

Influence of Teacher Perceptions of Students on Teaching High School Biology

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Abstract

Problem Statement: The research question guiding the current study was “How do teachers’ perceptions of students shape the way they teach biology?”

Purpose of the Study: The purpose of this study was to determine how teacher perceptions of students influenced the way teachers teach biology **through teachers’ reported practices and perceptions.**

Methods: A survey questionnaire was administered to 685 biology teachers sampled through stratified random and cluster random sampling strategies. Data gathered on teaching methods, techniques, instructional **materials used in teaching biology, and teachers’ beliefs and perceptions** of their students were analyzed through inferential statistics (chi-square and cross tabulation).

Findings and Results: The results highlighted differences in the way biology was taught in classes of teachers with different beliefs and with different perceptions of students. They use different teaching methods, techniques, and instructional materials.

Conclusions and Recommendations: **Teachers’ beliefs and perceptions** should be examined as a means to improve instructional practices for science education not just in Turkey but also in other countries. In order to **be able to examine teachers’ beliefs and perceptions and to gain insight** into the way teachers think and act in the classroom, policy capturing, repertory grid technique and process tracing, questionnaires, semi-structured interviews and classroom observations should be used.

Keywords: teacher perceptions, students, teaching biology, teaching methods, instructional materials

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Teachers' pre-existing knowledge and beliefs about teaching, learning, learners and subject matter facilitate the realization of desired educational goals and support teacher learning for this purpose (Davis, 2003; Pajares, 1992; Shavelson & Stern, 1981). Tobin (1987) and Calderhead (1996) identify teacher beliefs about how students learn and what they ought to learn as having the greatest impact on implementation of educational innovations. Cronin-Jones (1991) also states that **teachers' beliefs about how students learn influence how they teach**. Similarly, Tobin (1993) suggests that the beliefs of teachers are associated with their instructional actions.

Previous research has shown that to understand teachers' instructional practices, teachers' beliefs and perceptions should be examined, and teachers' thinking should not be overlooked if innovations that will impact student learning are to be developed (Barab & Luehmann, 2003; Czerniak, Lumpe & Haney, 1999; Clark & Peterson, 1986; Rigano & Ritchie, 2003; Schneider, Krajcik & Blumenfeld, 2005; Tobin, 1993; Verjovsky & Waldegg, 2005). It is widely accepted that a change in teacher beliefs results in the transformation of science teaching (Haney, Lumpe, Czerniak & Egan, 2002; Yerrick, Parke & Nugent, 1997).

Among the factors identified in the literature as shaping what teachers do in the **classroom are teachers' personal pedagogical beliefs, beliefs and perceptions about students and their needs, beliefs and perceptions of the nature of science and the curriculum**. Studies on classroom culture, beliefs about teaching and learning and contextual concerns, instructional goals, **past experiences and teachers' personal concerns** are too numerous to list (Calderhead, 1996; Crawley & Salyer, 1995; Cronin-Jones, 1991; Czerniak, Lumpe & Haney, 1999; Davis, 2003; Deemer, 2004; Dreyfus, Jungwirth & Tamir, 1985; Fang, 1996; Fetters, Czerniak, Fish & Shawberry, 2002; Gess-Newsome, 2001; Gess-Newsome & Lederman, 1995; Haney, Lumpe, Czerniak & Egan, 2002; Hawthorne, 1992; Hipkins, Barker & Bolstad, 2005; Kagan, 1992; Kang & Wallace, 2004; Keys & Bryan, 2001; LaPlante, 1997; Lederman, 1999; Lewthwaite, 2005; Nespor, 1987; Pajares, 1992; Pint'ó, 2005; Squire, Makinster, Barnett, Luehmann, & Barab, 2003; Tobin, 1987; Veal, 2004).

The current science education curricula for Turkish secondary schools aim at providing students with the scientific knowledge and skills necessary for self-directed life-long learning. **The biology curriculum emphasizes the students' needs to be able to use scientific knowledge and skills in daily life, to have an appreciation of a healthy life and to know about and begin to understand the natural world**. During instruction, students are expected to be active individuals that can reflect on science and scientific inquiries and/or interpret the results of such inquiries. Experiencing and searching are promoted and student-centred activities are suggested and reinforced by the Ministry of National Education (MONE, 2007, 2009). The role of the biology teacher is defined as that of a facilitator or a guide who is there to help students comprehend the subject matter optimally, using all five of their senses with an emphasis on active involvement.

Research on teaching practices has reported external forces' constraints on teachers trying to carry out the intended educational tasks (Dindar, 2001; Ekici, 1996; Erten, 1993; Turan, 1996; Turgut, 1990; Özbaş & Soran, 1993; Yılmaz, 1998). The

average number of students in the classroom, the physical facilities of the schools, a budget dedicated to biology courses, and familiarity with the teaching methodology are the factors identified by Ekici (1998) as influence on teachers' preferences for teaching. Insufficient laboratory conditions, crowded classrooms and time limitations were found to be the main reasons for using a laboratory only once or twice a month in Erten's (1993) study. Turan (1996) and Yaman (1998) also point to insufficient facilities and the physical condition of schools as problems that can hinder effective biology education. Author 1 (1999) points to the large amounts of content to be covered and time as the overriding constraints to carry out desirable educational tasks such as laboratory studies. Yet, the role that teachers' perceptions and beliefs play in determining the way teachers teach biology is not clear. The question of the degree to which teachers' beliefs and their perceptions of students shape the way they teach is critical, since the success of instruction may depend on the way teachers perceive their students. Therefore, the purpose of this research is to investigate how teacher perceptions of students influence the way biology is taught in Turkish high schools. The research question guiding the current study was "How do teachers' perceptions of students shape the way they teach biology?"

Method

Research Design

A survey questionnaire consisting of open-ended and structured questions was designed to gather data on teaching methods, techniques, instructional materials used in teaching biology, teachers' beliefs and their perceptions of their students. Related literature was reviewed and curriculum characteristics were examined to prepare the questions for this questionnaire. The questionnaire consisted of five parts and included 34 items. Prior to administration, the questionnaire was submitted to a group of six experts in the field of 'Curriculum and Instruction' and 'Biology Education' for an assessment of its content validity. These experts were knowledgeable about the purpose of the high school biology curriculum and the purpose of the questionnaire. They were asked to review and judge the items in the questionnaire and to determine if they adequately sampled the domain of interest and how closely their content corresponded to the objectives and explanations for the implementation of the biology curriculum. After being revised in the light of experts' suggestions, the questionnaire was pilot tested in five high schools in Ankara. Eighteen biology teachers in these schools were asked if the items on the questionnaire were clear and understandable, and if there was any necessary changes that needed to be made to the questionnaire as a whole. In order to check the reliability, short interviews with the teachers were conducted immediately after the application of the questionnaire and teachers' written and oral responses were compared. Accordingly, revisions and additions were made to enhance the clarity of the questions.

The quantitative data used in this study were collected through the structured questions in the third and fourth parts of this questionnaire. These questions were related to the teaching methods, techniques and instructional materials used during instruction, and teachers' beliefs and thoughts about the impact of biology lessons on

their students. The questions related to the teaching methods, techniques and instructional materials were drawn from the literature. Teachers were asked 'How often do you use the listed teaching methods and techniques, i.e. lecture, questioning, discussion, demonstration, field trips and observation, and instructional technology in your lessons?' and 'How often do you use the listed instructional materials, i.e. living things (animals and plants), examples and models (DNA model, etc.), films, overhead projectors, slides, diagrams, graphs, etc., and written materials (words, texts, formulas, signs) in your lessons?' Teachers were required to mark their responses, i.e. yes, moderately, and no, about their beliefs and perceptions of students to the following six structured questions: are your students interested in biology? Do your students see biology as an important course? Do your students actively participate in the lesson? Do biology lessons increase students' interest in scientific thinking, learning and research? Do lessons answer students' questions about biology? Can your students connect lesson content to daily life?

Sample

Considering the number of schools (2328 schools in total; 1559 public, 352 private/foundation, and 417 Anatolian high schools) and making the assumption that there are at least two biology teachers working in each school, the size of the sample population was estimated to be 4656 teachers. Since it was thought to be hard to reach all the teachers, a two-step sampling strategy was followed. Sample size was set to 600 biology teachers taking into account return rates for questionnaires and the statistical analyses needed to be conducted using the data collected. This required that questionnaires were sent to 300 schools. Stratified random and cluster random sampling strategies were followed to select the schools and to reach 600 biology teachers. Schooling level (DPT Report, 1998) was used as the main criteria to build five strata from which fifteen cities were randomly selected. Then, questionnaires were sent to randomly-selected schools in these cities. Education Research and the Development Directorate (ERDD) facilitated this process. The return rates for the questionnaires showed that the questionnaires were copied and answered by more teachers than expected.

The majority of the teachers responding to the questionnaire was female (60.9%) and had 10 to 15 years of teaching experience (30%). Over one-fourth of the teachers (26.5%) had six to 10, 18.2% had 21 or more, 17.3% had 16 to 20, and 8.1% had one to five years of teaching experience. One-third (32.1%) of the teachers fell in the age range of 41 and over. 24.5% of the teachers were between 36 and 40, and 23.5% were between 31 and 35. One fifth of the sample (20%) was 30 or younger.

Descriptive and inferential statistics were used to analyse the data collected using structured questions. Means and standard deviations of the teachers' responses were calculated using frequency distributions. Cross-tabulation and chi-square tests were used to compare the effect of teachers' beliefs and perceptions of their students on the way they teach biology. The percentages in the results tables show the interrelationship between variables defined in the rows and columns.

Results

The results are organized under the titles of 'Relationship between teacher beliefs and perceptions of students and the use of teaching methods and techniques' and 'Relationship between teacher beliefs and the perceptions of students and use of instructional materials.'

Relationship between teacher beliefs and perceptions of the students and the use of teaching methods and techniques

The teachers' use of teaching methods and techniques and how often they were used during instruction were identified as related to the teachers' beliefs and perceptions of students. As shown in Table 1, 77.9% of the teachers who mentioned that their students were interested in biology used demonstrations more (44.19% 'sometimes,' 28.84% 'often' and 4.87% 'always') than other teachers, X^2 (df=8, n=645) = 26.75, $p < 0.001$. Likewise, 38.45% of the teachers who mentioned that their students were interested in biology also used field trips and observations more (31.92% 'sometimes,' 4.61% 'often' and 1.92% 'always') than other teachers, X^2 (df=8, n=634) = 52.82, $p < 0.001$.

The teachers who stated that their students actively participated in the lessons used the discussion method more often than teachers who 'moderately agreed' or 'disagreed' that students actively participated in lessons, X^2 (df=8, n=649)=29.84, $p < 0.001$. 93.3% of these teachers used discussion (46.41% 'sometimes,' 30.62% 'often' and 16.27% 'always') more often than teachers who moderately agreed or disagreed that students actively participated in lessons.

Table 1.

Use of Frequency of Teaching Methods and Techniques by Beliefs and the Perceptions of Students in Percentages- I

Beliefs-perceptions of students	Teaching method				
	Demonstration				
Students are interested in biology	Never (n=45)	Rarely (n=148)	Sometimes (n=287)	Often (n=134)	Always (n=31)
Yes	5.24	16.85	44.19	28.84	4.87
Moderately	7.78	27.78	44.44	15.28	4.72
No	16.67	16.67	50	11.11	5.56
	Field trips-observations				
Students are interested in biology	Never (n=192)	Rarely (n=269)	Sometimes (n=140)	Often (n=27)	Always (n=6)
Yes	18.08	43.46	31.92	4.61	1.92
Moderately	37.54	42.86	15.13	4.20	0.28
No	64.71	17.65	17.65	0	0
	Discussion				
Students actively participate in lessons	Never (n=4)	Rarely (n=62)	Sometimes (n=343)	Often (n=176)	Always (n=64)
Yes	0.48	6.22	46.41	30.62	16.27
Moderately	0.48	10.41	56.17	25.67	7.26
No	3.7	22.22	51.85	22.22	0

Table 2 shows the interrelationship between teacher beliefs and perceptions of students and the use frequency of teaching methods in percentages. Teachers who believed that biology lessons increase their students' interest in scientific thinking learning and research used the teaching methods and techniques of discussion more often than other teachers during instruction, X^2 (df=8, n=652) =29.17, $p<0.001$. These teachers also used demonstration and field trips and observations more often in their classes, X^2 (df=8, n=646) =24.07, $p<0.001$, and X^2 (df=8, n=635)=33.25, $p<0.001$ respectively. 92.29% of these teachers used discussions (50.53% 'sometimes', 27.37% 'often' and 14.39% 'always'); 75.62% used demonstrations (41.17% 'sometimes', 24.03% 'often' and 7.42% 'always'); and 62.7% used field trips and observations more often than teachers who 'not really agreed or disagreed that biology lessons increase their students' interest in scientific thinking learning and research. However, 67.4% of the teachers who believed that biology lessons increased their students' interest in scientific thinking learning and research stated that they 'rarely' (41.03%) and 'never' (22.71%) used field trips and observations when teaching biology. Yet, teachers who lectured more were the ones who 'disagreed with the statement that biology lessons increase students' interest in scientific thinking, learning and research, X^2 (df=8, n=647) =16.76, $p=0.03$. 91.06% of these teachers lectured more often (23.21% 'sometimes', 39.28% 'often' and 28.57% 'always') than other teachers.

Table 2.
Use of Teaching Methods and Techniques by Beliefs and the Perceptions of Students – II

Beliefs-perceptions of students	Teaching method					
	Discussion	Demonstration	Field trips-observations	Lecture		
Lessons increase students' interest in scientific thinking	Never (n=4)	Rarely (n=64)	Sometimes (n=346)	Often (n=174)	Always (n=64)	
	Yes	0.35	7.37	50.53	27.37	14.39
	Moderately	0.32	10.48	55.56	26.67	6.98
No	3.85	19.23	51.92	23.08	1.92	
Lessons increase students' interest in scientific thinking	Never (n=46)	Rarely (n=148)	Sometimes (n=286)	Often (n=135)	Always (n=31)	
	Yes	5.3	19.08	44.17	24.03	7.42
	Moderately	7.72	23.79	46.30	19.29	2.89
No	13.46	38.46	32.69	13.46	1.92	
Lessons increase students' interest in scientific thinking	Never (n=192)	Rarely (n=270)	Sometimes (n=140)	Often (n=27)	Always (n=6)	
	Yes	22.71	41.03	28.94	6.23	1.1
	Moderately	33.44	43.73	18.65	3.21	0.96
No	50.98	43.14	5.88	0	0	
Lessons increase students' interest in scientific thinking	Never (n=9)	Rarely (n=61)	Sometimes (n=179)	Often (n=256)	Always (n=142)	
	Yes	1.81	10.51	34.42	32.97	20.29
	Moderately	0.95	8.89	22.54	45.39	22.22
No	1.79	7.14	23.21	39.28	28.57	

In Table 3, teachers' beliefs about students who can relate lesson content to daily life are examined together with the use frequency for discussion (X^2 (df=8, n=648) =28.73, $p<0.001$) and demonstration (X^2 (df=8, n=643)=22.03, $p<0.001$) methods and techniques. It can be seen that teachers who agreed that students can relate lesson content to daily life used these methods and techniques more often than other teachers who 'moderately agreed' or 'disagreed.' The vast majority (93.72%) of these teachers used discussion (52.3% 'sometimes', 26.78% 'often' and 14.64% 'always'); and 78.19% used demonstration (51.03% 'sometimes,' 19.75% 'often' and 7.41% 'always') more often than other teachers.

Table 3.
Use of Teaching Methods by Beliefs and the Perceptions of Students - III

Beliefs-perceptions of students	Teaching method				
	Discussion		Sometimes	Often	Always
Students can connect lesson content to daily life	Never (n=4)	Rarely (n=64)	Sometimes (n=243)	Often (n=173)	Always (n=64)
Yes	0	6.28	52.3	26.78	14.64
Moderately	0.8	10.7	54.13	26.67	7.73
No	2.94	26.5	44.12	26.47	0
	Demonstration		Sometimes	Often	Always
Students can connect lesson content to daily life	Never (n=46)	Rarely (n=147)	Sometimes (n=286)	Often (n=133)	Always (n=31)
Yes	4.53	17.28	51.03	19.75	7.407
Moderately	8.19	25.96	40.44	21.86	3.55
No	14.71	29.41	41.18	14.71	0

Relationship between teacher beliefs and perceptions of students and the use of instructional materials

Almost half (46.33%) of the teachers who believed that students were interested in biology used films more often (28.19% 'sometimes,' 11.58% 'often' and 6.56% 'always') than the rest of the teachers during instruction, X^2 (df=8, n=623) =25.83, $p<0.001$ (see Table 4). It was also found that 77.85% of the teachers who stated that biology lessons increased their students' interest in scientific thinking, learning and research used living things (49.64% 'sometimes,' 21.43% 'often' and 6.78% 'always'), X^2 (df=8, n=642) =19.63, $p=0.01$.; 95.79% used examples and models (17.19% 'sometimes,' 40.35% 'often' and 38.25% 'always'), X^2 (df=8, n=653) =17.54, $p=0.02$; and 49.26% used films (27.78% 'sometimes,' 14.44% 'often' and 7.04% 'always'), X^2 (df=8, n=624) =28.96, $p<0.001$ more often than other teachers (see Table 6).

Table 4.
Use of Instructional Materials by Beliefs and the Perceptions of Students – I

Beliefs-perceptions of students	Instructional material				
	<u>Films</u>				
Students are interested in biology	Never (n=285)	Rarely (n=94)	Sometimes (n=144)	Often (n=71)	Always (n=29)
Yes	34.75	18.92	28.19	11.58	6.56
Moderately	53.03	12.39	19.6	11.53	3.46
No	64.71	11.76	17.65	5.88	0
	<u>Living things (animals and plants)</u>				
Biology lessons increase students' interest in scientific thinking	Never (n=52)	Rarely (n=121)	Sometimes (n=297)	Often (n=118)	Always (n=54)
Yes	5.71	16.43	49.64	21.43	6.78
Moderately	9.03	19.03	44.52	17.74	9.67
No	15.38	30.77	38.46	5.77	9.62
	<u>Examples and models</u>				
Biology lessons increase students' interest in scientific thinking	Never (n=14)	Rarely (n=19)	Sometimes (n=133)	Often (n=271)	Always (n=216)
Yes	2.11	2.11	17.19	40.35	38.25
Moderately	2.54	2.54	22.22	42.86	29.84
No	0	9.43	26.42	39.62	24.53
	<u>Films</u>				
Biology lessons increase students' interest in scientific thinking	Never (n=286)	Rarely (n=94)	Sometimes (n=144)	Often (n=71)	Always (n=29)
Yes	37.04	13.7	27.78	14.44	7.04
Moderately	50.33	17.22	20.86	8.61	2.98
No	65.38	9.61	11.54	11.54	1.92

As shown in Table 5, 76.47% of the teachers who agreed that students could relate lesson content to daily life used living things (46.64% 'sometimes,' 19.75% 'often' and 10.08% 'always'), X^2 (df=8, n=639) =20.06, p=0.01. 57.64% used overhead projector and slides (23.58% 'sometimes,' 18.34% 'often' and 15.72% 'always'), X^2 (df=8, n=613) =45.91, p<0.001. 84.3% used diagrams, graphs, etc. (19.42% 'sometimes,' 33.88% 'often' and 31% 'always'), X^2 (df=8, n=638) =18.82, p=0.02 more often than other teachers who moderately agreed or disagreed with this statement.

Table 5
Use of Instructional Materials by Beliefs and the Perceptions of Students – II

Beliefs-perceptions of students	Instructional material				
	Living things (animals and plants)				
Students can connect lesson content to daily life	Never (n=52)	Rarely (n=119)	Sometimes (n=296)	Often (n=117)	Always (n=55)
Yes	5.88	17.65	46.64	19.75	10.08
Moderately	7.90	19.62	46.05	18.26	8.17
No	26.47	14.71	47.06	8.82	2.94
	Overhead projector and slides				
Students can connect lesson content to daily life	Never (n=185)	Rarely (n=99)	Sometimes (n=149)	Often (n=105)	Always (n=75)
Yes	24.02	18.34	23.58	18.34	15.72
Moderately	33.99	11.61	26.06	17.28	11.05
No	32.26	51.61	9.67	6.45	0
	Diagrams, graphs, etc.				
Students can connect lesson content to daily life	Never (n=37)	Rarely (n=67)	Sometimes (n=153)	Often (n=214)	Always (n=167)
Yes	7.85	7.85	19.42	33.88	31
Moderately	4.12	11.54	26.1	33.79	24.5
No	9.37	18.75	34.38	28.13	9.38

Conclusions and Discussion

The results of this study have shown that teacher beliefs and perceptions influence the process of teaching biology in different ways. Teachers with different beliefs and perceptions of their students use different teaching methods and techniques, as well as instructional materials. In the classes of teachers who believed **that the biology lessons increased their students' interest in scientific thinking**, learning and research and that their students were interested in biology, could relate lesson content to daily life. These teachers also actively participated in the lessons using the teaching methods and techniques of demonstrations, field trips, observations, and discussions more often than the other teachers. In addition, these teachers also used films, living things, examples and models, overhead projectors and slides, diagrams and graphs more often in teaching biology.

The underlying assumption while investigating the influence of teacher beliefs on their teaching practices was a **belief-action relationship**, i.e. **teachers' beliefs about their students determine their classroom actions** (Clark & Peterson, 1986; Czerniak, Lumpe & Haney, 1999; Haney, Lumpe, Czerniak & Egan, 2002). However, the relationship identified between teacher beliefs regarding their students and the teaching methodologies and instructional materials they used in biology classes **pointed to the importance of the students' interest in the subject and the students' active participation in lessons as characteristics shaping teachers' beliefs and decisions about their classroom actions.**

The results of this study have shown that teachers who believed that their students were interested in biology, that the students could relate lesson content to

everyday issues and that students had an interest in scientific thinking, learning and research used various teaching methods, techniques and instructional materials. **Although teachers' beliefs regarding their students were thought to be the primary reason behind these actions, the findings indicated that the students' interest in the subject influenced the teacher, with active participation in the lessons also being identified as influencing first the teachers' beliefs and then their actions (Lederman, 1999).** This finding asserts Gess-Newsome and Lederman's (1995) conclusion that students exert a strong influence on the classroom teacher in terms of what they do and how they do it in the classroom. **The students' interest and active participation in lessons may have their origin in the various teaching methodologies and instructional materials used by their teachers.** In order to keep student interest alive and to maintain their active participation in lessons, teachers should continue to use various teaching methods and instructional materials. These actions on behalf of teachers increase the students' interest in the subject matter and promote participation in a lesson. **Maintaining the students' increased interest and active participation in lessons influences the teachers' beliefs and their actions in return, and this cycle continues setting up a virtuous circle where both sides continue to gain.**

Overall, the findings highlight the importance of gaining insight into the way teachers think and act in the classroom. Although the inferences made were specific to the Turkish context and many of the specific issues may be of purely local interest (Dreyfus, Jungwirth & Tamir, 1985), the findings of this study urge us to consider the need to examine teachers' beliefs and perceptions as a means of improving instructional practices for science education (Shavelson & Stern, 1981; Munby, 1984; Pajares, 1992; Tobin, Tippins & Gallard, 1994; Czerniak, Lumpe & Haney, 1999), not just in Turkey but also in other countries. Policy capturing, i.e. simulated cases or vignettes of students, curriculum materials or teaching episodes; repertory grid technique and process tracing such as think-aloud, stimulated recall and journal keeping, questionnaires, semi-structured interviews and classroom observations (Shavelson & Stern, 1981; Clark & Peterson, 1986; Kagan, 1992; Fang, 1996) can provide us with rich information which can be used to examine teachers' beliefs and perceptions and to gain insight into the teachers' worlds.

Regarding teachers' classroom activities and their perceptions of students, lack of students was one constraint of the study. Because students are the ones who actively participate in the teaching and learning process together with teachers, their beliefs, thoughts and perceptions are as important as teachers' beliefs and perceptions to describe the process of biology teaching. To reduce this constraint and draw rich interpretative information, student questionnaires should also be administered and classroom observations and semi-structured interviews should be conducted.

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Öğretmenlerin Öğrencileri ile İlgili Algılarının Biyoloji Öğretimi Üzerine Etkileri (Özet)

Problem Durumu

Öğretim uygulamalarının anlaşılması ve hedeflenen yeniliklerin gerçekleştirilmesi için öğretmenlerin öğretimle ilgili inanış, algı ve davranışlarının incelenmesi gerekmektedir. Ülkemizde biyoloji öğretilmesiyle ilgili çalışmalar ise genellikle biyoloji öğretiminin etkin şekilde gerçekleştirilmesini engelleyen dış etkenleri rapor etmektedir. Biyoloji öğretiminin iyileştirilmesi ve öğretmenlerin öğrencileriyle ilgili algılarının öğretimi nasıl gerçekleştirdiklerini belirleyen unsurlardan biri olması nedeniyle öğretmen algılarının incelenmesi gerekmektedir.

Araştırmanın Amacı

Bu çalışmanın amacı öğretmenlerin rapor ettikleri uygulamalar doğrultusunda öğrencileri ile ilgili algılarının biyoloji öğretimi üzerine etkilerini belirlemektir.

Araştırmanın Yöntemi

Tarama anketi seçkisiz tabaka ve küme örnekleme yöntemiyle belirlenen okullarda çalışılan 685 biyoloji öğretmeninden biyoloji derslerinde kullandıkları yöntem ve araç gereçler ve öğrencileri ile ilgili algıları hakkında bilgi toplamak amacıyla kullanılmıştır. Toplanan verilerin çözümlenmesinde yordayıcı istatistikî yöntemler (ki-kare, kros-tab) kullanılmıştır.

Araştırmanın Bulguları

Öğrencileri ile ilgili farklı algıları olan öğretmenlerin sınıflarında biyoloji öğretimi farklı şekilde gerçekleşmektedir. Öğrencilerinin biyoloji bilimi ile ilgilendiğini, derslerin öğrencilerin bilimsel düşünme ve araştırmaya olan ilgilerini arttırdığını ve öğrencilerin ders içeriğini günlük yaşamla ilişkilendirebildiğini düşünen, öğrencilerin derse aktif olarak katıldığını belirten öğretmenlerin sınıflarında öğrenci merkezli öğretim yöntemleri ve öğrencilerin görerek öğrenmelerini sağlayacak öğretim materyalleri sıklıkla kullanılmaktadır.

Araştırmanın Sonuçları ve Önerileri

Biyoloji eğitiminin ve öğretim uygulamalarının geliştirilebilmesi ve hedeflenen yeniliklerin gerçekleştirilmesi için öğretmen algı ve inanışlarının incelenmesi gerekmektedir. Bu amaçla anket, yarı yapılandırılmış görüşme, sınıf gözlemleri ile birlikte tutum belirleme, süreç izleme gibi yöntemlerin de kullanılması gerekmektedir.

Anahtar Sözcükler: öğretmen algısı, öğrenci, biyoloji öğretimi, öğretim yöntemi, öğretim materyali