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**ASSESSMENT AND STRESS IN STUDENTS MAJORING IN  
AGRICULTURE-RELATED FIELDS**

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**Abstract**

This paper is based on the responses from the undergraduate students at Faculty of Agriculture (Banat University of Agricultural Sciences and Veterinary Medicine, Romania). This research investigated the level of stress associated with assessment during winter examination session. Relationships between I-E Locus of Control and level of stress, were explored. Four demographic variable were used Age, Environment, Gender, Year of Study. A total of 83 students participated voluntary in this research, asking them to accept to be part of an interventional program "Stress Management", if the level of stress is high. Database were obtained through two questionnaire: Rotter's Locus of Control Scale (29 items) and Cohen-Williamson's Perceived Stress Scale (14 items). The results, sustain that there is a statistically significant correlation between level of stress and I-E Locus of Control, but contrary to study in the field, the level of stress during assessment, was low to medium. This results was an obstacle in implementing a training program for stress management. The research present correlation between each of four demographic variable, and level of stress, and I-E Locus of Control.

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**Keywords:** Undergraduates; assessment; stress; examination session; Faculty of Agriculture.

## 1. Introduction

Approaching psychological issues of examining and assessing school results, started in Romania in 1975 with D. Vrabie's book "Students' attitude towards school evaluation". Since then, the issues have diversified and have become more complex, which generated a different, more specialized approach. The issues regard not only the contents, but also the system level; thus, if initially they studied the



consequences of evaluating at secondary level, the last years have seen an increasing interest in tertiary education as well.

Because of the changes in the academic environment, students' stress can affect health and academic performance (Hamaideh, 2011). The last years have seen an increasing number of students (Lane, 2010), and students' stress extends at larger scale: it has become a phenomenon that needs to be managed by universities through specialised departments. Stress responses cover a wide range such as affective, behavioural, psychological and cognitive responses (Lakaev, 2009), physical and emotional reactions, and cognitive evaluations (Gadzella, 1994).

Locus of control represents both a belief and a personality trait that influences the way in which individuals plan activities and approach situations (Rotter, 1966, in Erdogan, 2003). In an educational context, locus of control marks students' learning difficulties and attitude change (Sardogan *et al.*, 2006). Students with inner locus of control believe power and control lie in their hands since they control and influence the course of events in their lives. They have a positive self-concept and they believe they can direct their life's route as they wish (Findley and Cooper, 1983). Students with outer locus of control believe outer forces control everything in a positive or negative way. They believe that events and situations cannot be controlled or predicted (Findley and Cooper, 1983).

### **1.1. Problem Statement**

Evaluating students is an important step in the educational process since it plays a role in both identifying the level of knowledge acquisition and in adapting curricula to the demands of the labour market. As for students' behaviour during examination sessions, there are students who believe they can face evaluation and control evaluation-engendered stress and students that hope to be lucky enough to come across an easy subject or to meet an indulgent teacher.

Evaluation-related stress in students is still an issue since it affects the way in which they approach evaluation, performances and, finally yet importantly, health. Participating in stress management programmes can be a real support in the development of abilities that help them face examination periods and other stressful situations successfully.

Locus of control is extremely important as far as the students' belief that they can influence school results is concerned. Locus of control is a system of stable beliefs that divide individuals in two groups: inner locus of control (who believe that their actions and behaviour are decisive in the management of situations they have to face) and outer locus of control (who believe that chance, luck or relationships can help them solve their problems) (Rotter *et al.*, 1972, in Henderson, 1982). Evaluating locus of control has a major influence not only on the behaviour of individuals, but also on their performances, acting like a reason (Phares, 1976, in Henderson, 1982). To note that both locus of control and stress influence the performances of the individuals, evaluation providing the opportunity to develop a more complex image on evaluation, academic performance and different factors. Though Dumas' study (2014) focuses on aggressors, there are significant positive correlations between the inner locus of control, self-esteem, Agreeableness, Consciousness and Openness – traits evaluated through the Big Five questionnaire.

The issue of students' stress is a current one because of the diversity of the different aggressors, of the different coping strategies and, last but not least, of the stage in the educational process. Since the

prevalence of stress is rather high among the students, research in the field recommend particular attention to the subject. They recommend longitudinal studies for the evaluation of the most effective techniques of intervention (Benton *et al.*, 2003; Robotham and Julian, 2006; Hystad *et al.*, 2009).

Students' stress is related to very many events, not just to exams. On the background of their problems with their families, colleagues or teachers, problems related to absenteeism, health, money or life in general, students could become more vulnerable because the way they perceive examinations is much changed. By developing programmes to help the students understand the role of locus control in their lives, they learn to better manage behaviours and beliefs. Academic evaluation can be "turned" from event into a situation in which everybody can demonstrate the amount of knowledge acquired and how well he or she can apply them.

## **1.2. Research Questions**

1. Do examination periods generate a higher stress level in students?
2. Is there a correlation between locus of control (evaluated with Rotter's Locus of Control Scale) and stress level (evaluated with the Cohen and Williamson's Scale)?
3. Are there gender differences in the students' stress levels?
4. Are there significant gender differences in the locus of control?

## **1.3. Purpose of the Study**

The goal of this paper is to establish the stress level of the students of the Faculty of Agriculture (Banat's University of Agricultural Science and Veterinary Medicine "King Michael I of Romania" from Timisoara, Romania) who agreed to participate in the study during their examination sessions, to identify locus of control and to intervene, in the students with an outer locus of control and with a high stress level, with a stress management and locus of control change programme to prevent negative effects. Stress is often the same in all students; what differs is interpretation.

The first objective of the research was to identify possible relationship between stress level and locus of control in students. The second objective was to see if there are gender differences in stress level and locus of control in the student respondents.

## **2. Research Methods**

### **2.1. Description of the Research Sample**

The research sample consisted in 83 students of four different years from the Faculty of Agriculture of the Banat's University of Agricultural Science and Veterinary Medicine "King Michael I of Romania" from Timisoara, Romania; standard deviation was 1.028. The students major in "Land Measurements and Cadastre" and "Agriculture". There were 48.20% female students (40 subjects) and 51.80% male students (43 subjects); standard deviation was .503. Respondents' age ranged between 21 and 34 years, with a mean age of 22.99 years and a standard deviation of 4.982. Depending on the environment, 66.20% of the subjects (55 students) came from the urban area and 33.80% of the subjects (28 students) came from the rural area, with a standard error of .475. All respondents were Caucasian.

Research was carried out during the fall examination period of the academic year 2015-2016. The sampling method was pseudo-random depending on the availability of the teachers examining the students.

## **2.2. Description of the Research Instruments**

The research instruments used in the study were the Locus of Control Scale (designed by Rotter in 1966) and the Perceived Stress Scale (designed by Cohen and Williamson in 1988). The participants received a set of questionnaires that they filled in by hand.

### **2.2.1. Rotter's Locus of Control Scale (1966)**

Rotter (1966) defined locus of control in the Theory of Social Learning as enforcements, as basic markers of long-term attitude in individuals. Locus of control is a vital concept in literature from the perspective of helping and supporting students with learning and attitude difficulties. The concept of "locus of control" also refers to and manages the situation according to which individuals analyse events in their lives as a consequence of their actions or attitudes or as a result of chance, fate or exterior forces (Erdogan, 2003).

Rotter's Locus of Control Scale was used to operationalise the concept of control. It contains 29 items with two response variants (a and b). Of the 29 items, six regard distraction of attention (a "filling" item that gets no score). The 23 items taken into account for the evaluation of the locus of control force the respondents (through the two response variants) choose between statements with inner or outer control direction. From the point of view of fidelity coefficient, item correlation varies between .004 and .521, depending on the item and on the gender of the respondents. Test-retest fidelity varies between .49 and .83, and inner consistency varies between .65 and .79, depending on the subjects' gender and on the sample (Rotter, 1966, in Goyzman, 2010). High scores point to outer locus of control and low scores to inner locus of control.

### **2.2.2. Cohen and Williamson's Perceived Stress Scale (1988)**

The Perceived Stress Scale translated and is a self-administered psychological instrument designed to measure stress perception in individuals' lives. It contains 14 items and it uses the five-stage (from A = Never to E = Often) Likert Scale to analyse responses. The inner consistency of the scale is .82 (Lourel, Gana and Wawrzyniak, 2005, in Preda, 2010). The scale is used to evaluate the stress level of individuals aged 20+. According to the questionnaire suggestions, scores below 25 point to a low stress level and scores above 50 point to a high stress level.

### **2.3. Description of Research Methods**

In this research, we used descriptive statistics such as Pearson coefficient and correlation coefficient to identify the power and direction of the two variables, and simple regression to find out the effect of predictors on the two scales applied to the sample. We also used the t Test for pair samples to evaluate the statistic relevance of the differences between the means of the score sets.

## **3. Findings**

Research question 1: "Do examination periods generate a higher stress level in students?"

In this respect, we carried out a descriptive analysis to calculate scores on the Perceived Stress Scale (Cohen and Williamson). The maximum score that can be obtained is 70 and the minimum is 14. No student responded between the interval 50-70 corresponding to a high stress level. The score range varied between 18 (a low stress level) and 49 (a medium stress level). Most respondents (89.15%) ranged within the medium stress level, with a maximum concentration within the interval 31-40 (53.01% of the respondents); 10.84% of the subjects ranged within the low stress level range.

These results contradict the results of other authors who claim a high stress level during examinations, in general (Wilkinson, 1975; Robu, 2011; Mihăilescu *et al.*, 2011) and during examinations in technical universities, in particular (Balgiu, 2014).

Research question 2: "Is there a correlation between locus of control (evaluated with Rotter's Locus of Control Scale) and stress level (evaluated with the Cohen and Williamson's Perceived Stress Scale)?"

As for dividing the students depending on the type of control (inner – I or outer – O) as a result of the Locus of control Scale, 19.27% (16 subjects) got a score as outer, 54.21% (45 subjects) got a score as inner, and 26.5% (22 subjects) got neutral (medium) scores. These results support, on the one hand, the low scores on the Perceived Stress Scale (Cohen and Williamson); however, a percentage of about 20.00% subjects that have outer locus of control contradict literature (Coşa, 2015) or can be explained by the self-protection generated by defensive externality (Băban, 2005).

Students with inner locus of control and that choose to become teachers have a rational way of making decisions (Wilson, 1982), which can explain the low scores in stress level during examinations; at the same time, it can reflect a good management of the examination period, part of the respondents enrolling for the Level I of the psychological and pedagogical training programme.

We then used descriptive statistics obtaining a statistically significant positive correlation of .258 ( $p < 0.05$ ) between total score on Perceived Stress Scale and total score on Locus of control Scale. Thus,

students with high scores on the Perceived Stress Scale (Cohen and Williamson) get higher scores also on the Locus of control Scale (they have an outer locus of control).

The results of the study are also confirmed by Coşa (2015: 325) who claims, “Stress comes from the feeling of the lack of control and it leads to lack of control”. Results belong to the research trend in the field, but there are also studies that in where there is no relation between locus of control and stress level thus supporting the idea that, in an educational context, locus of control can be a stress moderator (Soh, 1986). Item 10 of the Perceived Stress Scale (Cohen and Williamson), “Did you have the feeling you were in control?” reflects the link between stress and lack of control identifying a positive. Statistically significant correlation of .716 ( $p < 0.01$ ) between this item and the total score on the Perceived Stress Scale (Cohen and Williamson) and a statistically significant correlation of .264 ( $p < 0.05$ ) between this item and the total score on the Locus of control Scale. Thus, students that feel they are not in control have higher scores on the stress evaluating scale.

Analysing the results, we see a positive, statistically significant correlation of .627 ( $p < 0.01$ ) between Item 5 of the Perceived Stress Scale (Cohen and Williamson), “Did you feel you could face efficiently important changes in your life?” and the total score on the scale. They thus underline the stress generated by changes in individuals’ lives. A student’s life, with all its responsibilities, generate changes and stress in the students’ current activities (Ahmed, Riaz and Ramzan, 2013; Agolla and Ongori, 2009) and also physiological changes of sleeping hours (Donatelle, 2013; Hystad *et al.*, 2009; Kobasa, 1979) and of memory (Schwabe, Wolf and Oitz, 2009).

Item 14, “Did you feel that there are so many difficulties that you cannot control any longer?” of the Perceived Stress Scale (Cohen and Williamson) with a correlation of .606 ( $p < 0.01$ ), focuses on the same aspect of the relation between lack of control and stress.

Research question 3: “Are there gender differences in the students’ stress levels?”

We ran a t-test for the Perceived Stress Scale (Cohen and Williamson). Only in two items we identified significant differences depending on the gender of the respondents: Item 10, “Did you feel you controlled the situation?”, as shown in Table 1, and Item 11, “Did you feel irritated by the events that were not under your control?”, as seen in Table 2.

**Table 1.** Results of the t-test for Item 10 on the Perceived Stress Scale (Cohen and Williamson)

Gender	N	$\bar{X}$	S	t	P
Male students	43	1.83	0.72	-2.01	0.047
Female students	40	2.20	0.91		

Results in table 1 show that the mean score of female students is higher than the mean score of male students. It means that, a month before the questionnaire was applied, female students were less in control than male students.

**Table 2.** Results of the t-test for Item 11 on the Perceived Stress Scale (Cohen and Williamson)

Gender	N	$\bar{X}$	S	t	P
Male students	43	3.04	0.89	-2.41	0.018
Female students	40	3.52	0.90		

Results obtained and presented in table 2 also show that the mean score of female students is higher than the mean score of male students and that female students felt more irritated by the events they could not control than male students.

Results are supported by Farooqi, Ghani and Spielberger (2012), who concluded that female students are more stressed than male students during examinations.

Regression results support the idea that the Perceived Stress Scale (Cohen and Williamson) is predicted by years of study, gender and environment at a 0.037 level, as seen in Table 3. Data indicate that these predictors have a significant effect on this scale. The single variables have not significant effect on CW although we have significant effect overall. Gender effect is 0.184, Environment effect is 0,008 and years of study effect -0,023. Gender has more effect than other independent variables. Additionally, years of study has negative effect on CW even if is not significant.

**Table 3.** Regression analysis of the Perceived Stress Scale (Cohen and Williamson) in terms of gender, year of study and environment

R	Rsquare	D-W	F	B	t	P
.193	.037	1.88	1.021	2.133	9.913	0.000

Research question 4: “Are there significant gender differences in the locus of control?”

We applied the t-test for Rotter’s Locus of Control Scale; it was only in Item 20 “a. It is difficult to know if somebody really likes you or not; b. The number of friends depends on how kind you are”, that we identified a significant difference in the respondents’ gender. Results are presented in Table 4.

**Table 4.** Results of the t-test for Item 20 on the Rotter’s Locus of Control Scale

Gender	N	$\bar{X}$	S	t	p
Male students	43	0.65	0.48	-2.43	0.017
Female students	40	0.87	0.33		

The response to this item is not conclusive for locus of control given that female students are more concerned with being liked than male students. Taking into account the rest of data on this scale, we can say there are no significant differences in subject gender from the perspective of locus of control.

Results of regression calculus pointed out that Rotter’s Locus of Control Scale is predicted by years of study, gender and environment at 0.010 level, as seen in table 5.

**Table 5.** Regression analysis of Rotter’s Locus of Control Scale in terms of gender, year of study and environment

R	Rsquare	D-W	F	B	T	P
.098	.010	1.75	0.258	10.711	7.539	0.000

Data indicate that these predictors have significant on CW. Gender has more effect than other independent variables. Gender effect is 0.48. Environment effect is -0.013. Years of study effect is -0,197. Environment and years of study effect are negative on LOC even if it is not significant.

#### 4. Conclusions

Being a student is a stage in an individual's life when he/she acquires theoretical knowledge and practical skills related to his/her future profession and a lot of experience in stress management, social relationships (with colleagues, teachers) and career. Depending on one's personality, students adapt, plan and learn differently. Evaluating students supposes, first, making students aware about how much they know, how well they have understood and how far or close they are to their goals. Evaluation affects not only students but also teachers who have the opportunity to realise how effective teaching was.

Though literature claims that, during examinations, students are more vulnerable emotionally (they have a higher stress level), the results of our study show that, in the case of our respondents, stress level is medium, normal for individuals undergoing activities that need attention, memory, etc. Analysing data pointed out that there is a positive correlation between locus of control and stress level. This needs to be taken into account by teachers and counsellors of universities if they wish to help students have inner control and manage stress better, with fewer negative consequences on both health and performance.

There are no significant gender differences in stress level and locus of control. The t-test analysis identified that female students felt more irritated and less in control than male students a month after they filled in the scales, with differences only in two items of the Perceived Stress Scale.

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