

A Study of the Impact of Tutor's Support and Undergraduate Student's Academic Satisfaction

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ABSTRACT : The range of ways by which tutors facilitate teaching and learning of undergraduate students has proven to be a prerequisite academic framework that needs to be investigated. This study aimed at providing a contribution in the investigation of the relationship between tutors' support and engineering students' academic satisfaction. Furthermore, it meant to add into the accumulated amount of knowledge of educators and policy makers in the MENA region. A sample size of 47 first year students, taking a core subject, was analysed in spring 2016 & 2017 for the same tutor. Another sample of 97 students of the same subject (ENGG104) taught by two different tutors. The evaluation involved 6-point Likert questionnaire measuring the effectiveness of the tutor from students' perspectives. The study found that tutors have an essential role in student's academic success.

KEYWORDS: *Tutors' Support; Students' Academic Satisfaction; Students' Retention; Students' Laboratory Experience*

I. INTRODUCTION

Educators and policy makers are in the unceasingly challenging process of analyzing the efficacy of teaching and learning methods to assure students' success and that of educational policies to assure students' retention [1]. Majority of educational institutes aim to smoothen the process of settling in for the freshmen while assuring the continuous success in academic setting and subsequently the successful progression in the business world [2]. Most studies on tutors' support and students' academic success identify a number of factors needed to understand the efficiency of support methods, utilized for a better university experience and a higher academic success. It is worth mentioning that although there is vast literature exploring the determinants of academic success, not much has been done with regard to the United Arab Emirates or wider MENA region [3]. Such comes as a surprise considering the education model of most federal/ government and private universities in this region which depend heavily on lectures and tutorials alike. The literature displays a variety of contexts and factors which contribute in the process of students' academic success [4]-[5]. Complexity of the multifaceted construct of students' academic satisfaction varies to a high degree depending on the contexts and factors being analysed [6]-[8]. Predictors and determinants of academic success are connected with the experiences students have about their studies and subsequently about their tutors.

This study was conducted in an offshore branch of Australian university operating in the UAE. Our undergraduate students come from a variety of schooling systems such as International General Certificate of Secondary Education Cambridge University (IGCSE), the General Certificate of Education (Advanced Level), International Baccalaureate (IB), Central Board of Secondary Education (CBSE) common mainly within Indian undergraduate students, Pakistani Education System, Australian schooling system and Philippine Education System (largely similar to the American Education System). Considering the wide range of diversification of our students, teaching and learning process needs to be analyzed from two perspectives; first, the tutors' methods of teaching, interacting with students and overall, facilitating learning process and second, external or internal factors associated with students' success.

The motivation for conducting this literature review is our experience of teaching undergraduate level students. During the years, we have tried to use a variety of methods to assure students' success and the overall satisfaction with the teaching and learning process. Our major interest and aim have always been to facilitate our students' university studies and furthermore, introduce them to the concept of complexity and usefulness of these studies and skills in the work environment. The standard requirements in our university have evolved through the years and this has had a constant impact on the variety of methods we have had to apply in classrooms aiming students' academic success. Our students are enrolled in different majors and the alignment of the learning outcomes and assessment tasks of each major contributes in assuring constructive alignment

throughout the curriculum. Diversification of our teaching methods is necessary to facilitate our students' learning needs and subsequently provide a solid ground for a successful advancement in university and further on in the career. The diversity of teaching methods brings along changes in students' way of thinking and a big part in this process needs to be taken care by students themselves. A study conducted by Hysaj et al [9] found out that students learn through the diversity of students' body as much as they learn from application of tutors' skills. Hence, it is important to understand ways of benefiting from both kinds of diversifications for a successful and satisfying learning experience for all our students. Undergraduate students aim to acquire knowledge in university and to successfully develop their personal and professional aspects. Such is commonly associated with challenges that are a consequence of major factors such as differences between the schooling systems worldwide and individual learning styles.

Administrators and management of universities have recognized the need to offer guidance to lecturers and tutors, while aiming to build a bridge between students and faculty [10], as well as to enable the development of appropriately aligned assessment and classroom activities, desiring the increase of responsibility on the side of tutors and students alike [10]-[12]. Teaching and learning is a dual effort process and needs to be approached from the angle of learners and that of teachers, tutors and assistant teachers' self-efficacy refers to the impact they as educators have on students while in university and beyond in the future workforce. Such constitutes the difference tutors make on undergraduate students within the academic setting and to the society as a whole [13]. Nikolic et al. [14] pointed that universities are in a virtual race for constantly increasing the number of students enrolled in a variety of majors. The increased number of universities and the appearance of new professions in different fields have created a demand for improved university standards and constantly increased accountability of tutors' academic support. The support provided by tutors is a key element that facilitates students' academic success and promotes individual growth, individual awareness and contributes in transferring the salient features of purposeful learning [15]. Therefore, it is highly connected with the academic success of students and their professional and individual success [16]. Nikolic et al [17] in their study analyzed the effects of a training program on laboratory tutors; considering the importance of tutors in explaining concepts for a successful learning outcome. Induction sessions were the first stage of this training. They were followed by integrated modelling via video example of 'on- the-job training'. Two types of partnerships were utilised in the process; 1) junior and senior demonstrators, 2) junior and senior academics for tutoring. The outcome of this training was an increase in junior satisfaction levels with demonstrators from 79.69% in 2009 to 89.74% in 2013.

Policymakers in universities have demonstrated their faith in the correlation between tutors' professional growth and students' performance [18] by offering professional training platforms with the aim of improving tutors' quality of work and their self-efficacy. However, it is worth mentioning that a possible way of including learners in the process still needs to be explored and a way of doing it, is to listen to their voice.

II. LITERATURE REVIEW

2.1 Tutors' influence on students' motivation and learning

Influence on Motivation and Learning refers to the direct and indirect impact that faculty members can have on students due to the formal or informal contact with them. Academic self-concept and achievement refer to the successful completion of subjects and subsequently degrees as well as achieving a high grade point average (GPA). Birch and Ladd [19] emphasize that teachers are in the authority of making a long-lasting contribution to their students from a variety of aspects such as social, cultural and emotional to name a few. Moreover, Pianta, Hamre and Stuhlman [20] point out that the effect of teachers on their students, guides the latter into a well perceived adulthood and a successful professional life [21]. The literature suggests that students get influenced by teachers in an array of ways and well beyond the classroom environment or the matter relevant to studies performance. Effective teachers promote active inclusive student learning by generating enthusiasm and passion for the subject and learning as a process. It is the social responsibility of teachers, tutors and educators in general to create a responsive classroom climate and encourage collaborative learning, initiative and creativity.

2.2 Students' interdependency on tutors' support within a university laboratory setting

Le and Gardner [22] in their work, described a laboratory as comprising of both social and physical environments so that provision of adequate training and staff availability and accessibility are important aspects to create a laboratory climate that stimulates students' academic development and increases laboratory productivity. Although a lot has been written and researched on the importance of tutors in the teaching and learning process, not much has been done to understand how tutors can utilize the contribution of all students in the process of learning. In other words, how the abilities of tutors can go beyond the technicality of managing the class and explaining the matter appropriately to the students, and how tutors can act more often as facilitators of the learning process while allowing students to grow as individuals while interacting with each other and making the best out of a laboratory environment. Bucciarelli [23] in his ethnographic study of engineering students and science, emphasized the significance of interactions amongst the socio-cultural aspects for students that are present within university engineering labs, indicating that sensitivity to individual and

cultural diversity is vital. Fetsco et al [24] and Yurt and Aktas [25] prove that peer tutoring may facilitate the development of understanding and provide a non-challenging environment that encourages deep learning. Bozeman and Corley [26] further addressed how well collaboration among students within laboratory setting, offers numerous benefits to undergraduate engineering students. Le and Gardner [22] also reported that consideration of differences in backgrounds, languages, cultural understanding, sociocultural environment, and various educational experiences are fundamental contributors to the high productivity of engineering laboratories. Potential barriers especially cultural and language differences may affect students negatively in both their academic and social lives; blocking the collaboration that is crucial to successful laboratory tasks or projects. Hence, laboratory tutors need to provide a welcoming environment for the students entering the laboratory to generate a proactive attitude for their learning. As stated by Lin, [27] a cooperative and friendly climate in an engineering laboratory can promote undergraduate students' academic development, as they acquire new skills, concepts and conduct research work. In addition, Lin [27] reported that positive interpersonal relationships promote knowledge sharing, discussion and enhancement of mutual goals in a cooperative laboratory setting. Other than providing a conducive learning environment, the laboratory tutors should seek to provide quality laboratory skills. Harvey and Green [28] addressed quality with regards to higher education as "stakeholder-relative". Therefore, laboratory tutors should understand the role that the laboratory environment plays in influencing group collaboration and students' individual learning. The laboratory's climate and the quality of skills transferred from tutors to students can influence individuals' efficiency and increase students' motivation to participate in experiments and overall facilitate students' academic experience and improve their academic performance.

2.4 Cross Cultural Dialogue in Multicultural Classrooms

A study by Hysaj et al [9], that analysed the impact of a multicultural students' body in correlation with students' academic satisfaction, suggested that over 75% of students regard multicultural diversity as a main contributor to their academic satisfaction. Another study by Lehtomäki, Moate and Posti-Ahokas [29], conducted with the aim of understanding the effect of cross cultural dialogue found that the sense of connecting through diversity encourages fruitful dialogue and creates a meaningful learning experience. This study utilised students' journals as a reflection tool towards understanding the effect of multicultural body of faculty and students alike. Both studies Lehtomäki, Moate and Posti-Ahokas [29] and Hysaj et al [9] pointed out that although the diversity of students' body is as added advantage to students' experience in higher education, it is important to design integrated learning approaches that can lead to deeper learning and that can facilitate the development of multicultural knowledge. These are both very valuable for the development of students' new global perspectives. Adaptation of teaching material used for clarification of concepts in a variety of contexts makes learning fun, enjoyable and memorable. Lopriore and Vettorel [30] emphasized the importance of different nuances of the spoken English as a way of promoting classroom inclusiveness. This kind of inclusiveness allows students to take ownership of their learning and it introduces them to a whole new dimension of thinking, each time they collaborate with other students. Needless to point out that students may require tutors support in decoding cultural differences of their fellow students [31]. If the students learning style preference are taken into consideration by the tutors, while preparing classroom activities or assessment tasks, the level of students' interest can result to be much higher than if the learning preferences are not taken into consideration.

2.5 Tutors' role in Encouraging Multicultural Students' Participation in Classroom Discussions

The benefits stemming through class participation are many, it allows students to freely formulate and crystallize ideas and arguments utilizing their cognitive skill set. Therefore, it's important for instructors to deploy techniques to generate student interest within a diverse classroom. Biggs [32], McKay and Kember [33] and Chalmers and Volet [34] in their work emphasized the necessity for the university professors and instructors to employ learning and teaching techniques and strategies that are student-centered, interactive and motivate them to perform effectively in a classroom. Hellmundt, Rifkin and Fox [35] applied various data collection procedures to discuss and identify effective strategies that not only allow local and international students to interact more productively but also further enhance classroom participation. Tutors should understand the demands of the subject being taught and also realize that reducing the cross-cultural awareness gap within a classroom is crucial to the student participation and performance. Tutors should provide space and opportunity for exchange of constructive criticism and feedback as it makes the students to identify, respect and turn the cultural baggage which every student brings along to the classroom into an overall positive learning experience. Grading the quality of classroom participation [36] could be another effective approach to motivate hesitant students to participate within a diverse classroom setting. It is also vital to note that no particular successful pedagogy established on student participation can yield results unless tutors send a positive message of equality to students, that promotes a classroom environment which embraces diversity and encourages students to contribute effectively within the classroom.

III. RESEARCH METHODOLOGY

3.1 Data Collection and Analysis Process

This study was conducted to show the effect of tutor's support in teaching and learning process but the focus was on the individual and academic aspects of student's development. The analyzed questions were focused on grasping the development of students as people and as learners. The cohort was first year engineering students to ensure unbiased evaluation of the tutor. Two samples were collected the first one, a sample of 47 students taking first year core subject (ENGG104) in spring 2016 & 2017 for the same tutor and another sample of 97 students studying the same subject (ENGG104) but were taught by 2 different tutors. The evaluation questionnaire contained questions to measure the effectiveness of the tutor support from students' perspectives; within class time, through feedback on assignment and overall impact on subject teaching process. These questions are 6 points Likert scale and the options are as follows: "Strongly Disagree, Disagree, Mildly Disagree, Mildly Agree, Agree and Strongly Agree". The mean of the students' score was calculated and analyzed statistically. Mean scores for students' answers were calculated based on: Strongly Disagree=1, Strongly Agree=6. The survey was done at the end of the semester after students had finished submitting all assignments for the subject. This study aimed to test hypothesis concerning proportions of students who see that tutor support lead to their academic satisfaction from different aspects. The inferential statistical method used to test the hypotheses: Z test for the proportion, one sample one tail [25].

The hypotheses analysis started by assuming a maximum value for the proportion of students who are academically satisfied by tutor's support, this value is calculated based on sample proportion and level of significance at 0.05. The value of students' proportion is chosen to support the alternative hypothesis. Academic satisfaction is measured by the proportion of students who mildly agree to strongly agree that tutor support is effective. Decision to reject or accept the hypotheses was done by the use of the P- Value approach, if the calculated P – Value is less than the significant level so null hypotheses will be rejected.

3.2 Hypotheses and Results

All the hypotheses were tested at level of significance $\alpha = 0.05$

Table 1 shows the mean scores for students' evaluations of the tutor in the following 6 aspects:

- This lecturer stimulates me to think about the subject. (A1)
- This lecturer has been available to discuss problems and questions relating to my assignments or examinations. (A2)
- This lecturer encouraged participation in discussion and collaborative activities. (A3)
- Feedback on assignments marked by this lecturer has been helpful. (A4)
- This lecturer encouraged me to interact with other students. (A5)
- Because of this lecturer I have felt enthusiastic about studying this subject. (A6)

3.2.1 Case 1: The data were collected for the same tutor, same subject but 2 different semesters.

Table 1 shows the data used to study Hypothesis 1 – 6 for Case I.

Table 1: Case I-Data used to study Hypothesis 1-6

Same subject but 2 different semesters	Sample size	Mean scores for the six aspects					
		Mean score A1	Mean score A2	Mean score A3	Mean score A4	Mean score A5	Mean score A6
Spring 2016	33	4.79	4.59	4.85	4.58	5	4.52
Spring 2017	14	4.93	4.86	4.86	4.69	4.85	4.86
Total	47	4.845	4.725	4.855	4.635	4.925	4.69

1. Hypothesis no. 1: H₀: proportion of students who feel lecturer stimulates them to think about the subject $\leq 69.5\%$;

$$p = \frac{x}{n} = 0.8075 \quad (1)$$

$$Z_{STAT} = \frac{0.8075 - 0.695}{\sqrt{\frac{0.695(1-0.695)}{47}}} = 1.652 \quad (2)$$

p-value=0.0495 < α

H₀ is rejected, we have enough evidence that proportion of students who mildly agree to strongly agree that the lecturer stimulates them to think about the subject is at most 69.5%

In a similar way the following hypotheses were tested:

2. Hypothesis no. 2: H₀: proportion of students who feel lecturer has been available to discuss problems and questions relating to my assignments or examinations $\leq 67\%$
p-value=0.0436 < α
3. Hypothesis no. 3: H₀: proportion of students who feel lecturer encourages participation in discussion and collaborative activities $\leq 69.5\%$
p-value=0.0436 < α
4. Hypothesis no. 4: H₀: proportion of students who found feedback on assignments marked by this lecturer has been helpful $\leq 65.5\%$
p-value= 0.0455 < α
5. Hypothesis no. 5: H₀: proportion of students who found the lecturer encourages them to interact with other students $\leq 71\%$
p-value= 0.0485 < α
6. Hypothesis no. 6: H₀: proportion of students who feel enthusiastic about studying this subject because of the lecturer $\leq 66.5\%$
p-value= 0.0455 < α

3.2.2 Case II: The data were collected for two different tutors, same subject and same semester (Spring 2016)

The above six hypotheses were tested one more time to check the effect of changing the tutor on the results, check table 2 for the data used

Table 2 shows the data used to study Hypothesis 1 – 6 for Case II.

Table 2:Case II Data used to study Hypothesis 1-6

Different tutors, same subject same semester Spring 2016	Sample size	Mean scores for the six aspects					
		Mean score A1	Mean score A2	Mean score A3	Mean score A4	Mean score A5	Mean score A6
Tutor 1	33	4.76	4.59	4.85	4.58	5	4.52
Tutor 2	64	5.16	5.29	5.19	5.23	5.17	5.28
Total	97	4.96	4.94	5.02	4.905	5.085	4.9

1. Hypothesis no. 1: H₀: proportion of students who feel lecturer stimulates them to think about the subject $\leq 75\%$
p-value=0.0495 < α
2. Hypothesis no. 2: H₀: proportion of students who feel lecturer has been available to discuss problems and questions relating to my assignments or examinations $\leq 75\%$
p-value= 0.0485 < α
3. Hypothesis no. 3: H₀: proportion of students who feel lecturer encourages participation in discussion and collaborative activities $\leq 76.5\%$
p-value= 0.0485 < α
4. Hypothesis no. 4: H₀: proportion of students who found feedback on assignments marked by this lecturer has been helpful $\leq 74\%$

$$p\text{-value} = 0.0409 < \alpha$$

5. Hypothesis no. 5: H₀: proportion of students who found the lecturer encourages them to interact with other students $\leq 77.5\%$
p-value = 0.0436 < α
6. Hypothesis no. 6: H₀: proportion of students who feel enthusiastic about studying this subject because of the lecturer $\leq 74\%$
p-value = 0.0409 < α

IV. ANALYSIS AND DISCUSSION

These results show a positive impact of the tutor on the education process. Students' evaluation to the tutor evaluation are all above 65%. All the tested hypotheses were designed to check the effect of the tutor on enhancing the whole process of teaching and learning. From the analysis of this study, it was inferred that the proportion of students who responded mildly agree to strongly agree that the lecturer stimulates them to think about the subject was 69.5%, which could be explained as the students feel that the tutor is a good tool for better understanding to the taught material. The results also show that the proportion of students who feel enthusiastic about studying the subject because of the lecturer is 66.5% which means that successful learning occurs when the tutor is able to facilitate the teaching of the subject's material. Also the proportion of students who agreed that the lecturer has been available to discuss problems and questions relating to their assignments or examinations was 67%, which reflects the importance of the tutor as a support during the examination period. When it comes to managing and supporting the taught material within class and its correlation with the students' performance toward the desired learning outcomes, the proportion of students who feel encouraged by the tutor to participate in discussion and collaborative activities was 69.5%. Moreover, students were encouraged to work in groups by the tutor and the proportion who approved this was 71% which means that when the tutor realises the importance of peer discussion this invokes new ideas and makes students more motivated. The amount of students who agreed that, the feedback from the tutor on their assignment is helpful, was 65.5% indicating that adequate feedback reduces the amount of students' errors and increases their understanding about the subject while identifying and filling in possible gaps.

Interestingly, when the analysis was repeated for two different tutors, the results were higher for the overall evaluation. The proportion of students who agreed that the lecturer stimulates them to think about the subject was 69.5% for case I, while for case II it jumped to 75%. This could be explained by the power of the second tutor which validated our discussion about the importance of the tutor. This also leads us to say the better the tutor the higher the students' academic satisfaction.

The analysis of this study demonstrates that the proportion of students who agreed (mildly agree to strongly agree) that the tutor generates creativity, enthusiasm and passion for the subject and learning process, creates responsive classroom climate, encourages collaborative learning, supports during examinations and provides adequate feedback was higher than 65%. So we can say that tutors' role is crucial for a successful academic experience.

In this study there are a number of strengths and limitations worth highlighting. Our findings were drawn based on a large number of students; almost all the students enrolled in the first year of an undergraduate engineering degree. The sample was selected from first year students who had the first encounter with the evaluated tutors. This was done to avoid any possible bias that could occur due to a previous encounter with the same tutor. The collection of the data took a long time because in the case I, it was collected during 2 consecutive years and the evaluation time was at the end of each semester when the students conclude on the whole experience with the tutor. The number of the tutors who participated in the evaluations was limited due to the restriction imposed from the study's rationale of analyzing first time encounter with the same class. Moreover, tutors chosen for this study were teaching first year undergraduate engineering students, hence findings cannot be generalized. So from student sample perspective we have a high confidence level that is higher than 95% but the tutor sample is of limited accuracy.

V. CONCLUSIONS AND FUTURE WORK

This study found that tutors have an essential role in teaching and learning process, proving the need for tutors' continuous development of professional and individual skills sets. The university management and policy makers need to invest towards providing a promising learning platform for students aiming their academic satisfaction and consequently improved academic performance. We concluded that tutors' engagement with students' learning process and most importantly the collaboration between tutors and students may as well be a focal factor towards students' academic success.

Recommendations for future work include studies on tutors' evaluation for a period of 3 – 5 years and could compare the data gathered from students' evaluation of the same tutors and that of different tutors. The study can be conducted at different universities to increase the possibility of generalization. The effectiveness of

ways by which students collaborate in a laboratory setting requires further research and could be utilized for teaching purposes. As this study was focused on the first year engineering students, other studies that focus on a variety of study degrees need to follow, aiming an increase in the degree of reliability and providing a platform for further generalization. Finally, this study found that tutors have an essential role in teaching and learning process, proving the need for tutors' continuous development of professional and individual skills sets. The university management and policy makers need to invest towards providing a promising learning platform for students aiming their academic satisfaction and consequently improved academic performance.

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