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The Analyze of Teachers' Responsibility Beliefs for Student Academic Successes and Failures (The Sample of Turkish Biology Teachers)

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ABSTRACT

This study was prepared to analyze biology teachers' responsibility beliefs for student academic successes and failures in terms of different variables. The data were collected with Teachers' Responsibility for Student Achievement Scale, Teachers' Sense of Self-efficacy Scale, The Scale of Attitudes toward Teaching Profession and open-ended interview questionnaire. For the data analysis, descriptive statistics, one-way variance analysis (ANOVA), independent groups t-test and Pearson Correlation Coefficient were used. On the other hand, the data collected through open-ended interviews were subject to content analysis. While teachers' responsibility beliefs is not significant in terms gender, teachers' sense of self-efficacy and teachers' attitudes toward teaching profession, there is significant results in terms of length of service and student numbers in their classrooms. There are average, positive and significant relations between teachers' responsibility beliefs for student success and years experience, size of classrooms, perception of self-efficacy in teaching profession and attitudes toward teaching profession.

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Keywords:
Responsibility beliefs for student success and failure, teachers' locus of control, teachers' perception of self-efficacy, attitudes toward teaching profession, years experience, gender, size of classrooms.

Introduction

Affecting students' academic achievements and performances, teachers are expected to assume responsibility in their profession as they are considered an indication of the quality of an educational system and they lead to changes in education policies (Alnabhan, Al-Zegoul & Harwell, 2001). When compared to other components, it can be said that teacher is more effective than other for student achievement. Within this context, *"taking responsibility for student successes and failures"* is an important and obtrusive concept brought to the literature by Guskey (1981a). According to Guskey (1981a), while teachers adopting positive beliefs of efficacy in their profession assume responsibility for both students' academic success and failure, those with low levels of beliefs of efficacy attribute students' failure to external factors. When the literature is concerned, the concept of responsibility that teachers assume for students' academic success is based on Rotter's theory *"locus of control"*. Developed by Rotter (1966), the concept of locus of control is individuals' expectations as to what will happen as a result of their behavior, the tendency to view the situation based on their abilities, characteristics, and behaviors, but not to view the outcome as luck, fate, destiny, or the result of any external force (Donmez, 1986). In other words, it is possible to explain individuals' perceptions regarding for whom or what they hold responsibility for the events they face. According to the theory, individuals with an *internal locus of control* believe that events they face derive primarily from their own

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actions, while those with *external locus of control* believe that event they face result from external forces such as luck, misfortune, fate, and other people (Cole & Sapp, 1988; Doherty & Baldwin, 1985; Solmus, 2004). Accordingly, locus of control plays a great role in teachers' success in their profession, assuming responsibility and checking students' academic success.

A high internal locus of control takes a leading role in several factors such as teachers' adopting high levels of efficacy beliefs, taking responsibility for students' success, in-classroom behavior, planning teaching and motivation (Adu & Olantundun, 2007; Akiri & Ugborugbo, 2009; Allinder, 1995; Feather, 1994; Gibson & Dembo, 1984; Guskey, 1981b; Guskey, 1988; Hoy & Spero, 2005; Woolfolk, Rosoff & Hoy, 1990). It indicates that there is a low level of relationship between taking responsibility for success and for failure, and that teachers taking responsibility for success may not hold themselves responsible for failure. In general, it suggests that while teachers take responsibility for success, they attribute failure to other factors (Guskey, 1981a, 1987). In the study conducted by Akbaba-Altun (2009), it was found out that teachers did not assume responsibility for students' failure and did not support the idea suggesting that responsibility could be assumed. However, considering students' success-failure, the relationship teacher qualities and beliefs of responsibility are of considerable importance (Dean, 2000; Diamond, Randolph & Spillane, 2004; Georgiou, Christou & Stavrinides, 2002; Jacob & Lefgren, 2006; Mavropoulou & Padeliadu, 2000; Porter & Brophy, 1988; Starr, 2000; Tollefson, 2000).

The factors that contribute to students' academic success are one of the leading issues that attract educationists' interest. The studies conducted indicate that these factors comprise various dimensions. Among these are *factors related to students' individual characteristics* (Cakan, 2002; Ekici, 2003; Hollingsworth & Hoover, 1999), *factors related to students' parents* (Bean, Bush, McKenry & Wilson, 2003; Celenk, 2003; Epstein, 1987; Gelbal, 2008; Lee & Smith, 2001), *factors related to education system*, (Goldhaber, 2002; Huberman, 1995; Stein &Wang, 1988; Witziers, Bokseri & Krüger, 2003; Yost, Sentner & Frolenza-Baily, 2000) and *teacher-related factors* (Allinder, 1995; Brophy, 1986; Fullan, 1999; Graham, Harris, Fink & McArthut, 2001; Midgley, Feldlourfer & Eccles, 1989; Moore & Esselman, 1992; Tschannen-Moran & Hoy, 2001).

There are many factors that affect students' success or failure in teaching Biology as well; however, one of the most prevailing factors is Biology teachers' beliefs of responsibility. Since Biology teachers should serve as a model for their students through their cognitive, affective, and psychomotor behavior and lead their students to achieve success in their learning struggle. In this vein, it is very important for Biology teachers to exhibit suitable behavior through assuming responsibility for both teaching Biology and ensuring high level of students' success (Chidolue, 1986; Imhanlahimi & Aguele, 2006). There are several studies conducted on students' beliefs about internal factors playing a role in their academic success and failure (Aremu, 2000; Asikhia, 2010; Dweck & Reppucci, 1973; Eso, 1998; Kukla, 1972; Weiner & Sierad, 1975). However, concerning the related literature, to the best knowledge of the author, there is not any study that focused on Biology teachers' beliefs of responsibility for students' success and failure in Biology. The current study was conducted taking into consideration teachers' affective characteristics of teaching profession, demographic characteristics, and variables in classroom contexts. It is believed that the study will contribute to the literature through finding out the level of Biology teachers' beliefs of responsibility for students' success; whether levels of beliefs of responsibility change according to variables and to what extent they assume responsibility for students' success and failure.

Aim of the Research

The current study aims to determine biology teachers' beliefs of responsibility for students' academic success and failure through different variables. Therefore, following research questions were investigated:

1. What are the biology teachers' responsibility beliefs regarding students' academic success and failure?
2. What are the biology teachers' views on teachers' responsibility beliefs regarding students' academic success and failure?
3. Do the levels of the biology teachers' responsibility beliefs regarding students' success significantly differ in;

*gender,

*experience,
*the number of the students in the classrooms,
*perceptions of self-efficacy in teaching profession, and
*attitudes towards teaching profession?

4. Is there a statistically significant relationship between levels of the biology teachers' responsibility beliefs regarding students' academic success,
*gender,
*experience,
*the number of the students in the classrooms,
*perceptions of self-efficacy in teaching profession, and
*attitudes towards teaching profession?

Methodology

A mixed method, which involves combining quantitative and qualitative approaches, was used in this study. Mixed methods make use of the strengths of qualitative and quantitative research and involve a better understanding and interpretation of results. (Creswell, 2009; Leech & Onwuegbuzie, 2007). Therefore, this method extends the richness of the data. The quantitative data were collected through the scales of teachers' beliefs of responsibility for students' success, perception of self-efficacy in their profession, and attitudes towards teaching profession. This study aimed to investigate whether the biology teachers' responsibility beliefs regarding students' success differ in various variables. Moreover, the biology teachers' views on their responsibility beliefs regarding students' academic success and failure were also determined in the study through the quantitative and qualitative data collected through mixed method. The qualitative data collected throughout this study is the alternative research method considered to support the quantitative data. The qualitative approaches viewed as an alternative way of data collection is very effective in investigating personal reactions that affect the results of the study (Neuman, 2000; Patton, 1987; Patton, 1990; Tashakkori & Teddlie, 1998; Tashakkori & Teddlie, 2003).

Participants

The study was comprised of 117 biology teachers that worked at different schools in Ankara, Turkey. This study benefited from convenience sampling method. Some criteria were taken into consideration in order to minimize the problems in convenience sampling method (Knight, Nolan, Lloyd, Arbaugh, Edmondson & Whitney, 2013; Sencer, 1989). In this vein, several criteria were taken into consideration while selecting the participants such as the presence of a biology laboratory at the school, willingness to participate in the study, accessibility of the researchers to the schools, applicableness of the research instruments to teachers, and being available to the researcher. Moreover, the biology teachers were informed by the researcher of the aim of the study and how to complete the measurement tools. Of these participants, 68 (58.1%) were females, while 49 were (41.9%) were males. On the other hand, of these teachers, 39 (33.3%) had a teaching experience ranging from 0 to 5 years, 34 (29.1%) from 6 to 10 years, and 44 (37.6%) from 11 and more. The number of the students in the Biology classes were between 25 or fewer for 31 (26.5%) of the teachers, between 26 and 30 for 33 (28.2%) of the teachers, and between 31 and more for 53 (45.3%) of the teachers.

Data Collection Instrument

The data were collected through the scales of teachers' beliefs of responsibility for students' success, perception of self-efficacy in their profession, and attitudes towards teaching profession.

Teachers' responsibility for student achievement scale. The scale adapted into Turkish by Ekici (2012a) was originally developed by Guskey (1981a). The scale includes two sub-dimensions, namely, responsibility for success (R+) and responsibility for failure (R-). The scale includes 30 items. The total maximum score that can be obtained from these dimensions is 100. Accordingly, if a score of 99 is collected

in one dimension, the score in the other dimension can be 1 at most. While Cronbach Alpha reliability coefficient was determined as .87 for the overall scale, for the dimension of responsibility for success, it was determined as .87 and for the dimension of responsibility for failure, as .86.

Teachers' sense of efficacy scale. The scale was developed by Tschannen-Moran and Hoy (2001), was adapted to Turkish by Capa, Cakiroglu and Sarikaya (2005). The scale includes a total of 24 items in 9-level Likert-style. 8 items are included in each of the dimensions, namely, student engagement, instructional strategies, and classroom management. The maximum score that can be obtained on this scale is 216.00 (24x9), while the minimum score is 24.00 (24x1). Moreover, the maximum scare that can be obtained on the dimensions of the scale is 72 (8x9), while the minimum score is 8.00 (8x1). In the current study, for the whole of the scale, Cronbach Alpha reliability coefficient was determined as .92, for the student engagement dimension as .88, for the instructional strategies dimension as .84, and for the classroom management dimension as .92.

The scale of attitudes towards teaching profession. The scale was developed by Semerci (1999). The scale includes a total of 30 items in 5-level Likert-style. Of the items, 8 were negative, and 22 were positive. While the positive items were scored as "I totally agree= 5 points" and "I totally disagree=1 point", the negative items were scored reversely. The Cronbach Alpha reliability coefficient of the scale in this study was determined as .78.

Open-ended interview questionnaire. The interviews were held with 34 teachers that were randomly selected from 117 Biology teachers that participated in the study. The interview comprises only one question, “Are teachers responsible for students' success and failure? Please express your views." Open-ended interview questionnaire prepared by researcher.

Reliability and validity of the open-ended interview questionnaire. Validity in qualitative studies means that a researcher observes the case that is investigated as it is and presents it objectively as much as possible (Yildirim & Simsek, 2006) It is also the approximation of what we believe to measure and what we plan to measure (Marvasti, 2004; Roberts & Priest, 2006). However, the biggest issue in ensuring validity in qualitative studies is how researchers can prove their objectivity. Subjectivity may emerge while researchers collect, save, or interpret data. It is possible to conduct a valid qualitative study of high quality only through minimizing this subjectivity as much as possible (Yildirim, 2010). In this research, the internal validity of the theme and subtheme categories was ensured by the author and two experts in Biology. Moreover, in this study, two important processes were realized to ensure the validity of the results of the study. (a) Data coding and analysis were discussed in detail (Hruschka, Schwartz, St.John, Picone-Decaro, Jenkins & Carey, 2004) (b) Biology Teacher’ views that were believed to best represent each and every category obtained through the study were selected as examples, and these examples were provided in the Table 2 (Yildirim & Simsek, 2006).

The themes in Table 2 were determined based on the subscales of teachers’ responsibility for student achievement. Moreover, considering the reliability of the study, the codes and the categories provided by two researchers were compared in order to confirm whether the codes provided under each category represented the aforementioned conceptual categories. The list of codes and themes were finalized after two experts in the field of education coded the data individually. The consistency of the coding carried out by the participants independently was determined through the marks such as "Agreement" or "Disagreement". When the researchers used the same codes for the students' statements, these codes were considered agreements. However, when they used different codes, these codes were considered disagreements. When either of the researchers was not sure about the coding, s/he asked for the other's opinion, and then coded the data. The reliability of the data analysis was calculated using the formula [Agreement / (Agreement + Disagreement) x 100] (Miles & Huberman, 1994). The average reliability between the coders was calculated as 90%.

Data Analysis

The data analysis was conducted through descriptive statistics, internal consistency reliability coefficient (Cronbach Alpha) analysis, independent samples t-test, one-way analysis of variance (ANOVA),

LSD to determine the significant difference, and Pearson Correlation co-efficient. The scores obtained on the scale of teachers' perception of self-efficacy in teaching profession were determined as low level (≤ 84), intermediate level (85-145) and high level (146 ≥), and those obtained on the scale of attitudes towards teaching profession were determined as low level (≤ 70), intermediate level (71-111) and high level (112 ≥). On the other hand, the data collected through open-ended interviews were subject to content analysis. In order to begin data analysis, the participants' answer sheets were numbered from 1 to 34. The basic aim of content analysis is to reach concepts and relationships that can account for the data. To achieve this aim, similar data are collected and organized within certain concepts and analyzed so that readers will easily understand these (Yildirim & Simsek, 2003). The examples of the participants' views were provided using the letter "P" and "the participant ID number" assigned such as (P19).

Research Findings

The findings on the scores of biology teachers' responsibility beliefs regarding students' academic success are provided in Table 1.

Table 1. The distribution of the scores of biology teachers' responsibility beliefs regarding students' academic success

Scale	N	Mean	SD
Responsibility for students' academic success (R+)	117	57.54	8.68
Responsibility for student academic failure (R-)	117	47.90	8.71
Overall scale (Total R)	117	52.72	5.83

The overall arithmetic mean of the scores of biology teachers' responsibility beliefs regarding students' academic success were determined as 52.72 for the overall scale , and the standard deviation was determined as 5.83. The score obtained is at the intermediate level since the maximum score that can be obtained on the scale is 99 and the minimum score is 1. While the score on the dimension of beliefs of responsibility for students' academic success was calculated as 57.54 and standard deviation was 8.68, that of responsibility for students' academic failure was determined as 47.90 and standard deviation was 8.71. These values suggest that Biology teachers assume more responsibility for students' academic success than their academic failure. The scores on the dimension of beliefs were determined as intermediate level. These findings obtained through quantitative data were discussed in detail through the interview question “Are teachers responsible for students' success and failure? Please express your views.” In this vein, two main themes were obtained, namely, "teachers' responsibility for students' academic success" and "teachers' responsibility for students' academic failure". The examples of the participants' views are provided in Table 2. The results obtained in Table 1 and the ones in Table 2 seem to support each other since a great majority of the teachers in both tables were of the opinion that teachers were responsible for students' academic success; however they could not be held responsible for their failure. More interesting, several views voiced that teachers were not responsible for students' academic success, either.

The findings on the gender differences in the biology teachers' responsibility beliefs regarding students' academic success are provided in Table 3.

Considering the t-test results of the gender differences in the biology teachers' responsibility beliefs regarding students' academic success, the average scores of female and male teachers' beliefs of responsibility for students' success were determined as 52.73 and 52.71 respectively in the overall scale. As a result of the analysis conducted, it was found that the difference between the female and male teachers' scores on the dimensions of responsibility for students' success and failure was not statistically significant ($t_{(115)\ Total\ R} = .023$; $p > .05$). On the other hand, in the biology teachers' responsibility beliefs regarding students' academic success sub scales, it was indicated that there was no statistically significant difference in their genders ($t_{(115)\ R+} = .427$; $p > .05$). The mean scores of beliefs of responsibility for students' academic success levels of female teachers (57.83) were higher than those of male teachers (57.13). For the biology teachers' responsibility beliefs regarding students' academic failure sub scales, it was indicated that there was no

statistically significant difference in their genders ($t_{(115)\ R-} = .395$; $p > .05$). The mean scores of beliefs of responsibility for students' academic failure levels of female teachers (48.63) were higher than those of male teachers (47.28). This result indicates that teacher' responsibility beliefs regarding students' success and failure does not differ in gender (Table 3).

Table 2. Biology teachers' views on teachers' responsibility for students' academic success and failure

Main category	Sub category	Examples from the biology teachers' views	f*
Teachers' responsibility for students' academic success	Responsible for success	"responsible" (P20)	13
		"70% responsible, if not 100%" (P13)	11
		"one of the important factors that are effective" (P3)	7
		"completely responsible" (P18)	4
		"the fundamental factor in any perspective in class" (P29)	4
		Responsible for success- total	39
	Not responsible for success	"not directly responsible" (P11)	6
		"only contributes to success, serve as a guide" (P24)	5
		"not so effective" (P33)	2
		Not responsible for success- total	13
Teachers' responsibility for students' academic failure	Responsible for failure	"teachers play a great role in students' failure" (P19)	7
		"only one of the important factors that are effective" (P26)	4
		"they do not think they are directly responsible" (P7)	2
		Responsible for failure- total	13
	Not responsible for failure	"teachers cannot be held responsible for failure" (P14)	10
		"teachers cannot be held responsible…" (P27)	8
		"they are definitely not responsible" (P31)	3
		Not responsible for failure- total	21
		GENERAL TOTAL	86

**Since each teacher provided more than one opinion regarding the themes, the views expressed outnumbered the teachers.*

Table 3. The t-test results of the gender differences in beliefs of responsibility for students' academic success

Levene's test for equality of variances			Scale	Gender	N	Mean	SD	DF	t value	p value
	F	Sig.								
Equal variances assumed	.157	.752	Responsibility for students' academic success (R+)	Female	68	57.83	8.99	115	.427	.670
				Male	49	57.13	8.31			
Equal variances assumed	.245	.365	Responsibility for student academic failure (R-)	Female	68	48.63	9.34	115	.395	.694
				Male	49	47.28	7.84			
Equal variances assumed	.864	.125	Overall scale (Total R)	Female	68	52.73	6.35	115	.023	.982
				Male	49	52.71	5.07			

The findings on the years experience differences in the biology teachers' responsibility beliefs regarding students' academic success are provided in Table 4, Table 4.1 and Table 4.2.

Table 4. Test of homogeneity of variances

	Levene Statistic	df1	df2	Sig.
TotalR+	1.518	2	114	.223
TotalR-	.069	2	114	.933
TotalR	1.118	2	114	.309

Table 4.1. Descriptive data concerning years experience of teachers

Scale	Years Experience	N	Mean	SD
Responsibility for students' academic success (R+)	0–5 years	39	55.90	8.27
	6–10 years	34	58.80	9.68
	11 years and more	44	58.01	8.19
Responsibility for student academic failure (R-)	0–5 years	39	57.54	8.68
	6–10 years	34	45.76	8.14
	11 years and more	44	48.76	8.75
Overall Scale (Total R)	0–5 years	39	47.90	9.01
	6–10 years	34	49.14	8.71
	11 years and more	44	50.83	5.28

Table 4.2. The results of One-Way Analysis of Variance (ANOVA) of the differences of the beliefs of responsibility in the number of the years experience

Scale	Variance Source	Sum of Squares	DF	Mean Square	F	p value	Mean Difference LSD Test
Responsibility for students' academic success (R+)	Between Groups	1339.99	2	669.99	1.120	.330	
	Within Groups	26832.05	114	80.33			
	Total	28172.05	116				
Responsibility for student academic failure (R-)	Between Groups	249.75	2	124.87	1.804	.169	
	Within Groups	28590.35	114	85.60			
	Total	28840.10	116				
Overall Scale (Total R)	Between Groups	509.52	2	254.76	3.191	.045*	Between 0–5 years, 6–10 years, and 11 years and more
	Within Groups	12730.31	114	38.11			
	Total	13239.83	116				

*p<0.05

Test of homogeneity of variances data in Table 4, depending on the descriptive data given in Table 4.1 and the results of variance analysis in Table 4.2. Before the ANOVA test was conducted, homogeneity of variances was controlled as seen in Table 4. It was determined that the biology teachers' beliefs of responsibility for students' success differed based their experience. As a result of the one-way analysis of variance (ANOVA) conducted to determine whether this difference was statistically significant and LSD test to determine the source of difference, it was found that the differences in the dimension of responsibility for students' success and the dimension of responsibility for students' failure were not statistically significant ($F_{(2, 114)\ R+}$= 1.120, p>.05; $F_{(2, 114)\ R-}$= 1.804, p> .05). On the other hand, considering the overall scale of the responsibility for students' success, the scores of biology teachers' beliefs of responsibility differed in teaching experience of 11 years and more ($F_{(2, 114)\ Total\ R}$= 3.191, p< .05). Accordingly, statistically significant differences were found to exist between teachers with an experience of 0-5 years, those with an experience of 6-10 years, and others with an experience of 11 years and more.

The findings on the differences of the biology teachers' responsibility beliefs regarding students' academic success based on the number of students in the classroom are provided in Table 5, Table 5.1 and Table 5.2.

Table 5. Test of homogeneity of variances

	Levene Statistic	df1	df2	Sig.
TotalR+	2.379	2	114	.097
TotalR-	.822	2	114	.466
TotalR	.769	2	114	466

Table 5.1. Descriptive data concerning number of students

Scale	Number of students	N	Mean	SD
Responsibility for students' academic success (R+)	≤ 25	31	53.51	6.73
	26–30	33	58.81	9.51
	31 ≥	53	59.10	8.56
Responsibility for student academic failure (R-)	≤ 25	31	57.54	8.68
	26–30	33	48.48	7.51
	31 ≥	53	47.60	9.42
Overall Scale (Total R)	≤ 25	31	47.76	9.05
	26–30	33	47.90	8.71
	31 ≥	53	51.00	4.99

Table 5.2. The results of One-Way Analysis of Variance (ANOVA) of the differences of the beliefs of responsibility in the number of the number of students

Scale	Number of students	Sum of Squares	DF	Mean Square	F	p value	Mean Difference LSD Test
Responsibility for students' academic success (R+)	Between Groups	219.14	2	109.57	4.831	.010*	Between ≤ 25, 26–30 and Between ≤ 25, 31 ≥
	Within Groups	27952.91	114	83.69			
	Total	28172.05	116				
Responsibility for student academic failure (R-)	Between Groups	178.30	2	89.15	.095	.910	
	Within Groups	28661.79	114	85.81			
	Total	28840.10	116				
Overall Scale (Total R)	Between Groups	1.54	2	.77	1.883	.157	
	Within Groups	13238.28	114	39.63			
	Total	13239.83	116				

*p<0.05

Test of homogeneity of variances data in Table 5, depending on the descriptive data given in Table 5.1 and the results of variance analysis in Table 5.2. Before the ANOVA test was conducted, homogeneity of variances was controlled as seen in Table 5. It was determined that biology teachers' responsibility beliefs regarding students' success differ according to the number of the students in the classrooms. As a result of the one-way analysis of variance (ANOVA) conducted to determine whether this difference was statistically significant and LSD test to determine the source of difference, it was found that the differences in the dimension of responsibility for students' success and the dimension of responsibility for students' failure were not statistically significant considering the number of the students in the classroom ($F_{(2, 114)\ Total\ R} = 1.883$, $p>.05$; $F_{(2, 114)\ R-} = .095$, $p>.05$). However, it was determined that there were statistically significant differences between the teachers whose classrooms consisted of ≤25 students, those of 26–30 students and those of 31 ≥ students ($F_{(2,114)\ R+} = 4.831$, $p<.05$). The findings on the differences of the biology teachers' responsibility beliefs regarding students' academic success based on their perceptions of self-efficacy in teaching profession in Table 6.

Table 6. The results of independent-samples t-test for the difference in beliefs of responsibility for students' success based on perception of self-efficacy in teaching profession

Levene's test for equality of variances			Scale	Perception of self-efficacy in teaching profession *	N	Mean	SD	DF	t value	p value
	F	Sig.								
Equal variances assumed	.354	.154	Responsibility for students' academic success (R+)	Intermediate level	23	55.25	7.01	115	1.412	.161
				High level	94	58.10	8.99			
Equal variances assumed	.854	.354	Responsibility for student academic failure (R-)	Intermediate level	23	47.66	7.97			
				High level	94	47.96	8.92	115	.151	.880
Equal variances assumed	.675	.102	Overall Scale (Total R)	Intermediate level	23	51.45	5.26			
				High level	94	53.03	5.94	115	1.163	.247

**There is not any biology teacher with a low level perception of self-efficacy in teaching profession in the participants. Of the teachers, while 23 (19.65%) had an intermediate level of perception of self-efficacy in teaching profession, 94 (80.34%) were found to have a high level of perception of self-efficacy in teaching profession.Teachers' perception of self-efficacy in teaching profession were determined as low level (≤ 84), intermediate level (85-145) and high level (146 ≥).*

Considering the results of independent-samples t-test for the difference in beliefs of responsibility for students' success based on perceptions of self-efficacy in teaching profession, it was determined that the differences in the overall scale was not statistically significant ($t_{(115)Total\ R}$= 1.163; p>.05). The mean scores of beliefs of responsibility for students' academic success levels that teachers have got high level of perceptions of self-efficacy in teaching profession (53.03) were higher than those of intermediate level perceptions of self-efficacy in teaching profession (51.45). On the other hand, it was noticed that the scores of the biology teachers with a high level of perceptions of self-efficacy in teaching profession in the responsibility for students' academic success dimensions was higher than those with an intermediate level. It was noticed that the scores of the biology teachers with a high level of perceptions of self-efficacy in teaching profession in the responsibility for student academic failure dimensions was higher than those with an intermediate level. However, it was determined that the differences in the scale dimension of the responsibility for students' success and failure were not statistically significant ($t_{(115)\ R+}$=.209; p>.05; $t_{(115)\ R-}$=.636; p> .05] (Table 6).

The findings on the differences of the biology teachers' responsibility beliefs regarding students' academic success based on their attitudes towards teaching profession are provided in Table 7.

Table 7. The results of independent-samples t-test for the difference in beliefs of responsibility for students' success based on their attitudes towards teaching profession

Levene's test for equality of variances			Scale	Attitudes toward Teaching Profession*	N	Mean	SD	DF	t value	p value
	F	Sig.								
Equal variances assumed	1.252	.564	Responsibility for students' academic success (R+)	Intermediate level	32	57.26	8.04	115	.209	.835
				High level	85	57.64	8.96			
Equal variances assumed	.754	.371	Responsibility for student academic failure (R-)	Intermediate level	32	48.74	7.39			
				High level	85	47.59	9.18	115	.636	.526
Equal variances assumed	1.541	.452	Overall Scale (Total R)	Intermediate level	32	53.00	5.02			
				High level	85	52.61	6.13	115	.319	.750

**There is not any biology teacher with low level attitudes* towards teaching profession *in the participants. Of the teachers, while 32 (27.35%) had an intermediate level of teachers' sense of efficacy, 85 (72.64%) were found to have a high level of teachers' sense of efficacy. The scale of attitudes towards teaching profession were determined as low level (≤ 70), intermediate level (71-111) and high level (112 ≥).*

Considering the results of independent-samples t-test for the difference in beliefs of responsibility for students' success based on their attitudes towards profession, it was determined that the differences in the overall scale was not statistically significant ($t_{(115)Total\ R}$=.319; p>.05). The mean scores of beliefs of responsibility for students' academic success levels that teachers have got high level of attitudes towards profession (57.64) were higher than those of intermediate level attitudes towards profession (57.26). On the other hand, it was noticed that the scores of the biology teachers with a high level of attitudes towards profession in the responsibility for students' academic success dimensions was higher than those with an intermediate level. The scores of the biology teachers with a high level of attitudes towards profession in the responsibility for student academic failure dimensions were higher than those with an intermediate level. However, it was determined that the differences in the scale dimension of the responsibility for students' success and failure were not statistically significant ($t_{(115)R+}$=.209; p>.05; $t_{(115)R-}$=.636; p> .05) (Table 7).

The findings of Pearson Correlation Coefficient on the relationship between biology teachers' beliefs of responsibility for students' success and failure, gender, experience, the number of the students in their classroom, perceptions of self-efficacy in teaching profession and their attitudes towards teaching profession are provided in Table 8.

Table 8. The test results of Pearson Correlation Coefficient on the relationship between beliefs of responsibility for students' success and failure, gender, experience, the number of the students in their classroom, perceptions of self-efficacy in teaching profession and their attitudes towards teaching profession

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Gender (1)								
Years experience (2)								
Number of students (3)								
Perceptions of self-efficacy in teaching profession (4)								.329*
Attitudes toward teaching profession (5)								.322*
R + (6)							.141*	
R – (7)								
Total R (8)		.345**	.357**				.715**	.735**

*p< .05, **p< .01

Intermediate-level positive and significant relationships at p< .01 were found between the total scores of the Biology teachers' beliefs of responsibility for students' academic success and the variables of experience and the number of the students in the classrooms. Moreover, intermediate and positive relationships at p< .05 were found between the total scores of perceptions of self-efficacy in teaching profession and attitudes towards teaching profession. It was further noticed that high-level positive and significant relationships were found at p< .01 between the overall scale of Biology teachers' responsibility for students' success and its dimensions. Another finding was that a low-level positive relationship was found at p< .05 level (r=.141) between the dimensions in the scale of the Biology teachers' responsibility for students' success.

Conclusion and Discussion

The study yielded data of high quality. In this vein, in alignment with the studies in the literature, beliefs of responsibility for students' success were found to be at a higher level than those of responsibility for students' failure, supported by both quantitative and qualitative data. The result of the study conducted by Guskey (1987) and Ekici (2012a, b) it was also determined that teachers assumed more responsibility for students' academic success than their failure. In another study conducted with science and technology teachers, it was determined that teachers assumed more responsibility for success than failure (Pratt, 1985). Teachers may attribute failure to external factors. It can be argued the teachers that can notice the direct relationship between success and failure and take necessary steps regarding this are those that are aware of their duties. It is stated that if teachers have a high level of internal locus of control, they tend to assume more responsibility for students' academic success and failure (Guskey, 1984; Sherman & Giles, 1981).

As a result of the analysis conducted based on gender, it was found that the difference between the female and male teachers' scores on the dimensions of responsibility for students' success and failure and their beliefs of this responsibility was not statistically significant. Moreover, in the study conducted by Guvenç (2011), it was determined that the teacher candidates' beliefs of responsibility for students' success did not differ in their gender. The result of the study conducted by Guskey (1981a) and Pratt (1985) female teachers revealed statistically significant difference in the dimension of responsibility for students' success. Furthermore, in the study conducted by Tumkaya (2000), female teachers' scores of locus of control in terms of their beliefs of responsibility were found to be higher than those of male teachers. Accordingly, although research may reveal different results based on the features of the research conducted, according to the findings of this study, it was determined that the biology teachers' beliefs of responsibility for students' success did not statistically differ in their gender; however, considering the arithmetic averages, female teachers adopted higher levels of beliefs compared to male ones.

Experience is one of the important variables in teaching profession. There was not any statistically significant difference in the biology teachers' experience on the dimensions of responsibility for students' success and failure. However, considering the overall scale of responsibility, there was a statistically significant difference in favor of the teachers with an experience of 11 years and more. This indicates that teachers with more experience in teaching profession adopt higher levels of beliefs of responsibility. In the related literature, Guskey (1981a) argues that teachers' beliefs of responsibility for students' success do not differ in their experience in teaching profession. On the other hand, considering that teachers are the most important one of many factors in students' success (Wright, Horn & Sanders, 1997), it is important for teachers to assume this responsibility. Furthermore, considering the high level of relationship between teachers' experience and students' success (Evans, 1992; Gibbons, Kimmel & O'Shea, 1997; Slavin, 1987), and that experienced teachers assume more responsibility for students' success and failure, the results of this study are highly valuable.

Another important result confirmed that that there was a statistically significant difference in the dimension of responsibility for students' success in favor of the teachers whose classrooms consisted of at least 31 students. This indicates that teachers teaching larger classes assume more responsibility for students' success than failure. This finding is remarkable, considering that there might be more reasons for students' failure in large classroom since if students' learning and success increase as a result of teachers' assuming enough responsibility (Guskey, 2010; Francis-Seton, 2011), then teachers' assuming responsibility for only students' success may result in an increase in failure.

The difference in the scores of Biology teachers' beliefs of responsibility for students' success were not statistically significant in relation to their perceptions of self-efficacy in teaching profession in the overall scale of responsibility, in the dimensions of responsibility for students' success and failure. However, it was determined that the scores of the biology teachers with a high level of perceptions of self-efficacy in teaching profession in the dimensions and overall of the scale were higher than those with an intermediate level. It is also stated in other studies that teachers' perceptions of self-efficacy play an important role in their responsibly for students' learning (Lee & Smith, 2001; Lee & Loeb, 2000).

On the other hand, the difference in the scores of biology teachers' beliefs of responsibility for students' success were not statistically significant in relation to their attitudes towards teaching profession in the overall scale of responsibility, in the dimensions of responsibility for students' success and failure. However, it was noticed that the scores of the biology teachers with a high level of attitudes towards teaching profession were higher than those with a low level in the dimensions and overall scale. It takes a long time to adopt and change attitudes. The studies conducted state that pre-service teacher education and training contributes substantially to teachers' adopting responsibility for students' success and failure (Castellini, 1986; Guskey, 1984; Rosenshine, 1986). Accordingly, both teachers' beliefs of responsibility for students' success and failure and their attitudes towards teaching profession can be improved through not only pre-service but also in-service education.

Another important result of the study is that intermediate-level positive and significant relationships were found at $p<.01$ level between the total scores of the biology teachers' responsibility beliefs regarding students' academic success and the variables of experience and classroom size. This result suggests that

teachers' experience and classroom size affect their beliefs of responsibility for students' academic success and failure. Moreover, intermediate and positive relationships were found at p<.05 level between teachers' perceptions of self-efficacy in teaching profession and attitudes towards teaching profession in the overall scale of responsibility for students' success. The other studies stress that there is an intermediate-level relationship between teachers' beliefs of academic success and perceptions of self-efficacy (Henson, Kogan & Vacha-Haase, 2001; Tschannen-Moran & Hoy, 2001). Another remarkable result is that a low-level positive relationship was found at p<.05 level (r=.141) between the dimensions in the scale of the Biology teachers' responsibility for students' success. This relationship, as stressed by Guskey (1981a & 1987), tends to support the claim that there is a low level relationship between the responsibility for success and the responsibility for failure. Therefore, if a teacher assumes responsibly only for success, that teacher may tend to provide other reasons without assuming responsibility for failure.

Based on the results of this study, the following suggestions can be put forward regarding further research on this issue:

1. Further studies can investigate the factors that affect students' responsibility for academic success and failure.
2. Further studies can also be conducted to determine the needs necessary to improve teachers' beliefs of responsibility for students' success and failure and evaluate the findings considering further teacher education.

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