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TEACHER CANDIDATES' ETHICAL APPROACHES RELATED TO ANIMAL EXPERIMENT

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Abstract:
This research was carried out to determine about the preferences and point of view of teacher candidates ethical approaches related to animal experiment. Obesity disease, cancer disease, cosmetics industry, product tests created the sub subjects of scenarios with dilemmas. The research was carried out in 2015-2016 academic year with 322 teacher candidates. As a data collection tool, "Bioethical Value Inventory" and "Demographic Information Form" developed by the researcher were used. Preferences of teacher candidates on scenarios are examined by using research variables such as, family education level, grade level and family income level. As a result of analysis of the research, it was determined that general decisions and ethical preferences of teacher candidates can show differences according to class grade, family education levels and income levels. It became clear that only product tests themed scenarios did not show any difference.

Keywords: ethical approach, ethical dilemmas, experiment animals, teacher candidates

1. Introduction

The development of science and increase on community needs created the necessity for scientists to benefit from living organisms. Researching effects of data gathered from experiments performed on *In vitro* environments on animals gained importance. Animal experiments and experimental animals concept has appeared. Animals that are used on research and scientific experiments through the light of scientific rules are named as experiment animals (Altug, 2009). Many animals are used in research every year worldwide (Flosos, 2005). Usage of animals on scientific experiments started on

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years B.C. 400. In order to determine the anatomic structure, human beings used animals on experiments (Altug, 2009). Modern animal experiments took place on 17th century with the leading role of England (Olsson, Robinson, Pritchett & et al., 2003; 13-31). As a results of animals' being used on experiments, many improvements took place. On 1877, Robert Koch found out that *Bacillus anthracis* caused an illness and it is contagious for other animals from the honeycomb. (Grieder, Strandberg, in Hau, Van Hoosier & et al., 2003; 1-13). Animal usage on the improvement of many studies like improvement of surgical methods, pharmatology, pathology, skin implentation, determining anatomical and physiological structures and develop a vaccine. Animal experiments developed until today and it contributed to science with many science people's researches (Ergun, 2010).

From the starting point till today, some opposing ideas about animals used on experiments were also emerged. From the first times that animal experiments started to become common until these days, scientists supported that animal experiments are an effective method; individuals against animal experiments believed that experiments are useless and complained about animals being tortured for nothing. On ongoing controversies, Descartes was a leading figure and he supported that animals did not suffer (Cobanoglu, 2009). According to Descartes *"Sounds and screams of the animal during its being cut while living doesn't mean something more than an alarm clock's gongs"* (Ferry, 2000). This view of Descartes did not have so many supporters. But, the value of animals during experiments can't be ignored (Rollin, Gluck, Dipasquale & Orlans, 2002). On the book "The principles of Humane Experimental Technique", which is published at 1959 by Jeremy and Betham has got very important suggestions for animal experiments (Altug, 2009). In the book there are some suggestions about 3R (Reduction, Refinement, Replacement) about animal experiments (Ghasemi & Dephour, 2009). Reduction is described as achieving the best result by minimizing the experiment animals' number (Altug, 2009; Kolar, 2006). Refinement can be expressed as having the precautions for aniamls to have the minimum harm during the time that animal usage on experiments will come to an end (Altuğ, 2009; Ergün, 2010). Also, replacement is explained as using alternative methods instead of using animals on experiments (Altug, 2009).

Under the light of these arguments, ethical dimension of animal usage for experiments emerged. At Europe; England, Italy, Switzerland, France, Norway, Denmark, Greece had some legal regulations on their history. At Turkey, according to European Union's 86/609/EEC numbered council directive that published for saving animals used for experiments and other scientific studies, "*Saving experiment animals used for experimental and other scientific purposes, production places of experiment animals and establishment, working, supervision, procedures and principles of laboratories for experiments*" published by Ministry of Agriculture and Rural Affairs (The Ministry of Food,

Agriculture and Livestock –MFAL) was the first legal study for this area (Yasar & Izmirli, 2006). The basis of laws and regulations is formed by ethical principles.

Ethics, which is also described as science of morals and manners, is expressed as limits of actions that can be performed on science related with human beings' and animals' lives and rules group that shows and limit the direction before behavior (T.R. Ministry of Environment & Forest, 2006).

According to Karaturk (2002), Aydin (2003), Apay (2009), ethics is a series of rules, principles and a series of behavior and moral principles that are approved by community. According to Piper (1999), ethics is a compass. "*Compass doesn't take an individual to the destination; it only shows North, under the light of this information, individual should decide which way to go according to his/her location*" (Keskin, Keskin Samanci & Kurt, 2013). Every human being has got a belief and value system, affected from the community's cultural values (Keskin & et al., 2013). While deciding about an action in such a value system can encounter a choice problem. An individual's encountering a choice problem on conditions that were not limited with definite rules is named as ethical dilemma (Yıldırım & Kadıoglu, 2007). Ethical dilemmas can also be expressed as situations that there is no only one correct answer and does not include definite rules on conclusion process (Elcigil & et al., 2011). Deciding correctly, which is one of the aims of ethics, and during this process, having the values about the subject is an important strategy for the decider that goes through ethical dilemma. The individual should internalize the ethical deciding process. She has got ethical sensitiveness and questions himself/herself actively (Pope & Vasquez, 2011). Educators' support that values that learner's gain during the process of conclusion for the problems which encountered on a young age is a preparation for their ethical dilemmas (Wever & Evans, 1996). Scientific and technological improvements had an important impact on children's deciding process on subjects about their future and knowing how to establish the balance of risk and benefit (Macer, 2008, 4). With the improvement of science and technology, one of the roles of science program is to educate individuals about science literacy and preparing them for their future roles (Dawson & Schibeci, 2003). For this reason, ethic on education, goals, values and process of education has got the vital value to be dealt with. It is agreed that basic aim of bioethics education is to teach learners the ability of morally reasoning and legitimating himself /herself. Bioethics education; up skills learners about determining, describing and talent of coming up with conclusions about important ethical subjects, vital for biotype and makes them gain the ability of using suitable ethical principles on special occasions.

From a different point of view, biotype education enables individuals to comprehend value problems that are because of biological sciences and to improve their skills on deciding upon the ethical theories and its values (Macer, Asada, Tsuzuki, Akiyama & Macer, 1996; Reich, 1995). During bioethics education, subjects are based on establishing the scientific basis for arguing about related with problematic subjects and

improving individual's decision process, rather than having a correct decision. Because, educated individuals need discussion skills that they improved during the arguments they had with their peers, apart from the scientific basic that is needed for applying their point of view and using their own scientific information for evaluating personal and communal subjects (Sadler & Donnelly, 2006).

When body of literature about the subject is investigated, it can be seen that Paul & Podberscek (2000) and Allen (2005) researched about the attitudes towards animals and they revealed the changes on them. Karakaya and Arslan (2016) researched the ethical approaches about middle school 9th grade learners using animals on experiments. They found out that according various variables, ethical preferences changes. Kurt (2011) developed a value questionnaire, which includes also ethical approaches about animals being used on experiments and morality problems that occur because of biological sciences. Koc, Altuncul and Filoglu (2014) studied on attitudes of vets and learners at veterinarian faculty as well as officials in Turkey and concluded that different variables' having an effect on attitudes against human rights. Altan, Rahman and Cam (2013) had a research on Celal Bayar University medical faculty learners' level of ethical information and their attitude towards the subject and he specified the ethically problematical subjects for medical world. Yigit, Caglar-Sinmez and Aslim (2015) observed differences about ethical decision on animal usage during experiments with their study performed on officials that has got the right to use experiment animals in Turkey. Also, Ulman (2010) mentioned the importance of the relationship between concepts of bioethics, health and law. Through their researches, Bowd and Boylan (1986), Gallup and Beckstead (1988) mentioned that using animals would be beneficial for biomedical studies. Ozyer and Azizoglu (2010) searched for demographic variables on ethical attitudes and discovered meaningful differences on various variables. On researches held on ethical education, it was mentioned that ethical education should be active during learning-teaching process (Keskin Samanci, 2009; Ersoy, 1996; Macer, 2008: 4; Watson, 2005). On this frame, educators and educational institutions has got a major role on the creation of moral and value concepts and their shaping (Haynes, 2002, 17). According to Ersoy (1996), bioethical education is not related with the aims of ethics and he mentioned that both learners and instructors do not take responsibility about ethical education. Oztaş, Yel and Oztaş (2005) observed biology education's effect on the creation of ethical values against other living beings and environment and he supported the idea that basic biology education for learners should be regulated as it will address the world needs. When each member completes his/her duties, s/he helps the improvement of his/her community's dynamics (Dogan, 2002, 146). Teachers and teacher candidates that will have a leading role on responsible individuals should internalize this situation. Because of this, teachers' and teacher candidates' deciding process during ethical dilemmas and the determination of values

that affect this process is very significant. Because what affects the decision is the personal values of individual.

It is very significant to determine the ethical approaches of teachers and teacher candidates, who have got a significant place for the improvement of science people. That is because teachers are models for learners. Yet, it is seen that there is no study on teachers and teacher candidates.

1.1 The aim of the research

The aim of this research is to determine about the approaches and point of view of teacher candidates ethical point of view about animal usage on experiments. Based on this general aim, answer for the following questions have been sought:

- What are the ethical approaches of teacher candidates about the usage of animals on the experiments related with obesity disease, cancer disease, cosmetic industry, improvement of new product test base on the grade levels?
- What are the ethical approaches of teacher candidates about the usage of animals on the experiments related with obesity disease, cancer disease, cosmetic industry, improvement of new product test base on the family income levels?
- What are the ethical approaches of teacher candidates about the usage of animals on the experiments related with obesity disease, cancer disease, cosmetic industry, improvement of new product test base on the family education levels?

2. Methodology of Research

2.1. Model of research

As the current study aimed to determine the ethical approaches of teacher candidates related to animal experiments in terms of various variables relation to different variables, it employed scanning design. Scanning Design is to describe the environment's attitude, tendency or opinions through the analysis on samples that are chosen from the environment of the research (Bursal, 2014, 155).

2.2. The research group

The research group is composed of 322 teacher candidates at the Faculty of Education, Kahramanmaraş Sütçü Imam University. The research was implemented during 2015-2016 fall period. Demographic characteristics of teacher candidates is given in Table 1.

Table 1: Demographic characteristics of teacher candidates

		f	%
Gender	Famale	272	84.5
	Male	50	15.5
Grade level	1	103	32.0
	2	103	32.0
	3	116	36.0
Education Department	Science Teacher	145	45.0
	Classroom teacher	177	55.0
Family education level	Primary School	91	28.3
	Middle School	69	21.4
	High School	78	24.2
	University	74	23.0
	Master	5	1.6
	Other	5	1.6
Family income level	0-1500 TL	142	44.1
	1501-2000 TL	88	27.3
	>2001 TL	92	28.6

2.3. Data Collection Tool

For the evaluation of scenarios in terms of ethical dilemmas, "Bioethical Value Questionnaire", prepared by Keskin Samanci (2009) was used. This questionnaire also shows ethical principles that are also held for answers to scenarios with ethical dilemmas. Bioethical Values Inventory including scenarios located in the center of ethical issues, such as obesity disease, cancer disease, cosmetics industry, product tests used as an assessment instrument. When individuals encounter with ethical dilemmas, they put basic ethical approaches that are related with ethical values such as law, religion, rights, pragmatics and condition forward (Keskin et al, 2013).

Ethical approaches held during the process of making decisions for scenarios talking about animal usage on experiments are described below:

Pragmatically Approach: On ethical decision process, it is important for the individual to have maximum "benefit" by evaluating benefit or harm conditions for finding out about the 'good'.

Right Approach: During making decision process, individual considers "rights". S/he gives importance to make a decision with free will.

Law Approach: On ethical decision process, researcher gives importance to make both sides "totally equal."

Virtue (Value) Approach: On ethical decision process, actions or situations that are considered to contribute human improvement are analyzed through values such as honesty, courage, tolerance.

Conditional Approach: According to this approach, individual aims to create necessary conditions as the basis. After providing the conditions, it is decided if the situation or action is suitable to ethics or not.

Religion Based (Theological) Approach: It is individual's regulating his/her relations and actions through religious principles, rules and values and considering these principles while making decisions.

Preferring the Natural: During making decision process, individual believes that 'natural' is better, there should be a limitation on human effect on nature and natural balance should not be broken. Natural prefer ethical approach: In action, it is the ethical nature of the approach to the fore.

Scientific Based Approach: It is individual's considering scientific improvement on finding out about what is "good" while deciding on ethical problems on natural and communal level.

Belief about human beings are superior than other living beings: According to this approach, which is also known as 'anthropocentric' approach, during the decision process, the idea that human beings are superior than other living beings and other beings are served for human beings' benefit.

2.4. Data Analysis

The analysis of the obtained data, descriptive statistics were used in the process. SPSS was used to analyze the obtained data. Frequency and percentage values were determined.

3. Results of Research

Answers that teacher candidates provide to scenarios and ethical distribution of these answers were analyzed separately according to each scenario. 1st scenario with obesity disease subject is hosted below, differentiating answers from instructors according to grade level is demonstrated on Table 2, different answers according to family income level is on Table 3 and changing answers according to family education level is on Table 4.

> *"Currently, obesity became a very common illness. During last years, some experimental studies has been performed for the cure of this illness. It is seen that these research is performed on mice. If you are scientist with a leading role on such a study, would you use mice? Why?"*

Table 2: Ethical approach distribution of the answers to first scenario according to grade level

Ethical Approach	Grade					
	1st Grade		2nd Grade		3rd Grade	
	f	**%**	**f**	**%**	**f**	**%**
Other	0	0.0	1	1.0	2	1.7
Pragmatic App.	13	12.6	3	2.9	13	11.2
Rights App.	4	3.9	7	6.8	9	7.8
Justice App.	21	20.4	25	24.3	25	21.6

Virtue App.	0	0.0	0	0.0	0	0.0
Conditional App.	25	24.3	22	21.4	17	14.7
Religion Oriented App.	4	3.9	0	0.0	2	1.7
Natural prefer App.	2	1.9	3	2.9	2	1.7
Science Oriented App.	19	18.4	36	35.0	36	31.0
Anthropocentric App.	15	14.6	6	5.8	10	8.6

When data on Table 2 is analyzed, it is seen that 24.3% (n=25) of 1st grader teacher candidates prefer conditional approach, 35% (n=36) of 2nd grader teacher candidates and 31% (n=36) of 3rd grade teacher candidates preferred science oriented approach.

Table 3: Ethical approach distribution of the answers to first scenario according to family income level

Ethical Approaches	Family income level					
	Low Income		Mid Income		High Income	
	f	**%**	**f**	**%**	**f**	**%**
Other	3	2.1	0	0,0	0	0,0
Pragmatic App.	8	5.6	10	11.4	11	12.0
Rights App.	11	7.7	4	4.5	5	5.4
Justice App.	27	19.0	18	20.5	26	28.3
Virtue App.	0	0.0	0	0.0	0	0.0
Conditional App.	29	20.4	14	15.9	21	22.8
Religion Oriented App.	1	0.7	2	2.3	3	3.3
Natural prefer App.	1	0.7	5	5.7	1	1.1
Science Oriented App.	45	31.7	27	30.7	19	20.7
Anthropocentric App.	17	12.0	8	9.1	6	6.5

When data on Table 3 are analyzed, it's seen that 31.7% (n=45) of low family income teacher candidates, and 30.7% (n=27) of mid family income teacher candidates preferred science oriented approach, 28.3% (n=26) high family income teacher candidates preferred justice approach.

Table 4: Ethical approach distribution of the answers to first scenario according to family education level

Ethical Approach	Family education Level											
	Post Grad.		Grad.		High Sch.		Middle Sch.		Primary Sch.		Other	
	f	**%**	**f**	**%**	**f**	**%**	**f**	**%**	**f**	**%**	**f**	**%**
Other	0	0.0	0	0.0	0	0.0	0	0.0	2	2.2	1	20.0
Pragmatic App.	1	20.0	10	13.5	9	11.5	2	2.9	7	7.7	0	0.0
Rights App.	0	0.0	3	4.1	6	7.7	5	7.2	4	4.4	2	40.0
Justice App.	2	40.0	26	35.1	13	16.7	12	17.4	17	18.7	1	20.0
Virtue App.	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Conditional App.	1	20.0	11	14.9	17	21.8	15	21.7	20	22.0	0	0.0
Religion Oriented	0	0.0	0	0.0	2	2.6	1	1.4	3	3.3	0	0.0
Natural prefer	0	0.0	2	2.7	2	2.6	2	2.9	1	1.1	0	0.0

Science Oriented	0	0.0	16	21.6	25	32.1	27	39.1	22	24.2	1	20.0
Anthropocentric	1	0.0	6	8.1	4	5.1	5	7.2	15	16.5	0	0.0

When Table 4 is analyzed, it's seen that 40% (n=2) of post-graduation family education level teacher candidates and 31.5% (n=26) graduate family education level teacher candidates preferred justice approach, 32.1% (n=25) of high school family education level teacher candidates and 39.1% (n=27) of primary school family education level teacher candidates preferred science oriented approach.

Second Scenario about Cancer disease and Occupational Ethics is hosted below and how the answers of teacher candidates about this scenario changes according to grade level is shown at Table 5; according to family income level is on Table 6 and changes on answers according to family education level is mentioned on Table 7.

> *"Vet Mr. Sadik got an offer from one hospital on his district about working for a project on cancer treatment with a high salary after his retirement. During such research, Mr. Sadik knew that animals were used and some animals lost their lives on some conditions. Mr. Sadik, who worked for saving animal lives for long years, had some hard time while having a decision on this offer. If it was you, how would you answer? Why?"*

Table 5: Ethical approach distribution of the answers to second scenario according to grade level

Ethical Approaches	Grade							
	1st Grade		2nd Grade		3rd Grade		4th Grade	
	f	**%**	**f**	**%**	**f**	**%**	**f**	**%**
Other	3	2.9	3	2.9	1	0.9	7	2.2
Pragmatic App.	14	13.6	12	11.7	18	15.5	44	13.7
Rights App.	6	5.8	10	9.7	12	10.3	28	8.7
Justice App.	12	11.7	16	15.5	16	13.8	44	13.7
Virtue App.	18	17.5	9	8.7	14	12.1	41	12.7
Conditional App.	22	21.4	26	25.2	20	17.2	68	21.1
Religion Oriented App.	2	1.9	0	0.0	2	1.7	4	1.2
Natural prefer App.	5	4.9	9	8.7	6	5.2	20	6.2
Science Oriented App.	17	16.5	14	13.6	21	18.1	52	16.1
Anthropocentric App.	4	3.9	4	3.9	6	5.2	14	4.3

When data from Table 5 is analyzed, it's seen that 25.2% (n=26) of 1st grade teacher candidates and 18.1% (n=21) of 2nd grade teacher candidates preferred conditional approach, 18.1% (n=21) of 3rd grade teacher candidates preferred selections of science oriented approach.

Table 6: Ethical approach distribution of the answers to second scenario according to family income level

Ethical Approach	Family income level					
	Low Income		Mid Income		High Income	
	f	**%**	**f**	**%**	**f**	**%**
Other	5	3.5	1	1.1	1	1.1
Pragmatic App.	18	12.7	12	13.6	14	15.2
Rights App.	10	7.0	5	5.7	13	14.1
Justice App.	20	14.1	13	14.8	11	12.0
Virtue App.	15	10.6	13	14.8	13	14.1
Conditional App.	35	24.6	22	25.0	11	12.0
Religion Oriented App.	1	0.7	1	1.1	2	2.2
Natural prefer App.	10	7.0	7	8.0	3	3.3
Science Oriented App.	21	14.8	11	12.5	20	21.7
Anthropocentric App.	7	4.9	3	3.4	4	4.3

When data on Table 6 are analyzed, it's seen that 24.6% (n=35) of low family income teacher candidates, and 25% (n=22) of mid family income teacher candidates preferred conditional approach, 21.7% (n=20) high family income teacher candidates preferred science oriented approach.

Table 7: Ethical approach distribution of the answers to second scenario according to family education level

Ethical Approach	Family Education Level											
	Post G.		Grad.		High Sch.		Mid Sch.		Primary		Other	
	f	**%**	**f**	**%**	**f**	**%**	**f**	**%**	**f**	**%**	**f**	**%**
Other	0	0.0	0	0.0	0	0.0	2	2.9	5	5.5	0	0.0
Pragmatic App.	1	20.0	6	8.1	15	19.2	8	11.6	14	15.4	0	0.0
Rights App.	2	40.0	7	9.5	6	7.7	6	8.7	6	6.6	1	20.0
Justice App.	0	0.0	15	20.3	13	16.7	7	10.1	9	9.9	0	0.0
Virtue App.	1	20.0	10	13.5	10	12.8	9	13.0	10	11.0	1	20.0
Conditional App.	0	0.0	17	23.0	16	20.5	11	15.9	22	24.2	2	40.0
Religion Oriented	0	0.0	0	0.0	1	1.3	1	1.4	2	2.2	0	0.0
Natural prefer	0	0.0	4	5.4	4	5.1	4	5.8	7	7.7	1	20
Science Oriented	1	20.0	14	18.9	9	11.5	17	24.6	11	12.1	0	0.0
Anthropocentric	0	0.0	1	1.4	4	5.1	4	5.8	5	5.5	0	0.0

When Table 7 is analyzed, it's seen that 40% (n=2) of post-graduation family education level teacher candidates preferred rights approach, 23% (n=17) graduate family education level teacher candidates, 20.5% (n=16) of high school family education level teacher candidates and 24.6% (n=17) of primary school family education level teacher candidates preferred science oriented approach.

With the subject as animals used on experiments for cosmetic industry, third scenario is presented below, and how the answers of teacher candidates about this scenario changes according to grade level is shown at Table 8; according to family

income level is on Table 9 and changes on answers according to family education level is mentioned on Table 10.

> *"When Owner of a Cosmetic Company, Mr. Ali comes home, he says that they produced a long lasting perfume. His wife, who got excited with the news, asks how they found this perfume and if it has got side effects. Mr. Ali says, it is created with many experiments on animals and he mentions that these experiments proved it has no side effects. If you are an owner of such a company, would you use animals for your experiments? Why?"*

Table 8: Ethical approach distribution of the answers to third scenario according to grade level

Ethical Approach	Grade					
	1st Grade		2nd Grade		3rd Grade	
	f	**%**	**f**	**%**	**f**	**%**
Other	0	0,0	1	1.0	2	1.7
Pragmatic App.	21	20.4	22	21.4	15	12.9
Rights App.	4	3.9	5	4.9	8	6.9
Justice App.	17	16.5	19	18.4	25	21.6
Virtue App.	21	20.4	26	25.2	29	25.0
Conditional App.	29	28.2	15	14.6	18	15.5
Religion Oriented App.	3	2.9	1	1.0	1	0.9
Natural prefer App.	3	2.9	9	8.7	9	7.8
Science Oriented App.	4	3.9	4	3.9	7	6.0
Anthropocentric App.	1	1.0	1	1.0	2	1.7

When data from Table 8 is analyzed, it's seen that 28.2% (n=29) of 1st grade teacher candidates preferred conditional approach, 25.2% (n=26) of 2nd grade teacher candidates and 25% (n=29) of 3rd grade teacher candidates preferred selections of virtue oriented approach.

Table 9: Ethical approach distribution of the answers to third scenario according to family income level

Ethical Approach	Family income Level					
	Low Income		Mid Income		High Income	
	f	**%**	**f**	**%**	**f**	**%**
Other	2	1.4	0	0,0	1	1.1
Pragmatic App.	27	19.9	13	14.8	18	19.6
Rights App.	5	3.5	6	6.8	6	6.5
Justice App.	29	20.4	19	21.6	13	14.1
Virtue App.	35	24.6	20	22.7	21	22.8
Conditional App.	23	16.2	17	19.3	22	23.9
Religion Oriented App.	3	2.1	1	1.1	1	1.1
Natural prefer App.	8	5.6	8	9.1	5	5.4
Science Oriented App.	8	5.6	3	3.4	4	4.3
Anthropocentric App.	2	1.4	1	1.1	1	1.1

When data on Table 9 is analyzed, it's seen that 24.6% (n=35) of low family income teacher candidates, and 22.7% (n=20) of mid family income teacher candidates preferred virtue approach, 23.9% (n=22) high family income teacher candidates preferred conditional approach.

Table 10: Ethical approach distribution of the answers to third scenario according to family education level

Ethical Approach	Family education Level											
	Post Gr.		Grad.		High Sch.		Middle Sch.		Primary Sch.		Other	
	f	**%**	**f**	**%**	**f**	**%**	**f**	**%**	**f**	**%**	**f**	**%**
Other	0	0.0	0	0.0	0	0.0	0	0.0	2	2.2	1	20.0
Pragmatic App.	1	20.0	9	12.2	20	25.6	12	17.4	16	17.6	0	0.0
Rights App.	0	0.0	4	5.4	5	6.4	4	5.8	3	3.3	1	20.0
Justice App.	2	40.0	16	21.6	14	17.9	11	15.9	17	18.7	1	20.0
Virtue App.	1	20.0	25	33.8	12	15.4	13	18.8	24	26.4	1	20.0
Conditional App.	1	20.0	12	16.2	17	21.8	18	26.1	14	15.4	0	0.0
Religion Oriented	0	0.0	0	0.0	1	1.3	0	0.0	3	3.3	1	20.0
Natural prefer	0	0.0	5	6.8	5	6.4	5	7.2	6	6.6	0	0.0
Science Oriented	0	0.0	3	4.1	4	5.1	5	7.2	3	3.3	0	0.0
Anthropocentric	0	0.0	0	0.0	0	0.0	1	1.4	3	3.3	0	0.0

When Table 10 is analyzed, it's seen that 40% (n=2) of post-graduation family education level teacher candidates preferred justice approach, 33.8% (n=25) of graduate family education level teacher candidates and 24.6% (n=24) of primary school family education level teacher candidates preferred virtue approach, 25.6% (n=20) of high school family education level teacher candidates preferred pragmatics approach and 26.1% (n=18) of middle school family education level teacher candidates preferred conditional approach.

With the subject of product tests, fourth scenario is presented below, and how the answers of teacher candidates about this scenario changes according to grade level is shown at Table 11; according to family income level is on Table 12 and changes on answers according to family education level is mentioned on Table 13.

> *"Ayşe, who is on the last year of high school, learnt that animals are used and many of them were killed during test and production process of many products that are created for human beings' benefit on a conference that she attended with her school friends. Ayşe was very affected from this situation and decided not to use some products that she uses often. If you were in Ayşe's shoes, how would you react? Why?"*

Table 11: Ethical approach distribution of the answers to fourth scenario according to grade level

Ethical Approaches	Grade					
	1st Grade		2nd Grade		3rd Grade	
	f	**%**	**f**	**%**	**f**	**%**
Other	6	5.8	6	5.8	4	3.4
Pragmatic Approach	16	15.5	17	16.5	22	19.0
Rights Approach	9	8.7	8	7.8	12	10.3
Justice Approach	33	32.0	33	32.0	34	29.3
Virtue Approach	1	1.0	0	0.0	1	0.9
Conditional Approach	13	12.6	12	11.7	17	14.7
Religion Oriented App.	0	0.0	0	0.0	0	0.0
Natural prefer App.	11	10.7	10	9.7	14	12.1
Science Oriented App.	14	13.6	11	10.7	9	7.8
Anthropocentric App.	0	0.0	6	5.8	3	2.6
All	103	100.0	103	100.0	116	100.0

When data from Table 11 is analyzed, it's seen that 32% (n=33) of 1st grade teacher candidates and 32% (n=33) of 2nd grade teacher candidates and 29.3% (n=34) of 3rd grade teacher candidates preferred justice approach.

Table 12: Ethical approach distribution of the answers to fourth scenario according to family income level

Ethical Approach	Family income level					
	Low Income		Mid Income		High Income	
	f	**%**	**f**	**%**	**f**	**%**
Other	7	4.9	6	6.8	3	3.3
Pragmatic App.	24	16.9	14	15.9	17	18.5
Rights App.	16	11.3	6	6.8	7	7.6
Justice App.	38	26.8	28	31.8	34	37.0
Virtue App.	2	1.4	0	0.0	0	0.0
Conditional App.	16	11.3	13	14.8	13	14.1
Religion Oriented App.	0	0.0	0	0.0	0	0.0
Natural prefer App.	22	15.5	9	10.2	4	4.3
Science Oriented App.	16	11.3	10	11.4	8	8.7
Anthropocentric App.	1	0.7	2	2.3	6	6.5

When data on Table 12 is analyzed, it's seen that 26.8% (n=38) of low family income teacher candidates, 31.8% (n=28) of mid family income teacher candidates and 37% (n=34) high family income teacher candidates preferred justice approach.

Table 13: Ethical approach distribution of the answers to fourth scenario according to family education level

Ethical Approach	Family education level											
	Post Gr.		Graduate		High Sch.		Middle Sch.		Primary S.		Other	
	f	**%**	**f**	**%**	**f**	**%**	**f**	**%**	**f**	**%**	**f**	**%**
Other	2	40.0	2	2.7	2	2.5	4	5.8	6	6.6	0	0.0
Pragmatic App.	0	0.0	13	17.6	17	21.8	13	18.8	11	12.1	1	20.0
Rights App.	0	0.0	8	10.8	7	9.0	7	10.1	7	7.7	0	0.0
Justice App.	2	40.0	29	39.2	22	28.2	19	27.5	26	28.6	2	40.0
Virtue App.	0	0.0	0	0.0	0	0.0	0	0.0	2	2.2	0	0.0
Conditional App.	1	20.0	5	6.8	13	16.7	9	13.0	14	15.4	0	0.0
Religion Oriented	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Natural prefer	0	0.0	5	6.8	6	7.7	10	14.5	14	15.4	0	0.0
Science Oriented	0	0.0	9	12.2	10	12.8	4	5.8	10	11.0	1	20.0
Anthropocentric App.	0	0.0	3	4.1	1	1.3	3	4.3	1	1.1	1	20.0

When Table 13 is analyzed, it's seen that 40% (n=2) of post-graduation family education level teacher candidates, 39.2% (n=29) of graduate family education level teacher candidates, 28.2% (n=22) of high school family education level teacher, 27.5% (n=19) of middle school family education level teacher candidates and 28.6% (n=16) of primary school family education level teacher candidates preferred justice approach.

4. Discussion

On this research, how do the ideas on animal usage of 322 teacher candidates about obesity illness, cancer treatment and occupational ethics, animal experiments on cosmetics industry, test process and product creation according to class level, income level and family education level. It is found that ethical approaches of teacher candidates that attended to this research show differences according to scenarios with ethical dilemmas, when the subject change.

On subjects of obesity disease, cancer disease and occupational ethics, cosmetic industry; first grade teacher candidates preferred selections that indicate conditional approach. Second grade teacher candidates (35%) prefers selections of science oriented approach about obesity, conditional approach about cancer treatment and occupational ethics (25.2%), virtue approach about cosmetics industry (25%). Third grade teacher candidates prefer science oriented approach on obesity illness (31%) and cancer treatment and occupational ethics (18.1%). Also, they choose virtue approach for cosmetic industry (25%). This data differs according to the class level. Conner (2000) on his study about high school students' ethical differences, observed that as a result of applications in class, learners' point of view show differences. When class level increases, it is observed that teacher candidates' opinions on many different subjects improve and it can be said that this situation has an influence on their ethical decisions.

According to income level, low income teacher candidates (31.7%) prefer selections of science oriented approach on obesity illness, conditional approach on cancer treatment and occupational ethics (24.6%) and virtue approach on cosmetic industry (24.6%).High income teacher candidates prefer selections of justice approach on obesity illness (28.3%), science oriented approach on cancer treatment and occupational ethics (21.7%), conditional approach on cosmetic industry (23.9%). Pifer and et al. (1994); Hagelin and et al. (2000) mentioned on their research that using animals on experiments is related with urbanization and they supported the differentiation of ethical decisions on low, mid and high socio economical level.

Allen (2005)'s research showed that people living in big cities are more positive about animal rights. Paul and Podberscek (2000) mentioned that cultural differences between regions change personal attitudes towards animal rights. About the subject of obesity illness; graduate family education level teacher candidates (35.1%) prefer justice, candidate teachers with other family education levels prefer selections of science oriented approach. About cancer treatment and occupational ethics; middle school family education level teacher candidates (24.6%) prefer science oriented approach; candidate teachers with other family education levels prefer selections of conditional approach. About cosmetic industry, graduate family education level teacher candidates (33.8%) and primary family education level teacher candidates (26.4%) prefer virtue approach, high school family education level candidate teachers prefer pragmatic approach and middle school family education level teacher candidates (26.1%) prefer selections of conditional approach. Koc and et al. (2014) on their study, mentioned that increase on education level leads to a positive attitude towards animals. Ozer and Azizoglu (2010) showed that there is a positive effect on ethical decision scores related with an increase on family education level. As a result of his study; Miller (2001) mentioned that supporters of animal rights are mostly university graduate.

According to these results, it can be said that family education level creates a difference on ethical decisions. On the other hand, difference on the subject creates an influence on teacher candidate decisions. About product tests, teacher candidates' class level, income level and family education level do not create a difference on their ethical decisions. They prefer selections of justice approach.

5. Conclusions

Although scientists are independent on their research, they are obliged to analyze the effects of information to environment and community; and we have some sharing about results that can occur (Aydogdu & Cobanoglu, 2009). Responsibilities of scientists are increasing. Animals are used ın various researches, mainly on medicine. When main aims of science education are considered, rather than making learners gather scientific information, raising individuals who questions science and gains scientific process

skills, with scientific literacy is significant. Individuals that are educated with this understanding will be gained a critical point of view. While improving scientifically, one of the points that shouldn't be forgotten is the subject of ethics. Because, ethics does not only consider individual behaviors to each other, but also include their relationship with environment. On these days, ethical education is vital while students deciding about improvements on science and their applications. Education institutions have got very important roles about educating individuals with ethical values. If ethical subjects were taught from primary school, there would be a decrease on not only health problems but also crime level of the community (Wekesser, 1995; Benson, 1982). Because of these reasons, in order individuals with ethical sensitivity to be raised, teacher candidates and teachers should adopt ethical principles.

As a result, it is seen that approaches that teacher candidates prefer during making ethical decisions on animal usage on experiments process show difference according to grade level, family income level and family education level. Also, having different subjects with ethical dilemmas have got influence on decisions.

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