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Management of Academic Advising in Higher Educational Institutions during COVID-19 Pandemic

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A B S T R A C T

COVID -19 pandemic has a huge global impact on education over the world. Many countries decided to close universities, colleges, and schools to limit the spread of this disease. Almost 91% of students worldwide have shifted to online education. Educational institutions have struggled to provide their students with suitable online learning and assessment tools. As a new experience for both teachers and students, Imam Abdulrahman Bin Faisal University has set new online academic services to make it possible and easy for students to get the help they need and to overcome the new obstacles they are facing. The purpose of this study is to gain a deeper understanding of student satisfaction with their academic advising in light of the new emerging situation. Additionally, directions were presented for the academic advising section members to allow them to manage the unit appropriately. To achieve that, students were clustered regarding their level of satisfaction with the provided services. Students' answers were collected through an online questionnaire and the data were analyzed and segmented using the k-mean clustering technique. Regarding results, recommendations for improvements were suggested and action plans were prepared.

1. Introduction

Higher education facilities provide students with the required knowledge in several fields and play an important role in the process of comprehensive development over several aspects of a person's life. Most students enroll with little or no knowledge about the major they have chosen as a practical track for their future careers. Some might face some difficulties chime with their peers or their instructors. These are some of the reasons most, if not all, educational facilities provide academic advising, whether as a strategy or documented procedures or even as a scheme within the institution. This advising has provided students with great help and support throughout their years of degree pursue (Al-Ansari, El Tantawi, AbdelSalam, & Al-Harbi, 2015; Gaines, 2014; Lawton, 2018; Powers, Carlstrom, & Hughey, 2014). According to Iatrellis, Kameas, & Fitsilis (2017), academic advising can be defined as a systematic or dedicated program in higher education facilities or community colleges to provide guidance and advice to undergraduate students regarding their major and courses. The concept of Academic advising has evolved over the years by many researchers, some stated that it embodies various activities along a prescriptive developmental continuum (Hatch & Garcia, 2017). This prescriptive development that is achieved through advising can be described to be informational, directive, and unidirectional. While others see it from a wider perspective; as an international interaction between higher education institutions' workers (named advisors), and enrolled students (advisees), in addition to the procedure

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through which these advisors follow to provide guidance and support to those advisees in several aspects like personality development, courses and academic path, career choices, and ambition (He & Hutson, 2016).

Most researchers agree on the importance of academic advising on the wellbeing of students' morals and their will to pursue in the course of study they have chosen (Diederiks & Figueroa, 2016; Jaradat & Mustafa, 2017). These benefits come with great advantages on all participants of the educational process: students, instructors (advisors and non-advisors), administrative workers, and the learning process itself. Other benefits highlight the importance of academic advising. To list some:

1. It helps in introducing students to their responsibilities as well as fostering and supporting fruitful engagement, success and retention possibilities (Chan et al., 2019).
2. Some students, who usually come from schools where their timetable is pre-set, feel overwhelmed to schedule their courses and arrange their courses over their first semesters at the university. Academic advising helps in making them feel more relaxed and make suitable choices (Chan et al., 2019).
3. Academic advising is not confined to courses and university study, as advisors can provide students with career choices advice, by introducing different specialties and career duties and positions one can possess, in addition to expected responsibilities, mainly in, but not limited to, healthcare studies (Zarges, Adams, Higgins, & Muhovich, 2018).
4. Researchers have found a close relationship between academic advising and students' success in their careers. Since advising has a great role in fostering students, and providing them with persistence towards pursuing their career choices (Hatch & Garcia, 2017).

As the number of students who enroll in higher education institutions increases, and the expertise of academics also grows, the methods and techniques through which academic advising is provided has also developed, especially with the new technologies and procedures that are becoming widely adopted by these institutions. The oldest, and maybe most effective, channels are the face-to-face approach, where a student visits the advisors and have personal interaction and communication (Chan et al., 2019). This approach is not beneficial in providing advice, but it is also helpful in strengthening bonds between academics and students off-class rooms. Researchers have stated that this approach is preferred by some students, while a majority of them preferred other channels. Researchers studied the effectiveness of advising through phone calls (Chan, 2016). This approach was helpful for students who have difficulties attending the university's campus, but still need to have advised on time. This method wasn't very preferred, since other channels could have the same outcomes, while being easier to use. Online advising, through the use of an online portal or a certain website's facility, or e-mails were also investigated by different researchers, like Gaines (2014), who found that electronic channel is most convenient to both students and advisors, and save time and effort in seeking academic advice, in and out university campus; although there's still a big preference to the old fashion direct interaction (the face-to-face advising). With the widespread of social media applications, and the easy access and availability of them with almost everyone, academic advising has found its way into the recruitment of this technology as a dependable channel. Students have shown great acceptance to this approach and felt comfortable with using them to seek academic advice. Yet; for documentation and formalizing university's procedures and academics activities, this approach is not officially acceptable, as an official academic advising channel, although many educational institutions have adopted this approach through official social media applications –like Facebook- through which students can submit their inquiry and a specialist is assigned to respond to it. Some academics have devoted official pages other than their pages to provide academic advising to their students, and file reports and required documentation to their superiors and administrative.

This study was conducted at the community college in Imam Abdulrahman Bin Faisal University trying to capture the perception of the first- and second-year students of online academic advising services in the college. The academic advising in Imam Abdulrahman Bin Faisal University usually follows a face-to-face approach; in which each academic advisor must meet the students twice each semester and must be available in the first week of the semester to help to direct students in their registration. The academic advising process in the college involves two meetings between the academic advisors and students each semester. Each semester, students are required to fill a form about the courses they want to register after the discussion with their academic advisors. The academic advisor then summarizes the required courses in another form. At the end of the semester, each academic advisor is required t submit the academic advising file to the coordinator of the unit with the required files. The file must contain meetings reports, attendance sheet signed by the students, a summary of the required courses for the next semester filled by the academic advisor. Students are encouraged to evaluate their academic advisors each semester using an online survey. The results of the survey are forwarded to the coordinator of the academic advising unit on each campus. The coordinator of the academic advising unit is required to submit a plan that entails recommendations and improvements of each point.

All educational institutions are forced to close and send their students home to start online teaching and create a possible success for all students. This new experiment in online teaching will accelerate the change in the educational system. Imam Abdulrahman Bin Faisal University has adopted new online services for academic advising to meet student needs in light of the new situation. The main contribution of this study falls within clustering students to groups based on their attitudes toward the academic advising unit according to new online services provided by the unit. The analysis of the collected data can shed light on the strength and weak points of each cluster to develop the appropriate strategy.

The remaining of this research is structured into four sections; data collection and data analysis are presented in Section 2. In Section 3, research findings are elaborated. Section 5 provides the conclusion of the study.

2. Data Collection

At the beginning of the study, we interviewed the coordinator of the academic advising unit in order to inspect the most important issues to focus on in this study. This study was performed at the Community College of two campuses in the Imam Abdulrahman Bin Faisal University. Female students who are in their first and second year of the diploma of computer or business programs were invited to fill the questionnaire for two weeks at the beginning of March in 2020. Thus, each student responded once to the questionnaire. Students were encouraged to fill the questionnaire by their academic advisors and by the departments. The link of the questionnaire was uploaded to students on the blackboard system with a notification for the students. Table 1 presents the questions of the survey.

Table 1
Items of the Scale

Construct	Item		
Academic plan and course registration	**1.**	AP1	Reviews my academic record before choosing the courses.
	2.	AP2	Helps me choose courses.
	3.	AP3	Provided me with information about my courses and their requirements
	4.	AP4	I contact my academic advisor online before processing the deletion or addition of courses.
	5.	AP5	I am fully aware of the study plan and graduation requirements
	6.	AP6	Helps me understanding why required courses are important in this sequence.
	7.	AP7	Has assisted me in developing a long-term education plan.
Availability	**8.**	AV1	I can easily contact my advisor when needed.
	9.	AV2	Interacts through electronic communication.
	10.	AV3	Specifies the academic advising hours through online portals.
	11.	AV4	Always available online during his academic advising hours.
Relationship with the academic advisor	**12.**	REL1	Answers my questions effectively.
	13.	REL2	My academic advisor is ready for advising me.
	14.	REL3	Academic advising is a shared responsibility.
	15.	REL4	I have a good relationship with my academic advisor.
Encouraging the student	**16.**	ENC1	The way my academic advisor treats me makes me feel comfortable.
	17.	ENC2	Encouraged me to come to attend online meetings.
	18.	ENC3	Encouraged me to excel in my studies.
Student academic level follow-up	**19.**	FOLL1	Helps me develop an action plan.
	20.	FOLL2	Aware of my academic weakness and offers me the proper guidance
	21.	FOLL3	Notifies me to make sure, no discrepancies in the final tests schedule
Rules, services and regulations	**22.**	RUL1	Provided me with information on IAU regulations
	23.	RUL2	I can utilize the online services offered through the IAU website
	24.	RUL3	Refers me to other campus online resources (Academic Achievement Center, Career Services, tutoring, personal counseling.
	25.	RUL4	Provided me with information on IAU bylaws.
	26.	RUL5	I can utilize the online services offered through IAU departments.

3. Data Analysis

The analysis of the data entails four main parts, which are: (1) demographic data analysis, (2) principal component analysis with Varimax rotation, (3) cluster analysis, and (4) a comparison between segmented clusters in terms of campus, academic advisor communication language, and department.

3.1 Demographic Information Analysis

The total number of students who participated in the survey is 738. Students who participated in the survey have finished their property year and enrolled in one of the programs which are provided by the college. Students can choose either a computer program or a business program. As Table 2 presents 49.9 of the students are enrolled in the business program, while 50.1 of the students are in the computer program. Each program has three main tracks. In the business program, after passing the general courses in the first year of the program, students can apply to proceed in one of the offered tracks. In the computer program, students can choose their tracks from the first year. However, in this survey, we didn't include students from the property year as they have different management and policies regarding academic advising. Students are advised by either Arab advisors or non-Arab advisors. Academic advising coordinators have indicated that students usually prefer to communicate with Arab-academic advisors. Some of the non-Arab academic advisors direct their students to the unit as they can't understand student needs. However, each faculty member has his academic advisory tasks. Each academic advisor is assigned to 20-30 students whom she must direct and follow up with them during the academic year.

Table 2
Demographic Information

	Item	Number	Percentage
Year	First Year	335	45.4
	Second Year	403	54.6
Track	Computer Science	121	16.4
	Information System	129	17.5
	InformationTechnology	120	16.3
	Finance	89	12.1
	Insurance	156	21.1
	Supply Chain	123	16.7
Campus	Qatif	302	40.9
	Dammam	436	59.1
Department	Business	368	49.9
	Computer	370	50.1
Academic Advisor	Non-Arabic	324	43.7
Language	Arabic	418	56.3

3.2 The Segmentation Approach

The patterns between constructs can be located by applying principle component analysis to the primary questions of the survey. Following that, a set of questions with correlations between them can be classified and labeled under a specific dimension. Constructs' dimensions can clarify the relations between the questions in the same dimension. Principle component analysis is used primarily to minimize labeling each set of correlated questions under a specific factor. Hence, a Varimax rotation method was applied and only questions with loadings above 0.4 were kept for further analysis. The result of the principal component analysis is presented in Table 3.

Table 3
The Result of Principle Component Analysis

Item No.	Items	Factor-1 (Academic Plan)	Factor-2 (Availability)	Factor-3 (Relationship)	Factor-4 (Encouraging)	Factor-5 (Follow up)	Factor-6 (Rules)	Mean	Std. Deviation
1.	AP1	0.667						4.1816	0.88992
2.	AP2	0.818						4.2127	0.87603
3.	AP3	0.824						4.2114	0.90155
4.	AP4	0.833						4.2033	0.87597
5.	AP5	0.702						4.0136	0.94622
6.	AP6	0.780						4.1179	0.89226
7.	AP7	0.726						4.1152	0.99606
8.	AV1				0.782			3.8591	0.92555
9.	AV2				0.768			3.9092	0.91045
10.	AV3				0.801			3.7182	1.02438
11.	AV4				0.817			3.7425	0.97394
12.	ENC1					0.850		4.1938	0.78770
13.	ENC2					0.865		4.1436	0.77685
14.	ENC3					0.801		4.2642	0.77221
15.	RUL1			0.601				3.9404	0.99071
16.	RUL2			0.684				4.0339	0.94643
17.	RUL3			0.799				4.0081	0.92892
18.	RUL4			0.794				3.8862	0.95803
19.	RUL5			0.711				4.0691	0.92418
20.	REL1		0.841					4.1314	0.90697
21.	REL2		0.841					4.0664	0.91996
22.	REL3		0.817					4.1084	0.88966
23.	REL4		0.828					4.0705	0.90103
24.	FOLL1						0.730	4.0027	0.96196
25.	FOLL2						0.923	4.0799	0.95509
26.	FOLL3						0.877	4.1192	0.90341
Eigenvalue		**7.724**	**3.622**	**2.168**	**2.073**	**1.397**	**1.273**		
Variance explained		**29.709**	**43.641**	**51.980**	**59.951**	**65.324**	**70.220**		

The principle component test generated six main factors as presented in Table 3. The main factors produced by the principal component test are (1) academic plan and course registration with seven items, (2) availability with four items, (3) relationship

with an academic advisor with four items, (4) encouraging the student with three items, (5) student academic level follow-up with three items, (6) rules, services and regulations with five items. Meyer–Olkin measure confirms the suitability of the factor analysis test and implies the appropriateness of the test with values above 0.5. Bartlett's test of sphericity is applied to test the level of correlation between variables in the collected data. Meyer–Olkin measure of sampling adequacy result is quite high (0.867) and Bartlett's test of sphericity is significant. Twenty-six variables have mean values above 3.7 and standard deviations' scores above 0.77. To find patterns between students, rather than between factors, we applied cluster analysis through a two-step cluster method as recommended by (Punj & Stewart, 1983) study. In the first step, the Ward's minimum variance method was performed to determine the suitable number of groups. The determination of the number of clusters was based on the test of the agglomeration coefficients from the Ward. The number of clusters was determined upon specifying a demarcated change in the agglomeration coefficients' values. Hence, based on the result of the hierarchical clustering method, we find that the suitable number of clusters is 3. The second step includes the performance of the *k*-means clustering method to group students based on the number of groups obtained from hierarchical cluster analysis. A summary of the cluster analysis result is presented in Table 4.

Table 4
Summary of Cluster Analysis

Criteria	1th cluster (n=172)	2th cluster (n=166)	3th cluster (n=400)	F	Sig.
AP	3.28	4.29	4.47	306.529	0.000
AV	3.13	3.63	4.17	150.937	0.000
ENC	3.90	3.90	4.45	73.475	0.000
RUL	3.23	3.80	4.39	234.011	0.000
REL	4.04	3.29	4.45	197.726	0.000
FOLL	4.33	3.07	4.37	269.632	0.000

3.4 Comparison between Segmented Clusters

To analyze the differences between clusters in terms of (1) mean scores of the factors generated from the factor analysis, (2) campus, (3) year, (4) department, (5) track, (6) academic advisor language, and the resulted cluster membership, we applied an ANOVA test with Tukey's posthoc multiple comparisons. The outcomes presented significant differences between the resulted clusters in terms of the mean scores of the factors generated from the factor analysis, year, department, academic advisor language, and track (see Table 5). However, in terms of the campus, the result did not provide proof of significant differences between clusters. Table 5 presents the comparison between the clusters using the One-Way ANOVA test.

4. Findings

Cluster 1 has the highest score for: "**Student Academic Level Follow Up**" and "**Students Relations with their Academic Advisors**". Hence, students in this cluster have a good relationship with their academic advisors. Students in this cluster have a positive attitude towards the care provided from their advisors as they are interested in their academic level and as they try to follow up with them by understanding their academic situations and helping them effectively. This group mainly represents second-year students (75.6%). Most of the students in this group are enrolled in the computing department (79.7%). In cluster 1, most of the students (90.1%) have non-Arabic academic advisors.

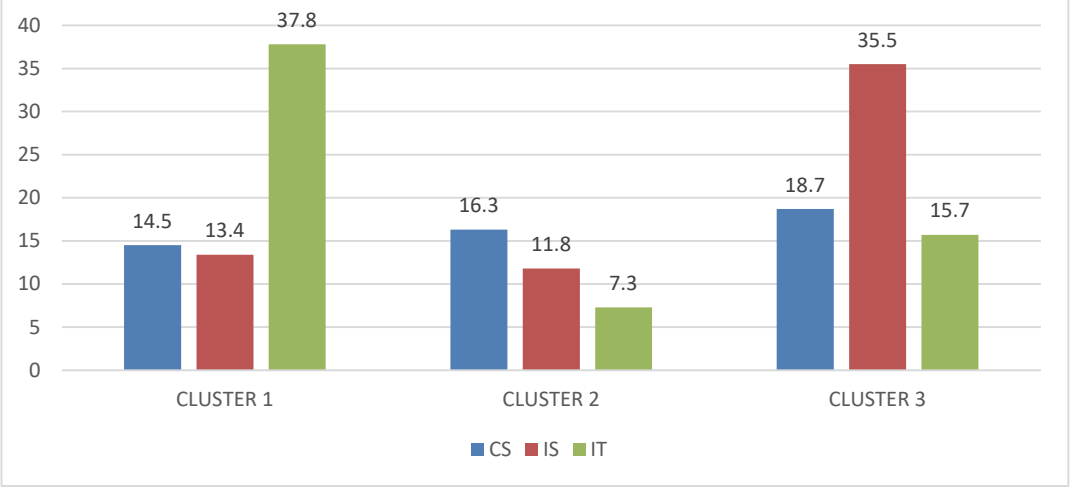

Fig. 1. Computing Department Tracks Among the Three Clusters

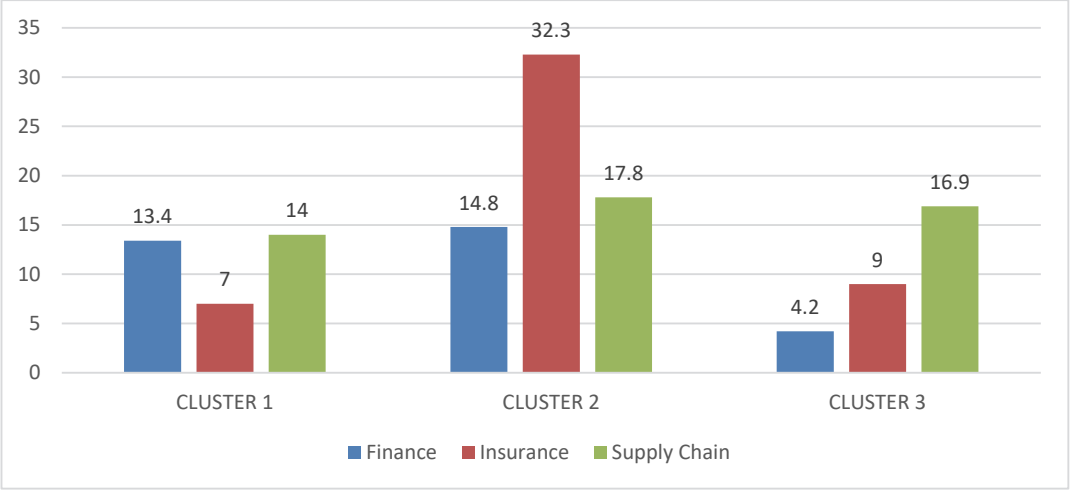

Fig. 2. Business Department Tracks Among the Three Clusters

As Fig. 1 and Fig.2 show the majority of students in this cluster are enrolled in the information technology track in the computer department, and in the supply chain track in the business department. Cluster 2 has the highest score for "**Academic Plan and Registration**". Hence, students in this cluster have a good feeling about the services provided by the academic advising unit during the registration period. Most of the students in this cluster represent first-year students (81.3%). Most of the students in this group are enrolled in the business department (81.3%). However, student attitude towards the academic advising services in this cluster has achieved the lowest values among other clusters. This can be explained regarding the lack of communication between first-year students and their academic advisors in general. Students are less aware of university regulations than second-year students. The relationship between the student and the academic advisor can be enhanced over time.

Table 5
Results of One-Way ANOVA Test

		Sum of Squares	df	Mean Square	F	Sig.
Track	Between Groups	108.105	2	54.053	18.836	.000
	Within Groups	2109.175	735	2.870		
	Total	2217.280	737			
Year	Between Groups	30.389	2	15.194	73.210	.000
	Within Groups	152.545	735	.208		
	Total	182.934	737			
Campus	Between Groups	1.427	2	.714	2.963	.052
	Within Groups	176.990	735	.241		
	Total	178.417	737			
Department	Between Groups	31.410	2	15.705	75.402	.000
	Within Groups	153.089	735	.208		
	Total	184.499	737			
Academic Advisor	Between Groups	138.772	2	69.386	1200.697	0.000
	Within Groups	42.474	735	0.058		
	Total	181.247	737			
AP	Between Groups	173.692	2	86.846	306.529	.000
	Within Groups	208.241	735	.283		
	Total	381.933	737			
AV	Between Groups	136.877	2	68.438	150.937	.000
	Within Groups	333.267	735	.453		
	Total	470.144	737			
ENC	Between Groups	55.445	2	27.722	73.475	.000
	Within Groups	277.320	735	.377		
	Total	332.764	737			
RUL	Between Groups	166.806	2	83.403	234.011	.000
	Within Groups	261.959	735	.356		
	Total	428.765	737			
REL	Between Groups	160.857	2	80.428	197.726	.000
	Within Groups	298.973	735	.407		
	Total	459.830	737			
FOLL	Between Groups	213.898	2	106.949	269.632	.000
	Within Groups	291.537	735	.397		
	Total	505.435	737			

In cluster 2, most of the students (90. %) have non-Arabic academic advisors. Most of the students in this cluster are enrolled in the computer science track in the computer department, and in the insurance track in the business department. Cluster 3 has high scores for all survey factors. Hence, we labeled this cluster as a satisfied-students cluster. Students in this cluster have positive feelings about all the services provided by academic advising. This group mainly represents second-year students (60.5%). Students in this cluster are divided between the two departments equally. This cluster has achieved the highest values among other clusters regarding the positive attitude towards academic advising services. In cluster 3, most of the students (96.5 %) have Arabic academic advisors. Most of the students in this cluster are enrolled in the information system track in the computer department, and in the supply chain track in the business department.

5. Conclusion

Segmentation is used in user-based studies, trying to understand users' usage habits, average income, educational level, etc. The segmentation process can provide decision-makers with insights about the targeted audience and enable them to plan the required strategies effectively (Chang, 2006; Chen, Huang, Shu, & Wang, 2013; Susilo, 2016; Tkaczynski, Rundle-thiele, & Prebensen, 2015). However, adopting the segmentation analysis trying to understand student attitudes can provide significant implications in educational research. The segmentation process can be achieved through exploratory techniques, in which the researcher tries to find patterns with common sense in the collected data. Hence, the segmentation process of the collected data is not a straight forward task (Ansory & Safira, 2018; Denizci Guillet, Guo, & Law, 2015; Grisé & El-geneidy, 2018; Sari, Setiaboedi, & Management, 2015). It requires a critical analysis of different options of clusters to provide the justified grouping of individuals.

In this research, a three-clusters solution and six factors have resulted from the analysis of the data. Following the new instructions in response to COVID-19 spread in the world, academic advisors moved to online services to support their students. Academic advisors conduct their sessions using different tools that are provided from the university website. So, instead of face to face meetings between the advisors and the students, they have conducted their meeting online. The main approach to achieve the tasks is the online video meeting through computers, tablets, and smartphones, which "may involve one to one interaction or one to many interactions". The result of the analysis gave us important indications about academic advising in the university during the shift the university performed towards online academic advising services. Other electronic services provided by the university allow the academic advisor to review advisees' applications and transfer students who need help to the counseling unit or to the department based on their situations. Cluster 3 has the highest mean value, which is equal to or higher than 4 in all factors. Cluster 2 has mean values that are less than 4 in all factors. However, Cluster 3 constitutes the hugest portion of the sample. This can indicate that most students in the sample have a positive attitude towards academic advising online services on both campuses. The distribution of academic advisors over the three clusters raises an important issue regarding the communication language between the academic advisors and the students. Students in cluster 3 (which we labeled as the satisfied cluster) has 96.5 % of Arab academic advisors. This result indicates an important argument regarding the impact of the communication language between the academic advisor and the student on their attitude towards the services provided to them. Even though students communicate with non-Arab in the traditional lectures, the academic expressions required in the educational process might differ from expressions required to communicate with their academic advisors. This can be confirmed as the students show a negative attitude towards non-Arab academic advisors regarding language constraints. Although the English language has become a leading language in global interaction (Llamas & Escalante, 2001), and the tremendous pressure of universities among their faculty members to teach only in the English language, still; students face difficulties in communicating with their academic advisors in individual conversations. Students need to enhance their communication skills in the English language (Sun, 2020). This can be achieved by implementing positive interaction methods (Al-Ajmi & Aljazzaf, 2020; Wahyudi, 2020). Most of the non-English college students consider English as a language for studying courses only (Heping, Jinchuan, Rongping, & Zhenli, 2013). Despite the long time they spend studying their courses in the English language, their aim is limited primarily to passing their courses.

Looking at the practical implication of this study, this research can highlight some important indications for decision-makers in the university. The differences that have been highlighted between different clusters of students in this research must be taken into consideration during the planning of academic advising strategies. One of the points that must be considered is that the first-year students should be instructed carefully about the services provided by the academic advising unit. More meetings must be conducted to increase their awareness of the provided services. Based on the results of the evaluation, the coordinator in each campus nominates the best academic advisor to be honored by the Dean of the college. Besides, following the results of the survey, the coordinator of the academic advising unit in each campus is required to provide recommendations for improvement based on the weak points presented in the survey results. Hence, we summarized the recommendations provided by the coordinators as follows:

- Encourage academic advisors to build a strong relationship with the students.
- Encourage the academic advisors to provide the students with IAU regulations and bylaws
- Clarify the information about courses and their requirements for academic advisors.
- Clarify the information about graduation requirements for academic advisors.

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