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Research Article

Critical Thinking and Emotional Intelligence Skills and Relationship with Students' Academic Achievement

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Abstract

Introduction and Purpose: Emotional intelligence and critical thinking are both basic elements of achievement of success, especially when they are raised in education area and in medical education. Thus, it seems that the students with higher ability in critical thinking and emotional intelligence certainly achieve better academic achievement compared to those who lack such characteristics. Current research was conducted aiming at investigating critical thinking and emotional intelligence skills and relationship with students' academic achievement in the last year of nursing in Zahedan University of Medical Sciences during 2016-2017.

Materials and Methods: This research is descriptive – analytical research of cross-sectional type. Research statistical population included all senior nursing students of Zahedan University of Medical Sciences (n=50), and total counting was used as sampling method. The California Critical Thinking Skills Test (CCTST) and Bar-On model of emotional-social intelligence (ESI), which has already been used in Iran, were used to collect data. Therefore, their validity and reliability is confirmed. In this study, Cronbach's alpha coefficient was used to determine reliability of the questionnaires. Reliabilities were calculated for the Emotional Intelligence Questionnaire (0.891), critical thinking questionnaire (0.924) and academic achievement questionnaire (0.883). In addition, in order to measure the academic achievement, GPA of two last semesters was considered as the criterion. Descriptive statistics and inferential statistics were used to analyse the data. SPSS (22) and Smart PLS software were used.

Findings: Findings showed that there is significant relationship between critical thinking and emotional intelligence skills and academic success of senior nursing students in terms of marital status. In addition, findings indicated significant relationship between critical thinking skills and academic achievement of senior nursing students. In addition, results showed there is relationship between emotional intelligence and academic achievement of senior nursing students.

Discussion and Conclusion: Considering significant relationship between critical thinking and academic success of senior nursing students as well as significant relationship between emotional intelligence and academic achievement, it is recommended that experts and critics are invited to the university in order to enhance critical thinking skills, create pleasant and attractive environment for strengthening critical thinking for promoting academic achievement of students.

Keywords

Skill; Critical thinking; Emotional intelligence; Academic achievement

Introduction

In the current era, the organisations are increasing encountering dynamic and changing environments, and thus they are forced to adopt with environmental changes for survival and dynamism. In fact, efficient organizations are those which not only are able to coordinate with the community's changes, but also they are able to find path of changes in the future and direct these changes for creating optimal reforms for making better future Aspin [1]. The organizations cannot escape change, as the ocean water drops cannot escape the waves [2]. University as an organization annually accept new students and graduate other students, which attention to educational quality is especially significant in this on-going cycle. In the nursing field, also, students are accepted every year, which paying attention to the factors affecting their learning and academic success can promote success rate in these fields. Psychologists and educational experts have always considered learning and academic success and their effective factors. In recent years, they attempt to identify the variables, by help of which they can promote academic success. As it is known, cognitive and emotional processes influence learning in every individual. Individual differences in this regard are not only due to intelligence differences, but also they are function of beliefs, judgements, thoughts, emotional tendencies, attitudes, values and the past experiences. To this end, self-efficacy, critical thinking, thinking styles, and emotional intelligence are regarded as the major variables [3]. Thinking and skill of correct thinking are among the main issues that have been thought for various scholars traditionally, and nurturing various thinking skills is currently one of the most basic goals of educational system. There are different types of thinking, one of the most important of which is critical thinking [4]. Critical thinking skills are among the skills that were specified by UNESCO for 21th century human, and paying attention to it especially in education and medical education is critical. Particularly the critical thinking skills are among the standards determined by the World Federation for Medical Education [5]. Critical thinking is the highest level of thinking, and it is related to analysis and evaluation category in classification of educational goals Ostowar and Amirzadeh [6]. People with critical thinking have such characteristics as acceptance of new ideas, flexibility, tendency to change, creativity, analyticity, energy efficiency, risk-taking, knowledge and observation [7]. Critical thinking is one of the most important principles of education in every country, and every country needs critical thinking to reach growth and prosperity. It is also considered as an essential cognitive process for the growth and enjoyment of knowledge, and this kind of thinking can be used for success and problem solving [8]. Another effective construct in prediction of academic success is emotional intelligence.

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Initially, IQ was expected to be a good predictor of academic success, but this variable was not very successful in predicting [9]. Emotional intelligence has been proposed as an important factor for acquiring success in life, education and job. Emotional intelligence means having self-awareness skills; that is, one known who he is, what his thoughts, emotions, and behavioural features as described by Haghaani et al., [10]. This intelligence helps individual to have proper decision making by balancing between his thoughts and emotions. It also includes the ability to control the emotions and recognition of emotions in others, acceptance of others' views, and controlling social relations. Therefore, emotional intelligence should also be taken into account in investigating academic success, learning skills required for coping with problems, and controlling emotional relations [11], which is one of the main concerns of every educational system. Success and academic achievement in every society indicates success of educational system in targeting and paying attention to meeting individual needs [9]. Considering significance of these issues in educational procedure of students, especially for nursing students that need such skills for better learning of medical sciences, and given the fact that achievement of educational goals in most nursing faculties is traditionally based on memorising large volume of materials, and analysis, thinking, and reasoning are less used, it was attempted to investigate these issues in senior nursing students of Zahedan University of Medical Sciences. While it is expected, that these students already enhanced their critical thinking and emotional intelligence skills in this stage of their education through workshops and related educational courses [12]. Therefore, people with high emotional skills have better social skills, have longer-lasting relationships, and more ability to resolve conflicts. In short, research suggests that individuals with higher emotional intelligence have higher academic success. Thus, the main goal of this study was to examine the critical thinking and emotional intelligence skills and relationship with the academic success of senior nursing students of Zahedan University of Medical Sciences in 2017.

Materials and Methods

This research is descriptive – analytical research of cross-sectional type. Current research was conducted aiming at investigating critical thinking and emotional intelligence skills and relationship with students' academic success in the last year of nursing in Zahedan University of Medical Sciences during 2016-2017. Research statistical population included all senior nursing students of Zahedan University of Medical Sciences (n=50), and total counting was used as sampling method because of limited number of the population. Then, content and face validity was used for determining validity of the questionnaires. In order to determine reliability of questionnaires, Cronbach's alpha coefficient was used, and calculated values were above minimum 0.7, suggesting acceptable reliability of the indexes. Inferential and descriptive statistics were used for data analysis, and SPSS 22 and Smart PLS software were utilized. Confirmatory factor analysis was used for investigating validity of questionnaire, and structural equation modelling (SEM) was used for testing research hypotheses by Smart PLS 3 software. Descriptive statistics such as central tendency and dispersion indexes were used to describe the distribution of variables and Pearson correlation coefficient and stepwise regression were utilized for data analysis. Mean, standard deviation and variance and demographic variables such as gender, age, marital status, residential status and entrance quotas were used by SPSS software. Finally, for analysing the inferential statistics, confirmatory factor analysis was used, and in order to investigate the research hypotheses, structural equation modelling (SEM) using the Smart PLS software was used. Considering that reliability and validity of research tools was previously confirmed in domestic studies, validity of constructs of the tools were again factor analysed due to sensitivity of constructs of ethical intelligence, capability of value conflict solving, and high dependency on environment. Reliability of constructs of ethical intelligence and capability of value conflict solving was tested by Cronbach's alpha and CR index, which was calculated above 0.757 for all constructs. It denotes acceptable reliability of constructs. In addition, analytical reports of the model, which was extracted from Smart PLS software, confirmed convergent validity of the model, and composite reliability of all model constructs was calculated above 0.5. Since mean of extracted variances of constructs was calculated equal to and above 0.70, construct validity of the model and research questionnaires were also confirmed. In this research, all hypotheses were supported, and some recommendations and solutions are given for improvement and promotion of academic achievement in the respective population. Findings suggest that path coefficient of critical thinking skills and academic achievement variables was 0.437 and t statistics was 6.116. Path coefficient of emotional intelligence skills and academic achievement variables was 0.931 and t statistics was 11.341. Path coefficient of critical thinking skills and emotional intelligence variables with academic achievement of senior nursing students based on gender was 0.895 and t statistics was 11.035. Path coefficient of critical thinking skills and emotional intelligence variables with academic success of senior nursing students based on age was 0.776 and t statistics was 9.433. Path coefficient of critical thinking skills and emotional intelligence variables with academic achievement of senior nursing students based on entrance quota was 0.802 and t statistics was 9.825. Path coefficient of critical thinking skills and emotional intelligence variables with academic achievement of senior nursing students based on marital status was 0.915 and t statistics was 10.746.

Findings

In descriptive analysis, firstly demographic characteristics of respondents including gender, age, marital status, residential status, and entrance quotas were investigated. Results obtained in the group under study indicate that about 32% of respondents are male and 68% are females. 26% of respondents were local and 74% were non-local. In addition, 64% of respondents were single and 36%were married. In this research, prior to testing hypotheses, normality of variables should be ensured. In order to test normality assumption of variables, one-sample Kolmogorov-Smirnov test was used. If the significance level is greater than 0.05, the variable is normal and otherwise the data is abnormal. Therefore, according to the table below, all variables are abnormal (Tables 1-3).

Mann-Whitney test results showed that emotional intelligence variable had highest test statistics, and critical thinking skills variable e showed smallest test statistics at significance level below 0.05 %.

Since one of the assumptions for using causal relationships is lack of multi-colinearity among variables, coefficients of correlation between research variables were calculated before causal analysis in order to investigate lack of multi-colinearity among them. Correlation coefficient indicates severity and type of relationship (inverse or direct). Correlation coefficient is divided into five levels of poor, low, average, strong, and very strong, in terms of severity.

As observed in Table 4, all correlations have value below 0.8. Thus, presence of multi-colinearity among variables is rejected. Highest correlation coefficient was calculated for emotional intelligence variable, correlation between this variable and critical thinking is at

Table 1: Kolmogorov-Smirnov test results for investigating normality assumption.

Variable	Sample size	Test statistics	P-value
Critical thinking skills	50	0.53	0.03
Emotional intelligence	50	0.69	0.042
Academic achievement	50	0.45	0.012

Table 2: Mann-Whitney test results to examine status of variables.

Variable	Mann-Whitney test	z statistics	Sig. level
Critical thinking skills	15432.63	0.534	0.03
Emotional intelligence	16236.5	0.698	0.042
Academic achievement	13280.03	0.457	0.012

Table 3: Severity of correlation coefficients.

No.	Interval	Severity of relationship
1	0.2-0.000	Poor
2	0.4-0.21	Low
3	0.7-0.41	Average
4	0.9-0.71	Strong
5	1-0.91	Very strong

Table 4: Correlation matrix of research variables.

Variable	1	2	3
Emotional intelligence	1.000		
Critical thinking	0.181	1.000	
Academic achievement	0.472	0.638	1.000

[Note: *All correlations are significant at level 0.05.]

strong level with value 1.000, and smallest correlation coefficient was calculated for critical thinking skills and emotional intelligence as 0.181 in poor level.

In order to evaluate validity in partial least squares models, both the convergent and differential validity should be calculated.

As observed in above table, average variance extracted for variables of this research is between 0.7890 and 0.8287 (Table 5), which is above minimum value as 0.5. It suggests acceptable convergent validity for the constructs. Correlation coefficient test was used for examining differential validity of constructs. In this method, square root of average variances extracted for each constructs should be larger than correlation coefficient of the construct with other constructs. As observed in Table 6, the square root of average variances extracted for all constructs is greater than its correlation coefficient with other structures, which shows the proper differential validity of the constructs.

Factor analysis is used for discovering underlying variables of a phenomenon or extraction of a set of data. In confirmatory factor analysis, the author seeks for a model, which is assumed that describes or justifies experimental data based on some relatively low variables. Factor loads are very important in interpreting factor analysis results. These loads indicate correlation between every observed variable (questions) and its related factors. Depending on the accuracy level for elimination of questions by the researcher, criterion values are between 0.5 to 0.7 for the introduced factor loads. However, minimum declared limit is 0.4 [13]. This means that questions with factor loads less than 0.4 are not sufficient to remain in the model and should be eliminated. As observed in the model, all values are above 0.4, so no questions are deleted. Before entering the stage of research hypotheses testing, it should be ensured that the questions related to the research variables are correct (Table 7). To this end, a confirmatory factor analysis is used at this stage. The factor analysis measures and reports the markers selected for the latent variable, and it indicates how accurate the selected markers are for representing the latent variable. In the PLS software for factor analysis, it is necessary to connect all latent variables to each other.

Considering that number of questions (observed variables) are related to each variable, in order to represent the output in better way, observed variables were made hidden, which + sign in the circles indicate it (Figures 1 and 2).

Confirmatory Factor Analysis for Research Question in Significance Value State

Values in this diagram measure relationships between latent variables in terms of significance. If t statistics in a relationship is above 1.96, it is significant ta level 0.05 %, and of the values are above 2.58, they are significant at level 0.01 [14].

Goodness of Fit (GOF) criterion was used for investigating fit of structural model (model prediction power), which was calculated as 0.36 for total model fit, suggesting strong model fit. Summary of structural equation modeling results are given in Table 7.

Table 5: Differential validity of Constructs.

Variable	Average Variance Extracted (AVE)
Critical thinking skills	0.7890
Emotional intelligence	0.8127
Academic achievement	0.8287

Table 6: Square root of average variances extracted.

Variable	1	2	3
Emotional intelligence	0.7890		
Critical thinking	0.181	0.8127	
Academic achievement	0.472	0.638	0.8287

[Note: Confirmatory Factor Analysis for Research Questions at Standard Estimate State]

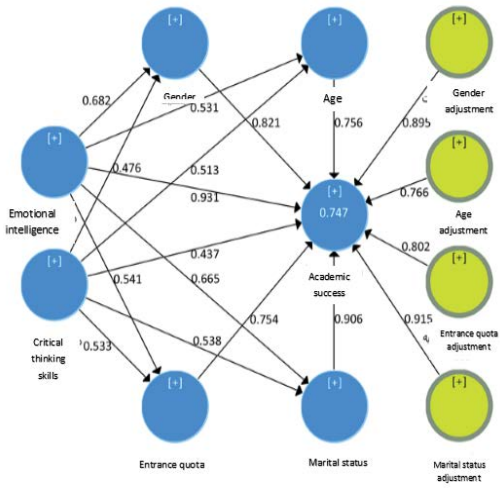

Figure 1: Standard values of research questions.

Table 7: Structural equation modeling results for research hypotheses.

Relationship of research variables	t value	Direct effect (R)	Indirect effect	Total effect	Result
Critical thinking skills and academic success	6.116	0.437	-	0.437	Supported
Critical thinking and emotional intelligence	11.341	0.931	-	0.931	Supported
Critical thinking skills and emotional intelligence with academic success of senor nursing students in terms of gender	11.035	0.895	-	0.895	Supported
Critical thinking skills and emotional intelligence with academic success of senor nursing students in terms of age	9.433	0.776	-	0.776	Supported
Critical thinking skills and emotional intelligence with academic success of senor nursing students in terms of entrance quota	9.825	0.802	-	0.802	Supported
Critical thinking skills and emotional intelligence with academic success of senor nursing students in terms of marital status	10.746	0.915	-	0.915	Supported

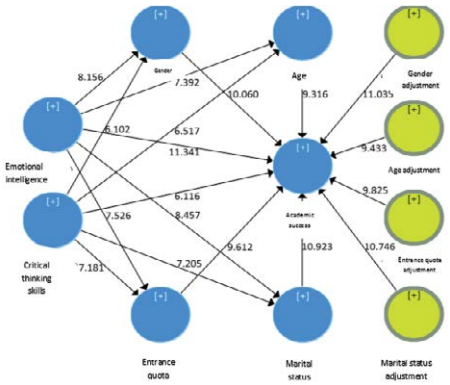

Figure 2: Significance values of research questions.

Discussion

Purpose of current study was investigating critical thinking skills and emotional intelligence and relationship with academic success of senior nursing students in Zahedan University of Medical Sciences in 2017.

Hypothesis 1: There is relationship between critical thinking skills and academic success of senior nursing students. Considering path coefficients of critical thinking skills and academic success as 0.437 and t statistics as 6,116, it can be stated there is positive significant relationship between critical thinking skills and academic success, and this hypothesis is supported. This finding is consistent with finding by Salehi et al. [15]. They studied academic achievement and emotional intelligence in 100 graduate nursing students in Isfahan using BarOn Test. Their findings suggested that there is significant difference between average of emotional intelligence components and average of academic success in students.

Hypothesis 2: There is relationship between emotional intelligence skills and academic success of senior nursing students. Considering path coefficients of emotional intelligence skills and academic achievement as 0.931 and t statistics as 11.341, it can be stated there is positive significant relationship between emotional intelligence skills and academic success, and this hypothesis is supported. This finding is not consistent with finding by Adib Hajbagheri et al. [16]. They investigated relationship between emotional intelligence and academic achievement among 180 students of Kashan University of Medical Sciences using Siberia Emotional Intelligence (Schering) tool. They found no significant relationship between emotional intelligence score and academic achievement.

Hypothesis 3: There is relationship between critical thinking skills and emotional intelligence of senior nursing students in terms of gender, age, entrance quota, and marital status. Considering path coefficients of critical thinking skills and emotional intelligence with academic achievement as 0.895 and t statistics as 11.035, it can be stated there is positive significant relationship between critical thinking skills and emotional intelligence with academic achievement of senior nursing students in terms of gender, and this hypothesis is supported. This finding is consistent with finding by Ashoori et al. [17]. He investigated relationship between self-efficacy, critical thinking, thinking styles, and emotional intelligence with academic success among 140 nursing students in Islamic Azad University of Varamin-Pishvar Branch. Following completing Ricketts' Critical Thinking Disposition Questionnaire, Sternberg's Thinking Styles Questionnaire, and BarOn Model of Emotional Intelligence, the results suggested positive significant relationship between four components with academic success of students. Considering path coefficients of critical thinking skills and emotional intelligence with academic success of senior nursing students in terms of age as 0.776 and t statistics as 9.433, it can be stated there is positive significant relationship between critical thinking skills and emotional intelligence with academic achievement of senior nursing students in terms of age, and this hypothesis is supported. This finding is consistent with finding by Bakhtiyar Nasrabadi et al. [18] they studied role of critical thinking and learning cognitive styles in predicting academic success of 180 students of Isfahan University of Medical Sciences in 2011. They used California Critical Thinking Questionnaire and Kolb's Learning Styles, and it was reported that critical thinking and learning styles were inevitable on the extent of academic achievement.

Considering path coefficients of critical thinking skills and emotional intelligence with academic achievement as 0.802 and t statistics as 9.825, it can be stated there is positive significant relationship between critical thinking skills and emotional intelligence with academic success of senior nursing students in terms of entrance quota, and this hypothesis is supported. This finding is consistent with finding by Horani [19]. They investigated contribution of emotional intelligence and cogitative intelligence among 420 high school students in Tehran using Bar-On Model of Emotional Intelligence, and they found that emotional intelligence compared to cognitive intelligence has more contribution in academic achievement.

Considering path coefficients of critical thinking skills and emotional intelligence with academic achievement as 0.915 and t statistics as 10.746, it can be stated there is positive significant relationship between critical thinking skills and emotional intelligence with academic achievement of senior nursing students in terms of marital status, and this hypothesis is supported. This finding is consistent with finding by Emir [20] and Emir [21]. They studied critical thinking in students considering academic achievement, and they used California Critical Thinking Questionnaire on 279 Istanbul University's students, and confirmed role of critical thinking in academic achievement of Istanbul University.

Conclusion

Success or failure in education is one of the major concerns of every educational system. Educational success and progress in every society represents success of the educational system regarding targeting and paying attention to meeting individual needs. Thus, an educational system is regarded as efficient and successful when academic progress of its students is at highest level in various grades. Related factors should be identified in order to have students with high academic success. Thus, the current research was conducted for this end. In addition, according to the researcher's search, such research with these variables was not done previously on senior nursing students, this study can fill the research gap, and its findings can be used for raising critical thinking and emotional intelligence skills in other students. Students with good ability in critical thinking and emotional intelligence act more successful during their education and future occupation, and since critical thinking can be nurtured and various aspects of emotional intelligence can be promoted through proper educational methods and through curricular reform, these issues are more necessary among medical students [22]. Findings of current research indicate there is relationship between critical thinking skills and academic success of senior nursing students. Thus, inviting the experts and critics at universities for publishing students' publications and articles for academic achievements, creating a systematic hierarchy in the universities to strengthen critical thinking skills and creating a pleasant atmosphere to strengthen critical thinking skills play crucial role in academic success of students. In addition, results indicate there is relationship between emotional intelligence skills and academic success of senior nursing students. Hence, creating general competition spirit among students, developing appropriate communicative environment among students, follow-up and attempt to implement student plans and project, support of university managers and ministry of sciences for elite students, positive attitude of university managers to student ideas and plans can be used in this regards. Finally, it can be stated that there is relationship between critical thinking and emotional intelligence skills with academic success of senior nursing students in terms of gender, age, entrance quota, and marital status. Therefore, managers of universities are recommenced have identical view to the gender, age, marital status, entrance quota, and religious beliefs, they should make scientific and research regulations flexible for sending students in both genders abroad for conducting research plans, positive attitude toward elite class should be developed regardless of their gender, and ethnic and tribal differences should be respected, and they should help to enhance emotional intelligence and achievement of academic success.

References

1. Aspin P (2014) Motivation to Learn as an Outcome and Determining Factor of Learning at School. European J Educ Psychol 16: 421-439.
2. Rubin O, Evrim EA, Gökçe K, Enisa M (2013) Exploring The Relationship Between Teacher Beliefs and Styles On Classroom Management in Relation to Actual Teaching Practices: A Case Study. Procedia Soc Behav Sci 1: 612-617.
3. Taleghani S, Mohammadirad Y, Nekuhesh F (2012) Comparison of Effect of Intelligent and Normal Schools on Critical Thinking Skills and Success Factors in Third-Grade High School Students; Master's Thesis for Allameh Tabataba'i University.
4. Rahimnia F, Hoshyar V (2013) Effect of Organizational Justice on Desire to Quit Job through Job Satisfaction. Modiriat Farda J 9: 23-42.
5. Ghanbari S, Eskandari A (2012) Relationship between Knowledge Management and Intellectual Capital Management. Public Manag 4: 89-112.
6. Ostowar S and Amirzadeh M (2008) Investigating Relationship Between Emotional Intelligence, Job Satisfaction and Organizational Commitment among Employees of Private Sector Factory in Shiraz. A New Appr in Edu Manage 2: 23-38.
7. Popi I (2010) Promotion of critical thinking by using case studies as teaching method. Nurs Edu Today 31: 204-207.
8. Shahriyaripour H, Aghdami N (2012) Relationships between cultural intelligence and cognitive intelligence with success of managers of Semnan universities. Quanti Stud Manag 2: 48 - 64.
9. Fatahi M, Farhangi AA, Vasegh B, Nargesian A (2012) Predictive Intelligence of Transformational Leadership: A Study of Relationship between Spiritual Intelligence, Emotional Intelligence and Transformational Leadership. J Manag Sci Iran 4: 121-140.
10. Haghaani F, Aminian B, Kamali F, Jamshidian S (2010) Critical Thinking Skills and its Relationship with Emotional Intelligence in Clinical Medicine Students in Isfahan University of Medical Sciences. Iranian J Med Educ 10.
11. Ghorbanpoor A, Mohammadizad A (2012) Measurement of Emotional Intelligence of Nursing Managers and Relationship with Leadership Style (comparative study of private and public hospitals of Shahid Beheshti University of Medical Sciences). J Med Sci 17: 40-56.
12. Hematzadeh A, Tanbandeh S (2014) Relationship between Emotional Intelligence and Stress Caused by Academic Expectations. Edu Stud 2: 18-35.
13. Hulland J (1999) Use of partial least squares (PLS) in strategic management research: A review of four recent studies. Strategic Manag J 20: 195-204.
14. Gholamzadeh R, Azar A, Ghanavati M (2012) Path - Structural Modeling in Management: SmartPLS Software Application. Negahe Danesh Publication.
15. Salehi S (2012) Academic success and emotional intelligence in undergraduate nursing students of Isfahan University of Medical Sciences. Iranian J Med Edu 12: 629-637.
16. Adib Hajbagheri M (2013) Relationship between Emotional Intelligence and Academic Success and Some Characteristics of Students of Kashan University of Medical Sciences. J Med Educ 13: 703-710.
17. Ashoori J (2014) Relationship between self-efficacy, critical thinking, thinking styles and emotional intelligence with the academic success of nursing students. J Nurs Midwif Facul, Hamadan 22: 15-23.
18. Nasrabadi B, Hassanali (2012) Role of Critical Thinking Attitudes and Cognitive Learning Styles in Academic Success of Students of Isfahan University of Medical Sciences. Iranian J Med Edu 12: 285-296.
19. Horani FK (2013) Contribution of Emotional Intelligence and Cognitive Intelligence to Academic Achievement. J Occup Organ Counsel 5: 102-114.
20. Serap E (2003) Education faculty students' critical thinking disposition according to achedemic achievement. Procedia Soc Behav Sci 1: 2466-2469.
21. Serap E (2013) Contribtions of teachers' thinking styles to critical thinking dispositions(Istanbul Fatih Sample). Edu Sci: Ther Prac 13: 337-347.
22. Yazdani S, Akbarilakeh M, Ahmady S, Foroutan SA, Afshar L (2015) Concept Analysis: Value Based Curriculum. Biosci Biotech Res Asia 12.

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