7th international scientific conference
RURAL DEVELOPMENT 2015
Towards the Transfer of Knowledge, Innovations and Social Progress
19-20 November, 2015, Aleksandras Stulginskis University, Lithuania

Proceedings of the 7th International Scientific Conference Rural Development 2015

Edited by prof. Asta Raupelienė

ISSN 1822-3230 / eISSN 2345-0916
eISBN 978-609-449-092-7

Article DOI: http://doi.org/10.15544/RD.2015.094

EXTRINSIC REGULATION VS. INTRINSIC MOTIVATION AS PREDICTORS OF PROFESSIONAL CHOICE SATISFACTION IN AGRICULTURE STUDY PROGRAMS

Kristina KOVALČIKIENĖ, Centre for Cultural Communication and Education, Department of Philosophy, Psychology and Vocational Education., Aleksandras Stulginskis University, Universiteto g. 10, Akademija LT–53361, Kauno raj., Lithuania.
kristina.kovalcikiene@asu.lt

The aim of this study was to investigate the predictive power of different types of academic motivation (especially, extrinsic vs. intrinsic) for students' satisfaction with their professional choice. The study was conducted at Aleksandras Stulginskis University in Lithuania. 175 first-year students from agriculture study programs completed the Academic Motivation Scale and evaluated their satisfaction with professional choice in a 10-point scale. The results of hierarchical regression analysis revealed that intrinsic motivation has a significant predictive value for professional choice satisfaction of males and females. The results indicated that material external regulation negatively in males sample and social external regulation positively in females' sample predict higher satisfaction with professional choice. In addition, amotivation is associated with lower satisfaction with professional choice in both cases. Some implications and recommendations for educators regarding dual enrollment programs, Facebook opportunities, and individualized approach are discussed.

Keywords: agriculture study programs, motivation, professional choice satisfaction, students.

INTRODUCTION

Intrinsic and extrinsic types of motivation have been widely studied, and the distinction between them has shed important light on educational practices (Ryan and Deci, 2000). One theory that has gained widespread recognition and received increasing crosscultural support in various life domains is Self-Determination Theory (SDT; Deci and Ryan, 1985, 2000; Ryan and Deci, 2000). SDT offers a multidimensional conceptualization of motivation and specifies different types of motivation. Three main categories of motivation are intrinsic motivation, extrinsic motivation and amotivation. *Amotivation* is defined as the absence of motivation towards an activity. *Intrinsic motivation* refers to doing something because it is inherently interesting or enjoyable for its own sake. *Extrinsic motivation* refers to doing something because it leads to a separable outcome or to engaging in the activity for instrumental reasons. Because of diversity of instrumental reasons, SDT specifies different subtypes of extrinsic motivation – external regulation, introjected regulation, identified regulation, and often integrated regulation. *External regulation* refers to doing an activity in order to obtain rewards or avoid punishments. With regard to recent works in this field (Gagne et al., 2015), external regulation can be *social* (expectations of approval or respect from significant others) or *material* (expectations of financial reward). *Introjected regulation* refers to the regulation of behaviour out of internally pressuring forces, such as ego-involvement, shame, and guilt. *Identified regulation* refers to doing an activity because one identifies with its value or meaning and accepts it as one's own, such that this form of internalization is volitional. Identification differs from intrinsic motivation in that the activity is not done out of inherent satisfaction, but for the instrumental value it represents (Gagne et al., 2015).

To be motivated means to be moved to do something (Ryan and Deci, 2000). Motivation is an important psychological concept in academic learning. The term "academic motivation" is close to the similar concepts as "motivation to learn" or "achievement motivation". Some authors analyzed students' achievement motivation (e.g. Singh, 2011) or learning motivation regarding their aspirations (e.g., Murtonen et al. 2008; Paulsen and Feldman, 2005). Nevertheless, Wilkesmann and colleagues (2012) highlights that academic motivation should not to be confused with learning motivation or other similar concepts because academic motivation "focuses exclusively on reasons why individuals decide for and continue with university studies" (p. 4).

Academic motivation is the key to student's academic success (Yoshida, 2008). The development of early academic motivation has significant implications for later academic careers (Singh, 2011). Academic motivation is related to self-efficacy and approaches to studying (Prat-Sala and Redford, 2010), is a good predictor of academic procrastination

(Cerino, 2014). Also, higher academic motivation is related to the attempt of performing difficult tasks (square or jigsaw puzzle tasks, signifying academic tasks) in contrast of those with lower academic motivation who tended to continue working on facile tasks (Yoshida et al., 2008). Intrinsic motivation is related to academic achievement (Trevino and DeFreitas, 2014). Intrinsically motivated students earn higher grades and achievement test scores, are more likely to feel confident about their ability to learn new material, to engage in tasks that are moderately challenging, to persist with and complete assigned tasks, retain information and concepts longer, and are less likely to need remedial courses and review than do extrinsically-motivated students (Singh, 2011).

Other meaningful construct in academic context is students' satisfaction with their decision made regarding their professional choice. While other factors being equal, satisfied individuals are likely to be willing to demonstrate more effort than unsatisfied students (Tessema et al., 2012). Satisfaction is defined as the psychological state, which results from confirmation or disconfirmations of expectations with the reality (Liu and Wang, 2007). Students' satisfaction is a short-term attitude that is based on subjective evaluations of experience in the educational context (Elliott and Healy, 2001). More satisfied students demonstrate better academic performance (Zhu, 2012), thus, students' satisfaction leads to students' success. Even more, satisfaction of the activity is related to behavioral intentions to continue that activity in the future (Kahn and Nauta, 2001). Students' satisfaction with their academic majors is positively related to career decision self-efficacy, and negatively related to career choice anxiety (Nauta, 2007). Satisfaction with experience, satisfaction with instruction or academic department, with advising, with courses, etc. – are different aspects of students' satisfaction (Tessema et al., 2012). Satisfaction with professional choice refers to the extent to which students perceive themselves as being well decided for the way of their profession.

Overview of the present study

The aim of the present study was to investigate the predictive power of students' different types of academic motivation (especially, extrinsic vs. intrinsic) for their satisfaction of the professional choice in agriculture study programs. It was interesting to test whether university students' extrinsic regulation or intrinsic motivation has greater importance in prediction of their satisfaction with professional choice. In fact, several research questions were addressed. First, do students' academic motivation predicts professional choice satisfaction in Lithuanian context? If this is possible, what are the best predictors? Thus, the object of the research is the significance of academic motivation types or orientations for students' satisfaction with professional choice.

RESEARCH METHODS

Participants

A total of 175 first-year students (109 females, 65 males, and 1 unspecified) from Aleksandras Stulginskis University, Faculty of Agronomy participated in the research. The participants were studying in five study programs of agriculture sciences: Agronomy, Quality and Safety of Food Raw Materials, Plant Biology and Breeding, Landscaping. The mean age of respondents was 19.5 (SD = 1.07). The majority of respondents lived in the university dormitory (52 %) or with their parents (23.4 %), rents a flat (17.4 %) or in their own (7.4 %). The majority of the students reported that financial situation is good (59.4 %) or satisfactory (26.3 %), others – very good (11.4 %), poor or very poor (2.3 %). 15.4 % of the respondents received and 84.6 % did not received a stipend in the last semester before the researcher (first semester of their first year studies).

Measures

Academic motivation. All participants responded to Academic Motivation Scale, developed based on the works of Vallerand and others (1992; 2008), and resent large and significant motivation scale validation work of Gange and colleagues (2015). The instrument is adjusted to measure the academic motivation, and which is based on Self-Determination Theory (SDT). Well validated SDT-based motivational scales exist in various life domains, such as academics (e.g. Vallerand et al., 1992), sports (e.g. Pelletier et al., 1995; 2013) and work (e.g. Gange et al., 2015). It is the 19-item questionnaire. The stem is "Why do you put efforts into your current studies?" and is accompanied by the scales: Intrinsic motivation (3 items, e.g. "because what I'm studying is exciting", *Cronbach alpha* = .86); Identified regulation (3 items, e.g. "because putting efforts in these studies has personal significance to me", *Cronbach alpha* = .81); Introjected regulation (4 items, e.g. "because I have to prove to myself that I can", *Cronbach alpha* = .70); Extrinsic regulation – material (3 items, e.g. "because later it will bring me the financial benefits if I put enough effort now", *Cronbach alpha* = .62); Extrinsic regulation – social (3 items, e.g. "to avoid being criticized by others (e.g., family, friends…)", *Cronbach alpha* = .89); Amotivation (3 items, e.g. "I don't, because I really feel that I'm wasting my time in these studies", *Cronbach alpha* = .76). For each item, the participants were asked to rate themselves on a 5-point Likert scale ranging from totally disagree (1) to totally agree (5).

Satisfaction with professional choice. The students were asked to evaluate their satisfaction with professional choice in a 10-point scale ranging from 1 ("completely dissatisfied") to 10 ("completely satisfied").

RESEARCH RESULTS

The mean rating scores for the students' academic motivation and satisfaction with professional choice are presented in Table 1.

Table 1. Means and standard deviations of academic motivation and satisfaction of professional choice (N = 175)

Variable	*M*	*SD*
Academic motivation		
Amotivation	5.47	2.49
EM External regulation – material	10.27	2.53
EM External regulation – social	5.98	3.20
EM Introjected regulation	11.69	3.56
EM Identified regulation	11.26	2.71
Intrinsic motivation	10.01	2.96
Professional choice satisfaction	7.70	1.73

Note. EM = Extrinsic Motivation

One-way Anova revealed gender differences between some scales of academic motivation indicating that males are more amotivated than females ($F = 4.42$, $p < .05$), while women tend to have more introjected ($F = 7.70$, $p < .01$) and identified ($F = 6.20$, $p < .05$) orientations of motivation. Due to the differences found, further analysis of the data was performed according to the students' gender.

Two hierarchical multiple regression equations (for males and females separately) were formed to test the predictive power of students' academic motivation types for their satisfaction with professional choice. Table 2 shows that the regression model for males explained 30.2 % and the regression model for females explained 46.8 % of variance of professional choice satisfaction. *F*-value was statistically significant ($p < .001$) in both cases indicating that both regression models fit the data. It shows that according to its variables, satisfaction with professional choice could be significantly predicted.

Table 2. Academic motivation of male and female students as predictors of professional choice satisfaction: Models' characteristics

Gender	*Model summary*				*ANOVA*			
	R	R^2	R^2_{adj}	*Std. error*	*df*	*Mean square*	*F*	*Sig.*
Male (N = 65)	.550	.302	.228	1.34	6	7.28	4.04	$p < .001$
Female (N= 109)	.684	.468	.436	1.35	6	26.35	14.51	$p < .001$

The results of hierarchical regression analysis predicting students' (males and females) satisfaction with professional choice are presented in Table 3. In males' sample, the regression analysis indicated that intrinsic motivation positively ($p < .01$) and external regulation – material as well as amotivation negatively ($p < .05$ for both) predict higher satisfaction with professional choice. In females' sample, only the intrinsic motivation positively ($p < .01$) predicts higher satisfaction with professional choice. In addition, external regulation – social and amotivation have statistical tendency to predict lower females' satisfaction with their professional choice ($p < 0.1$ for both).

Table 3. Results of hierarchical regression analysis predicting students' (males and females) satisfaction of professional choice

Variable	*Males (N = 65)*			*Females (N = 109)*		
	Standardized coefficients (β)	*t*	*Sig.*	*Standardized coefficients (β)*	*t*	*Sig.*
Constant		8.55	$p < .001$		5.47	$p < .001$
Amotivation	-.394	-2.67	.010	-.189	-1.94	.055
EM External regulation – material	-.282	-2.27	.027	.010	.12	.902
EM External regulation – social	.167	1.12	.267	-.167	-1.79	.066
EM Introjected regulation	-.148	-1.11	.273	.021	.25	.807
EM Identified regulation	-.122	-.86	.394	-.068	-.66	.508
Intrinsic motivation	.382	2.90	.005	.516	5.41	.001

Note. EM = Extrinsic Motivation

The results suggest that higher satisfaction of professional choice experience males and females who think that studying a certain selected program of agriculture sciences is interesting and enjoyable in itself. The results also indicated that absence of motivation towards studying a chosen study program leads to dissatisfaction of an activity for both male and female students. Finally, expectations of possible financial reward in the future (material external regulation) are significant in prediction of males satisfaction with professional choice while expectations of approval or respect from significant others (social external regulation) are important in prediction of females' satisfaction of professional choice.

DISCUSSION

The present study explored the relationships between academic motivation types or orientations and satisfaction of chosen agriculture study program at university. The results have shown that students' intrinsic motivation unambiguously is important for prediction of their satisfaction of professional choice. Intrinsically motivated persons are moved to act for the challenge or interest rather than because of external pressures, or rewards (Deci and Ryan, 1985, 2000).

Although intrinsic motivation is clearly an important type of motivation, most of the activities people do are not intrinsically motivated. Extrinsic motivation is a construct that pertains whenever an activity is done in order to attain some separable outcome (Deci and Ryan, 2000). The results of this study revealed some gender differences regarding

extrinsic motivation of first-year students. The results indicated that males are more amotivated than females, also that females have more expressed introjected and identified orientations of extrinsic motivation. These results are consistent with previous research of Wilkesmann and colleagues (2012), who found that female students are more extrinsically motivated than male students. Also, current research showed that male students are more satisfied with chosen profession if their motivational driving force is not based on hopes for financial benefit in the future. In other words, it can be assumed that the more males are motivated to study for financial issues, the more they are dissatisfied with the professional choice. For females, significant others (parents, friend or teachers) and their approval, respect or fear of criticism are the driving forces for studying that leads for higher satisfaction.

Not surprising are the results that students' state of lacking any motivation to engage in their studies provides for less satisfaction with the studies. When amotivated, a person's behavior lacks intentionality and a sense of personal causation. Amotivation results from not valuing an activity, not feeling competent to do it, or not believing it will yield a desired outcome (Ryan and Deci, 2000). Theory and previous research have shown, that social support (from parents, teachers, and friends), might help to deal with amotivated students and promote autonomy, competence, and relatedness that could facilitate intrinsic and internalized motivation (Legault et al., 2006).

In a sense, the results of this study were consistent with previous study of Cerino (2014) who found that students' intrinsic motivation is negatively related to frequency of procrastination than the extrinsic motivation. This shows the importance of ensuring that students feel the internal benefits of studying and experiencing stimulating feelings in academic settings. In addition, the research of Cerino (2014) have shown that students' amotivation is positively related to procrastination. It can be considered that students who lack academic motivation are dissatisfied of their professional choice and tend to procrastinate on academic tasks. In other words, students' procrastination on academic tasks might be as an indicator to answer the question: are students dissatisfied because of lack of motivation (amotivation) or other reasons (e.g. study process, quality, etc.)? The idea requires additional studies, but this understanding would be very beneficial. For example, teachers or program administrators could take the appropriate interventions – to increase students drive called motivation or to work on the relevant program parameters.

How to increase students' intrinsic motivation? One of the possible ways, often encountered in the literature, is to create opportunities for students to participate in dual enrollment programs on purpose to raise their academic preparation. Because academically prepared students who enter university are more likely to persist and attain the degree compared with less prepared students (Attewell et al., 2011). Dual enrollment is the program that refers to take some courses before entering the university and earning some credits upon successful course completion (An, 2015). Dual enrollment programs are popular in United States. Some universities in Lithuania also apply strategy to invite individuals to listen certain study subjects before entering the university. However, more for marketing purposes (to attract young people in particular programs), and less for preparation or motivational purposes. Indeed, An (2015) argued that a core idea of dual enrollment is that these programs raise students' academic, especially intrinsic, motivation. Johnson and Brophy (2006) emphasized that dual enrollment programs provide motivated and interested students an opportunity to take an interest of high school study program, provide parents with financial savings, allow high schools to expand their course offerings, and offer access to high schools' brightest students. Thus, dual enrollment has positive direct effect on first-year students' successful academic performance, also students who participated in dual enrollment are more academically motivated (An, 2015). This is because of the fact that dual enrollment makes a changes in student's motivation as well as changes in other social-psychological aspects of academic life – such as the confidence to perform and better socialization at university (Karp, 2012).

Another suggestion, as social innovation, that may have an impact on students' motivation is the use of Facebook and other social networking websites for educational purposes. This suggestion is based on the evidence that this teaching instrument is effective (Ozturk, 2015). This finding is important because it indicates that the motivation of students, who can develop their own perspectives by benefitting from the perspectives of teachers and other students, is higher.

Furthermore, Skaalvik and Skaalvik (2013) showed that when students perceive their teachers as emotionally supportive or perceive their relation with their teachers as positive, this promotes internal motivation, academic individuality perception, help-seeking behavior, engagement and effort. Moreover, research conducted by Ozturk (2015) revealed that the insignificant relationship between social presence and motivation is more important for students' intrinsic motivation compared to extrinsic motivation. Therefore, teachers must pay more individualized attention to every student.

CONCLUSIONS

The results showed that *intrinsic motivation* (self-determined behavior, internal locus of causality, driven by an interest or enjoyment in the task itself) is the best predictor of students' (males and females) satisfaction with their professional choice compared with other aspects of academic motivation. It can be assumed that intrinsic motivation is a mechanism, which is based on expectations regarding studies. Students, who enter the university because of the interest or enjoyment of science, tend to demonstrate self-determined behavior, have internal locus of causality, so are intrinsically motivated.

Some aspects of *the extrinsic motivation* also have significance for student satisfaction with their professional choice. Material aspect predicts lower satisfaction with professional choice for males, and social regulation aspect has a tendency to predict lower satisfaction of professional choice for females. Considering expectations, it can be said that if males' expectations are associated with greater financial reward upon completion of the certain program, their satisfaction is lower. Conversely, if the males' satisfaction with the chosen profession is high, motivation of these students are related to other, not financial, aspects. Two possible explanations: first, students in Lithuania do not believe that agronomy study programs guarantee the financial success after finishing their studies, and secondly, the material aspect drives to study,

but not to enjoy what you are studying. Further research is needed. To conclude the results of female case, it can be assumed that significant others (parents, friends, university teachers, etc.), their approval, respect or fear of criticism are the driving forces for female students possibly because of the fact that they are more socially sensitive than males. The results shows that to avoid being criticized by others is more important for females than males, but this do not lead for higher satisfaction of that you are doing. In other words, extrinsic regulation can have a powerful influence on motives or behavior to study, but not to feel satisfied.

The absence of academic motivation or amotivation predicts (for males) or has a tendency to predict (for females) lower satisfaction of professional choice. This may not be very surprising, but it is also important to consider, because some socio-psychological interventions may be used to improve the situation. First, study expectations are integrally related to general knowledge about the profession, and university as well. For this reason, it can be concluded that if a student knows more about the profession and the university, it is likely that the intrinsic motivation to study will be higher, as well as satisfaction with the chosen profession. The enrollment programs may serve at this point. In addition, individual attention to students, as well as social and emotional support is necessary, if we want to arouse the inner driver within a student. The assumed responsibility for studying results, the belief that one has the necessary skills to achieve study goals, and being interested in a chosen profession – that are factors, which lead to education of internally motivated young professionals.

REFERENCES

1. An, B. P. 2015. The role of academic motivation and engagement on the relationship between dual enrollment and academic performance. *The Journal of Higher Education*, Vol. 86, Iss. 1, pp. 98–126. http://dx.doi.org/10.1353/jhe.2015.0005
2. Attewell, P., Heil, S., Reisel, L. 2011. Competing explanations of undergraduate noncompletion. *American Educational Research Journal*, Vol. 48, Iss. 3, pp. 536–559. http://dx.doi.org/10.3102/0002831210392018
3. Cerino, E. S. 2014. Relationships between academic motivation, self-efficacy, and academic procrastination. *Psi Chi Journal of Psychological Research*, Vol. 19, Iss. 4, pp. 156–163.
4. Deci, E. L., Ryan, R. M. 1985. *Intrinsic motivation and selfdetermination in human behaviour*. New York, NY: Plenum. http://dx.doi.org/10.1007/978-1-4899-2271-7
5. Deci, E. L., Ryan, R. M. 2000. The "what" and "why" of goal pursuits: Human needs and the self-determination of behaviour. *Psychological Inquiry*, Vol. 11, pp. 227–268. http://dx.doi.org/10.1207/S15327965PLI1104_01
6. Elliot, K. M., Healy, M. A. 2001. Key factors influencing student satisfaction related to recruitment and retention. *Journal of Marketing for Higher Education*, Vol. 10, pp. 1–11. http://dx.doi.org/10.1300/J050v10n04_01
7. Gagne, M., Forest, J., Vansteenkiste, M., Crevier-Braud, L., van den Broeck, A., Aspeli, A. K., Bellerose, J., Benabou, Ch., Chemolli, E., Guntert, S. T., Halvari, H., Indiyastuti, D. L., Johnson, P. A., Molstad, M. H., Naudin, M., Ndao, A., Olafsen, A. H., Roussel, P., Wang, Z., Westbye, C. 2015. The Multidimensional Work Motivation Scale: Validation evidence in seven languages and nine countries. *European Journal of Work and Organizational Psychology*, *Vol.* 24, Iss. 2, pp. 178–196. http://dx.doi.org/10.1080/1359432X.2013.877892
8. Johnson, T. E., Brophy, M. 2006. Dual enrollment: Measuring factors for rural high school student participation. *Rural Educator*, Vol. 28, Iss. 1, pp. 25–32.
9. Kahn, J. H., Nauta, M. M. 2001. Social-cognitive predictors of first-year college persistence: The importance of proximal assessment. *Research in Higher Education*, Vol. 42, pp. 633–652. http://dx.doi.org/10.1023/A:1012225510213
10. Karp, M. M. 2012. "I don't know, I've never been to college!" Dual enrollment as a college readiness strategy. *New Directions for Higher Education*, Vol. 158, pp. 21–28. http://dx.doi.org/10.1002/he.20011
11. Legault, L., Green-Demers, I., Pelletier, L. 2006. Why do high school students lack motivation in the classroom? Toward an understanding of academic amotivation and the role of social support. *Journal of Educational Psychology*, Vol. 98, Iss. 3, pp. 567–582. http://dx.doi.org/10.1037/0022-0663.98.3.567
12. Liu, Y., Wang, G. 2007. Inpatient satisfaction with nursing care and factors influencing satisfaction in teaching hospital in China. *Journal of Nursing Care Quality*, Vol. 22, Iss. 3, pp. 266–271. http://dx.doi.org/10.1097/01.NCQ.0000277785.52428.a5
13. Murtonen, M., Olkinuora, E., Tynjala, P., Lehtinen, E. 2008. "Do I Need Research Skills in Working Life?" University students' motivation and difficulties in quantitative method courses. *Higher Education*, Vol. 56, Iss. 5, pp. 599–612. http://dx.doi.org/10.1007/s10734-008-9113-9
14. Nauta, M. M. 2007. Assessing college students' satisfaction with their academic majors. *Journal of Career Assessment*, Vol. 15, No. 4, pp. 446–462. http://dx.doi.org/10.1177/1069072707305762
15. Ozturk, E. 2015. Facebook as a new community of inquiry environment: an investigation in terms of academic achievement and motivation. *Journal of Baltic Science Education*, Vol. 14, Iss. 1, pp. 20–33.
16. Pelletier, L. G., Fortier, M. S., Vallerand, R. J., Tuson, K. M., Briere, N. M., Blais, M. R. 1995. Toward a new measure of intrinsic motivation, extrinsic motivation, and amotivation in sports: the sport motivation scale (SMS). *Journal of Sport and Exercise Psychology*, Vol. 17, pp. 35–54.
17. Pelletier, L. G., Rocchi, M. A., Vallerand, R. J., Deci, E. L., Ryan, R. M. 2013. Validation of the revised sport motivation scale (SMS-II). *Psychology of Sport and Exercise*, Vol. 14, Iss. 3, pp. 329–341. http://dx.doi.org/10.1016/j.psychsport.2012.12.002
18. Paulsen, M. B., Feldman, K. A. 2005. The conditional and interaction effects of epistemological beliefs on the self-regulated learning of college students: Motivational strategies. *Research in Higher Education*, Vol. 46, Iss. 7, pp. 731–768. http://dx.doi.org/10.1007/s11162-004-6224-8
19. Prat-Sala, M., Redford, P. 2010. The interplay between motivation, self-efficacy, and approaches to studying. *British Journal of Educational Psychology*, Vol. 80, Iss. 2, pp. 283–305. http://dx.doi.org/10.1348/000709909X480563

20. Ryan, R. M., Deci, E. L. 2000. Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology*, Vol. 25, Iss. 1, pp. 54–67. http://dx.doi.org/10.1006/ceps.1999.1020
21. Singh, K. 2011. Study of achievement motivation in relation to academic achievement of students. *International Journal of Educational Planning & Administration*, Vol. 1, Iss. 2, pp. 161–171.
22. Tessema, M. T., Ready, K., Yu, W. 2012. Factors affecting college students' satisfaction with major curriculum: Evidence from nine years of data. *International Journal of Humanities and Social Science, Vol.* 2, Iss. 2, pp. 34–44.
23. Trevino, N. N., DeFreitas, S. C. 2014. The relationship between intrinsic motivation and academic achievement for first generation Latino college students. *Social Psychology of Education*, Vol. 17, Iss. 2, pp. 293–306. http://dx.doi.org/10.1007/s11218-013-9245-3
24. Vallerand, R. J., Pelletier, L.G. Koester, R. 2008. Reflections on Self-Determination Theory. *Canadian Psychology*, Vol. 49, Iss. 3, pp. 257–262. http://dx.doi.org/10.1037/a0012804
25. Vallerand, R. J., Pelletier, L. G., Blais, M. R., Briere, N. M., Senecal, C., Vallieres, E. F. 1992. The Academic Motivation Scale: A measure of intrinsic, extrinsic, and amotivation in education. *Educational and Psychological Measurement*, Vol. 52, No. 4, pp. 1003–1017. http://dx.doi.org/10.1177/0013164492052004025
26. Wilkesmann, U., Fischer, H., Virgillito, A. 2012. Academic motivation of students – the German case. *Discussion papers*, des Zentrums fur HochschulBildung Technische Universitat Dortmund. http://www.zhb.tu-dortmund.de/wb/Wil/Medienpool/Downloads/DP_2012_21.pdf
27. Yoshida, M., Tanaka, M., Mizuno, K., Ishii, A., Nozaki, K., Urakawa, A., Cho, Y., Kataoka, Y., Watanabe, Y. 2008. Factors influencing the academic motivation of individual college students. *International Journal of Neuroscience*, Vol. 118, Iss. 10, pp. 1400–1411. http://dx.doi.org/10.1080/00207450701242982
28. Zhu, C. 2012. Student satisfaction, performance, and knowledge construction in online collaborative learning. *Educational Technology & Society, Vol.* 15, Iss. 1, pp. 127–136.