

RUNNING HEAD: Social Support and Academic Locus of Control

## PERCEIVED SOCIAL SUPPORT AS PREDICTOR OF ACADEMIC LOCUS OF CONTROL

Seydi Ahmet SATICI\*, Recep UYSAL, and Ahmet AKIN\*\*

\*Anadolu University, sasatici@anadolu.edu.tr

\*\* Sakarya University, aakin@anadolu.edu.tr - TURKEY

### **Abstract**

*The purpose of this research is to examine the relationships between social support and academic locus of control. Participants were 306 university students in mid-size state university, Turkey. The Multidimensional Scale of Perceived Social Support and Academic Locus of Control Scale were used as measures. The relationships between social support and academic locus of control were examined using correlation analysis and multiple regression analysis. According to results internal academic locus of control was predicted positively by dimensions of social support. Further, external academic locus of control was predicted negatively by dimensions of social support. Results were discussed in the light of literature.*

**Keywords:** *social support; academic locus of control; multiple regression analysis*

### Introduction

The origins of the concept of social support can be found in well-known sociologists such as Durkheim's link between diminishing social ties and an increase in suicide. Social support has evolved from term "social ties" (Vaux & Harrison, 1985). Social support can be defined as "an exchange of resources between at least two individuals perceived by the provider or the recipient to be intended to enhance the well-being of the recipient" (Shumaker & Brownell, 1984, p. 13). Wills (1991) described social support as the perception or knowledge of life that an individual feels loved and cared for, and valued, and part of a social network of reciprocal assistance and obligations.

Social support can be occur in three forms: *Information support* involves an individual help which a person provides another to understand a problematic event better and to ascertain what resources and coping strategies may be needed to deal with it. *Instrumental support* involves the provision of tangible assistance such as services, financial assistance, and other specific aid or goods. *Emotional support* involves providing, contentment and nurturance to another individual and reassuring the person that he or she is a valuable person who is cared about (Taylor, et al., 2004, p.355).

Perceived social support is defined as the perception or experience that social support is available if someone liked to reach the support of another person (Sarason, et al., 1983) and as cognitive variable influencing interactions with other people (Lakey & Cassady, 1990). It has an important effect on physical and psychological well-being. Studies have indicated that better health and psychological well-being outcomes are positively related to social support (Sacco & Yanover, 2006; Williams, 1995). Research studying the relationship between academic achievement and perceived social support proved that parental social support, especially reassurance of worth, predicted college grand point average (Cutrano, et al., 1994). Similarly researches showed that family support, peer support, and gender academic achievement of students significantly (Yıldırım, 2006). Perceived social support is positively related to academic adjustment (Rueger, Malecki, & Demaray, 2010), school sense of community, self-efficacy, psychosocial well-being (Vieno, Santinello, Pastore, & Perkins, 2007) and negatively related to test anxiety (Yıldırım, Gençtanırım, Yalçın, & Baydan, 2008), school stress (Torsheim, Aaroe, & Wold, 2003). Also perceived family

and teacher support predicts hostility and destructive expression negatively in high school students (Çivitçi, 2011).

### *Academic Locus of Control*

The concept of the locus of control, an important subject of the researches that has its roots in Rotter's (1954) "Social Learning Theory" and is accepted as an expansion of the personality (Serin, Serin, & Şahin, 2010). Locus of control is related to expectancy about expected outcomes of events in a person's life, can be discussed as a personality trait that has a powerful cognitive focus (Lefcourt, 1991) and represents the extent to which individuals believe that they have in the amount of control over their lives (Rotter, 1966) and beliefs about the source of control over reinforcements. LOC can be described as "an expectancy about the extent to which reinforcements are under internal or external control" (O'Brien, 1986, p. 52).

Locus of control structure shows a distribution on dimensions of internal (influenced by inside forces) and external locus of control (influenced by outside forces such as chance or other people) (Akin, 2011). Rotter (1990, p. 489), defined internal and external locus of control as "the degree to which persons expect that a reinforcement or an outcome of their behavior is contingent on their own behavior or personal characteristics versus the degree to which persons expect that the reinforcement or outcome is a function of chance, luck or fate, is under the control of powerful others. Individuals with high internal locus of control believe that they can manage their own fate, outcomes are a consequence of own effort; they are confident and attentive in attempting to control their external environments, and have responsibility for the outcomes of their actions and their locus of control is internal to themselves (Burger, 1992; Esterhuysen & Stanz, 2004; Nh & Feldman, 2011). On the contrary, individuals with high external locus of control believe that events or consequences result from some factors out of individual's control like luck, more determined by external forces rather than by themselves and they have little things to do to influence outcomes and these outcomes are independent of their own behavior (Cetinkalp, 2010; Esterhuysen & Stanz, 2004; Iskender & Akin, 2010).

In an academic environment, locus of control means the way a student accounts for personal achievements and personal failures in school (Cetinkalp, 2010). Studies on academic achievement and locus of control indicated that individuals with internal locus of control have a higher academic achievement than the ones with external locus of control and internal locus of control has been found to be a positive predictor of academic achievement, external locus of control to be a negative predictor of academic achievement (Eachus & Cassidy, 1997; Findley & Cooper, 1983). Similarly, individuals with internal locus of control are proud of their achievements and they feel ashamed of their failure and the ones with external academic locus of control experience little emotional change in achievement or failure (Hans, 2000; Mearns, 2006). Also studies have shown that learning approach goals and learning avoidance goals were positive predictors of internal locus of control (Çetinkalp, 2010), and internal locus of control had a direct and positive relationship with the educational achievement of students (Ghasemzadeh & Saadat, 2011) and achievement motivation (Weiner & Kukla, 1970). Danils and Stevens (1976) found that internals performing better under the contract plan and externals performing better under the teacher controlled method. In addition Akin (2010), found that while external academic locus of control correlated positively with learning-avoidance, performance-approach/avoidance goals, internal academic locus of control correlated negatively with performance-approach/avoidance goal, and the internal academic locus of control was related positively to learning-approach/avoidance goals. On the other hand, internal academic locus of control was predicted positively by social self-efficacy and internet addiction was explained negatively by internal academic locus of control and positively by external academic locus of control (Iskender & Akin, 2010).

### *The Present Study*

The aim of the present study is to examine the relationships between perceived social support and academic locus of control. Based on the relationships of perceived social support (e.g., Cutrano, et al., 1994; Rueger, Malecki, & Demaray, 2010; Sacco & Yanover, 2006; Vieno, Santinello, Pastore, & Perkins, 2007; Williams, 1995; Yıldırım, 2006;) and locus of control (e.g., Akın, 2010; İskender & Akın, 2010; Çetinkalp, 2010; Eachus & Cassidy, 1997; Findley & Cooper, 1983; Hans, 2000; Mearns, 2006; Weiner & Kukla, 1970) with psychological constructs we hypothesized that perceived social support would be associated positively with internal academic locus of control and negatively with external academic locus of control.

## Method

### *Participants*

Participants were 306 (174 (57%) were female and 132 (43%) were male) university students from a medium size, public Turkish university. This university is located in the city of Sakarya and attracts students mainly locally, but also from across the Turkey. Students were recruited from eight different undergraduate programs: Primary school education ( $n= 52$ ), social science education ( $n= 48$ ), science education ( $n= 42$ ), computer and instructional technology education ( $n= 40$ ), psychological counseling and guidance ( $n= 39$ ), Turkish education ( $n= 34$ ), mathematics education ( $n= 25$ ), and pre-school education ( $n= 26$ ). Of the participants, 89 (29%) were freshman, 73 (24%) were sophomores, 71 (23%) were juniors, and 73 (24%) were seniors. Their ages ranged from 18 to 25 years old ( $M= 20.71$ ,  $SD= 1.36$ ).

### *Measures*

*Multidimensional Scale for Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988).* Social support was measured using Turkish version of the MSPSS (Eker, Arkar, & Yaldız, 2001). The MSPSS consists of 12 items on a 7-point Likert scale, from very strongly disagree (1) to very strongly agree (7). The students' self-reports also provided scores on three subscales, each subscale comprising four items: (a) family social support subscale, containing items such as "I can talk about my problems with my friends; (b) friends' support, consisting of items such as "I have friends with whom I can share my joys and sorrows; (c) the significant other's support, with items such as "There is a special person who is around when I am in need". The internal consistency coefficient of the adapted Turkish form was .85, .88, and .92 for three subscales, respectively. Scores for each of these scales range from 1 to 28, where a higher score expresses higher social support.

*The Academic Locus of Control Scale (ALOCS; Akın, 2007).* The ALOCS is a 17-item self-report scale using a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). This scale has two sub-scales: external academic locus of control (11 items) and internal academic locus of control (6 items). The Cronbach internal consistency coefficients were .95 for external academic locus of control and .94 for internal academic locus of control. Test-retest reliability was assessed by readministering the scale to 148 undergraduate students in 3 weeks time. The Pearson correlation coefficients were .93 and .97 for two sub-scales, respectively.

### *Procedure and Data Analysis*

Students voluntarily participated in research, completion of the scales was anonymous and there was a guarantee of confidentiality. The scales were administered to the students in groups in the classrooms. The measures were counterbalanced in administration. Prior to administration of scales, all participants were told about purposes of the study. Convenience sampling was used in selection of participants. Convenience sampling is a non-probability sampling technique in which participants are selected because of their convenient accessibility and proximity to the researcher (Bryman, 2004). For this reason, the results of this study did not make inference from population which let to decrease external validity.

In this research, Pearson correlation coefficient and multiple regression analysis were utilized to determine the relationships between dimensions of perceived social support and academic locus of control. Before applying regression, assumptions of multiple regression were checked. The data were examined for normality by the Kolmogorov-Smirnov test. The

Kolmogorov-Smirnov test indicated normality of distributions of test scores for all tests in the current study. Outliers are cases that have data values that are very different from the data values for the majority of cases in the data set. Outliers were investigated using Mahalanobis distance. A case is outlier if the probability associated with its  $D^2$  is .001 or less (Tabachnick & Fidell, 2001). Based on this criterion, seven data were labeled as outliers and they were deleted. Multi-collinearity was checked by the variance inflation factors (VIF). All the VIF values were less than 10 (Tabachnick & Fidell, 2001), which indicated that there was no multi-collinearity.

## Results

### *Descriptive Data and Inter-correlations*

Table 1 shows the means, standard deviations, inter-correlations, and internal consistency coefficients of the variables used. Preliminary correlation analysis showed that family ( $r = .34$ ,  $p < .01$ ), friends ( $r = .38$ ,  $p < .01$ ), and significant other ( $r = .35$ ,  $p < .01$ ) related positively to internal ALOC. In contrary, while family ( $r = -.36$ ,  $p < .01$ ) and friends ( $r = -.33$ ,  $p < .01$ ), and significant other ( $r = -.39$ ,  $p < .01$ ) were found negatively associated with external ALOC.

Table 1

#### *Descriptive statistics and inter-correlations of the variables*

Variables	Internal ALOC	External ALOC	Family	Friends	Significant other
Internal ALOC	—				
External ALOC	-.33**	—			
Family	.34**	-.36**	—		
Friends	.38**	-.33**	.51**	—	
Significant other	.35**	-.39**	.30**	.29**	—
Mean	3,37	3,18	1,87	2,36	2,90
Standard deviation	,81	,70	1,02	,94	,77

\*\* $p < .01$

### *Multiple Regression Analysis*

Two stepwise multiple regression analysis have applied to determine which dimensions of social support were the best predictors of internal and external academic locus of control. Table 2 showed the results of multiple regression analysis where the independent variables were dimensions of social support and the dependent variable was internal ALOC.

Table 2

#### *Summary of Stepwise Multiple Regression Analysis for Variable Predicting Internal ALOC*

Variables	B	Standard Error of B	$\beta$	$t$
<b>Step 1</b>				
Family	.247	.034	.381	7.18*
<b>Step 2</b>				
Family	.198	.035	.305	5.71*
Friends	.114	.023	.266	4.99*
<b>Step 3</b>				
Family	.152	.039	.234	3.92*
Friends	.103	.023	.24	4.47*
Significant other	.097	.038	.152	2.53*

Family entered the equation first, accounting for 14% of the variance in predicting internal ALOC. Friends entered on the second step accounting for an additional 6% variance. The last regression models involved family, friends, and significant other as predictors of internal ALOC and accounted for 23% of the variance in internal ALOC. The standardized beta coefficients indicated the relative influence of the variables in last model with family ( $\beta = .23$ ,  $p < .05$ ), friends

( $\beta = .24$ ,  $p < .05$ ), and significant other ( $\beta = .15$ ,  $p < .05$ ) all significantly influencing internal ALOC and family was strongest predictor of internal ALOC.

Table 3 showed the results of multiple regression analysis where the independent variables were dimensions of social support and the dependent variable was external ALOC.

Table 3

*Summary of Stepwise Multiple Regression Analysis for Variable Predicting External ALOC*

Variables	B	Standard Error of B	$\beta$	<i>t</i>
<b>Step 1</b>				
Significant other	-.29	.039	-.39	-7.39*
<b>Step 2</b>				
Significant other	-.23	.04	-.31	-5.81*
Family	-.29	.06	-.26	-4.94*
<b>Step 3</b>				
Significant other	-.21	.04	-.29	-5.4*
Family	-.22	.067	-.197	-3.29*
Friends	-.16	.067	-.142	-2.38*

Significant other entered the equation first, accounting for 15 % of the variance in predicting external ALOC. Family entered on the second step accounting for an additional 6 % variance. The last regression models involved significant other, family, and friends as predictors of external ALOC and accounted for 23 % of the variance in external ALOC. The standardized beta coefficients indicated the relative influence of the variables in last model with significant other ( $\beta = -.29$ ,  $p < .05$ ), family ( $\beta = -.19$ ,  $p < .05$ ), and friends ( $\beta = -.14$ ,  $p < .05$ ) all significantly influencing positive math attitudes and significant other was strongest predictor of external ALOC.

### Discussion

This study investigates the relationships between academic locus of control and perceived social support. It was supposed that perceived social support would be associated positively with internal academic locus of control and negatively with external academic locus of control. The results of correlation and regression analysis confirm these hypotheses and the importance of perceived social support, specifically perceived social support from family and peers for better understanding of academic locus of control.

In addition, some details of the results should be further addressed. Firstly, the positive correlation between the perceived social support and the internal academic locus of control is in line with existing studies on perceived social support and the internal academic locus of control (Akin, 2010; Iskender & Akin, 2010; Lefcourt, Rod, & Saleh, 1984; Krause, 1987). Noteworthy finding of the study, the perceived family support predicts internal locus of control more positively than friend predict positively. Other social support sources also predicted positively. This finding proves that people who have more perceived social support would tend to have stronger feelings of personal control. Findings of the previous studies (Ghaith, 2002; Johnson & Johnson, 1994; Rueger, Malecki, & Demaray, 2010; Vieno, Santinello, Pastore, & Perkins, 2007; Yildirim, 2006) have traditionally indicated that perceived social support is related positively with adaptive variables in terms of psychology and education. Social support is one of the most important aspects of classroom climate that may influence learners' academic achievement, physical and psychological health (Ghaith, 2002). This result is also consistent with early studies which reported that students with an internal academic locus of control tend to be more effective in interpersonal relations (Rotter, 1966) and experience less painful relationships with teachers (Bryant, 1972). In addition researches reported that family support and internal locus of control for school successes came closest to demonstrating a generalized pattern of positive effects (Cauce, Hannan, & Sergeant, 1992).

Secondly, the negative correlation between the perceived social support and the external academic locus of control supports the hypothesis of the study and demonstrates that people who experience weaker perceived social support would tend to be external and under the control of powerful others. Students with an external locus of control will need more encouragement and guidance from the instructor (Bargezar, 2011). Also this finding is consistent with is similar to that of Sarason et al., (1983) who, found that college students with low perceived social support and an external locus of control performed most poorly on an insoluble problem. In addition external locus of control are related to some maladaptive psychological and educational variables such as college absenteeism (Trice & Hackburt, 1989), learning-avoidance, performance-approach/avoidance goals (Akin, 2010) and internet addiction (Iskender & Akin, 2010).

This study has a number of limitations. First of all, the sample presented here is limited to university students. For that reason, it is questionable whether the findings can be generalized to different age groups. Secondly, this research was limited by the use of self-report scales and did not use a qualitative measure of perceived social support and academic locus of control. Lastly, as correlational statistics were utilized, no definitive statements can be made about causality. It is clear that there is a need for more studies about these constructs.

Consequently, despite the limitations this study provides important information about the predictors of academic locus of control. The variables which examined in this study precisely accounted for the motivational process that triggers student's academic locus of control. Finally, this study suggests that mental health professionals may be state social support improvement programs to help at university students to tend to be more internal and decrease to tend to be more external to have better academic achievement and well-being.

#### References

- 1.Akin, A. (2007). Academic locus of control scale: A study of validity and reliability. *Çukurova University Journal of Educational Faculty*, 34(3), 9–17.
- 2.Akin, A. (2010). Achievement goals and academic locus of control: A structural equation modeling approach. *Eurasian Journal of Educational Research*, 38, 1–18.
- 3.Bergrzar, M. (2011). The Relationship between Learning Style, locus of control and academic Achievement in Iranian students
- 4.Bryant, B. K. (1972). Student-teacher relationships as related to internal-external locus of control. *Dissertation Abstract International*, 32(B), 45-84.
- 5.Bryman, A. (2004). *Social research methods*. Oxford: Oxford University Press.
- 6.Burger, J. M. (1992). *Desire for control. Personality, social, and clinical perspectives*. New York: Plenum Press.
- 7.Cauce, A. M., Hannan, K. & Sergeant, M. (1992). Life stress, social support, and locus of control during early adolescence: Interactive effects. *American Journal of Community Psychology*, 20(6), 787-798.
- 8.Çetinkalp, Z. K. (2010). The relationship between academic locus of control and achievement goals among physical education teaching program students. *World Applied Sciences Journal*, 10(11), 1387-1391.
- 9.Çivitçi, N. (2011). School alienation and perceived social support as predictors of school anger in high school students. *Elementary Education Online*, 10(3), 861-871.
10. Cutrona, C. E., Cole, V., Colangelo, N., Assouline, S. G., & Russell, D. W. (1994). Perceived parental social support and academic achievement: An attachment theory perspective. *Journal of Personality and Social Psychology*, 66(2), 369-378.
11. Daniels, R. L., & Stevens, V. P. (1976). The interaction between the in-ternal-external locus of control and two methods of college instruction. *American Educational Research Journal*, 13, 103-113.
12. Eachus, P. & Cassidy, S (1997). Self-efficacy, locus of control and styles of learning as contributing factors in the academic performance of student health professionals. Proceedings of

First Regional Congress of Psychology for Professionals in the Americas - Interfacing the Science and Practice of Psychology, July 27-August 2, 1997, Mexico City, Mexico.

13. Eker, D., Arkar, H., & Yaldız, H. (2001). Factorial structure, validity, and reliability of revised form of the Multidimensional Scale of Perceived Social Support. *Turkish Journal of Psychiatry, 12*(1), 17-25.
14. Esterhuysen, S. & Stanz, K. J. (2004). Locus of control and online learning. *SA Journal of Industrial Psychology, 30*(1), 63-71.
15. Findley, M., & Cooper, H. M. (1983). The relation between locus of control and achievement. *Journal of Personality and Social Psychology, 44*, 419–427.
16. Ghait, G. M. (2002). The relationship between cooperative learning, perception of social support, and academic achievement. *System, 30*, 263–273
17. Ghasemzadeh, A. & Saadat, M. (2011). Locus of control in Iranian university Student and its relationship with academic achievement. *Procedia - Social and Behavioral Sciences, 30*, 2491–2496.
18. Hans, T. (2000). A meta-analysis of the effects of adventure programming on locus of control. *Journal of Contemporary Psychotherapy, 30*(1), 33–60.
19. Iskender, M., & Akin, A. (2010). Social self-efficacy, academic locus of control, and internet addiction. *Computers and Education, 544*, 1101–1106.
20. Johnson, D. W. & Johnson, F. P. (1994). *Joining together: Group theory and group skills*. (5th ed.), Boston, MA: Allyn and Bacon.
21. Lakey, B., & Cassady, P. (1990). Cognitive processes in perceived social support. *Journal of Personality and Social Psychology, 59*, 337-343.
22. Lefcourt, H. M. (1991). Locus of control. In J. P. Robinson, P. R. Shaver, & L. S. Wrights man (Eds.), *Measures of personality and social psychological attitudes* (p. 413–499). San Diego: Academic Press.
23. Lefcourt, H. M., Martin, R, A. & Saleh, W, E. (1984). Locus of control and social support: Interactive moderators of stress. *Journal of Personality and Social Psychology, 47*(2), 357-369.
24. Mearns, J. (2006). *The social learning theory of Julian Rotter*. In D. P. Crowne (Ed.), *Personality theory*. New York: Oxford University Press.
25. Ng, T. W. H. & Feldman, D. C. (2011). Locus of control and organizational embeddedness. *Journal of Occupational and Organizational Psychology, 84*, 173-190.
26. O'Brien, G. E. (1986). *Psychology of work and unemployment*. New York: John Wiley & Sons.
27. Rotter, J. B. (1954). *Social learning and clinical psychology*. Englewood Cliffs, NJ: Prentice-Hall.
28. Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs, 80*, 1–28.
29. Rotter, J. B.(1990). Internal versus external control of reinforcement: A case history of a variable. *American Psychologist, 45*, 489-493.
30. Rueger, S. Y., Malecki, C. K., & Demaray, M. K. (2010). Relationship between multiple sources of perceived social support and psychological and academic adjustment in early adolescence: Comparisons across gender. *Journal of Youth and Adolescence, 39*, 47–61.
31. Sacco W. P. & Yanover T., (2006). Diabetes and depression: the role of social support and medical symptoms. *Journal of Behavioral Medicine, 29*, 550-552.
32. Sarason I. G., Levine, H. M., Basham, R. B., & Sarason, B. R. (1983). Assessing social support: Social support Questionnaire. *Journal of Personality and Social Psychology, 44*, 127-139.
33. Serin, O., Serin, N., & Şahin, S. (2010). Factors affecting the learning and studying strategies, and locus of control of the trainee teachers. *Procedia-Social and Behavioral Sciences, 1*(1), 1127-1136
34. Shumaker, S. A. & Brownell, A. (1984). Toward a theory of social support: Closing conceptual gaps. *Journal of Social Issues, 40*, 11-36.

35. Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics*. Boston: Allyn and Bacon.
36. Taylor, S. E., Sherman, D. K., Kim, H. S., Jarcho, J., Takagi, K. & Dunagan, M. S. (2004) Culture and social support: Who seeks it and why? *Journal of Personality and Social Psychology*, 87(3), 354–362.
37. Torsheim, T., Aaroe, L. E., & Wold, B. (2003). School-related stress, social support, and distress: Prospective analysis of reciprocal and multilevel relationships. *Scandinavian Journal of Psychology*, 44, 153–159.
38. Trice, A., & Hackburt, L. (1989). Academic locus of control, type A behavior, and college absenteeism. *Psychological Reports*, 65, 337-338.
39. Vaux, A., & Harrison, D. (1985). Support network characteristics associated with support satisfaction and perceived support. *American Journal of Community Psychology*, 13(3), 245–268.
40. Vieno, A., Santinello, M., Pastore, M., & Perkins, D. D. (2007). Social support, sense of community in school, and self-efficacy as resources during early adolescence: An integrative model. *American Journal of Community Psychology*, 39, 177-190.
41. Weiner, B., & Kukla, A. (1970). An attributional analysis of achievement motivation. *Journal of Personality and Social Psychology*, 15, 1-20.
42. Williams, (1995). Applying recent findings to clinical care in type II diabetes. *Pharmacoeconomics*, 8(1), 80-4
43. Wills, T. A. (1991). *Social support and interpersonal relationships*. In M. S. Clark (Ed.), *Review of personality and social psychology* (Vol. 12, pp. 265–289). Thousand Oaks, CA: Sage.
44. Yıldırım, İ. (2006). Daily hassles and social support as predictors of academic success. *Hacettepe University Journal of Education*, 30, 258-267.
45. Yıldırım, İ., Gençtanırım, D., Yalçın, İ., & Baydan, Y. (2008). Academic success, perfectionism and social support as predictors of test anxiety. *Hacettepe University Journal of Education*, 34, 287-296.
46. Zimet, G. D., Dahlem, N. W., Zimet, S. G., & Farley, G. K. (1988). The Multidimensional Scale of Perceived Social Support. *Journal of Personality Assessment*, 52, 30-41.

---

**Article received: 2013-02-28**