

Analyse of Efficiency of‘Cooperative Process’ in Social Constructivist

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Abstract

Aim of this working researches on effect of portfolio points with scientific process skills, interpersonal of teacher candidates and communication skills in social constructivist learning environment of cooperative process. In this sense, cooperate process is researched whether show meaningful differentness or not and concerning point average of this skills perceiving as low, normal and high. Investigation had been carried out continuing “Specific teaching methods” lecture on 187 elementary Mathematic teacher candidate. Teaching environments which based on social constructivist approach had been constituted within investigation. “Cooperate process scale”, “self-assessment form” and plenary assessment rubric had been used obtaining of the datum. Findings show to become meaningful and higher than perceivers as “low” and “normal” of average portfolio points with feeling scientific process skills, communication and interpersonal of teacher candidates as “high” in this cooperate process. As a conclusion, it can be said to be effective on interpersonal, communication and scientific process skills of the learners of cooperate process in social constructivist approach.

Key words: Social constructivist, cooperate, interpersonal and communication skills, scientific process skills.

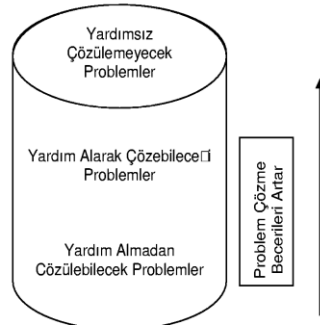
1.Introduction

Another kind of constructivism is social constructivism to emphasize cooperative culture, and social context in learning. (Derry, 1999; McMahon, 1997; Sivan, 1986; Terwel, 1999). Social constructivists use mainly Vygotsky’s opinions in learning explanation. (Palmer, 2005). Vygotsky has concentrated on mainly social interaction, language and effects of the culture in learning process. (Fosnot ve Perry, 2005; Jonassen ve ark., 1995; Vrasidas, 2000; Woo ve Reeves, 2007).

One of the most important opinions of Vygotsky is related to “ the zone of proximal development.” Vygotsky’s zone of proximal development concept has influenced largely both how to look it and teaching. (Postholm, 2006). According to this opinion, students’ problem solving skills are separated three categories: (i) Not to carry out skills of student, (ii) To carry out skills of student, (iii) Student can carry out skills by helping of someone.

According to Vygotsky’s opinion (1978), development of the person is similar an endless cylinder. On this cylinder, when person’s problem solving skills develop, there is a the zone of proximal development to upwards.

Basis of this development zone, person can solve problems not to receive helping by someone, as for ceiling, it constitutes not to solve problem even if receiving help by someone. As for between basis and ceiling, person can solve problems to receive helping by someone. (Liang ve Gabel, 2005; Murphy,1997).



Şekil 1: Yakınsal Gelişim Alanı

Vygotsky defends to rise higher points of the zone of proximal development in development cylinder and person can solve more difficult problems to receive helping from teachers or friends. According to this opinion, development of the person is endless. It will be to solve problems and not to solve problems even if receive helping at every level. This opinion explain important ‘cooperative’ process in social constructivist approach.

According to this approach, learning potential of the person emerges “with other sophisticated persons’ in an effective communication. When we study with together others, we achieve far more than we can do by oneself. It is great this ‘share of cooperative’ to carry out with others in back of human achievement. (Açıkgöz, 2004; Darling-Hammond, 2000; Liang ve Gabel, 2005; Özden, 2003; Shunk, 1995).

According to Azzarito’s and Ennis’s opinion (2003), for learning, peer interaction, student’s program attendance and students occur by being authentic educational lifes. This learning environment supports cooperative education instead competitive with each other via social interaction. (Abdal-Haqq, 1998; Akar, 2003;Terhart, 2003).

According to Hanson’s ve Sinclair’s opinion (2008), pragmatic socio-constructivist approach requires configuration with conditions or collaboratively projects. University students’ (i) theoretical knowledge; (ii) professional field knowledge (iii) are stated to be more effective from traditional didactic learning methods of this approach in knowledge configuration development of skills.

According to Social constructivist approach, learning occurs ideally not to solve certain and open with a complex when students encounter with real world problems. When students encounter with a common aim, they study concertedly for conclusion and they take common responsibility on key decision. Teacher’s role orientates learners to solve this problems for exploring more than one direction. Such a role is contrast with instruction situation directly from true solution by students. (Gruba and Søndergaard, 2001).

Jaworski, (1994) ve Ernest, (1995)akt: Woo and Reeves, 2007) features of social constructivist approach: 1)Active construction of knowledge based on experience with and previous knowledge of the physical and social worlds, 2) Emphasis on the need for the ZPD, 3) Emphasis on the influence of human culture and the sociocultural context, 4)Recognition of the social construction of knowledge through dialogue and negotiation, 5) emphasis on the intersubjective construction of knowledge and 6)Multiple interpretations of knowledge and as summaries.

According to them, implementation of constructivist approach (applications): 1) Peer communication with more skilled students, 2) Enculturation of students into the community of the particular academic discipline or profession, 3) Usage of suitable and authentic tasks, 4) Multiple point of views are seen valuable, 5) Solution of problems related with real world, 6) Cooperative during learning process and 7)Opportunity for students to publicly share their work, revise their work based in social critiques, and reflect on what they have learned with others.

In social constructivist approach, solving problem of learners, analysis, syntheses, critical thinking are important to have high level knowledge and skills. (Murphy, 1997; Terhart, 2003; Tynjälä, 1999). When researches which are done analyse in literature, solving problem of learners, for lecture attitude, metacognitif etc. are seen to be more effective and positive on skills. (Demirel ve Koç, 2008; Gündoğdu, 2010; Kaya, 2010; Yurdakul, 2004).

Literature proves to be more effective in education of the teacher candidates. (Akar, 2003, Holt-Reynolds, 2000; Jadallah, 1996; Kroll ve Laboskey, 1996). According to Woo ve Reeves (2007), lately, they have started to see many educator more effective learning situations in social constructivist approach.

Social constructivist approach and cooperative process interpersonal communication have obtained only a research on scientific process skills and portfolio effect points. (Ballantine ve McCourt, 2009). A great majority of researches are seen only as based on activity intraclass during cooperative process on learner's achievement and attitude. In this research, social process skills and interpersonal and communication skills and effect of portfolio points have been researched for making real in a learning authentic situation tasks of teacher candidates.

1.1. Research Questions

Portfolio analyses effects of scientific process skills and interpersonal communication of teacher candidates during cooperative process to learning environments within social constructivist process. In this connection, it looks for an answer below questions:

Teacher candidates perceive as low, normal and high cooperative process in social constructivist learning environment;

- i. Is there any meaningful difference within interpersonal communication skills levels?
- ii. Is there any meaningful difference in scientific process skills levels?
- iii. Is there any meaningful difference in portfolio points?

2. Method

Research has been carried out with 187 primary education Mathematics teacher candidate and to continue "Education Principle and Methods" lecture in 2010-2011 school year. This 187 teacher candidates have separated to carry out 45 groups three each or four each for giving own tasks. Research has been constituted learning environments under social constructivist approach. Teacher has carried out planner, conceptualization, motivator and to bring high skills in learning environment, even if learners carry out social learner roles, autonomous and effective (creative, reflective, critical) in learning process. Authentic evaluation approach has been used in this evaluation of the learners..

Learners have carried out giving authentic tasks with common aim in this democratic, constructivist and purposeful learning process environment. Learners have delivered to appear portfolio files for research their works at the end of this process.

2.1. Data collection tools

'Cooperative process scale' had been used self-assessment rubric in determination of 'Plenary assessment form' and scientific process skills and interpersonal and scale of communication skills in investigation. Features of this scale tools are as follows.

'Cooperative process scale' had been used how to operate determination of cooperative process by researcher in learning environment. This scale tool can be used two differently as ungradable and 5th dimensional. It had been used ungradable form of measurement tool in this investigation. Measurement tool explains total variance % 52 as ungradable. It changes between 48 and 85 factor loads of materials in this scale. As for ungradable internal consistency coefficient of the scale, it had been determined as .98. When points get high in scale, it can be infered as high(positive) of cooperative process.

Learner prepare portfolio file as a result of this investigation. 'Plenary assessment form' had been used preparing by researcher in assessment of this files. Portfolios had ben assessed at two-dimensional in plenary assessment form. At first, they had marked with grading key to figure works after general view of portfolio files.

Example:

Dosyanın genel görünümü

(5) Very good	(4) good	(3) normal	(4) bad	(1) Very bad
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'Self-assessment rubric' had been used to determine their scientific process, interpersonal communication skill levels of the students by researcher. Ten articles which was determined for interpersonal and communication skill had figured seven articles for scientific process skills in this rubric. Reliability co-efficient of this materials had calculated as 0.92. It had been demanded to assess concerning alteration in this skill levels at the end of this learning process from learners.

Example :

<u>Because of this working, my skills of the following improved like this</u>	5	4	3	2	1
1. Working with team					

2.2. Analysis of data

Data collection tools had been delivered to researcher with portfolio file and to be filled by groups at the end of learning process. Datum which was obtained from "cooperative process scale" had been analysed in SPSS 16.00 in package programme. After datum were entered, total point, average and standard deviation values had been calculated in this cooperative process. After this operation, it had been determined as "low" group beings under half-standard deviation and as "high" group beings over half-standard deviation of arithmetic average of cooperative process. As for remaining in between two groups, it had been determined as "normal" group.

According to feature of perceptions distribution concerning qualification of cooperative process, it had been divided to three groups as "low-normal-high".

It had been turned to hundred points and to take points of groups from plenary assessment form and they had been used as point of individuals, point of group.

After this processes, depends on aim of the investigation, variance analyse and Tukey test had been carried out whether determine to be meaningful different or not in terms of statistical between cooperative process levels and other dependent variable.

3. Results

At first in investigation, is there meaningful differentness among interpersonal, communication skill and scientific process skill points with perceptions carrying out cooperative process of teacher candidates and to be given authentic duties in social constructivist learning environment? Findings which was obtained had been given in Table 1.

Table 1. Concern with interpersonal and communication skill-bsb, average, standard devaiton and variance analyse values in cooperative process.

		Low(1) n=39		Normal(2) n=65		High(3) n=73		F	p	Fark
		μ	s.d.	μ	s.d.	μ	s.d.			
İnterpersonal and communication skills sssssandcommunicationiletişim becerileri	Work with team	3,51	1,27	4,09	1,11	4,67	,708	17,36	,000	2>1; 3>1;3>2
	To do oral presentation	3,58	1,09	4,30	,900	4,68	,704	19,93	,000	2>1; 3>1;3>2
	Oral communication	3,82	,790	4,30	,882	4,69	,593	17,49	,000	2>1;3>1;3>2
	Listening	4,07	,928	4,36	,839	4,79	,439	13,60	,000	3>1;3>2
	Leadership	3,56	1,07	4,07	,871	4,63	,634	21,71	,000	2>1;3>1;3>2
	Negotation and persuasion	3,84	,960	4,21	,909	4,60	,571	11,84	,000	3>1;3>2
	Questioning	3,64	1,18	4,16	1,03	4,28	,949	5,16	,007	2>1;3>1;3>2
	Take responsibility	3,48	1,14	4,27	,875	4,30	,952	10,39	,000	2>1;3>1;3>2
	Disagreement and solution	3,76	1,01	4,21	1,02	4,61	,637	12,04	,000	2>1;3>1;3>2
	Discussion issues as critical	3,64	1,13	4,07	1,00	4,64	,694	16,13	,000	3>1;3>2
Scientific process becerileri	Investigation	3,56	1,09	4,32	,903	4,71	,564	24,14	,000	2>1;3>1;3>2
	Data analyses	3,53	1,12	4,21	,892	4,82	,451	32,94	,000	2>1;3>1;3>2
	Presentetation to information in written form	3,69	,922	4,09	,947	4,78	,478	27,88	,000	2>1;3>1;3>2
	Time Management	3,64	,986	4,32	,849	4,71	,634	22,64	,000	2>1;3>1;3>2
	Planning	3,69	,977	4,23	,964	4,52	,709	11,48	,000	2>1; 3>1
	Deciding	3,94	1,07	4,43	,828	4,78	,583	13,74	,000	2>1;3>1;3>2
	Problem solving	3,66	1,05	4,24	,935	4,73	,553	21,50	,000	2>1;3>1;3>2

Findings in Table, as work with team, to do oral presentation, oral communication, leadership, questioning, disagreement/solution are seen as “low” cooperative process and lower than perceiving “normal” and “high” grade of this skill points of teacher candidates and can be seen as statistical of this differentness in cooperative process.

It is seen to be meaningful and higher from perceivers, points of teacher candidates perceiving as “high” from normal in this cooperative process. Briefly, it can be said to be higher than from perceivers as normal and low of points in this skills, perceiving as high in this cooperative process. In the same table, listening, negotiation/persuasion issues are seen higher and meaningful perceiving of low and normal points as high points and as critical like disscussion as for interpersonal and communication skill in skills. As general, interpersonal and communication skill are seen as high concern with average point of learners.

When findings are analysed in Table, investigation, data analyse/ to analyse information are seen lower as “normal” and “high” in cooperative process and investigation skills of averages as problem solving in written form and low cooperative process in social constructivist learning environment. It is seen meaningful and higher from averages of learners as “low” and “normal” concerning this skills of learners as “high” in this cooperative process. This finding shows to become different according to scientific process skill in cooperative process. As a general, learners are seen between 3,53 and 4,82 averages of scientific process skill. This finding shows to be efficient on scientific process skill of average points.

In investigation, according to perceiving cooperate process, they had been researched whether meaningful differentness or not to show and taking average points from portfolio. Findings which was obtained had been given in Table 2.

Table 2: To perceive concern with portfolio average points, standard deviation and variance analyse values in cooperative process.

	Low n=39		Normal n=65		High n=73		f	sig	Fark
	m	s.d.	m	s.d	m	s.d			
Performance(portfolio)	87,33	5,791	90,20	7,34	92,64	11,69	4,368	,014	High>Low

Findings in Table 2, it is seen to show meaningful differentness perceiving low average as statistical in cooperative process. This finding shows positively portfolio points of cooperative process of learners.

4. Discussion and Conclusion

In this research, the effect of “cooperation” process on the points of learners, interpersonal and communication, scientific process and portfolio on the learning method which depends on social configuring approach has been researched. With in the scope of research the learners have worked in cooperation their real life duties in social configuring learning atmosphere.

Firstly, in the research the effect of cooperation process on interpersonal and communicative skills in social configuring learning atmosphere had been researched.

In view of the findings of interpersonal and communicative skills, it is seen that the points of the teacher candidates who comprehend the cooperation process much and whose point averages on these skills are higher than the teacher candidates who comprehend the cooperation process “low and middle” and whose point averages on these skills. When we evaluate this finding, this can be commented as cooperation process has positive effects interpersonal communication skills. In social configuring learning atmosphere the learners are in interaction with sharing what they think, correlate with their previous experiences, cooperate with their pers, thus they can form their aims effectively and represent them with different views (Barr and Tagg, 1995 akt:Akar, 2003). This kind of learning atmosphere will affect learners’ interpersonal and communicative skills. The research which was done by Ballantine, ve McCourt (2009), it was determined that the learners in the experimental group on developing cooperation process was more effective than the learning slightly. The findings on this work support this situation.

Constructivism, attaches impotence to cooperative learning style which depends on social negotiation. Cooperation helps to the students to reform their previous information with a different way (Hand and Treagust, 1994; akt:Akar, 2003). In this period, the learners in cooperation atmosphere reach the info which they will use it for their common aim and authentic duty, they analysis this info and they use it with scientific understanding. In this research, the effects of this cooperation process on scientific process skills were researched. In the finding related to this research problem, it was determined that the average points of research skills of the learners who described cooperation period highly were higher than the others. With in the scope of the research, the learners have prepared a portfolio dossier related to learning period, too. It has determined that the portfolio points of the learners who comprehended the cooperation period highly were higher than the others.

As a result, it can be said that “cooperation” process quality in social configuring learning atmosphere has positive effect on research, interpersonal and communicative skill, scientific period skill, the portfolio skills of the learners. In this research the suggestions which can be present that using of social configuring learning atmosphere on teachers training should be continued more effectively and a research should be done on the learners’ evaluation to compare and effects of this approach with other learning methods.

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