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Prediction of Academic Performance Based on Dimensions of Academic Identity and Flourishing among Students of the University of Medical Sciences

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Abstract

Background & Objective: Evaluation of academic performance and recognition of effective factors in this regard can considerably help the improvement of the academic and educational states of students. This study aimed to evaluate the role of academic identity, academic vitality, and flourishing in the prediction of academic performance of students at the University of Medical Sciences.

Materials and Methods: This descriptive-correlational study was conducted on 200 students of the University of Medical Sciences, selected by random multistage sampling. Data were collected using the questionnaires of academic identity, academic vitality, and flourishing. In addition, data analysis was performed in SPSS version 21 using canonical correlation analysis and multiple regression.

Results: In this study, there was a significant relationship between the variables of academic performance and dimensions of academic identity, academic vitality, and flourishing of students ($F=73.35$, $\lambda=0.644$, $P<0.001$). In addition, the regression analysis results revealed that 36% of the variance of academic performance was explained by the predictive variables (dimensions of academic identity, academic vitality, and flourishing).

Conclusion: According to the results of the study, a rigorous and detailed plan can be defined based on the academic performance of students and their knowledge of effective factors to actualize the potential talents of students and lay the foundation for more growth and flourishing of these individuals.



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Introduction

The issue of success in education is one of the most important concerns of any educational system (1). Improvement of academic performance in any society is indicative of the success of its educational system in the field of achieving goals and meeting individual needs (2). Academic performance is defined as all activities performed by a person to pass various degrees (3). In fact, academic performance affects important aspects of one's life, such as getting a better job and a better social status and being more satisfied (4). One of the individual factors with social cognitive nature affecting educational status is the evolutionary process of academic identity and factors affecting this issue (5). One of the personal dimensions, the identity variable plays an important role in the educational performance area (5). In this regard, one of the important dimensions of identity is the formation of academic identity, which refers to one's belief in how to study and use effective strategies to succeed in this path (6).

Was and Isaacson proposed four academic identity statuses. These scholars believe that diffuse academic identity is often accompanied by a delay in decisions that are related to academic values (7). In the foreclose academic identity status, the student derives his goals

and values from important people in his life without research. Meanwhile, in the moratorium academic identity status, students struggle to organize information and draw conclusions. The achieved status is the last academic identity that refers to a commitment to a set of academic values formed after a period of exploration (7). According to Berzonsky and Kuk, students with an achieved academic identity status have higher levels of academic autonomy and clear academic goals. On the other hand, while students with the foreclose academic identity status have clear academic goals and a higher level of commitment, compared to the achieved status, they have lower academic and emotional autonomy (8).

In a research by Hosseinejad, students with achieved and moratorium identity states had higher academic achievement, compared to diffuse and foreclose identity states (9). Students with any identity status deal with various obstacles during their education, including high stress level, poor scores, and decreased motivation. These individuals need academic adjustment to increase the ability to cope with academic problems. In this context, one of the abilities considered in the academic adjustment of students is academic vitality (10), which refers to a positive and adaptive response to a variety of challenges in the field of

education (11). Antecedents of academic vitality include psychological, school, and family and peer factors (12). Vitality has a significant impact on increasing students' ability to cope with academic problems (11). In fact, academic vitality is one of the important indicators in successful learning that leads to proof of abilities and scientific advances (13). In a research by Sarah et al., academic vitality had a significant effect on the improved academic performance of students (10).

According to Putwain and Daly, academic vitality significantly predicted the academic performance of students (14). Students with achieved identity status and proper academic vitality have high flourishing and mental health due to having a good academic status (e.g., good scores and lack of repetitive absences). In fact, flourishing plays a role in creating a positive feeling toward education. Therefore, flourishing can be one of the major factors for the growth and development of the educational systems (15). Flourishing is a construct in positive psychology that refers to living with permanent optimism (16). This concept is associated with positive reactions, positive relations with others, high life expectancy, and low depression levels (17). Students with high levels of flourishing experience better academic achievement, compared to their peers (18). In addition, flourishing is positively related to focus, attention, and commitment to assignments, which are the main features of academic engagement (19). In a research, Datu marked a significant relationship between the flourishing and academic achievements of high-school students (20). Moreover, Suldo et al. found a direct association between proper academic performance and flourishing.

Students will be the leaders of tomorrow's society (19). On the other hand, the academic performance of this stratum of society is considerably important due to its effect on finding a suitable job, learning how to interact with the surrounding environment, and developing personal growth (21). Decreased academic performance of students is one of the major problems of educational systems, which causes many damages to students, their families, universities, and society by wasting current expenses and developing student frustration (22). Researchers seem to have a one-dimensional perspective regarding dealing with academic performance variables, in a way that academic performance was considered an issue depending on the conditions, improvement of each of which gets us closer to the designed educational goals. However, the role of students in this regard is still not clear to the educational system of Iran. With this background in mind, this study aimed to evaluate the role of academic identity, academic vitality and flourishing in the academic performance of students. In addition to expanding

theoretical views in the field of educational psychology among students, the present research could be a guideline for families, society, as well as educational managers and system. In this way, there is a growing interest among the students and it is possible to apply and choose effective strategies for achieving better performance and academic achievement of adolescents and youth. In fact, the current research evaluated two hypotheses, including: 1) there is a significant relationship between academic identity, academic vitality and flourishing and students' academic performance, and 2) academic identity, academic vitality and flourishing predict the academic performance of students.

Materials and Methods

This descriptive and correlational research was conducted on all students in Kermanshah University of Medical Sciences, Kermanshah, Iran, during the first semester of the academic year of 2018-2019. According to James Stevens's view of multivariate regression analysis with the conventional least squares method, 15 cases should be considered for each predictor variable. Nevertheless, if the conditions allow, selection of 30 participants per each predictor variable would enable the researcher to show a small effect size better. Therefore, 200 male students (note: unfortunately, it was not possible for the female students to complete the questionnaire because of disagreement by the university officials) were selected using multistage random sampling. In this regard, four schools of medicine, health, dentistry and nutrition science were randomly selected from the schools of Kermanshah University of Medical Sciences. Afterwards, two classes per each school and 25 students per each class were selected randomly. After receiving the list of students of the mentioned schools from the education authorities, the subjects were selected by simple sampling based on the inclusion and exclusion criteria. The inclusion criteria were being a student of the university of medical sciences, receiving an informed consent, confidentiality of information, willingness to participate in the research and having a relative mental health (the students' mental health was assessed using the scores from the General Health Questionnaire in their records). On the other hand, exclusion criteria included a history of psychological diseases, physical diseases and disability affecting life. Notably, the data were collected using the following questionnaires:

Academic Performance

In order to measure academic performance, the GPA of the last two semesters was taken from the head of education, and the academic performance of students

was measured based on their GPAs of these two semesters and the estimated mean score.

Academic Identity Questionnaire

The 40-item academic identity questionnaire was developed by Was and Isaacson and is scored based on a five-point Likert scale. It is notable that all items are scored directly. Given the allocation of 10 items to each identity status, the total academic identity score is in the range of 40-200 (7). Was and Isaacson reported the internal consistency of the questionnaire by Cronbach's alpha technique at 0.85, 0.77, 0.76, and 0.76 for each subscale of the moratorium, foreclose, diffuse, and achieved, respectively (7). Evaluation of the construct validity of the tool by Was and Isaacson through factor analysis led to the extraction of a four-factor construct for academic identity states. In addition, the factor loads of each academic identity status were reported significant and in the range of 0.30-0.70 (7). Moreover, In the Iranian community, the reliability of the questionnaire was reported by Amani and Was at 0.81, 0.52, 0.51, and 0.79 for the moratorium, foreclose, diffuse, and achieved identity states, respectively (23).

Academic Vitality Questionnaire

The academic vitality questionnaire was developed by Dehghanizadeh and Hosseini by modeling the four-item academic vitality scale designed by Martin and Marsh. The questionnaire used in the present study has nine items and is scored based on a five-point Likert scale. In addition, the score range of the questionnaire is 9-45 (24). According to the results, the Cronbach's alpha of the questionnaire and the retest coefficient were estimated at 0.80 and 0.73, respectively. Furthermore, the correlation coefficients of the items with the total score ranged from 0.51 to 0.68. These results confirmed

the suitable reliability and validity of the tool (25). In a study by Dehghanizadeh et al., the reliability of the tool was confirmed at the Cronbach's alpha of 0.77, while its validity was estimated in the range of 0.54-0.64 based on the correlation of each item with the total score. In another study by Sabzi and Fouladchang, the validity and reliability of the tool were calculated at 0.87 and

0.82 using the factor analysis method and Cronbach's alpha technique, respectively, thereby confirming the proper validity and reliability of the questionnaire (26).

Flourishing Questionnaire

The flourishing of students was assessed using the eight-item flourishing scale by Diener and Biswas-Diener. The questionnaire is scored based on a seven-point Likert scale, and the minimum and maximum scores are 8 and 56, respectively, where a higher score is indicative of a higher flourishing level (27). Moradi et al. estimated the reliability of the scale at 0.82 by the internal consistency of Cronbach's alpha and its reliability coefficient was measured at 0.80 by the split-half method. Studies in Japan, New Zealand, Portugal, and Turkey confirmed the acceptable reliability and validity of the questionnaire (28). Data analysis was performed in SPSS version 21 using descriptive statistics, such as mean, standard deviation, the correlation matrix, and regression.

Results

In this study, the mean and standard deviation of the age of the participants was reported at 20.55 and 1.4, respectively.

Table 1 illustrates the indicators of predictor and criterion variables.

Table 1: Mean and standard deviation of variables

variable	Number	Mean and standard deviation	Minimum	Maximum
Academic Performance	200	16/16(1/59)	12	19
achieved Academic Identity	200	36/6(8/03)	11	50
foreclose Academic Identity	200	28/67(13/18)	12	51
diffuse Academic Identity	200	35/24(6/56)	10	49
moratorium Academic Identity	200	36/87(5/88)	17	48
academic vitality	200	32/19(7/12)	12	45
flourishing	200	31/26(12/04)	10	53

The significance of the full canonical correlation model

Table 2: Tests of the full canonical correlation model

Test name	Value	F	Hypothesis df	Error df	SIG	ETA
Pillai's Trace	0/318	82/256	9	588	0/001	0/56
Wilks' Lambda	0/644	73/35	9	576	0/001	0/56
Hotelling's Trace	1/104	91/293	9	472	0/001	0/56
Roy's Largest Root	0/256	-	-	-	0/001	0/56

The results of the significance tests of the full canonical correlation model are shown in Table 2. As observed, the significance of Wilks lambda showed a significant relationship between academic performance and the variables of academic identity, academic vitality and flourishing of students ($P < 0.001$, $\lambda = 0.644$, and $F = 73.35$). In other words, there was a significant

relationship between academic identity, academic vitality and flourishing with students' academic performance. In addition, the model obtained in the current research explained 35.6% of the variance of academic identity, academic vitality, and flourishing (as the predictor variable) of academic performance (as the criterion variable).

Table 3: The correlation matrix of the research variables

Research variables	1	2	3	4	5	6	7
1. Academic performance	1						
2. Academic vitality	0/62**	1					
3. Flourishing	0/41**	0/46**	1				
4. Achieved Academic Identity	0/64**	0/45**	0/61**	1			
5. Foreclose Academic Identity	0/28**	0/14	0/11	0/51**	1		
6. Diffuse Academic Identity	-0/22**	-0/06	-0/04	-0/32**	-0/38**	1	
7. Moratorium Academic Identity	-0/24**	-0/09	-0/10	-0/29**	-0/35**	-0/31**	1

Table 3 demonstrates the correlation matrix of the research variables. According to Table 3, there was a significant relationship between achieved (0.64), foreclose (0.28), diffuse (-0.22) and moratorium (-0.24) academic identities and academic performance.

Moreover, there was a significant association between vitality (0.62) and flourishing (0.41) with academic performance. In addition, the highest correlation coefficient was between achieved academic identity and academic performance (0.64).

Table 4: The results of multiple regression analysis of prediction of academic performance based on academic identity, academic vitality and flourishing

Predictive variables	R	R ²	F	β	T	Sig
achieved Academic Identity	0/64	0/21	58/42	0/56	8/38	0/001
foreclose Academic Identity	0/28	0/09	31/28	0/33	3/8	0/001
diffuse Academic Identity	-0/22	0/04	16/25	-0/25	-3/19	0/001
moratorium Academic Identity	-0/24	0/07	17/41	-0/28	-3/61	0/001
academic vitality	0/62	0/18	51/23	0/51	6/16	0/001
flourishing	0/41	0/13	39/62	0/42	4/86	0/001
Linear combination of variables	0/62	0/36	66/12			

According to the results of the multivariate regression analysis presented in Table 4, multiple correlation coefficient was estimated at $R = 0.62$ for the linear composition of academic identity, academic

vitality and flourishing with academic performance. In addition, the coefficient of determination was estimated at $R^2 = 0.36$.

F related to the multiple correlations obtained was equal to 66.12, which was significant at the level of $P \leq 0.001$. Based on the coefficient of determination estimated, the predictive variables (academic identity, academic vitality, and flourishing) predicted about 26% of the variance of academic performance. In other words, academic identity, academic vitality and flourishing could predict the academic performance of students. As observed, while the β of all three variables was significant among the predictive variables of the study, the achieved academic identity had the highest prediction ability, compared to other variables ($\beta = 0.56$).

Discussion

According to the results of the present study, there was a significant relationship between academic identity, academic vitality, and flourishing and the academic performance of students. In addition, the predictive variables (academic identity, academic vitality, and flourishing) predicted 26% of the variance of academic performance. Our findings were indicative of a significant relationship between the dimensions of academic identity and academic performance. Ahmadi (2006) evaluated the relationship between academic self-efficiency, academic identity, and emotional intelligence with the academic performance of high-school female students in Tabriz, Iran. In line with our results, academic identity especially achieved academic identity, played a pivotal role in the improvement of students' academic performance in the aforementioned research. This could be justified by the fact that adolescents with achieved academic identity have healthy mental adaptation and deal with issues properly.

In general, these individuals have high self-efficiency and low anxiety. In addition, with an autonomous and integrated choice, these people are committed to a set of values, roles and academic goals and a self-made identity. Moreover, they are less affected by others and face fewer academic problems due to high purposefulness and self-monitoring. Adaptability and adapting to new conditions are key features of the formation of achieved student identity. Moreover, these individuals are coherent and hard-working people with high self-esteem. In addition, they are self-conscious and have internal control and problem-solving abilities. They are hopeful about the future and trust their abilities, all of which result in proper academic performance (29). Furthermore, Gazidari et al. (2016) assessed the relationship between academic identity, and self-regulated learning strategies with the academic performance of students, finding a significant association between the four identity statuses and academic performance, which is consistent with our findings. Generally, students with the foreclose

academic identity are adaptive and reliable people while being less explorative. However, they commit to early childhood values, which results in an inner order that helps the self-regulation ability of these individuals.

On the other hand, students aim to have a proper academic performance to meet the expectations of their parents and other important people due to the dependence of identity structures on texture (parents, teachers, peers, and role models) and the effect of valuation of external values on these individuals. It is notable that while students with the foreclose academic identity are completely adaptable people and act based on norms, they must change and reconstruct their personality to flourish, become autonomous and build their unique self by getting rid of mere imitation and adherence (30). In addition, Amani conducted a research in 2011 to evaluate the relationship between academic identity and goal orientation with the academic performance of students. In the end, the academic identity states played a role in the academic performance of students, which is congruent with our findings. This could be justified by the fact that students with moratorium identity have no commitment to their academic goals and face a shortage of time due to spending a large amount of time on exploration. This behavior results in increased anxiety among these individuals to finish their assignments and leads to more delays in starting and following up assignments, which ultimately causes poor academic performance. In fact, adolescents with moratorium identity must be exposed to the necessary and accurate information about themselves and their educational environment to make the necessary

In the end, the diffuse academic identity was the most incompatible academic identity status, which has many academic and emotional consequences. The motivational and textural factors (family, school, and friends) of adolescents with this academic identity status must be re-evaluated so that they would find the motivation to study and analyze themselves. Students with diffuse academic identity status have more procrastination in education and lower academic performance due to a lack of exploration and commitment to educational goals. In fact, these students avoid dealing with identity and decision-making issues. These individuals often experience fear and anxiety before decision-making and use inappropriate strategies such as avoidance and rationalization in decision-making. In addition, they have improper academic performance owing to their low self-esteem, negative self-concept and incomplete self-regulation (31).

According to the results of the present study, there was a significant relationship between academic vitality and academic performance. In line with our findings,

academic vitality played a pivotal role in determining the academic performance of Australian students, reported by Tarbetsky et al. (2017) (33). In addition, Putwain and Daly (2013) marked that academic vitality properly predicted the academic performance of students (14). Moreover, Yarahmadi et al. (2017) indicated the effectiveness of education of academic vitality on the academic performance of students (35), which is somehow consistent with our findings. In explaining this finding, it can be said that students face a variety of challenges, obstacles, and pressures during their studies, which is a threat to their confidence, motivation and consequently their academic performance. Academic vitality refers to a positive, constructive, and adaptive response to a variety of academic challenges and obstacles. Therefore, when a student does his assignments spontaneously, not only he does not feel fatigued and disappointed, but also he experiences a boosted energy. Having such a feeling in education increases the effort and perseverance and ultimately increases the student's academic performance.

In addition, students with academic vitality are more resistant to solving these challenges, are more attentive to them, and likely to be, successful in solving them, all of which lead to improved academic performance. Moreover, academic vitality leads to beliefs in students that results in the personalization of their abilities and a positive assessment of their school and its environment and positive results. This issue strengthens people against adverse conditions. Students who work in a vibrant, happy environment conduct creative activities easier than those who are unhappy and distracted by seeing the signs around them. This makes people stronger against adverse conditions. The proper form of academic vitality results in academic advancement and increased creativity. In addition, it encourages people to move forward since individuals with positive academic emotions move passed the problems after understanding them and focus on the solution. Therefore, an optimistic and positive attitude is naturally associated with success (25).

Moreover, our findings were indicative of a significant relationship between flourishing and academic performance. In accordance with our findings, Datu (2018) demonstrated that flourishing played a role in the academic performance of Filipino students. This could be justified by the fact that flourishing can be assessed consistently with high-level human needs, such as self-actualization. In fact, self-actualization can be attained through education, pointed out by Maslow. Therefore, the positive and direct relationship between flourishing and academic performance can be justified. In other words, higher flourishing will increase the level

of academic advancement and participants. Conversely, people with a good educational status report higher rates of flourishing (28). Students with a higher flourishing rate find meaning in doing assignments, have more personal skills, focus on doing their assignments and are more committed to the professors' demands and completing assignments. Moreover, they follow these demands with a higher motivation, guide creativity in the right path, are more eager to continue their education, and have a higher hope for graduation and finding a suitable job (20). In a research by Hashemizadeh & Mahdavian (2018), flourishing predicted the academic performance of students. In fact, students with high flourishing rates have a higher level of emotional wellbeing, have more positive evaluations of their surrounding events, tend to live purposeful lives and feel autonomy and independence. Furthermore, they have the power of internal control and choosing their own destiny, all of which improve the performance and especially the academic performance of these students.

In other words, flourishing improves emotional health and increases motivation in individuals. Moreover, it leads to the formation of beliefs in people that could increase their effort, duration of efforts and flexibility in dealing with doing assignments, thereby increasing their chance for success (36). In a research, Beiranvand pointed out the importance of flourishing in improving the academic performance of students. In fact, self-efficacy, ability to love, social behavior, active participation, and pursuit of goals in people with high levels of flourishing lead to higher life satisfaction, higher social goals (e.g., good job performance), choosing the right job, a higher chance of graduation, and more health care, which are extremely significant in today's society (37).

Conclusion

According to the results of the present study, there was a significant relationship between academic performance and academic identity, academic vitality and flourishing states. In the age of ICT, educational systems are required to rethink and rebuild the curriculum and revitalize and enrich the learning environment to engage students and learning resources. Therefore, universities and counseling centers must define specific, well-written and accurate plans based on the academic performance of students and their level of knowledge of effective factors in order to harness the potential of the students and provide them with the opportunity to grow and flourish. One of the major drawbacks of the present study was including only male medical students. Therefore, conducting similar studies on students of other universities and female students and comparing the results could be significantly effective in

designing educational programs. Other limitations included the small sample size, reliance on the questionnaire tool, and the correlational nature of the research. It is recommended that qualitative methods (e.g., interviews) be applied in future studies to enrich the study.

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