

## **Emotional Intelligence in Education with Stress, Case Study: Architectural Studios in Covid-19 Pandemic.**

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### **Abstract:**

This study focuses on the effect of introducing emotional support through emotional intelligence on architecture students and its impact on both their academic achievement and their overall morale and performance. The study is carried out on 252 students to measure their Emotional Intelligence and Emotional understanding levels. Two main emotional intelligence components were measured; inner motivation and dealing with others. Both were assessed using questionnaires and implementation techniques and the findings showed that the difference in dealing with students affected their overall academic achievement. As a result of these questionnaires and with a focus on the stressors faced, several interventions were carried out in the form of workshops, events, one-on-one sessions and general motivational activities.

Keywords: Emotional Intelligence; design studio; architectural education; stress; inner motivaion; well-being and mental health.

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## 1. Introduction

It is without doubt that the world has not yet recovered from both the effects and the aftermath of the pandemic, nor will it be the last of many to come, however, its presence has imposed on all of us the need to review the mechanisms of higher education and consider the new reality imposed by the challenges of the current situation as the basis and new premise for the development of more capable educational systems, that are deemed flexible with any similar development in the future [1, 2].

Emotions are what define us as human beings since it is part of our DNA, it regulates how we deal with everyday occurrences and modulates our interactions with others [3]. Within the understanding of emotions is the ability to regulate how we react and cope with different stressors, whether from family, work, studying or plain human interaction [4]. It is no secret that the study of architecture is amongst the most stressful of all higher education degrees [5]. Architectural students are required to spend long hours in the understanding of how the built environment around them works and the inputs that go into creating them. They are also required to be able to combine several disciplines to devise a project that suits the majority of people, whether aesthetically, or functionally. This can be a very stressful and tedious task, and many are subjected to the repercussions of that vocation [4]. Several studies have claimed and proved that architectural education is one of the most stressful disciplines, often leading students to decreased sleep, high intake of caffeine and mood swings [6, 7]. As such, architectural students need to learn how to be emotionally stable when dealing with stress. To be able to better aid architectural students on the importance of being emotionally stable whether during their study years or later in their professional life, it is important to tap into their inner emotional strengths, emotional bearing and emotional intelligence levels.

The spread of the COVID-19 epidemic around the world, emphasized the urgent need to search for and develop existing educational methods that have the ability to be resilient as well as coexist with the current challenges. A UNESCO report stated that the spread of the virus set a record in the reluctance of students to go to universities, and if countries resorted to closing universities [8], the education of more than 500 million individuals was disrupted. As a mitigative measure, the Ministry of Higher Education and Scientific Research in the Arab Republic of Egypt adopted a comprehensive integrative plan to confront the effects and aftermath of the Corona pandemic in the higher education sector in response to the growing feeling of unease, fear and general unrest at the societal and official levels, with an utmost focus on the ability of the higher education sector (with all its components) to deal with similar crisis and emergencies that may arise without warning, which may, inevitably, negatively affect the progress and quality of the educational process.

Accordingly, and with The Egyptian Sustainable Development Agenda 2030, at the forefront, one of the elements that was desirable to develop was the development of the capabilities of faculty members as well as the development of students' skills, through the utilization of all utilities and methods in developing capabilities and skills to achieve comprehensive development for every educated individual in spirit, intelligence, body, aesthetic sense and psychological and social compatibility [9].

As a means to achieving this, different and innovative approaches are needed to counteract the absence of personal contact and one to one interaction; this is where the role of emotional intelligence is vital. Emotional intelligence, albeit not an old

mode of assessment and implementation, relies on the understanding of the individual emotional psychology to better understand and develop its different dimensions.

Hence the urgent need to support the educational environment by activating the role of emotional intelligence to confront the pressures and negative effects caused by the emerging pandemic of the Corona pandemic is mandatory. It is reflected in the student's ability to focus and excel during stressful educational situations, and the effect it has on academic performance and achievement, often leading to dire consequences that may be avoided altogether within the learning environment.

### ***Scope of the problem and research question***

The research problem lies in the disruption of university institutions from exercising their academic role due to the Corona pandemic that swept most countries of the world, which called for those in charge of university education in the Arab Republic of Egypt to develop urgent plans that would contain and limit the crisis, including the distance education system and hybrid education, which necessitates students Leaving the traditional method of education followed and working with the modern systems, and given the specificity of the architectural education environment, several problems were observed among students due to the psychological pressures imposed by the current conditions, which negatively affected the education process in general and the student's educational attainment level in particular, especially the architectural design subject, which is one of the most important. The main scientific subject in the department, and the study problem is strongly limited to the following question,

What is the role of emotional intelligence in supporting the architectural learning environment to confront the negative effects of the COVID-19 pandemic?

## **2. Aim of the study**

This research aims to identify the psychological pressures and difficulties that students faced during the pandemic period due to the hybrid education system, through assessing their self-actualization mode as well as their motivation level in compliance with different types of architectural design studio teaching.

## **3. Materials and Methods**

The study follows the comparative analytical approach to suit the study environment, as the researchers rely on analyzing the impact of COVID-19 pandemic crisis on university education and the effect of the educational plans used on the students' academic performance during that period, and the extent of the impact of emotional intelligence to support the architectural education environment to reach the development of capabilities and skills of faculty members and students, which is one of the important axes in the education development strategy, and the reformed 2030 Egyptian Agenda.

The research was carried out in three phases:

- First, a comparative analysis was carried out between the GPA results of the students before and after COVID-19 pandemic. The first group was students in the architectural design studio that was using emotional intelligence strategies in teaching. While the second group was in studio with regular teaching techniques.

- In second phase random group of the students were first asked to name what affected them academically and lead to a hindrance in academic achievement, they were then asked according to the Classroom Learning Environment (CLE) Questionnaire, 2006. Which was used in Washington University for evaluation of the educational environment. Minor modification of the questions were done in the phrasing to be suitable to assess the learning environment during COVID-19 era, without changing the purpose of the question [10]. Through the questionnaire we tried to know the main stressors in the educational process. Another simple questionnaire was done with yes and no answers for all the students in studio 3 and 4.
- Then two questionnaire were provided to each student, which take about 15-25 minutes. NHS (National health service) questionnaire was used, because it is simple and clear and can be used to assess EI domains, which allows us to identify the strength and developmental areas individually for each student [11].
- All the analysis were carried out through the Statistical Package for Social Sciences (SPSS) program and the results of the questionnaires were validated using the “overall agreement” method.
- As a result of these questionnaires and with a focus on the stressors faced, several interventions were carried out in the form of workshops, events, one-on-one sessions and general motivational activities. Then comparison was made between the results before and after these interventions.

#### Study community:

- Students of the Department of Architecture, Design Studio 3, and Design Studio 4. Table 1: Shows the number of students that participated in total across the two design studios in the questionnaires.

As indicated in table 1

#### Study sample:

Then there was a series of workshops and activities aiming at raising the morale and better understanding of their perceptions and emotional intelligence were done in 2020-2021's fall semester.

## 4. Literature Review

Emotional Intelligence (EI) is defined by Daniel Goleman [12] as a “set of diverse abilities possessed by individuals and necessary for success in aspects of life”, these abilities are the key components which need to be learnt and improved in the different scopes and paths. EI is the ability to regulate personal emotions that affect the individual's ability to successfully deal with the requirements of the environment and the surrounding pressures, and it is an important factor to determine an individual's ability to succeed in life [13].

#### *Components of emotional intelligence:*

The components may be divided into five basic pillars, according to what Goleman defined:

- Self-awareness: This includes awareness of emotional expressions that appear on the face and tone of voice [12].

- Self-management: It means controlling the conscience, and thus we ensure control over the actions [12].
- Self-motivation means directing emotions to serve a goal and using them in a productive way to achieve achievement and excellence [12].
- Empathy means knowing and understanding the feelings of others, which leads to emotional harmony with others [12].
- Social communication is the management of emotions in dealing with others based on understanding and knowing their feelings [12].

### ***Emotional intelligence and its relationship to academic achievement***

The educational environment is everything that surrounds the students' learning process whether physical or human factors, it is the main key player in attesting to the effectiveness of the learning environment for students, while the learning environment as defined by several is a direct reflection of teacher-student interaction, not only at the primary education level but also at the higher education one too [11, 14]. Scientific studies and research have proven that learning that stirs students' feelings and assesses their emotions through the development of thought and the creation of motivation is another type of learning because emotions occupy a leading position in the human brain, and with the awareness of the importance of emotional intelligence in education and academic achievement, there has become an increasing international interest in developing programs for emotional intelligence capabilities [15-18]. On the other hand, Goleman believes that the elements of the learning environment represented in the place and the lecturer are responsible for achieving emotional efficiency [11], based on this speculation, the effectiveness of the lecturer or teacher may lead to an increase or decrease in academic achievement and may consequently lead to a gain or loss of confidence, respectively, thus, tapping into students' emotional abilities, may be what is needed to employ the principles of emotional intelligence in the field of education in order to raise the level of academic achievement and ultimately professional and vocational achievement [19, 20].

The learning environment may be divided into two sets, the type of learning and the actual environment. For the sake of this research, a combination of both is taken into consideration. It may be categorized into actual learning environment (face-to-face/onsite) and hybrid mode (in place, in some instances, since the COVID-19 pandemic and ongoing.). However, whatever the mode of learning is, the characteristics of a good learning environment remain the same.

### **Characteristics of a good learning environment**

Good educational environments of all kinds share several advantages [21-23], A safe, comfortable and organized environment for students that does not pose a danger or threat to them,

- (threats may be perceived as either physical or mental including stress)
- An environment that provides opportunities for individual and cooperative education among students, and takes into account the student's needs and capabilities
- A purposeful environment that reveals students' goals and aspirations and what they focus on and strive to achieve
- A positive environment based on effective communication and cooperation between the students and their peers and between the students and their educators

- A motivating landscape, that seeks to stimulate students' thinking and help them to devise strategies that enables them to overcome problems.

The above characteristics encompass all learning environments and should be present in all different types of situations to ensure effective learning and education. Each of the characteristics has a list of counteracting difficulties that may pose a threat to the actual establishment of the characteristic as outlined in the upcoming section focusing on architectural education.

### **Elements of an architectural learning environment**

Teaching architectural design is a complex process. Compared to the other engineering fields, it requires perfect student -teacher rapport and almost no laboratory gear. Whatever the successful educational process in architectural education, it can be used in other fields of fine arts [23].

The interaction between the components of the educational environment in the Department of Architecture, especially when teaching the subject of architectural design, is a strong interaction and a socially active environment that works to achieve and activate communication and dialogue between the parties of the educational process with each other and with the spatial environment and its elements [24], in other words, students learn not only to adapt to their physical environment but also initiate modes of motivation to assist in developing their architectural thought and theory through collaborative practices through continuous discussion and interaction between all stakeholders of the educational process through representation and architectural thinking and reflection. The ability to do so is a success for the architectural education environment, however, it is a multi-tiered process that engages several stakeholders, namely, the faculty member, the student and the spatial environment itself (as indicated in figure 1).

Student, ultimately is at the core of the educational environment, (as indicated in Figure 1) especially with the ongoing emphasis on student-based learning and its growing body of research that supports it for better educational outcomes, however, the main component that ensues flourishing lies heavily on the Faculty member, (although not solely), the educators' demeanor, treatment and reaction to different situations are all points that should be taken into account and developed. It is also without a doubt that the spatial environment itself (the physical one), contributes heavily to the architectural education process, modes of lighting, ventilation, orientation, design, and interior colors and aesthetics influence students of the artistic and architectural discipline more that it affects those of other disciplines [24-26].

### **The aftermath of COVID-19 on the architectural learning environment:**

The outbreak of the pandemic led to the disruption of educational institutions and their inability to perform their role effectively, most countries worldwide changed their interaction status for students from face-to-face to hybrid mode or distance learning, which in turn led to several dire consequences affecting the mental health and overall morale of the students.

In accordance with the worldwide scene and in hope of containing the then escalating situation, the Ministry of Higher Education and Research in the Arab Republic of Egypt came up with several modes of action to be implemented within the Higher Education establishment itself according to its givens, needs and existing

facilities. Most of these establishments converted almost overnight to the hybrid mode, a combined educational system, which allows students to meet on campus on fewer days and complete the rest of their coursework and academic material online through an e-learning component. In a blink, students were expected to have direct access to computers, internet and other modes of technology, including in some instances social media accounts. The transition was at best overwhelming to many, and many students fought to be able to cope with this sudden change. These changes affected the architectural education in Egypt.

### **Students' mental health**

The state of isolation and withdrawal from going to university led to a heavy psychological burden affecting the emotions and feelings of the students, which led them to a state of emotional, mental, and emotional turmoil. Students became victims of their own feelings of anxiety, fear, constant tension and insecurity, which in turn affected their educational outcomes, health and well-being, even after the end of isolation and lockdown and the return to normalcy [27]. Empirical evidence-based research showed that the incidence of depression and other psychological occurrences was around 40% in one study [28] and 45.2% in another [29] amongst university students due to the pandemic. While the focus of this research is not the pandemic, this point is mentioned as an unforeseen stressor that affected the lives of a large number of university students.

University life on its own is for some a stressful and anxious time, the transition from adolescence and dependency into adulthood and independency is a critical time for many. One research showed that these stressors maybe divided into three groups: issues related to academic assessments, severity and number of tasks and assignments, and issues linked to the teaching process itself, whether the teaching itself or the faculty behind it [30]. This is where the importance of Emotional intelligence comes in, to allow students to regulate and better cope with their emotions to assist them in leading fruitful and fulfilling lives whether during or after their undergraduate years [31-33].

## **5. Results & Discussion:**

### **First Phase:**

The student's academic outcome in studio 3 and 4 were obtained, analyzed and compared. In studio 3, we used emotional intelligence strategies in architectural education, while in studio 4 we were conducting architectural teaching with regular traditional ways.

Then the results in each studio were compared with the student's results before the pandemic.

We found that, in studio 3, in which the staff used emotional intelligence strategies, student's grades during COVID -19 era, were very similar to the grades before COVID-19 pandemic, while the studio 4, in which the teaching was in regular ways. The student's grades were significantly affected (as indicated in figure 2&3).

Overall Agreement <sup>a,b</sup>						
	Kappa				Asymptotic 95% Confidence Interval	
					Lower Bound	Upper Bound
Overall Agreement	0.086	0.003	24.717	0.000	0.085	0.086
a. Sample data contains 69 effective subjects and 25 raters.						
b. Rating category values are case sensitive.						

The students were then asked to answer a validated questionnaire to assess the hybrid mode and how it affected them scholastically. (as is indicated in Figure 4), most students did not find that the design studio was effective in hybrid mode or off-site. The majority of the sample also attested those emotions impacted their performance and academic achievement.

Then we give a questionnaire to the students to identify the stressors that affect students of architectural engineering, mainly in the design studio, which is the core of the architectural education process. Students were first asked to identify what affected them academically and lead to a hindrance in academic achievement (as is indicated in Figure 5), they came up with eight main areas.

The points collected were then circulated to a wider group of students to assess their acceptance of these stressors and statements through a yes/no questionnaire to put weights to the point's accumulated (as is indicated in Figure 6).

The results showed that Lack of motivation and Fear of inability to achieve academic achievement were the two most agreed upon statements with a score of 88.7% and 85.3% respectively, while Personal Stressors was the least agreed upon statement with an incidence of 55.9%

As mentioned in the methodology section, two questionnaires were devised and given to students of architectural design studio 3 and 4. The metadata is as follows:

Table 2: Shows the number of students that answered the questionnaires from both design studios, with the number of females in relevance to the number of males.

The responses achieved, as outlined (in Figure 7&8) are as follows:

the first questionnaire, the students were asked general questions regarding their ability to control their nerves during times of stress, and their ways of alleviating that stress. A five-point Likert scale was used, and the results showed that most students replied positively when it came to the point that they lose their nerves during school pressure, and that their emotions and feelings control greatly their academic achievement. While they felt neutral towards both difficulty of the academic situation and the relief of the tensions associated with academic stress.

In the second questionnaire, the questions were concerned with the student's ability to deal with their peers during difficult times like those on projects and during working on teams, as indicated in Figure 8. The responses showed that most responses circulate around the neither agree nor disagree scale, meaning that they did not have the ability to assess their abilities and skills.

As a result of these questionnaires and with a focus on the stressors faced, several interventions were carried out in the form of workshops, events, one-on-one



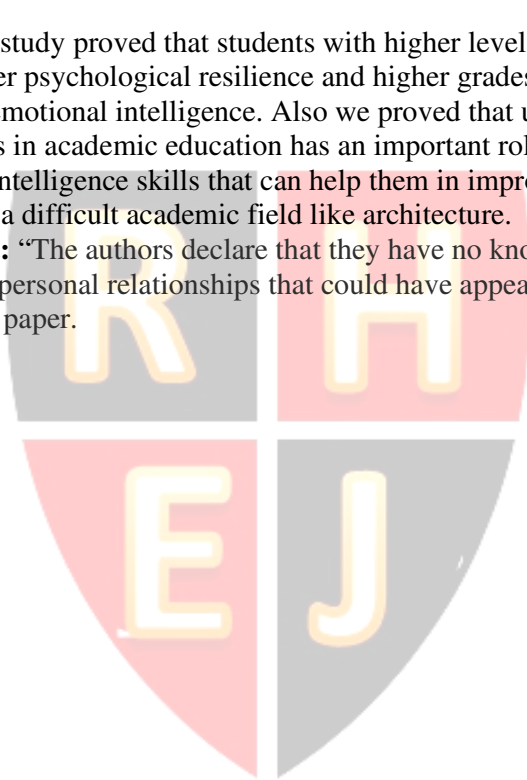
sessions and general motivational activities. Workshops were carried out for faculty and students to discuss common and individual issues. The results of the academic achievement of the students were then assessed at the end of the term. The results showed that student's achievement was higher as a result of these interventions in contrast to before the interventions, as indicated in figures 5 and 6.

In order to create a good learning environment, that helps students realize their potential as well as help them regulate their emotional health, in the field of architectural education, that several strategies need to be embedded:(as indicated in table 3)

## 6. Conclusions

In conclusion, our study proved that students with higher levels of emotional intelligence has higher psychological resilience and higher grades compared to students with lower emotional intelligence. Also we proved that using emotional intelligence strategies in academic education has an important role in improving student's emotional intelligence skills that can help them in improving their learning process especially in a difficult academic field like architecture.

**Conflicts of Interest:** “The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.



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Appendix:

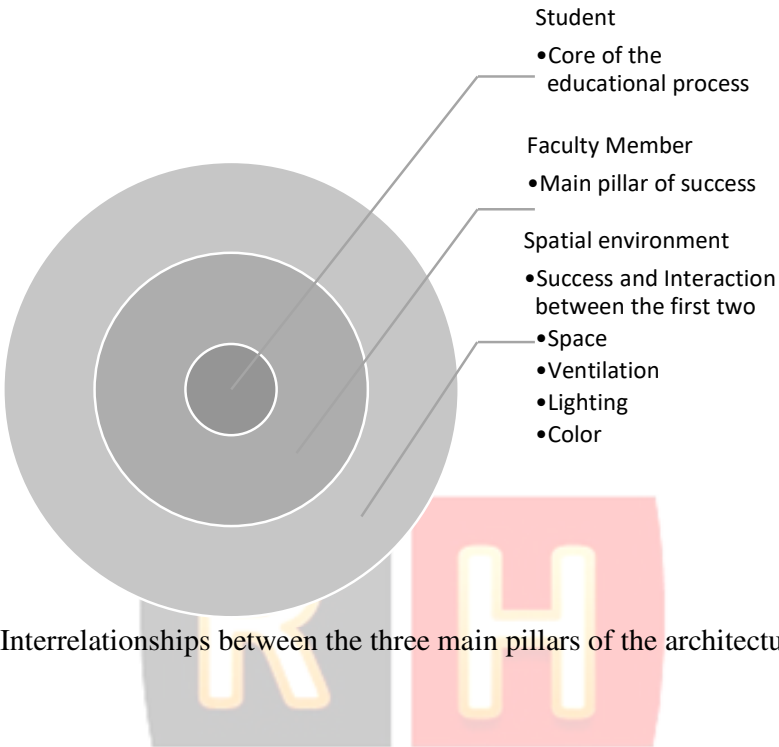


Figure 1: Interrelationships between the three main pillars of the architectural education

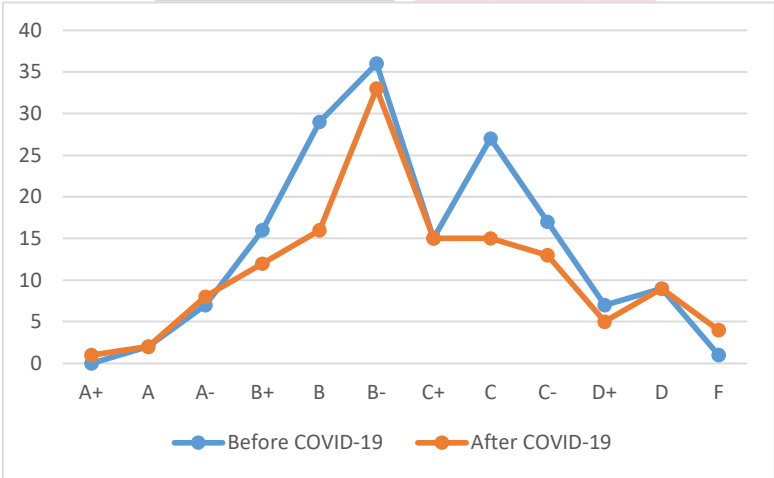
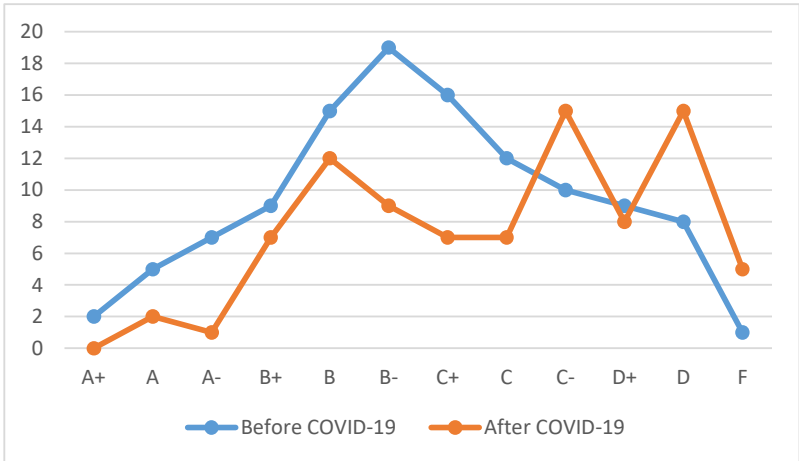
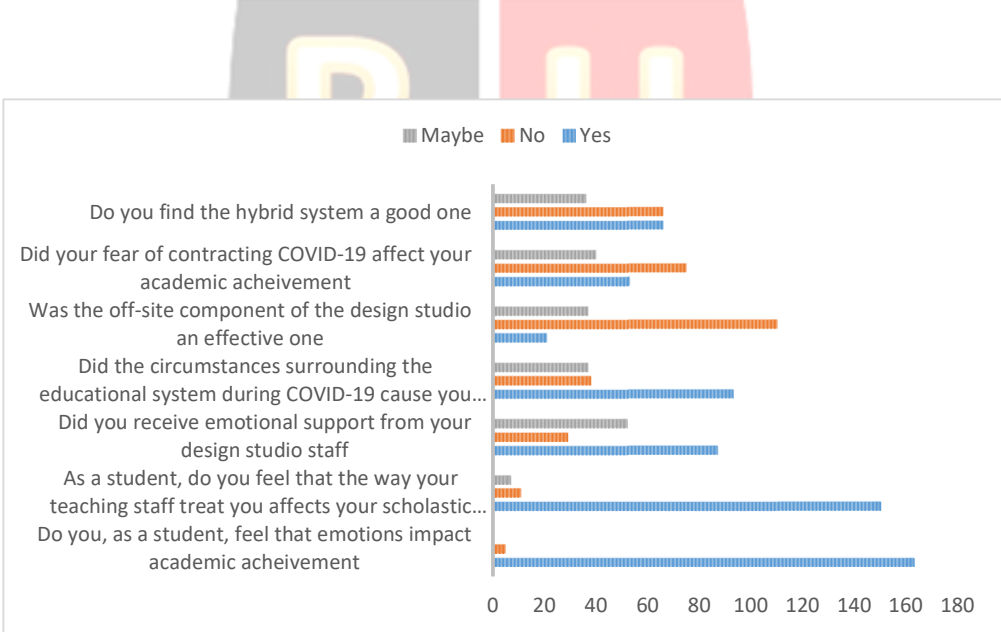


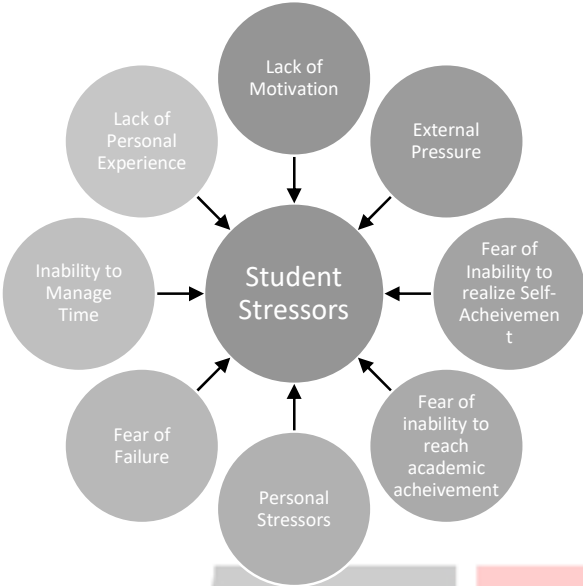
Figure2: shows the results of the students whom had emotional support And guidance from the academic staff and with a focus on Emotional Intelligence.



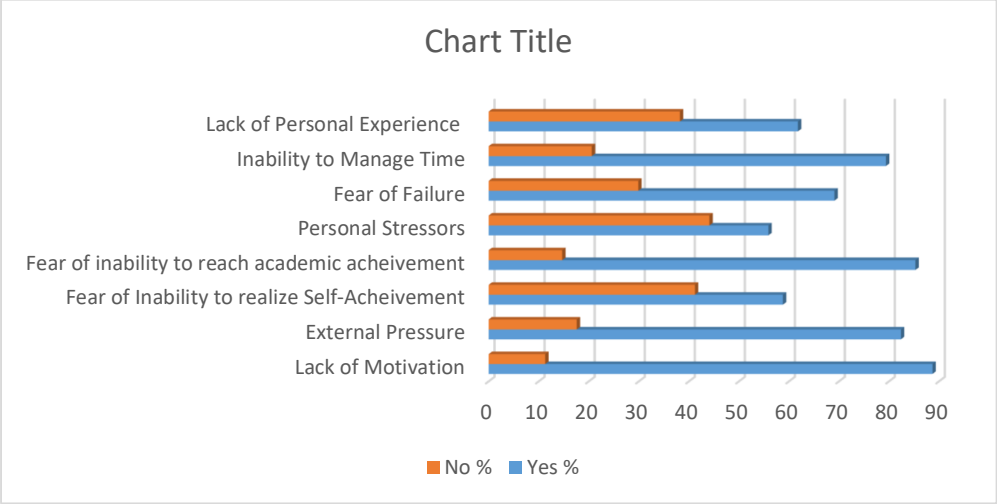
**Figure 3:** shows the distribution of grades with no emotional modelling and with the usual mode of action as within normal circumstances.



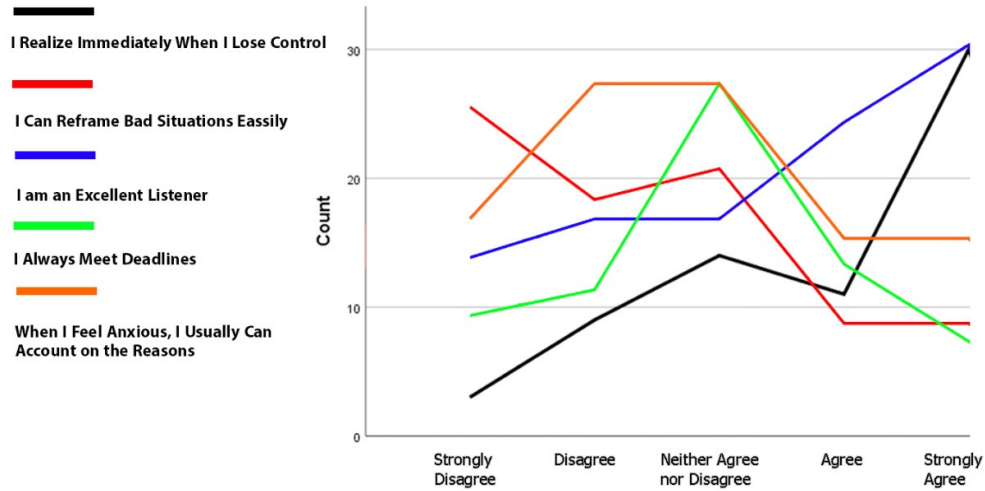
**Figure 4:** shows the responses of students towards hybrid mode in the design studio



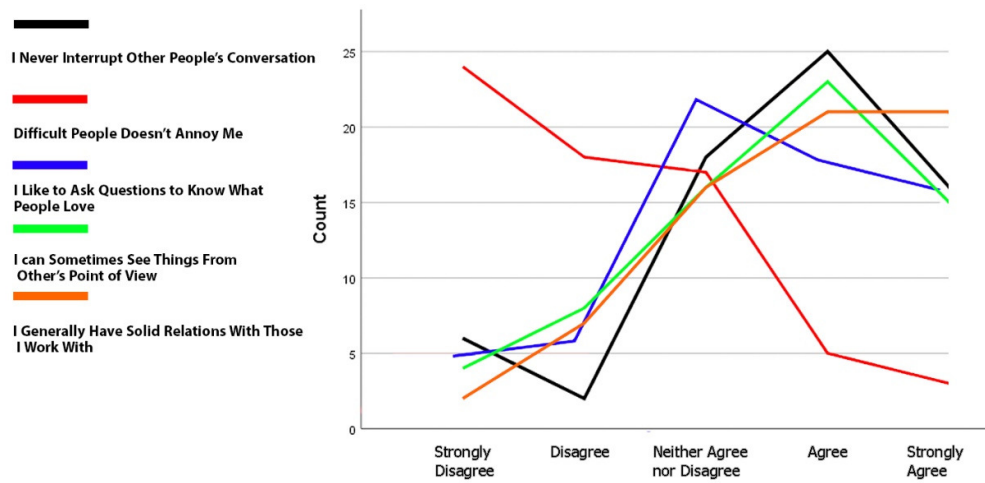
**Figure 5:** Shows the different types of Stressors that Affect Student Outcomes



**Figure 6:** Weight of students' acceptance to the eight points identified as stressors to Academic achievement.



**Figure 7:** Shows the responses of students regarding emotional stability during stressful academic incidences



**Figure 8:** Students responses regarding self-perception regarding dealing with others

**Table 1:** Shows the number of students that participated in total across the two design studios in the questionnaires

	Level 2	Level 3
168	82 (45 females, 37 males)	86(51 females, 35 males)
84	39 (20 females, 19 males)	45 (22 females, 23 males)

Table 2: Shows the number of students that answered the questionnaires from both design studios, with the number of females in relevance to the number of males.

	Architectural design studio 3	Architectural design studio 4
168	82 (45 females, 37 males)	86 (51 females, 35 males)
84	39 (20 females, 19 males)	45 (22 females, 23 males)

**Table 3:** Motivators and Hinderances affecting the presence of a good learning environment

		Motivators	Hinderances
<b>Characteristics of a good learning environment</b>	A safe, comfortable and organized environment for students that does not pose a danger or threat to them	Supporting academic counseling with psychological counseling by giving training courses to enhance the teacher's ability to deal with the student's psychological needs while providing the necessary financial capabilities to improve in order to avoid negatively affecting obstacles such as the quality of the educational institution's infrastructure.	Supporting academic counseling with psychological counseling by giving training courses to enhance the teacher's ability to deal with the student's psychological needs while providing the necessary financial capabilities to improve in order to avoid negatively affecting obstacles such as the quality of the educational institution's infrastructure.
	An environment that provides opportunities for individual and cooperative education among students	The multiplicity of educational means and the diversity of the method of conveying information from the teacher to the students enhances the quality of academic achievement	Sticking to one method of education is one of the risks that directly threatens a good educational environment
	A purposeful environment that reveals students' goals and aspirations and what they focus on and strive to achieve	Providing educational and intellectual guidance to students to enhance the achievement of their goals	Lack of a good mechanism of teacher awareness of students' needs to help them reach their goals
	A positive environment based on effective communication and cooperation between the students and their peers and between the students and their educators	Conducting group discussions between the teacher and the students to enhance the skill of awareness of others	The absence of a dialogue mechanism based on learning, discovery and discussion between the student, the teacher, the student and his colleagues
	A motivating landscape, that seeks to stimulate students' thinking and help them to devise strategies that enables them to overcome problems	Giving the students the opportunity to try repeatedly to learn from the mistakes of the experiment and to enhance self-confidence	The teacher does not encourage the student and works to enhance his self-confidence