Academic Self-efficacy and its Relationship to Academic Competitiveness, Academic Procrastination, and Cognitive Flexibility among Undergraduate Students

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Abstract

This paper aims to explore the relationship between academic self-efficacy, academic competitiveness, academic procrastination, and cognitive flexibility. In addition, it reveals differences in gender, academic specialization, and study level among undergraduate students. The participants were (450) undergraduate students(300) fourth year, and (150) first year at College of Education at a University in Egypt. Academic self-efficacy, academic competitiveness, academic procrastination, and cognitive flexibility scales were used. Descriptive statistics were performed using SPSS. The findings indicated a positive relationship between academic self-efficacy, academic competitiveness, and cognitive flexibility, whereas negative with academic procrastination. In addition, there are significant differences in academic self-efficacy in favor of females, and in favor of males in academic procrastination, but no gender differences in academic competitiveness and cognitive flexibility. The findings also explored significant differences in academic self-efficacy in favor of scientific specialization, and no specialization differences in academic competitiveness, academic procrastination, and cognitive flexibility. The results also revealed significant differences in study level in academic self-efficacy, academic procrastination, and cognitive flexibility in favor of fourth-year students, whereas no differences were found in academic competitiveness. Some recommendations were presented considering the research results.

Keywords: academic self-efficacy, academic competitiveness, academic procrastination, cognitive flexibility

1. Introduction

There are four variables in the current study as follows:

1.1 Academic Self-Efficacy

Social cognitive theory emphasizes that self-efficacy is a key variable that is associated with academic adjustment and achievement, and the self-efficacy construct best explains students' academic self-confidence (Matoti, 2011). It refers to the student's confidence in his abilities to successfully perform academic activities at the required level (Schunk, 1991). Academic self-efficacy is based on the social cognitive theory of Bandura, which assumes the existence of mutual influences between personal, behavioral, social, and environmental factors, and is an essential element of personal strength (Schunk & DiBenedetto, 2022). Academic Self-efficacy is a major factor that contributes to a student's success, as it affects the choices they make, the courses of action they follow, and the achievement of specific academic goals. It also enhances their interest and participation in learning, as well as their perseverance and effort in overcoming challenges and difficulties, and improving their use of effective learning strategies, such as planning, organizing, monitoring, and evaluating their learning (Bandoura, 1997; Chemers et al., 2001; Greco et al., 2022; Meng& Zhang, 2023). Students with high academic self-efficacy are characterized by having a greater sense and confidence in their competence, flexibility in searching for solutions, achieving higher mental performance, being able to organize themselves, performing tasks in an organized manner, having greater accuracy in evaluating their performance, and maintaining high levels of directed motivation. towards achievement, perseverance in the face of difficulties and problem-solving, and control over tasks, and they are less susceptible to disorders (Bandura, 1997).

1.2 Academic Competitiveness

Competitiveness is a term used to describe how a person perceives their competence and ability to compete in any competition form and a strong desire to win in interpersonal situations and surpass others (Krishnan et al., 2002). Students with high levels of academic competitiveness seek personal improvement and outperform themselves or others by taking proactive measures toward achievement, such as effective study habits and consistent teacher communication (Ryckman et al., 1997). There is a significant association between personal competitiveness and personal factors, highly competitive students tend to be independent, perseverant, assertive, emotional, and dynamic communicators, They exhibit diplomacy, emotional restraint, and insight in communication to find ways out of difficult situations (Zakharova et al, 2018). Bing (1999) studied students' competitiveness in an academic environment and found that it was positively associated with the achievement of valued academic goals, such as a high GPA, and suggested that students who possess high levels of academic competitiveness are also willing to engage in behaviors that contribute to their superiority. According to Hinsz and Jundt (2005), higher levels of competitiveness correlate with higher levels of performance. In academic contexts, highly competitive students are more willing than others to demonstrate high levels of academic achievement, and thus are expected to have greater opportunities for achieving outstanding academic results than students with a lower level (Bing, 1999). Shimotsu-Dario et al. (2012) attempted to investigate the relationship between students' academic competitiveness and their engagement (such as students' motivations to communicate with teachers, communicate with them outside the classroom, and integrate into classrooms), and the results resulted in a significant correlation between students' academic competitiveness and their engagement in the learning process.

1.3 Academic Procrastination

Academic procrastination is a public behavior among university students (Kandemir, 2014). It is defined as a form of self-regulatory failure, where one delays an intended course of action despite expecting to be worse off for the delay (Steel, 2007). It is also non-strategic procrastination of commitments, which means a delay in initiating or completing actions or decisions related to academic activities (Geara et al., 2019). It is intentional procrastination of academic assignments that must be completed on time, such as tests, research, or university requirements (Schraw et al., 2007). Half of the university students tend to postpone academic tasks (Rozental& Carlbring, 2014). Some research indicates that more than 70% of university students tend to postpone the academic tasks required of them repeatedly (Schraw et al., 2007). Kim & Seo (2015) reported that 80- 95% of students are involved in procrastination. The prevalence of academic procrastination may increase to 97%.

Academic procrastination has a significant negative impact on students' academic performance and is linked to several related variables, such as low self-esteem, high levels of academic anxiety, and fear of failure (Karla Silva Soares et al., 2022). It leads to sleep deprivation, fatigue, malnutrition, lack of exercise, and low self-esteem, which may affect the immune system, increase susceptibility to disease, deteriorate overall health, and affect students' academic quality of life (Furlan & Cristofolini, 2022).

1.4 Cognitive Flexibility

Flexible thinking is the key to success in many areas of life, It also gives individuals the ability to face difficult situations and crises (Martin & Anderson, 1998). Cognitive flexibility is a performative function that helps individuals change and diversify their ways of mentally dealing with matters according to their nature, by analyzing their difficulties into factors that can be considered and benefited from in finding a solution (Dennis & Vander Wal, 2010). It refers to the ability to change one's cognition according to changing environmental conditions (Dennis & Vander Wal, 2010). Cognitive flexibility is also defined as the individual's awareness of the fact that there are options and alternatives to a situation that are accessible and that he can adapt to different situations (Martin & Anderson, 1998). It is the real reason for the individual's efficiency and successful behavior in daily life, it enables them to control their behavior and face changes in the environment, helps in solving problems and creative behavior, and uses organizational strategies to adapt to the requirements of the changing environment, (Kloo, 2010). Cognitive flexibility also helps individuals replace maladaptive thoughts with adaptive thoughts, create alternatives, and evaluate difficult situations to make them easier to deal with (Gülüm & Dağ, 2012). Students with high cognitive flexibility have a faster rate in the learning process than those with low cognitive flexibility, because of the association between cognitive flexibility and superficial and deep learning strategies and self-directed learning, which is closely associated with academic performance (Begum et al., 2023; Kercood et al., 2017; Sinnott et al., 2020; Zheng, 2014). Cognitive flexibility covers three aspects: the tendency to perceive challenging situations in a controllable way, the ability to perceive possible alternatives to human behaviors and circumstances in life, and the ability to create new solutions to resolve challenging conditions (Dennis & Vander Wal, 2010).

2. The Research Problem

Improving self-efficacy is a source of strength and resilience among university students (Amitay & Gumpel, 2015). However, the lack of self-efficacy affects social and emotional self-efficacy beliefs (Bandura, 1997). Sachitra & Bandara (2017) indicated that university students lack confidence in asking and answering questions, asking for help from lecturers, developing a study plan, participating in academic discussions, and taking notes. Students with high levels of academic competitiveness are involved in the learning process (Shimotsu-Dariol et al., 2012). Significant correlations were found between competitiveness and some personality traits, such as neuroticism, self-esteem, machismo, and self-actualization, in several student samples (Ryckman et al., 1990). Academically competitive students may strive to outperform themselves or others, and their ambition to succeed may motivate them to take proactive measures to achieve success, such as effective study habits and frequent contact with their instructors (Ryckman et al., 1997). Academic procrastination has a significant negative impact on students' academic performance and is linked to several related variables, such as low self-esteem, high levels of academic anxiety, and fear of failure (Karla Silva Soares et al., 2022). Hayat et al. (2020) detected that 47.9% of the students stated that academic procrastination at a moderate level had caused a lot of problems. Cognitive flexibility is the real reason behind the intelligence, superiority, and distinction of exceptional individuals because it is the actual generator of ideas, solutions, alternatives, and opportunities, and it is not available to those with one-directional thinking (Martin & Anderson, 1998).

From the above, the relationships between academic self-efficacy, academic competitiveness, academic procrastination, and cognitive flexibility are dynamic, Undergraduate students who have high levels of academic self-efficacy, academic competitiveness, and cognitive flexibility reduce academic procrastination and inhibit the reasons that lead them to postpone academic tasks. As well as low academic self-efficacy, lead to academic procrastination by reducing the student's motivation and participation in learning activities, which leads to a further decrease of the student's academic self-efficacy and cognitive flexibility. The current research problem can be addressed through the following questions:

(1) Is there a relationship between academic self-efficacy, academic competitiveness, academic procrastination, and cognitive flexibility among undergraduate students?

(2) Are there gender differences in academic self-efficacy, academic competitiveness, academic procrastination, and cognitive flexibility among undergraduate students?

(3) Are there academic specialization differences in academic self-efficacy, academic competitiveness, academic procrastination, and cognitive flexibility among undergraduate students?

(4) Are there study level differences (first-fourth year) in academic self-efficacy, academic competitiveness, academic procrastination, and cognitive flexibility among undergraduate students?

3. Method

3.1 Participants

The data were collected from a total of 300 students enrolled at the College of Education, Kafrelsheikh University, Egypt, who volunteered to take the study questionnaires from some of the scientific and humanities departments in the fourth year of the academic year 2022- 2023, divided into 130 scientific students (50 males and 80 females) and 170 humanities departments (70 males and 100 females), in addition to 150 students in the first year of the college. Descriptive, correlational, and comparative methods were used to explore the relationship between the variables and to compare and reveal gender differences (male/female), specialization (scientific/humanity), and academic year (first/fourth).

3.2 Measures and Procedures

3.2.1 Academic Self-Efficacy Questionnaire

The questionnaire aims to measure academic self-efficacy among undergraduate students, as developed by (Sachitra& Bandara, 2017). It consists of 20 statements, and the participant answers according to a Likert scale on a five-point scale ranging from (strongly disagree - strongly agree). The participant's score on the questionnaire ranges from (20 to100), and an increased score on the questionnaire was an indicator that the participant had a high level of academic self-efficacy. The Academic Self-Efficacy Questionnaire was translated into Arabic and revised by professors specializing in English and educational psychology to conduct a back translation. To ensure validity in language and translation, a correlation of .85 was obtained between Arabic and original forms. The questionnaire

showed high test-retest reliability for the total score (r =.79) and .81 for split-half reliability and internal consistency, and the coefficient of the questionnaire was .75.

3.2.2 Academic Hypercompetitiveness Scale

Bing (1999) developed hypercompetitiveness in academia, that measures undergraduate students' competitiveness in an academic setting. The academic setting is a competitive environment that provides the opportunity for students to compare their performance and compete to obtain rewards (Bing, 1999) .It's a self-report scale consisting of 18 items, and the participant responds according to a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree), so the participant's score on the scale ranges from (7 to 126). According to Bing (1999), the scale has a high level of psychometric efficiency of 0.86. The author translated the scale into Arabic, then presented the scale to translation experts for back translation, and then to experts in educational psychology, After that, the scale was tested on a pilot sample. Various methods were conducted to ensure the validity and reliability of the scale.

3.2.3 Brief Inventory of Academic Procrastination

This inventory aims to measure academic procrastination among university students, as developed by (Geara et al., 2019). It is a self-report inventory consisting of 20 items, (1-10) negative items are given scores (1, 2, 3, 4, 5), while (11-20) positive items are given scores (5, 4, 3, 2, 1), and the participant's score on the scale ranges from (20 to100). The Brief Inventory of Academic Procrastination was translated into Arabic and revised by professors specializing in English and educational psychology to conduct a back translation to ensure the integrity of the translation. A correlation of .87 was obtained between the original and Arabic forms. Reliability and validity evidence were confirmed in the inventory using appropriate statistical methods.

3.2.4 Cognitive Flexibility Inventory (CFI)

Cognitive flexibility inventory is a self-report measure that measures the individual's engagement in cognitive behavioral challenging situations (Dennis & Vander Wal, 2010). It consists of 20 items that measure two factors of cognitive flexibility. First are alternatives, which refer to the ability to realize numerous alternative explanations for life events as well as the ability to generate alternative solutions. in difficult situations and includes items (1, 3, 5, 6, 8, 10, 12, 13, 14,16,18, 19, 20). The second is: Control, which refers to the presence of a locus of control or the readiness to perceive difficult situations as ones that can be faced and overcome, and includes items (2, 4, 7, 9, 11, 15, 17). Items (2, 4, 7, 9, 11, 17) are reversed. The participant answers the inventory according to the seven-point Likert scale, where scores are given from (1 strongly disagree- 7 strongly agree), and thus the student's score ranges from 20 to140, while a high score indicates that the participant has more cognitive flexibility. The cognitive flexibility inventory was translated into Arabic and revised by professors specializing in English and educational psychology to conduct a back translation to ensure the integrity of the translation. The correlation between the original and Arabic forms was 0.88. The inventory showed high test-retest reliability for the total score (r = .79) and .81 for split-half reliability and internal consistency, and the coefficient of the inventory was.75.

3.3 The Limitations of the Study

The results of the study are determined by the sample used, which is university students, and the tools used to measure the variables, as well as the period for collecting data in the academic year 2022-2023. The results of the research are also determined spatially at Kafrelsheikh University in Egypt.

4. Results and Discussion

4.1 Question 1: Is there a relationship between Academic Self-efficacy, academic competitiveness, academic procrastination, and cognitive flexibility among undergraduate students?

To answer this question, the author used "Pearson's correlation coefficient," and the results were as shown in Table 1.

Table 1. Correlation coefficients between academic self-efficacy, academic competitiveness, academic procrastination, and cognitive flexibility (n = 300)

Variable	Academic Competitiveness	Academic procrastination	Cognitive flexibility
Academic self-efficacy	**0.562	**-0.415	**0.583

**All correlation coefficients are significant at the level (0.01).

As shown in Table 1,

(1) There is a statistically significant positive correlation between academic self-efficacy and academic competitiveness, the correlation coefficient was equal to (0.562), which is statistically significant at the significance level (0.01). This result is consistent with Moke et al. (2018), which indicated that there is a strong effect of academic self-efficacy on academic competitiveness among university students. As well, Yeoh et al. (2015) indicated that low self-efficacy can lead to individuals being less competitive compared to others when they are overly dependent on preferential policies. This result may be explained by the student's confidence in himself and his abilities to achieve his goals, which push him to compete with himself and others. To know more about the relationship between academic self-efficacy and academic competitiveness, further studies should be conducted in the future.

(2) There is a statistically significant negative correlation between academic self-efficacy and academic procrastination, as the correlation coefficient was equal to (-0.415), which is statistically significant at the significance level (0.01). This is consistent with Aniljose et al. (2021); Bozgün & Baytemir (2022); Güngör (2020); and Hen & Goroshit (2014) which resulted in a statistically significant negative correlation between academic self-efficacy and academic procrastination. That means Students with low academic self-efficacy showed higher academic procrastination scores than those with high self-efficacy (Mandap, 2016). This might be explained as the student's possession of high self-efficacy increases his confidence and belief in his abilities and capabilities in achieving his goals; his continued passion for learning and lack of avoidance and getting bored from studying; and his ability to organize and implement the required courses of action, lead him to accomplish the tasks required of him at the university faster and with the best possible performance.

(3) There is a positive, statistically significant correlation between academic self-efficacy and cognitive flexibility. The correlation coefficient was equal to (0.583), which is statistically significant at (0.01). This result is consistent with the findings of (Çelikkaleli, 2014; Pepe, 2021). This result can be explained by the fact that academic self-efficacy, represented by the student's confidence in himself and his abilities, prompts him to think flexibly, overcome the difficulties he faces in academic aspects, reformulate the situation again, and generate the largest possible number of alternatives that contribute to solving the problem. Moreover, Esen et al. (2017) found that cognitive flexibility can be predicted through academic self-efficacy.

4.2 Question 2: Are there any gender differences in academic self-efficacy, academic competitiveness, Academic procrastination, and cognitive flexibility among undergraduate students?

To answer the previous question, the author used the "t" test to indicate differences between independent groups, and the results are as shown in Table 2.

Table 2. Differences between males and females in academic self-efficacy, academic competitiveness, academic procrastination, and cognitive flexibility

Variable	Males n=120		Females n= 180		t
	Mean	Std. deviation	Mean	Std. deviation	
Academic self-efficacy	62.44	14.58	70.26	11.28	4.75
Academic competitiveness	78.26	9.24	75.36	8.44	1.93
Academic procrastination	48.12	17.88	39.45	13.02	4.15
Cognitive flexibility	100.35	13.72	98.83	13.86	0.937

As shown in Table 2,

(1) There are differences between males and females in academic self-efficacy in favor of females. This result is consistent with (Abood et al., 2020; Aniljose, Kerala & Aleesha, 2021; Sachitra & Bandara, 2017), which showed that there were differences in favor females. While disagreeing with (Ashraf et al., 2023; Baji, 2020; Turhan, Mwaura, 2020), which resulted in no gender differences in academic self-efficacy, the current results also differ from those (Fallen & Opstad, 2016; Jamil, 2018) because there are differences in favor of males. This could be because males often go out to play ball and electronic games outside the home with friends, and spend long periods outside the home, while at the same time, females stay at home to plan and complete academic tasks, as well as because of the nature of society's preference for males over females, which pushes females to show themselves their superiority and increase their self-confidence by completing academic work with the best performance.

(2) No statistically significant differences in academic competitiveness between males and females were found. This finding is different from Hibbard& Buhrmester (2010) and Martinho et al. (2015), which indicated differences in favor of males. And it differs from Azmi& Mustapha (2017) who revealed females outperformed males in academic competitiveness. The lack of differences in academic competitiveness can be explained by similar educational, cultural, and competitive conditions that males and females experience.

(3) Significant differences in academic procrastination in favor of males were found. It agrees with Aniljose et al. (2021); Mandap, 2016). Whereas disagree with Ashraf et al. (2023), who showed no differences due to gender in academic placement. The existence of differences in academic procrastination in favor of males can be explained by considering the personality traits and social roles expected of both males and females, as males are prepared from the point of view of parents to assume responsibility and build an independent family, which increases the pressure on the student. In addition, males fear failure if the task is completed less than expected, and they fear that their effort may not be sufficient for success and excellence. Likewise, males spending long periods outside the home playing with peers prompts them to postpone the academic tasks assigned to them, and the increased pressure on them from family, peers, and the study environment prompts them to rebel and not complete the academic tasks assigned to them. In addition to digital games, especially combat and sports games, students play and take a long time, which leads to them neglecting and postponing academic tasks.

(4) There are no statistically significant differences in cognitive flexibility between males and females. This finding is the same as that of Al-Saadi (2023) and Çelikkaleli (2014), who showed no differences in gender in cognitive flexibility. But differs from (Algharaibeh, 2020; Wang et al., 2022), which showed differences in cognitive flexibility in favor of males. This result can be explained due to the similarity of the academic and cultural conditions experienced by males and females, especially those who are affiliated with the same college and face situations and problems that may be related to their studies.

4.3 Question 3: Are there any academic specialization differences in academic self-efficacy, academic competitiveness, and academic procrastination among undergraduate students?

To answer the previous question, the author used the "t" test to indicate differences between independent groups, and the results are as shown in Table 3.

Table 3. Differences in academic specialization in academic self-efficacy, academic competitiveness, academic procrastination, and cognitive flexibility

Variable	**Scientific n=130**		**Humanities n= 170**		**t**
	Mean	Std. deviation	Mean	Std. deviation	
Academic self-efficacy	71.52	12.35	61.27	13.85	4.65
Academic competitiveness	75.65	7.23	76.63	7.81	3.24
Academic procrastination	38.24	13.58	40.52	14.35	6.75
Cognitive flexibility	99.76	13.80	98.55	14.24	0.746

As shown in Table 3,

(1) Significant differences between students of scientific and humanities majors on the academic self-efficacy questionnaire in favor of scientific majors were found. These results are the same as (Abood et al., 2020), and differ with, (Basith et al., 2020), as they found differences in academic self-efficacy in favor of the humanities majors. The high scores of students in scientific majors on the academic self-efficacy questionnaire can be explained due to the nature of scientific study, which requires constant research into everything new in the specialty, and the fact that students in most scientific departments are assigned to research and tests on an ongoing basis, which always prompts them to do research, plan, self-organize, and manage their time, which makes tasks and courses easy and enjoyable for them. This increases their motivation, belief, and confidence in themselves and their abilities, and they do their best to complete study-related tasks in the best possible way.

(2) There are no differences between scientific and humanities major students on the academic competitiveness questionnaire. This means that the students in both majors of study have the same level of competitiveness. The results are consistent with the results of John& Joy (2023), which indicated that there are no differences due to educational qualification. These results require further studies to understand more deeply the nature of the differences between scientific and humanities disciplines in academic competitiveness. The lack of differences in academic competitiveness can be explained because students in the scientific and humanities disciplines live together in the same cultural and educational conditions that require competition. As well, students' competitiveness in the academic environment is positively associated with achieving valuable academic goals (Bing, 1999), so they engage in competition regardless of their specialization.

(3) There are no differences between students of scientific and humanities majors in academic procrastination. This result agrees with ELtayeb (2021) and Al-Subaie (2022) indicates more procrastination in favor of humanities major students, and differs from Al-Karbi (2022), whereas it found differences in the academic specializations in favor of the scientific major. The absence of differences due to specialization can be explained by the similarity of conditions, stimuli, and variables that students in the scientific and humanities majors experience, as well as the similarity of the methods and strategies used in teaching, as all students belong to the same university. This can be because all members of the sample are the same age and have full awareness and understanding of the system that the professors follow with them in various assignments and tasks.

(4) There are no differences between students of scientific and humanities majors in cognitive flexibility. This result agrees with Al-Saadi (2023) and Kercood et al. (2017), who concluded that there are no differences in specialization in cognitive flexibility. This finding might explain why students in the scientific and humanities majors usually study at the same college and are exposed to the same stimuli, and sometimes they are even asked for similar assignments and tasks.

4.4 Question 4: Are there study level differences in (first- fourth year) in academic Self-efficacy, academic competitiveness, academic procrastination, and cognitive flexibility among undergraduate students?

To answer the previous question, the author used the "t" test to indicate differences between independent groups, and the results are as in Table 4.

Table 4. Study level differences in academic self-efficacy, academic competitiveness, academic procrastination, and cognitive flexibility.

variable	First-year n=150		Fourth-year n= 300		t
	Mean	Std. deviation	Mean	Std. deviation	
Academic self-efficacy	60.42	15.39	75.25	13.35	5.69
Academic competitiveness	77.25	6.43	76.14	7.41	2.94
Academic procrastination	38.35	14.54	45.93	16.36	5.92
Cognitive flexibility	96.88	10.20	98.08	14.04	1.869

As shown in Table 4,

(1) There are significant differences in study level in favor of fourth-year students in academic self-efficacy. This result is consistent with the results of (Sachitra and Bandara (2017). This can be explained by the fact that self-efficacy develops because of positive social and educational interaction that enhances the individual's idea of himself, which increases his awareness of his abilities, capabilities, thoughts, feelings, and actions increases his ability to analyze the problem to arrive at convincing solutions, and forms his convictions that contribute to increasing his ability to pay attention and use appropriate strategies to complete tasks (Bandura, 1997).

(2) No significant differences in academic competitiveness between first- and fourth-year students were found. These results mean students of all ages tend to compete and show their superiority, especially when there are valuable rewards and prizes. In addition, students are constantly trying to be better in their studies than they are now, so they tend to be academically competitive in all years of their studies. According to Houston et al. (1997), competitiveness is a personality trait, so it doesn't differ according to age or study level. One more explanation is that students' competitiveness in the academic environment is positively associated with achieving valuable academic goals (Bing, 1999), so, they engage in competition regardless of their age or level of study.

(3) There are significant differences in study level in favor of the fourth year in academic procrastination. This result is consistent with the results of (Yong, 2010), who concluded that older students procrastinated more than younger students. The study results vary with Danne et al. (2023), which showed that procrastination behavior decreased across the adult lifespan. The current results disagree with (Al-Subaie, 2022), who concluded that there are no statistically significant differences in academic procrastination due to age. The reason for this is likely to be that fourth-year students have spent many years studying and may have reached some level of boredom and lacked the necessary passion to perform the required assignments. They may have reached a large level of social and family pressures in addition to the pressures of graduating from university and their fear of not having the inherent opportunity for the job, they hope for, while first-year students have a great deal of passion for doing assignments, given that they have just moved on from secondary school, in which they are accustomed to making a great effort to enroll in the colleges they desire.

(4) No significant differences in the level of study in cognitive flexibility were found. This result is consistent with the results of Al-Assaf& Al-Zaq (2021) and Al-Qali (2023), which means that the cognitive flexibility of first- and fourth-year students is at the same level. This may be attributed to the fact that students have mutual needs among themselves and live in the same university environment, and the flexible dealings of faculty and administrative staff members and appropriate courses help to give a kind of flexibility in dealing with the requirements of university life and their feeling of support from friends and others.

Recommendations

Considering the results of the study, some recommendations can be made as follows:

(1) Provide training programs to improve cognitive flexibility and academic self-efficacy because of the impact of reducing academic procrastination among undergraduate students.

(2) Work on developing curricula and focusing on the behavioral, emotional, and social aspects of the student, along with the cognitive aspects.

(3) Creating an appropriate competitive classroom environment to stimulate academic competition among students.

(4) detecting the presence of academic procrastination in the early stages to facilitate intervention and mitigate its severity before moving on to the university.

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