WCES 2012

Relationship between self-efficacy perceptions of science teacher candidates and academic control focus

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Abstract

The purpose of this study is to examine relations between self-efficacy of science teacher candidates and control academic control focus. For this purpose, Teacher Self-Efficacy Scale which developed by Tschannen-Moran & Woolfolk Hoy (2001) and adapted by Çapa, Çakiroglu and Sankaya (2005) with Academic Control Focus Scale which developed by Akin (2007) was used. On this study which is relational screening model participated 125 1st, 2nd, 3rd and 4th grade science teacher candidates of an university in the western regions of Turkey. According to research results, science teacher candidates’ self-efficacy perceptions and academic control focuses show no significantly difference according to gender, grade level and high school type variables. In addition, there is no statistically significant relationship between science teacher candidates’ self-efficacy perceptions and academic control focuses total scores was concluded.

Keywords: Self-efficacy, academic control focus, science teachers

1. Introduction

Self-efficacy which is one of the Social Learning Theory concepts (Bandura, 1997); is defined as a character effective in the formation of behaviours and “the individual to demonstrate certain performance for organize necessary activities, capacity of to be successful with his own judgements” (Zimmerman, 1995; Bandura, 1997). In other words, self-efficacy is a product of not a function of individuals’ abilities but judgements of achievements by using their ability (Gürcan, 2005).

Tschannen-Moran and Woolfolk Hoy (2001) defines teacher self-efficacy as judgement of a teacher can be form or not results like devotion and learning. In other words, teacher’s self-efficacy is a teacher’s answer to the question “to fullfill my duties can I plan to necessary thoughts and actions?” (Goddard, Hoy and Woolfolk-Hoy, 2004). The teaching profession require beside knowledge of profession, sense of self-efficacy as well.

It is important to be determined teachers self-efficacy for development of students sense of self-efficacy. Therefore, the teachers’ sense of self-efficacy will affect the students’ sense of self-efficacy is clear. For example, at elementary education, high levels of sense of self-efficacy beliefs of teachers plays great role on development of students which they educated as well as development of themselves (Saracaloğlu and Yenice, 2009).

Today, self-efficacy perception, defined as main determinant of behaviours and changes in behaviours. The studies by Bandura display that people’s perceptions about their abilities has effect on, not just only behaviours also...
motivation and success. For this reason, teacher candidates perception of self-efficacy is associated with personality dimensions, one of the most important of these dimensions is academic control focus can be said.

In the Social Learning Theory, one of the key concepts is control focus (Rotter, 1966). According to Rotter (1966), control focus defined as other then one’s own forces or an expectation one’s inspected by himself. In addition, Rotter indicates that people are relatively prone to internal or external audit (Dönmez, 1986).

Individuals who carrying beliefs that events that affect themselves at their own control are internally controlled; individuals who carrying beliefs that their lives under control of forces beyond themselves are externally controlled is classified (Rotter, 1966). Internally controlled individuals burden the causes of success and failures to their own characteristics, have more attempts to improve relationship with the environment and generally have more interest about their own ability and success (Rotter, Change and Phares, 1972). Therefore, internally controlled individuals, have beliefs and expectation of their own behaviours are effective in results of their experiences (Wong-McDonald and Gorsuch, 2004). In other hand, externally controlled individuals, thinks that reinforcement depends of external forces and they made no effort or very little effort to improve very little things with their abilities and behaviours (Yeşilyaprak, 2005). The works in this area in generally revealing having internally focus of control is depicts “a positive personality trait”, having externally focus of control is depicts “a negative state and personality traits” (Yağıcın, Tetik and Açıkgöz, 2010).

No doubt, as a personality trait individuals’ focus of control to be known and to provide support in this direction show us what they will contribute significantly in the process of self-realization. In appropriate environment, the focus of the audit, presence of studies which showing the possibility of the changing from externally control to internally control, supports this (Dilmaç, 2008).

Today, because from science teachers are expected to train individuals who have high self-efficacy perception and internal controll, investigating science teacher candidates’ situation of having mentioned qualifications, is seen important. For this reason, to examine the relationship between science teacher candidates’ self-efficacy and focus of academic control is aimed. To achieve these objectives tried to be answered the following problems.

1-Do teacher candidates’ self-efficacy perceptions according to gender, grade level and high school type show significant differences?
2-Do teacher candidates’ focus of academic control according to gender, grade level and high school type show significant differences?
3-Is there a significant relationship between self-efficacy and focus of academic control?

2. Method

2.1. Environment and Sample

The environment of the research is the students in the fall semester of 2010-2011 academic periods of in a province in western Turkey, in the university’s Faculty of Education. The sample of the research is same university’s Faculty of Education’s science department 1., 2., 3. and 4. grade randomly choosen students. Sample is including 58.4 % female (N=73), 41.6 % male (N=52) a total of 125 students.

2.2. Data Collection Tools

The research data is collected with using Teacher Self-Efficacy Scale and Focus of Academic Control which developed by Tschannten-Moran and Woolfolk Hoy (2001) and adopted by Çapa, Çakıroğlu and Sarıkaya (2005) also validity and reliability studies were made. Teacher self-efficacy scale is 9-point Likert-type consist 24 items and have 3 sub-dimensions. The reliability coefficient calculated .93, internal validity coefficient calculated .95. Focus of academic control scale is 5-point Likert-type consist 17 items and have 2 sub-dimensions In sub-dimensions of scales of internal consistency reliability coefficients was found .94 and focus of academic external control was found .95. When Focus of Academic Control Scales’ scores of internal and external dimention has risen, students have high level of features of related dimention can be said (Akm, 2007).
2.3. Data Analysis

Datas which obtained from research were analyzed using descriptive statistics. In addition to descriptive statistics to determine the relationship between candidates self-efficacy perceptions and gender, T-test was used for independent samples, statistics to determine the relationship between candidates focus of academic control and gender, Mann-Whitney U-test was used, to determine the relationship between theirs self-efficacy perceptions and focus of academic control with grade level and type high school which they were graduated from, one-way analysis of variance (ANOVA) was used. In addition, for determine the relationship between teacher candidates’ self-efficacy perceptions and focus of academic control Pearson’s correlation was used.

3. Findings

3.1. The findings concerning sub-problem

To determine the teacher candidates’ self-efficacy perceptions changes or not according to gender variable in order t-test for independent samples. As results of the analysis teacher candidates; participation (p = .394), strategy (p = .155) and administration (p = .130) subscales, self-efficacy perception total points (p = .560) show statistically no significant difference was conclusion.

One-Way Analysis of Variance results of teacher candidates’ perceptions of self-efficacy in terms of grade level variable given in Table 1.

Table 1. One-Way Analysis of Variance results of teacher candidates’ perceptions of self-efficacy in terms of grade level

| Grade Level                  | Sum of square | df | Mean square | F    | p   |
|------------------------------|---------------|----|-------------|------|-----|
| Efficacy for student engagement |               |    |             |      |     |
| Intergroup                   | 13,049        | 3  | 4,350       | ,497 | ,685|
| Intragroup                   | 1059,159      | 121| 8,753       |      |     |
| Total                        | 1072,208      | 124|             |      |     |
| Efficacy for instructional strategies |            |    |             | 1,095| ,354|
| Intergroup                   | 39,679        | 3  | 13,226      |      |     |
| Intragroup                   | 1462,193      | 121| 12,084      |      |     |
| Total                        | 1501,872      | 124|             |      |     |
| Efficacy for classroom management |            |    |             | ,797 | ,498|
| Intergroup                   | 29,314        | 3  | 9,771       |      |     |
| Intragroup                   | 1483,678      | 121| 12,262      |      |     |
| Total                        | 1512,992      | 124|             |      |     |

As showns at Table 1, teacher candidates self-efficacy perceptions participation, strategy and administration sub-dimensions and total points statistically no significant difference was found.

The science teacher candidates’ results of the One-Way Variance of Analysis of self-efficacy perceptions according to high school type variable are given in Table 2.

Table 2. One-Way Variance of Analysis results about science teacher candidates’ self efficacy perceptions according to high school type

| High school type                  | Sum of square | df | Mean square | F    | p   |
|-----------------------------------|---------------|----|-------------|------|-----|
| Efficacy for student engagement   |               |    |             |      |     |
| Intergroup                        | 24,347        | 3  | 8,116       | ,937 | ,425|
| Intragroup                        | 1047,861      | 121| 8,660       |      |     |
| Total                             | 1072,208      | 124|             |      |     |
| Efficacy for instructional strategies |            |    |             | ,306 | ,821|
| Intergroup                        | 11,318        | 3  | 3,773       |      |     |
| Intragroup                        | 1490,554      | 121| 12,319      |      |     |
| Total                             | 1501,872      | 124|             |      |     |
| Efficacy for classroom management |               |    |             | ,619 | ,604|
| Intergroup                        | 22,854        | 3  | 7,618       |      |     |
| Intragroup                        | 1490,138      | 121| 12,315      |      |     |
| Total                             | 8825,200      | 124|             |      |     |
When Table 2 are examined; teacher candidates self-efficacy perceptions according to participation, strategy and management subscales and total scores of graduated high school type variables show no statistically significant difference.

3.2. The findings concerning sub-problem

Mann Whitney-U test was used to determine the teacher candidates focus of academic control changes according to gender variable. Results of analysis, teacher candidates’ focus of external control and total scores of focus of academic control show statically significant differences, was determined (p=.001). This difference was found in favor of male students to be determined. According to research results, male students thinking reinforcement due to external forces so do very little or no effort to improve very little thing with their abilities and behaviours was concluded. When teacher candidates’ internal focus of control subscale scores are examined, there are no statistically significant difference according to gender variable, was determined (p=.293).

Teacher candidates’ focus of academic control in terms of grade level variable One-Way Analysis of Variance are given in Table 3.

Table 3. Result of teacher candidates’ focus of academic control in terms of grade level variable one-way analysis of variance

| Grade Level          | Sum of Square | df  | Mean Square | F     | p    |
|----------------------|---------------|-----|-------------|-------|------|
| **External Control** |               |     |             |       |      |
| Focus                |               |     |             |       |      |
| intergroup           | 209,738       | 3   | 69,779      | 1,603 | .192 |
| intragroup           | 5265,750      | 121 | 43,519      |       |      |
| Total                | 5475,088      | 124 |             |       |      |
| **Internal Control** |               |     |             |       |      |
| Focus                |               |     |             |       |      |
| intergroup           | 8,807         | 3   | 2,936       | .216  | .885 |
| intragroup           | 1643,993      | 121 | 13,587      |       |      |
| Total                | 1652,800      | 124 |             |       |      |
| **Total Academic**   |               |     |             |       |      |
| Focus                |               |     |             |       |      |
| intergroup           | 247,640       | 3   | 82,547      | 1,521 | .213 |
| intragroup           | 6567,608      | 121 | 54,278      |       |      |
| Total                | 6815,248      | 124 |             |       |      |

As shown at Table 3, teacher candidates’ focus of academic control according to grade level variable show no statistically significant difference in terms of external focus of control, internal focus of control and total score of focus of academic control was determined.

Teacher candidates’ focus of academic control in terms of graduated high school type variable One-Way Analysis of Variance are given in Table 4.

Table 4. Result of teacher candidates’ focus of academic control in terms of graduated high school type variable One-Way Analysis of Variance

| High school type          | Sum of Square | df  | Mean Square | F     | p    |
|---------------------------|---------------|-----|-------------|-------|------|
| **External Control**      |               |     |             |       |      |
| Focus                     |               |     |             |       |      |
| intergroup                | 277,729       | 3   | 90,910      | 2,114 | .102 |
| intragroup                | 5202,359      | 121 | 42,995      |       |      |
| Total                     | 5475,088      | 124 |             |       |      |
| **Internal Control**      |               |     |             |       |      |
| Focus                     |               |     |             |       |      |
| intergroup                | 16,246        | 3   | 5,415       | .400  | .753 |
| intragroup                | 1636,554      | 121 | 13,525      |       |      |
| Total                     | 1652,800      | 124 |             |       |      |
| **Total Academic**        |               |     |             |       |      |
| Focus                     |               |     |             |       |      |
| intergroup                | 202,142       | 3   | 67,381      | 1,233 | .301 |
| intragroup                | 6613,106      | 121 | 54,654      |       |      |
| Total                     | 6815,248      | 124 |             |       |      |
When Table 4 are examined, teacher candidates’ focus of academic control according to graduated high school type variable in terms of internal focus of control, external focus of control and academic focus of control total scores show no statistically significant difference was found.

3.3. The findings concerning sub-problem

Teacher candidates’ perception of self-efficacy and focus of academic control’s correlation analysis results are given in Table 5.

| Self Efficacy Level | N    | Internal Control Focus | External Control Focus | Academic Control Focus |
|---------------------|------|------------------------|------------------------|------------------------|
| Pearson Correlation (r) |      | -0.249**               | -0.189*                | -0.047                 |
| P                   |      | 0.005*                 | 0.035*                 | 0.606                  |

When Table 5 are examined, there is positive and significantly low level relation between teacher candidates’ self-efficacy perceptions and internal focus of control is shown ($r = -0.249$, $p < 0.05$). Considering coefficient of determination ($r^2 = 0.062$), 6 percent of teacher candidates self-efficacy perceptions caused by having internal focus of control can be said. There is negative low level relation between teacher candidates’ focus of academic control and perception of self-efficacy is shown ($r = -0.189$, $p < 0.05$). Considering the coefficient of determination ($r^2 = 0.035$), 3 percent of teacher candidates self-efficacy perceptions caused by having external focus of control can be said. In Table 3.5, there is no statistically significant relation between teacher candidates’ perception of self-efficacy scores and focus of academic control scores ($p = 0.606$).

4. Results and Discussion

According to gender variable, science teacher candidates’ perceptions of self-efficacy scores show no statistically significant difference was concluded. In a research which carried out by Saracaloğlu and Dinçer (2009), there is no significant difference between teacher candidates’ perceptions of self-efficacy and gender has been concluded. Similarly according to researches by Kahyaoğlu and Yangın (2007), Taşkin Can and the others (2005), also there is no significant difference between teacher candidates’ perceptions of self-efficacy and gender has been concluded. On the other hand, researches by Morgil and others (2004) and Çevik (2011), there is significant difference between teacher candidates’ perceptions of self-efficacy and gender has been concluded. This situation which is contradictory with the work at hand, can be said due to teacher candidates different profession.

Science teacher candidates’ perceptions of self-efficacy’s total scores show no statistically significant difference according to grade level variable was concluded. This conclusion is in line with results of the study by Kahyaoğlu and Yangın (2007). On the other hand, this conclusion has contradictions with study results by Çevik (2011) and Taşkin Can and others (2005). Contradictory of these research findings with results in hand may be due to be worked with different sample groups.

Science teacher candidates’ perceptions of self-efficacy’s total scores show no statistically significant difference according to graduated high school type variable was concluded. This result is in line with research which teacher candidates’ perceptions of self-efficacy in terms of various variables by Kahyaoğlu and Yangın (2007).

As result of research, teacher candidates’ focus of academic control have no diversion according to gender variable reached conclusion. Teacher candidates’ focus of academic control show significantly difference according to gender variable were examined and was concluded by Başol and Türköglu (2009). Similarly, in a study by Yalçın and others (2010), college students’ focus of academic control have no significant difference according to gender variable has been seen. However, in a study by Yağışan and others (2010), college students’ focus of academic
control have statistically significant difference according to gender variable was concluded. Contradictory of these research findings with results in hand may be due to be worked with different sample groups.

Another finding of research is teacher candidates’ focus of academic control is not change according to grade level variable. In study by Yaşgın and others (2007) different from in hand research findings grade level variable has effect on focus of academic control was concluded. Contradictory of these research findings with results in hand may be due to be worked with different sample groups.

As a result of the research teacher candidates’ focus of academic control is not change according to graduated high school type variable. According to this result, graduated high school type variable has no significant effect on teacher candidates’ focus of academic can be said. Also, when literature examined, there is no significant evidence has been found relationship between graduated high school type and teacher candidates’ focus of academic control.

There is no statistically significant relationship between science teacher candidates’ perceptions of self-efficacy total scores and focus of academic control total scores was concluded. In this case, science teacher candidates’ perceptions of self-efficacy and focus of academic control are two different structures that do not effect each other have been concluded.

References

Akin, A. (2007). Akademik kontrol odağı ölçüleri: Geçerlilik ve güvenirlik çalışması. Çukurova Üniversitesi Eğitim Fakültesi Dergisi, 3 (34).
Bandura, A. (1997). Self-efficacy: The exercise of control. New York.
Başol, G., Türcüoğlu, E. (2009). Smf öğretmeni adaylarının düşüncede stilleri ile kontrol odağı durumları arasındaki ilişki. Uluslararası İnsan Bilimleri Dergisi [Bağlanılta], 6:1, Erişim: http://www.insanbilimleri.com.
Çapa, Y., Çakırcağ, J. & Sunkaya, H. (2005). Öğretmenlik yetenekleri ölçüleri Türkçe uyarlamasının geçerlik ve güvenirlik çalışması. Eğitim ve Bilim, 30 (137), 74-81.
Çevik, B. D. (2011). Smf öğretmeni adaylarının müzik öğretimi önyetlerin düzeylerinin incelenmesi. Ahi Evran Üniversitesi Eğitim Fakültesi Dergisi, 12 (1), 145-168.
Dılmakoğlu, O. (2008). An examination of the visual art teacher candidate’s focus of control in terms of different variables. Atatürk Üniversitesi Güzel Sanatlar Enstitüsü Dergisi, 20.
Dönmez, A. (1986). Denetim odağı: Temel araştırma alanları. Ankara Üniversitesi Eğitim Bilimleri Dergisi, 19, 1-2, 259-283.
Goddard, R. D., Hoy, W. K., & Woolfolk-Hoy, A. W. (2004). Collective efficacy beliefs: Theoretical developments, empirical evidence, and future directions. Educational Researcher, 33 (3), 3-13.
Gürçan, A. (2005). Bilgsayar özerkliği algısı ile bilişsel öğrenme stratejileri arasındaki ilişki. Eğitim Araştırmaları, 19, 179-193.
Kahyaoglu, M., & Yangın, S. (2007). İlköğretim öğretmen adaylarının mesleki özerkliklerine ilişkin görüşleri. Kastamonu Eğitim Dergisi, 15 (1), 73-84.
Morgil, İ., Seçken, N. & Yücel, A. S. (2004). Kimya öğretmen adaylarının özerklik inançlarının bazı değişikler açısından incelenmesi. Balıkesir Üniversitesi. Fen Bilimleri Enstitüsü Dergisi, 6, 62-72.
Rotter, J.B. (1966). Generalized expectancies for internal versus external control of reinforcement. Psychological Monographs, 80, 1-28.
Rotter, J.B., Change, J.E. & Phares, E.J.(1972). Applications of social learning theory of personality. New York: Hold Rinehart and Winston, Inc.
Saracaloğlu, A. S. & Yenice, N. (2009). Investigating the self-efficacy beliefs of science and elementary teachers with respect to some variables. Journal Of Theory and Practice in Education, 5, 2, 244-260. http://eku.com.edu.tr/index/5/2/assaracoglu_yenice.pdf.
Saracoğlu, A. S. & Diner, B. (2009). A study on correlation between self-efficacy and academic motivation of prospective teachers. Procedia Social and Behavioral Sciences, 20, 320-325.
Taşkın Can, B., Cantürk, Günhan, B. & Öngel Erdal, S. (2005). Fen bilgisi öğretmen adaylarının fen derslerinde matematığın kullanımlına yönelik özerklik inançlarının incelenmesi. Pamukkale Üniversitesi Eğitim Fakültesi Dergisi, 17, 47-52.
Tschannen-Moran, M. & Woolfolk Hoy, A. (2001). Teacher efficacy: Capturing an elusive construct. Teaching and Teacher Education, 17, 783-805.
Yaşgın, N., Sınıbl, A. M. & Yücelan, Ö. B. (2007). Eğitim fakültesi, güzel sanatlar ve diğer bölüm öğretmenlerinin benlik imgesi ve denetim odaklarının karşılaştırmaları. Selçuk Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 1 (22), 243-262.
ylan, B., Tetik, S. & Açığözü, A. (2010). Yükselkoku öğretmenlerinin problem çözme becerisi algıları ile kontrol odağı düzeylerinin belirlenmesine yönelik bir araştırma. Organizasyon ve Yönetim Bilimleri Dergisi, 2,2.
Yeşilyaprak, B. (2005). Gelîşim ve Öğrenme Psikolojisi, 9. Basım, Ankara: Pegem Yayın niệmlik.
Wong-McDonald, A. & Gorsuch, R. L. (2004). A multivariate theory of god concept, religious motivation, locus of control, coping and spiritual well-being. Journal of Psychology and Theology, 32 (4), 318-334.
Zimmerman, B. J. (1995). Self-efficacy and educational development, In A. Bandura (Ed.), Self-efficacy in changing societies.(pp. 46-68). New York: Cambridge University Press.