics education (Lewis, 1977). This research is important in terms of better recognition of the Montessori method, the interest of the chil d in mathematics before school, learning by understanding and loving instead of memorization.

METHOD

3.1. Model of the Research

This research is an experimental study that tries to examine whether there is a difference between the groups on whom Montessori teaching method and Traditional teaching methods were implemented in the development of the concepts related to numbers in 4-5 years old children attending preschool education institution. Independent variables of this research are concept education program prepared in accordance with Montessori and Traditional method. Dependent variable is the level of development of number concept. In this study, trial model with pretest-posttest control group was used.

The following criteria are taken into consideration in the equalization of the experimental and control groups.

1. Information obtained from the personal information form of the students
2. Scores from the test

3.2. Personal Information Form

Information about the children was obtained from the student files available in their schools. This information was recorded on the information form created by the researcher. In this form, there are questions about children's name, gender, age, job status of parents, whether they are natural or alive, how many years of preschool education the child received, the education status of parents, their ages, income, number of siblings, and what order they come among siblings in the family. In terms of these features, two equivalent classes in the same school were included in the scope of the research. From the collected data, it was determined that the parents of all children received university education and that the children received education for minimum one year and maximum two years.

3.3. Participants

The populatıon of the research is 4-5 years old children in İhsan Doğramacı Practice Kindergarten, affiliated with Selcuk University Vocational Education Faculty Child Development and Home Management Education Department. Twenty children from 40 children included in the research sample formed the control group by random element sampling method and 20 children from the children enrolled in the Montessori class formed the experimental group by random element sampling method. The children who made up the experimental and control groups were also divided into two groups of 10 as 4 years old and 5 years old, among themselves.

3.4. Data Collection Tools

In order to collect data in accordance with the purposes of this study, 17 items aimed at the number concepts in the gain assessment form were applied.

3.4.1. Assessment Form

The Pre-School Education Program for 2006 (for 36-72 months old children) consists of objectives and gain that take into account development areas. Accordingly, the development areas are as follows:

1. Psychomotor Area (PA)
2. Social-Emotional Area (SEA)
3. Language Area (LA)
4. Cognitive Area (CA)
5. Self Care Skills (SCS)

This program was prepared as a single preschool education program for all 36-72 months old children. For the children in the teacher's group, the teacher himself must choose the appropriate gain and objectives. In the program, objectives and gain were grouped according to their development areas. It was emphasized that these objectives and gain should be chosen from simple to complex (Ministry of National Education, 2006). Some forms were included in the 2006 program so that teachers can easily evaluate the child's development. One of these is the acquisition evaluation form. In this form, goals and gains are divided according to the development areas. According to this;

There are a total of 5 goals, 46 gains from P(A),
a total of 15 goals and 57 gains from SE(A),
a total of 8 goals, 37 gains from L(A),
a total of 21 goals and 97 gains from C(A) (Ministry of National Education, 2006).

And the number concepts in preschool period were in the area of cognitive development. In this study, a table was created by listing 17 items of the gain assessment form aimed at number concept. This table was used as a data collection tool in accordance with the purposes of the research. Instead of evaluating the responses received from the child as successful or unsuccessful for each item in the table, a rating and scoring method was made based on the principle of "the amount of error decreases as the unit gets smaller" (Yılmaz and Sümbül, 2004). In line with this principle, for the 17 items in the

created table, the answers expected from the child were grouped in a certain number range, and each group was scored as (1), (2), (3), (4), (5).

In this scoring;

the numbers represent the statements:

(1) ------> Not at all developed

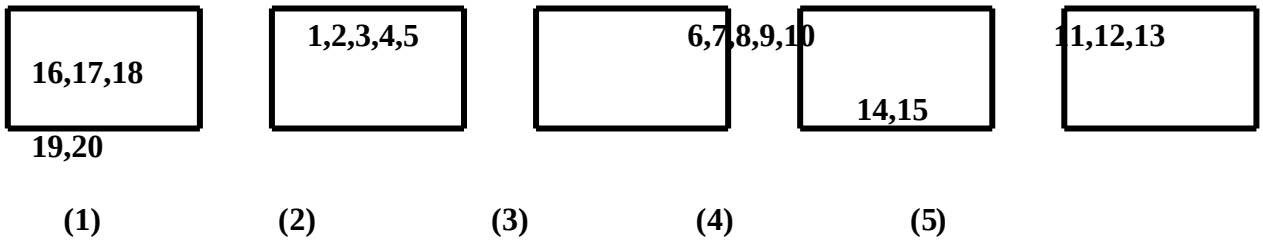
(2) ------> Developed below average

(3) ------> Moderately developed

(4) ------> Developed above average

(5) ------> Highly developed

For example, the expression "counts one forward rhythmically within the 20" in Table 1 (see Annex: 6) was grouped and scored as follows:



Other items were also grouped according to their content and scored as (1), (2), (3), (4), (5).

Except for the first two items of the table regarding the number concept, materials were prepared by the educator for all other items. In the validity and reliability study of the prepared materials and the created table, a logical approach was followed and expert opinion was consulted. In the logical validity and reliability study, 5 child development specialists, 5 preschool education specialists and 10 kindergarten teachers presented their opinions.

.3.5. Collection of Data

In this study, the collection of the data was carried out as follows.

3.5.1. Collection of Pre-test Data

In the experimental and control group children who constitute the sample of this research, 17 items were applied as a pre-test for the number concept taken from the 2006 Preschool Education Program's acquisition assessment form.

The necessary explanations were made to the children before pretesting, and then a total of 40 children were pretested individually. An average of 20 minutes was used for each child.

3.5.2. Collection of Post-test Data

After the end of the experimental study conducted by the researcher who received the 112-hour "Montessori Education Model Theory and Practice Seminar", 17 items related to the number concept of the 2006 Preschool Education Program were applied as a post-test to the experimental and control group.

Fındıngs and Discussion

After collecting the data related to the research, statistical operations were made by creating a database on the computer using the "S.P.S.S. for Windows 15.0" package statistics program. In order to examine the effects of Montessori teaching method and traditional teaching method on number concept development, the level of initial number concept skills of the experimental and control groups was examined. For this, mean and standard deviations of the pretest scores of the experimental and control groups were calculated, and Mann Whitney U Test was conducted to determine whether the difference between averages of both groups was significant. The results of this analysis are given in Table 1 and Table 2.

When the number concept pre-test mean scores of the 4-years-old experimental and control groups in Table 1 was analyzed, it is seen that the mean score of the experimental group is 10.15 and the mean score of the control group is 10.85.

Table 1. Number Concept Pre-test Results of 4-Years-Old Experimental and Control Group

Group Age	N	Mean of Numbers	Sum of Numbers		Mean
Test Group 4 years old	10	10,15	101,50	Mann-Whitney U Wilcoxon W Z	46,500 101,500 -266
Control Group 4 years old	10	10,85	108,50	Asymp. Sig. (2-tailed) Exact Sig. [2*(1-tailed Sig.)]	,790 ,796
Sum	20				

P > 0,05

When the Mann-Whitney U Test was carried out to reveal whether the difference between the means of both groups is important, It is determined that the value of Asymp.Sig. (2-tailed) is (, 790).When the significance value was analyzed, it is seen that p> 796 result is insignificant.

According to this result, it can be said that the number concept pre-test scores of the 4-years-old experimental and control groups at the beginning of experimental process are very close to each other. (Asymp.sig.(2-tailed: ,790)

When the number concept pre-test mean scores of the 5-year-old experimental and control groups in Table 1.2 are analyzed, it is seen that the mean score of the experimental group is (10.80) and the mean score of the control group is (10.20).

In order to determine the significance value of these results, Mann-Whitney U test was carried out and it is determined that the value of Asymp.Sig (2-tailed) is (820).

According to the significance value p>, 820 result, there was no significant difference between the pre-test scores in the two groups. At the end of the 6-week application after the determination of the baseline levels, the post-test was applied to the experimental and control groups. For this, the mean and standard deviations of the post-test scores of the experimental and control groups were calculated, and Mann Whitney U Test was performed to determine whether the difference between averages of both groups is significant. Results relating to this analysis are given in Table 3 and Table 4.

Tablo 2. Number Concept Pre-test Results of 5-Years-Old Experimental and Control Group

Group Age	N	Mean of Numbers	Sum of Numbers		Mean
Test Group 5 years old	10	10,80	108,00	Mann-Whitney U	47,000
				Wilcoxon W	102,000
				Z	-,227
Control Group 5 years old	10	10,20	102,00	Asymp.Sig. (2-tailed)	,820
				Exact Sig.	,853
Sum	20			[2*(1-tailed Sig.)]	

P > 0,05

When the number concept post-test mean scores of 4-year-old children in the experimental and control groups are examined in Table 3, it is seen that the mean score of the experimental group is (14,30) and the mean score of the control group is (6,70).

When Asymp. Sig. (2-tailed) value of Mann-Whitney U test which is performed to determine whether the difference between means is significant is analyzed, it is seen that the result is (, 0004) and this result is p <0.005.

According to this result, the difference between the two groups is in favor of the experimental group. According to these results, it is concluded that the Montessori method is more effective in gaining the number concept compared to the Traditional method.

Table 3. Number Concept Post-test Results of 4-Years-Old Experimental and Control Group

Group Age	N	Mean of Numbers	Sum of Numbers		Mean
Test Group 4 years old	10	14,30	143,00	Mann-Whitney U	12,000
				Wilcoxon W	67,000
				Z	-2,876
Control Group 4 years old	10	6,70	67,000	Asymp.Sig. (2-tailed)	,004
				Exact Sig.	,003
Sum	20			[2*(1-tailed Sig.)]	

P < 0,05

Jacqucline, Stewen and Edward (2004) compared Traditional nursery children and Montessori nursery children in terms of wittiness, classification and conservation. 4 years-old 40 children from both schools were sampled and Piagetian problem wittiness,

classification, conservation were applied to each child. According to the results, there was no significant difference in conservation between Montessori nursery children and traditional nursery children. It was determined that Montessori nursery children are more interested and can concentrate more easily about wittiness and classification. (Akt. Erben, 2006). This result is important for supporting the research.

When the mean scores of 5-years-old children in the experimental and control groups in terms of number concept gain in Table 4 are analyzed , it is seen that the mean score of the experimental group is (15.40) and the mean score of the control group is (5.60).

When the Asymp.sig. (2-tailed) value of the Mann-Whitney U Test is examined to determine whether the difference between means is significant, it is seen that the result is (, 000). In the significance test, the value (, 000) is significant compared to p <0.05.

Akuysal (2007), in her research titled "The effect of the concept education program in the development of the geometric shape and number concepts of 6-year-old children", examined the effect of the concept education program prepared by Piaget and Montessori in accordance with his method In this research

Table 4. Number Concept Post-test Results of 5-Years-Old Experimental and Control Group

Group Age	N	Mean of Numbers	Sum of Numbers		Mean
Test Group 5 years old	10	15,40	154,00	Mann-Whitney U Wilcoxon W Z	1,000 56,000 -3,791
Control Group 5 years old	10	5,60	56,000	Asymp.Sig. (2-tailed) Exact Sig.	,000 ,000
Sum	20			[2*(1-tailed Sig.)]	

P < 0,05

, while the "concept education program" prepared in accordance with the management of Piaget and Montessori was applied to the children of the experimental group, the existing program was applied in the control group. As a result, it was observed that there was a significant improvement in the behavior of matching two sets

with the same number of elements related to numbers, recognizing and matching symbolic models of numbers, counting objects, writing symbolic models of numbers according to the children in the experimental group. Asfuroğlu *(1990)* conducted a study entitled "Gaining Triangle, Circle and Square Concepts to 5–6 Years Old Children Attending Kindergarten". In this study which he carried out with the aim of gaining the concepts of triangle, circle and square to the children of 5-6 years of age who attend kindergarten, 36 children are divided into two groups who receive education with material and without material. Before education program was applied, pre-test was carried out to the experimental and control groups. Both groups were applied a post-test at the end of the education program and a retention test four weeks later. The same educational activities were applied to the groups with and without materials for 16 days. Only children in the material group were allowed to work in class with the materials developed by Montessori. As a result, there is a significant difference between the pre-test, post-test and retention test results of the children who received education with and without materials. Considering the results of these studies, it can be said that the Montessori method is more effective in gaining the number concepts compared to the Traditional method.

Result and Suggestions

The aim of this research is to compare Montessori and Traditional Teaching Methods in gaining number concept to 4-5 years old children attending preschool education institution. After training of the number concepts given to 40 children from İhsan Doğramacı Practice Kindergarten, "17 items of the Gain Evaluation Form for number concepts" were applied. The findings were evaluated statistically.

When the obtained data was evaluated statistically, it was found that there was a significant difference between the number concept acquisition levels of the groups using Montessori Teaching Method and Traditional Teaching Methods ($p<0,05$). It was determined that 4 years old students using Montessori Teaching Method were more successful in gaining the number concepts than 4 years old students receiving Traditional Education. (Table 1.3). In addition, it was determined that 5-years-old students who

used Montessori Teaching Method were more successful than 5-years-old students who received Traditional Education. (Table 1.4). A strong framework should be created in order to increase the developmental characteristics and natural mathematical abilities of children in preschool period.

Today, many children see mathematics as a set of rules or facts to remember, and they cannot establish a relationship between mathematics and their own lives. The reason for this outcome is that mathematics is usually taught in a non-content way. (Whitin, 1994). The quality of the stimuli which is chosen is important to be successful for the child. The basis for the mathematical concepts required for the higher mathematical skills that the child will need in later school life should be established and appropriate educational experiences about this subject should be provided. (Bilir, Metin, Bal, Şahin, 1992). One of the best ways to achieve this in the classroom is to prepare the Montessori educational environment. Montessori Tools are introduced to children once by their teachers or other children. Thus, the child learns the way of working which is suitable for the purpose of the vehicle. Each study is designed to take a child to a higher cognitive level. Tools follow each other, and the previous tool is less complex and easy in level than the next one. The fact that the tools follow each other during the study ensures that the child's knowledge always moves on a foundation. This is a complementary process, such as construction of a wall.

Learning does not occur without repetition, but Traditional education presents the subject to be learned within the time which it determines and it starts to deal with another subject after this period. But every child's learning style and need for repetition are different. In the Montessori Method, the child adjusts her/his working speed and becomes the manager of her own learning experience. This is a very important feature which must be gained for a person. Children working with Montessori tools start with learning by using concrete objects and senses, develop their abstract thinking skills, progress in writing, reading, mathematics and science, and become individuals who love to study and learn.

Educational philosophy of Montessori is very different from Traditional understanding in terms of the view of the child. According to Montessori, children learn, think and perceive in a completely different way than adults. Therefore, giving educa-

tion by trying to see the child as an incomplete example of the adult does not mean anything other than maintaining an error that has been done for thousands of years. Children have their own needs and rights. The only thing an adult can do in the child's development process is to remove the obstacles to the child and meet her/his needs. Education is to enrich the experiences that the child may have during this period of self-construction and to present experiences in the direction of progress.

While the traditional method measures the child's development with notes, tests and scorecards, the Montessori Method rejects this measurement fundamentally. Obviously, trying to measure development in this way puts the child's goal in a negative contest that reduces it to a only test result, whereas the main goal is to learn and progress.

In the Montessori Method, evaluation is determined as a result of sensitive observations which are made during the child's work with the tools. In particular, it is known that traditional assessment cannot be made to the child in the first six years of age, and tests which are thought to measure development give very limited and highly generalized information about children. Therefore ; Observations collected during the child's work include not only observations about the work done with the tools, but also the movements he/she made during physical education and the conversations he had with his friends while playing games. These observations collected about the child are evaluated both according to the principles and measures of Montessori and the data of developmental psychology. The Montessori Method evaluates works done by the child with regular follow-up by teachers and observers and experts rather than a report that evaluates the development of the child by numbers. The success, strengths and weaknesses of the child are also mentioned in these reports and suggestions are made. (http://www.sihirlibahce.com.tr).

Suggestions

The findings of the research show that "Montessori Teaching Method provides a positive change in children's behaviors regarding the number concept.

Following suggestions have been developed in accordance with the findings of the research.

1-Current preschool programs should be supported with the Montessori teaching Method by taking the opinions of teachers.

2- In order to put the views on mathematics on a better basis, especially in the preschool period, seminars and practices to spread the Montessori method should be organized.

3- Access to Montessori materials should be facilitated.

4- Similar studies should be conducted with sample groups from different populations in order to make a generalization from the results obtained from this research. The effects of the "Montessori Teaching Method" on the other development of children can be explored by subjecting to other studies.

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