International Journal of Children and Adolescents

Original Article
IJCA, Vol. 1, No. 1, Jul, 2015.31-35.

The relationship between identity styles, self-efficacy and metacognition beliefs with educational success in female high-school students

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Received: 05 Dec 2014 Accepted: 20 Jun 2015

Abstract

Background and Objective: Different personality aspects including identity styles, self-efficacy, and cognitive abilities can play a certain role in successful learning result in high educational success. We assessed the value of identity styles, self-efficacy and metacognition beliefs for predicting the level of educational success in female high-school students.

Methods: In a cross-sectional study, 380 consecutive female high school students were selected using stratified multi-stage random sampling method.

Results: There were significant associations of educational success rate with informative identity style (r= 0.219, p< 0.001) and with commitment (0.205, p< 0.001). Direct association was revealed between level of self-efficacy and students' education success (r= 0.274, p< 0.001). Regarding relation between different subscales of metacognition and success in education, only subscale of cognitive self-consciousness was directly associated with education success (r= 0.194, p< 0.001).

Conclusion: High levels of informative identity style, commitment, self-efficacy, and cognitive self-consciousness can predict high educational success in students.

Keywords: Identity, Commitment, Self-efficacy, Metacognition, Success, High school student.

Introduction

Educational success is one of the main criteria for assessment of the efficiency of educational systems and thus identifying different factors which affect educational success (1). It has been suggested that some personality aspects including cognitive styles and intelligence have major role in educational success and other factors such as social and environmental factors constitute a smaller part of the educational success (2, 3). In line with gradual changes in behavioral, personal, and psychological characteristics especially in children and adolescents, the potentially role of personality and also intelligence should not be ignored (4, 5).

With the transition from childhood to adulthood, some experiences are developed in areas of identity and character and faced with the issues of identity; new challenges are manifested in their lives (6). These challenges become more apparent by the day in their personal and social life and also play a persistent role in their personality developments(7).

Self-efficacy is referred to the ability of dealing with the problems for achieving successes (8). This ability can potentially impact educational motivations. Self-efficacy is more influenced by personality characteristics, self-esteem, hard-working, and no vouchsafing than by intelligence and ability to learning (9, 10). Thus, it seems that reorganizing identity styles and self-efficacy can result in educational success.

Moreover, metacognition plays a certain role in successful learning (11). Metacognition includes both cognitive processes and cognitive experiments. Metacognition refers to the use and management of cognition control processes(12). In fact, metacognition provides the ability of understanding different aspects of individual's capabilities and thus control of individual's educa-

tional and functional developments (13). In order to identifying metacognition activities as well as identifying factors influencing thought of problem solving through metacognitive control, association between metacognition and educational success is necessary.

The present study aimed to assess the value of identity styles, self-efficacy and metacognition beliefs for predicting the level of educational success in girl students.

Methods

Study population: During a cross-sectional study, 380 consecutive female students at high schools of Maragheh city in Iran in 2012 were selected using stratified multi-stage random sampling method. Among 15 high schools throughout the city, 4 high schools (and 3 classes of different study fields in each school) were randomly selected and the responders were selected based on stratified sampling method. The study protocol was approved by the Zanjan University of Medical Sciences. The study data were collected by face to face interviewing with the students aimed to assess identity styles, self-efficacy, and metacognition states of the students.

Study measurement tools: The study parameters were assessed using the three questionnaires included: 1) to measure identity processing styles, we used an instrument developed by Berzonsky (1992), the *Identity Styles Inventory*, based on his social-cognitive model of identity development. This instrument is a 40-item inventory useful in identifying students' predominant style of processing information related to identity formation, such as their religious beliefs, political ideology, values, and plans for the future. It includes three sub-scales designed to detect preferred identity processing style: information orientation, normative orientation, and diffusion orientation. Reported test-retest reliabilities for the sub-scales range from 0.71 to 0.75; internal reliabilities showed alphas ranging from 0.68 to 0.73 (7). Berzonsky also reports acceptable validity data. In Iranian population, the Cronbach's alpha for assessing reliability was estimated in the range of 0.69 to 0.76 and the reliability using the test-retest analysis ranged 0.52 to 0.71. Also, measuring coefficient analysis of the questionnaire with the Dillas's inventory as the references showed a good validity for the questionnaire with the correlation coefficient of 0.85.

2) Self-efficacy was assessed using the General Self-Efficacy Scale (GSES) developed by Sherer et al (1982). The original scale consisted of a Likert format 17-item scale representing the three aspects underlying the scale; i.e. willingness to initiate behavior, 'initiative', willingness to expend effort in completing the behavior, 'Effort', and persistence in the face of adversity, 'persistence'. Respondents were asked to indicate whether various statements applied to them (strongly disagree, disagree, no disagreement/agreement, agree, strongly agree; range 1-5). Sum of item scores reflects general self-efficacy. The higher the total score is, the more self-efficacious the respondents. Reviewing various organizational studies, Chen et al in 2001 found internal consistency reliabilities of GSES to be moderate to high (α= 0.76 to 0.89)(14). In two of their studies using samples of university students and managers, Chen et al. reported high internal consistency reliability for GSES (α= 0.88 to 0.91 respectively). In our study, the reliability and the validity of the questionnaire using the Cronbach's alpha coefficient (α = 0.86) and the correlation coefficient test (r = 0.68) were found to be acceptable.

3) Metacognitions Questionnaire-30 (MCQ-30) was developed by Cartwright-Hatton and Wells (1997) as a 30-item short form for assessment of metacognition ability consisted of the items about positive beliefs regarding worry, uncontrollability and danger, cognitive confidence; need to control thoughts, and cognitive self-consciousness (15). Every item in the MCQ-30 is answered on a 4-point Likert scale, between definitely disagree to definitely agree that higher scores showing dysfunctional metacognitive activity of a pathological type.

The internal consistency co-efficient (Cronbach's alpha) for the original scale developed by Cartwright-Hatton and Wells was ranged 0.72 to 0.93 for the whole scale, with subscales range between 0.59 and 0.87. In our population, the Cronbach's alpha was 0.91 for the whole scale, with subscales ranging between 0.59 and 0.83.

Statistical analysis: Results were presented as mean ± standard deviation (SD) for quantitative variables and were summarized by absolute frequencies and percentages for categorical variables. The Pearson's correlation test was applied to examine association between the study measures. Multivariate linear regression models were employed to determine association between educational success rate and different personality traits. For the statistical analysis, the statistical software

SPSS version 20.0 for windows (SPSS Inc., Chicago, IL) was used. P values of 0.05 or less were considered statistically significant.

Results

Regarding fields of study, 40.0% were educated in the field of experimental Sciences, 21.3% in humanities, 22.9% in mathematical sciences and physics, 7.1% in accounting, and 8.7% in computer science. The grade point average in 14.7% was very high, in 41.2% was high, in 30.8% was intermediate, in 10.5% was low, and in 1.8% was very low. With regard to educational level of the fathers, 9.2% of student had the illiterate fathers, while, fathers of 55.3% of fathers had under-diploma degree, 18.9% had diploma degree, 3.2% had associate degree, 9.2% had bachelor degree, and 4.2% had master degree. Also, regarding educational level of the mothers, 14.5% were illiterate, 57.1% had under-diploma degree, 17.1% had diploma degree, 6.6% had associate degree, 4.5% had bachelor degree, and 3.0% had master degree. Regarding occupational status of the fathers, 4.2% were unemployed, 53.7% were self-employed, 16.1% were employed, 7.1% had cultural jobs, 7.9% were worker, and 11.1% were also farmer. Also, with respect to the mothers' occupational states, 85% were housewife, 2.4% were self-employed, 4.5% were employed, and 8.2% had cultural activities. Regarding residency, 86.3% lived in urban areas and others were resident in rural areas. 87.9% of the students were interested in their educational fields. Regarding economic state, 8.9% had low economic level, 78.9% had moderate economic level, and only 12.1% had an appropriate economic level. With regard to success rate in education, 83.7% were success in their education fields.

With regard to different subscales of identity styles, the mean score for informative identity style in total studied population was 38.96±11.75; the mean score for normative identity was 28.20±4.99; the mean score for confusion-avoidance identity was 20.64±4.38; and the mean score for students' commitment was 40.83±11.81. The mean total score of self-efficacy in study subjects was 60.78±19.14. Regarding scores of the different metacognition subscales, the mean score for positive beliefs regarding worry was 14.74±4.66, for uncontrollability and danger was 14.24±4.81, for cognitive confidence was 9.13±6.01, for need to control thoughts was 15.82±4.67, and for cognitive self-consciousness was 18.58±6.17.

With regard to association between educational successfulness and different subscales of identity styles, there were significant associations of educational success rate with informative identity ($r= 0.219$, $p<0.001$) and also with commitment (0.205, $p<0.001$), but not with other components of normative identity ($r=-0.042$, $p=0.418$) and confusion-avoidance identity ($r=-0.056$, $p= 0.275$). Multivariable linear regression model with the presence of baseline variables as potential confounders also showed significant relationship between students' education success and two subscales of informative identity style (Beta= 0.025, standard error = 0.010, $p=0.014$) and commitment (Beta= 0.027, standard error= 0.010, $p=0.009$). Direct association was also revealed between level of self-efficacy and students' education success assessed by the Pearson's correlation test ($r= 0.274$, $p< 0.001$). The significant association between self-efficacy and students' education success was also shown in the multivariable linear regression model (Beta= 0.029, standard error= 0.005, $p<0.001$). Regarding relation between different subscales of metacognition and success in education, only subscale of cognitive self-consciousness was directly associated with education success ($r= 0.194$, $p< 0.001$) that was also demonstrated in the multivariable linear regression model (Beta= 0.080, standard error= 0.019, $p< 0.001$).

Discussion

Based on our findings among female high school students, educational success rate was significantly associated with informative identity style and also with commitment so that with increasing these two components of identity styles, the success of the students in their educational fields could be also improved. In fact, it seems that the significant link between informative identity style and success rate could be mediated by the direct effect of this style on motivation in students. In a similar study by Moghaddam et al in 2012, there was significant relationship between identity styles with all of motivation factors and feeling of success; also there was significant relationship between informative identity style with all of motivation factors and success feeling. In this regard, informative identity style was shown to be associated with the different subscales of motivation including extrinsic regulation, identity determine regulation, interjected regulation, integrated regulation, intrinsic regulation. It has been also suggested that informative identity style can significantly predict three parameters of intimacy, commitment, and trust ex-

plaining positive effects of informative identity style on high educational success rate in our population (16). Furthermore, association between informative identity style and hardiness has been also indicated among students in another study by Bayazidi and Ghaderi (2012). It has been demonstrated that individuals using the informative identity style actively seek out information and solutions before committing to one specific idea or solution (17). Research has shown that utilization of an informative identity style is positively associated with self-reflection, problem-focused coping efforts, high need for cognitive complexity, and vigilant decision making (18). In total, it can be concluded that having informative identity style can be accompanied with high motivation, high commitment, and hardiness that are major factors for educational success in students. Thus, those students who have an informative identity style are more likely to succeed in their educational fields.

As another result of our study, direct association was also revealed between level of self-efficacy and students' education success. The similar association was previously found among college students; however a few studies focused on high-school students. In this regard, it has been found that academic self-efficacy is a more robust and consistent predictor of academic success (19). Self-efficacy is defined as a self-evaluation of one's competence to successfully execute a course of action necessary to reach desired outcomes. It seems that high academic self-efficacy successfully mediates the college demands and results in lower perceived stress. From a practical perspective, self-efficacy can be equally a good measure of success for high-school students.

We also showed an association between cognitive self-consciousness and education success. The studies on the effectiveness of cognitive self-consciousness have been more focused on its role for predicting worry or anxiety in some psychological conditions such as obsessive-compulsive disorders or mood disorders. Therefore, relation between cognitive self-consciousness and success in students seems to be a new concept needing more assessment. Cognitive self-consciousness is the tendency to focus attention on thought (20). It may be suggested that the students with high cognitive self-consciousness have concurrently high obsession thoughts that may help them problems solving, focus tasks and exams, and also more comprehensive educational planning. These concepts should be more deeply assessed in further studies.

In conclusion, our study showed that high levels of informative identity style, commitment, self-efficacy and cognitive self-consciousness can predict high educational success in female high-school students. In fact, positive and constructive interaction between these factors can result in high educational success among students to solve their educational issues, to plan their educational programs, and also to deal with coursework problems.

Acknowledgement

This study was supported by the Zanjan Islamic Azad University. We thank the University authorities who offered critical administrative support and managerial services in carrying out the study and also all researchers for their help and support.

Conflicts of interest: None declared.

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