

**Plunging into Various Intricacies of Teaching Identical Academic Courses through both First and the Second Languages: The Medium of English versus the Medium of Hebrew**

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**Abstract**

Against the backdrop of the worldwide spread of the English language and its profound influence upon various aspects of higher education environments, extensive efforts have been geared towards successfully adopting the language as a medium of instruction within higher education institutions (HEI) of non-English-speaking countries (NESC). There has been a growing amount of research providing valuable insights into similarities and differences between conveying an array of academic content through English as a medium of instruction (EMI) and delivering the educational content via students' mother tongue (L1). The main thrust of this study was to identify such commonalities and differences with regards to academic achievements of Israeli students in five academic courses taught both in Hebrew and English at Shamoon College of Engineering (SCE) in 2019 and 2020. The study was also aimed at examining the learners' evaluation ratings of their lecturers who taught the courses. The paper concludes that the academic attainments of EMI students were higher than the ones of the Hebrew-based courses. With respect to the evaluation ratings, the results stand in marked contrast to the participants' grades in EMI courses as there is a decrease in the scores across most parameters.

**Keywords:** English as a medium of instruction, academic achievements.

## **1.Introduction**

There has been an ever-accelerating shift towards adopting English as a primary medium of instruction in the arena of higher education of non-Anglophone countries over the last decade. The language has become entrenched in educational systems of the countries in view of the fact that the process of embracing English as a medium of instruction (EMI) is considered to be a "global phenomenon in both public and private education in all stages of education" (Dearden 2014, 3). This emerging and mushrooming demand for delivering academic content knowledge through the EMI approach revolves mainly around globalization, which contributed to establishing its exceptional status as the world's lingua franca (Qin and Neimann 2017). The extraordinary nature of the status manifests itself in a whole gamut of fields where the language plays a pivotal role. Among the fields are those that are associated with business, commerce, international communications, science and research. With regard to academic domain, the predominance of English can never be overemphasized owing to overwhelming adherence to the language in publishing a majority of academic sources (Abello-Contesse et al. 2013). The medium of instruction is deemed as a window on the academic world through which stakeholders gain access to scientific data in a variety of domains.

## **2.Literature Review**

It is worth mentioning, however, that the shift toward conveying educational material via the medium of instruction within higher education institutions (HEI) in non-English speaking countries (NESC) needs to be viewed through the prism of varied incentives that are essential for plunging actively into the process. The spectrum of the incentives is quite broad and comprises, inter alia, various aspects related to the utmost necessity on the part of HEI to enhance their ratings by sharpening their international profiles (Linn 2016), lifting language barriers to the enrolment of international students (Wächter and Maiworm 2008) and creating "brain gain" by attracting high-calibre stakeholders with the view of having a positive impact upon NESC' work force in the future (ibid). As for the aspect connected with the expanding the pool of students, both domestic and international, as well as highly qualified academics, it should be attached a high value due to its profound influence upon improving HEI' profiles, prestige and sound academic reputation of the institutions. Assigning a high weight to the aspect is of importance since it can be highly beneficial in terms of HEI' positions on the international ranking scales (Kirkpatrick 2014; Kirkpatrick 2015; Rakhshandehroo 2017).

To this can be added that the ever-growing worldwide interest to implement the medium of English in the sphere of higher education of non-Anglophone countries has a clear-cut segment of a financial nature as HEI, wittingly or unwittingly, are participants of the global competition taking place in higher education market. The

interest's financial and business-based nature, falling within the scope of both domestic and international markets, needs to be taken into consideration as this in-built 'money-oriented' component is essential in triggering the institutions' aspiration to actively participate and financially survive in the competition (Tsou and Kao 2017). In that respect, the international student market, revolving around high-fee-paying international students, is considered as a serious stimulus for the active participation and embracing the language as a medium of instruction (Coleman 2004; Kirkpatrick 2014; Jenkins and Mauranen 2019).

Without detracting from a number of wide-ranging advantages of teaching academic subjects via English, it is worthy to note that the transition to the language is fraught with a diversity of challenges and hurdles imposing a heavy burden on the stakeholders and touches upon various facets of the higher educational landscape of NESC. Among the drawbacks of switching to the medium of English is its possible negative impact upon local language (Al-Bakri 2013), students' academic achievements (Chou 2016), cultural identity (Edwards 2016), and pedagogical competence of EMI educators (Ball and Lindsay 2013). Additionally, and not unexpectedly, due attention should be devoted to the stakeholders' unsatisfactory English proficiency. Being deemed as one of impediments to successful EMI implementation, an unsatisfactory level of proficiency in the language of instruction provides a breeding ground for arising varied issues within existing higher education environments (Vu and Burns 2014; Kim 2014; Cots 2013; Floris 2014; Ball and Lindsay 2013).

Deeply rooted as they are, there are other noteworthy obstacles standing in the way of an effective realization of the EMI approach. In that regard, there appears to be a need for providing meaningful insights into commonalities and differences pertaining to delivering various academic contents via the medium of English and the stakeholders' mother tongue (L1). Amidst the commonalities and differences is the superficiality of learning in English-based courses as opposed to the ones based on students' L1 (Kırkgöz 2005; Hu, Li, and Lei 2014), time-consuming factor (Kırkgöz 2005; Margić and Vodopija-Krstanović 2015), quality and quantity of the delivered educational material (MacDonald 2009), similarity between teaching methods used by lecturers in English-based and L1-based content courses (Michaelan 2018) and a possible impact, or the lack of it, of EMI upon students' academic achievements (Dafouz and Camacho-Miñano 2016; Chou 2016; Aina, Ogundele, and Olanipekun 2013; Kaliyadan et al. 2015; Michaelan 2018; Ghenghesh 2015).

As to the learners' academic performance, an existing body of research into the domain of teaching academic content through English acquires a new strategic weight in the light of the rising trend towards adhering to the medium of English. The corpus of the research brings to the fore a dire need of considering the aspect from multiple angles as the findings of the studies are far from being unequivocal. In that respect, it is worth noting a study carried out at the School of Economics and Business

Administration in Spain (Dafouz and Camacho-Miñano 2016). In their bid to examine an influence of EMI upon students' academic attainments in the subject of Financial Accounting I and compare them with academic outcomes of their counterparts in the same subject delivered in Spanish, their L1, researchers collected and compared grades of 383 first-year students over the course of four academic years. Drawing on the results obtained from the study, the language of instruction seemed to be of no significance to the participants as academic achievements of EMI students were similar to the ones of non-EMI students.

The findings are in line with another study held at the Complutense University of Madrid among first-year students studying for a Business Administration degree (Dafouz, Camacho, and Urquía 2014) during one academic year. The investigators gathered and analysed data related to academic performance of learners from non-EMI and EMI groups in three different disciplinary subjects: Economic History, Financial Accounting I and Principles of Business Financial Management. According to the findings emerged from the study, the non-native medium of instruction, i. e. English, does not constitute a significant obstacle for the learners as the groups' academic attainments were similar "in the three subjects under scrutiny" (Dafouz, Camacho, and Urquía 2014, 12) with slightly higher results in History.

It needs to be mentioned, however, that much more profound differences in EMI and non-EMI students' academic results were found in a number of studies in HEI of other non-Anglophone countries. Among other things, the differences revolve around deterioration in students' academic performance owing to their insufficient English proficiency. In this regard, due attention should be attributed to a small-scale study held at a language university of Taiwan (Chou 2016). This case study was aimed at examining whether reciprocal teaching may have an effect on academic outcomes. However, given the scope of the paper, it is of importance to highlight the researcher's personal experience with teaching an educational psychology EMI course "in a teacher-training program" (Chou 2016, 37). What emerges unambiguously from the experience is that teaching the course via the medium of English has a negative impact upon learners' academic performance. The latter manifests itself in poor results received by his students in examinations and quizzes. The researcher attributes the poor performance to difficulties experienced by the learners in understanding the content of the lecture or the textbook which were delivered through English.

The significance of the forenoted relationship between EMI students' command of the medium of instruction and their learning outcomes is also emphasized in the research conducted among students in science and technical education courses at a Nigerian college of education (Aina, Ogundele, and Olanipekun 2013). The findings emerging from the research point to the existence of correlation between the learners' academic results in science and technical education and their mastery of the English language. Amid the findings are those attaching due attention to a positive influence of

a good level of English competency on the part of the learners upon their academic attainments in science courses, as well as in the courses of technical education.

Another demonstration of the aforementioned relationship related to adequate English competence of EMI students and their academic success comes to the fore in the study that was conducted at a private Turkish university (Civan and Coşkun 2016). The study was primarily devoted to determining the impact of non-native medium of instruction upon academic success and was held amongst the cohorts of students studying for their bachelor's degree in Turkish and English as many departments of the university offer the degree in both these languages. Drawing on the results obtained, along with a number of similarities associated with the participants, the researchers claim that there is a significant negative effect of the medium of English on learning outcomes of the students for whom English was their L2. Not less important is the fact that "[t]his effect is highest in the freshman year but it reduces over time, although never disappears" (Civan and Coşkun 2016, 1999).

Along similar vein, it is worth touching upon a study carried out among "postgraduate management students of Marathwada region of Maharashtra" (Kumar 2014, 10). The participants of the study were students of semi-urban and rural areas of the Indian region with different levels of English language proficiency. The findings echo those of previous studies in assigning a high weight to inadequate English competence of the students as it has a detrimental influence upon their academic performance.

To this can be added a body of additional research shedding further light on the role of EMI students' insufficient command of English in either increasing or decreasing their learning success (Sert 2008; Byun et al. 2011; Kirkgöz 2005; Ghenghesh 2015; Yushau and Omar 2015; Kaliyadan et al. 2015), as well as an accumulating amount of research casting into doubt the possibility that the students' limited language repertoire may pose a serious hurdle on the way of achieving good learning outcomes (Aina and Olanipekun 2013; Pal and Iyer 2012; Addow 2013). Coming from this angle and given the scope of the paper, it is of significance to provide a meaningful glimpse into the implementation of the medium of English within Israeli higher education settings owing to various obstacles and challenges the process is fraught with.

To gain a better understanding of the controversiality of the issue of embracing a foreign language as a medium of instruction in the arena of higher education in Israel, it is worth mentioning "war of languages" (Goldstein 1998, 67), i. e. German and Hebrew, between the Zionist movement and a non-Zionist body of "Ezra", over making one of the languages a permanent medium of instruction in the Technion, in 1913. The members of the latter were ill-disposed towards choosing Hebrew as a primary language of instruction in the higher education institution due to certain limitations, among which was a paucity of scientific and technical terms used in the language. Their position stood in contrast to the one of the members of the Zionist movement who

expressed a clear preference for Hebrew as a medium of knowledge acquisition in the institution. As to the aforementioned lack of scientific and technical terminology in Hebrew, interestingly enough, it is still the case according to the findings emerged from the study undertaken amongst the stakeholders who were involved in EMI courses in Israel (Michaelan 2018).

Nowadays, given the overwhelming dominance of the English language within international higher education landscapes, it is becoming increasingly obvious for decision-making bodies and policy makers of higher education systems of NESC that a delay in effectively implementing the EMI approach in HEI of the countries would be a largely myopic stance on their part. The endeavour to keep abreast with the ongoing changes has not bypassed Israeli higher education and is beginning to change the country's educational system. The change is demonstrated, inter alia, through offering various complete degree programs via EMI (Donitsa-Schmidt and Inbar-Lourie 2014).

Yet, without detracting from the value of the measures taken by the bodies and the stakeholders of the country with a view to avoid lagging behind the massive proliferation of English within a wide range of non-Anglophone academic settings, particular efforts need to be geared towards identifying and tackling hurdles and pitfalls that may put in jeopardy ongoing efforts to align with the accelerating trend and ascertain the extent of efficiency of the efforts. The magnitude of the existing challenges should never be overemphasized as they lay special stress upon a number of valuable aspects associated, among other things, with a lack of explicit policy and national guidelines regarding the implementation of EMI in the realm of Israeli higher education (Donitsa-Schmidt and Inbar-Lourie 2014). Additionally, deeply rooted as they are, it is pertinent to emphasize that the aspects cannot be considered beyond the scope of various issues concerning teaching the language in the country's school system. Amongst the issues are a scarcity of teachers, overcrowded classrooms and discipline problems (Inbar-Lourie 2005). Another noteworthy aspect that needs to be taken into account by the policy makers is linked to the fact that English is perceived as a second foreign language for a significant part of Israeli students, such as Arab citizens of the country and new immigrants. In view of the aforesaid, researchers have yet to thoroughly look into the intricacies of Israeli society and its HEI to effectively address a whole gamut of the issues that are deemed as an integral part of the society.

### **3. Research Aims**

Ascertaining the extent of influence which EMI may or may not have on students of HEI of NESC is what this study mostly revolves around. More specifically, the study was aimed at examining whether there are differences in students' achievements in various EMI courses taught at Shamon College of Engineering (SCE) as opposed to academic outcomes in similar courses delivered through Hebrew medium of instruction (HMI) within the Israeli academic institution. In addition, the present

study places an emphasis on examining a relationship between the students' evaluation ratings of their lecturers in EMI and non-EMI courses.

#### **4.Methodology**

##### **4.1. Students' attainments in different courses**

With regards to the structure of the courses taught in both languages at the college, they consist of diverse semester assignments, such, for example, as homework and exams. With respect to the courses' final grade, it is calculated from the grades for all semester assignments. The overall score of the courses is on a scale from 0 to 100 and in order to successfully pass a course students are required to obtain a cumulative grade higher than 56. Any other grade below 56 will constitute a course failure. As to the exams, any student of any course taught at SCE is eligible to take a repeat exam with the view of improving his or her previous score and the last one will be considered as the determining grade. In the vast majority of SCE courses the exams last for about three hours.

##### **4.2. Evaluation ratings in different courses**

The students of the college are given the opportunity to evaluate the quality of subject content delivery through a range of parameters in various courses by means of their evaluation ratings of the teachers teaching the courses. The evaluation process spreads over the period of three weeks and starts in the middle of each semester. The students' response rate ranges from 40% to 50%. The questions the responders are presented with are related to every lecturer in every course and are listed further below.

- What is the overall satisfaction level with the lecturer of the course?
- The educational content was taught clearly and distinctly by the lecturer
- The lecturer's attitude towards the students was respectful and fair
- The lecturer is responsive to students' questions and inquiries
- The course was well organized and understandable
- The lectures were dynamic and interesting

As regards the scores scale for each question, it varies from "1" (Not at all satisfied) to "6" (Extremely satisfied).

##### **4.3. Data collection procedure**

SCE's ethics committee granted permission to the researchers to conduct this study. The research data was obtained from the academic administration system of the college and includes information about 264 students who took five courses in the 2019 and 2020 academic years starting from the advanced years of their degree studies in engineering. Additionally, the collected research data encompasses

information concerning four courses from the fourth year of undergraduate studies in engineering and a course for a master's degree in engineering (see Figure 1).

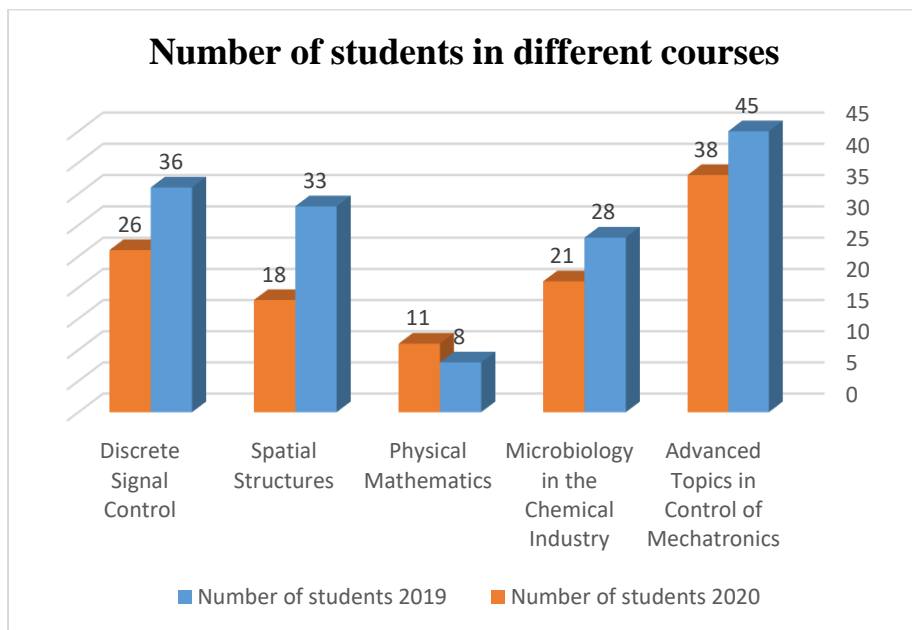


Figure 1. Number of students in different courses in the years 2019-2020

As for the data regarding the academic achievements of the 264 students in the above-mentioned courses presented in Figure 1, the pertinent information about each of the courses is shown Table 1.

Course	2019		2020	
	GPA	Standard deviation	GPA	Standard deviation
<b>Advanced Topics in Control of Mechatronics</b>	85.91	13.56	90.74	8.82
<b>Microbiology in the Chemical Industry</b>	76.85	11.26	82.7	10.04
<b>Physical Mathematics</b>	82.82	10.2	86.63	10.1
<b>Spatial Structures</b>	84.24	7.8	87.28	9.11
<b>Discrete Signal Control</b>	86.83	10.87	92.28	6.44

Table 1. Students' grades in different courses



In addition to the earlier illustrated research data, it is worth mentioning the evaluation rating results that were collected from the evaluation management system. The obtained results related to five courses in the 2019 and 2020 academic years (see Table 2).

Course	Year	Response to the survey (%)	Satisfaction with the lecturer	Taught clearly and distinctly	Respectful and fair attitude	Responsive to students' questions and inquiries	The course was well organized and understandable	The lectures were dynamic and interesting
<b>Advanced Topics in Control of Mechatronics</b>	2019 (HMI)	28.89	5.77	5.69	6	5.85	5.69	5.62
	2020 (EMI)	36.84	5.07	4.86	5.64	5.43	5.14	4.71
<b>Microbiology in the Chemical Industry</b>	2019 (HMI)	32.14	4.78	4.89	5.11	4.89	4.67	4.67
	2020 (EMI)	23.81	4.6	4.2	5	4.4	4.2	4.8
<b>Physical Mathematics</b>	2019 (HMI)	91.67	5.73	5.09	5.73	5.73	5.36	5.73
	2020 (EMI)	50	5	4.5	6	5.25	5	4.75
<b>Spatial Structures</b>	2019 (HMI)	12.12	4.75	4.75	4.75	4.5	5	4.75
	2020 (EMI)	22.22	3.75	3.5	4	3.75	3.75	3.5
<b>Discrete Signal Control</b>	2019 (HMI)	41.67	5.73	5.47	5.93	5.87	5.53	5.13
	2020 (EMI)	38.63	5.7	6	5.7	5.6	5.6	5.2

Table 2. Students' evaluation grades in different courses (2019-2020)

#### 4.4. Data analysis

The data gathered from both the academic administration system and the evaluation management system of SCE was then analysed by means of SPSS (Statistical Package for Social Sciences). Drawing upon the processed data, the researchers will perform two main analyses. First and foremost, the analysis will focus on investigating a difference between the students' academic success in various academic courses taught via English (EMI courses) in 2020 and the academic success of the students who studied in the same courses taught through Hebrew, the main medium of instruction in the college, in 2019. In regard to the second stage, it will concentrate on performing a comparative analysis of evaluation rating results pertaining to the five courses in the 2019 and 2020 academic years with a view to discern a difference between the evaluation rating results in different courses.

#### 5. Research findings

According to the results that emerged from the analysis of the students' learning outcomes in the five courses in 2019 and in 2020 taught by the same lecturers, there is an eye-catching contrast regarding the grades received by the students in all the EMI-based courses. The contrast is manifested in the learners' results which were higher in the courses in spite of the fact that the courses were delivered through non-native medium of instruction. Coming from this angle, there appears to be a clear difference between the grades received by the students in 2019 academic year (83.33) and the ones received in 2020 (87.926): the results, grade point average (GPA), of the former year are unquestionably lower (see Table 3).

One-Sample Test						
Test Value = 0						
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
GPA2019	47.334	4	.000	83.330	78.44	88.22
GPA2020	52.413	4	.000	87.926	83.27	92.58

Table 3. The output obtained from T test for comparing students' achievements in the years 2019 and 2020

**5.1. Finding emerging from the course "Advanced Topics in Control of Mechatronics" (2019-2020)**

Course	Year	Response to the survey (%)	Satisfaction with the lecturer	Taught clearly and distinctly	Respectful and fair attitude	Responsive to students' questions and inquiries	The course was well organized and understandable	The lectures were dynamic and interesting
Advanced Topics in Control of Mechatronics	2019 (HMI)	28.89	5.77	5.69	6	5.85	5.69	5.62
	2020 (EMI)	36.84	5.07	4.86	5.64	5.43	5.14	4.71

Table 4. Students' evaluation grades in the course "Advanced Topics in Control of Mechatronics"

What emerges unambiguously from the responders' evaluation grades regarding the course is that there is a significant decrease in the grades concerning all the parameters that they were asked of in 2020 academic year in comparison to 2019 academic year (see Table 4). A salient example of this decrease (12%) is reflected in responders' overall level of satisfaction with their lecturer which dropped from 5.77 in 2019 to 5.07 in 2020. The decline in the grades is associated with the academic year when the course was taught through the medium of English.

**5.2. Finding emerging from the course "Microbiology in the Chemical Industry" (2019-2020)**

Course	Year	Response to the survey (%)	Satisfaction with the lecturer	Taught clearly and distinctly	Respectful and fair attitude	Responsive to students' questions and inquiries	The course was well organized and understandable	The lectures were dynamic and interesting
Microbiology in the Chemical Industry	2019 (HMI)	32.14	4.78	4.89	5.11	4.89	4.67	4.67
	2020 (EMI)	23.81	4.6	4.2	5	4.4	4.2	4.8

Table 5. Students' evaluation grades in the course "Microbiology in the Chemical Industry"

A similar decrease in the scores across almost all the parameters can be seen in the evaluation grades related to the course on microbiology in the chemical industry (see Table 5). One of the examples of the insignificant drop (4%) in the results can be seen in the aforesaid parameter of the students' satisfaction with the lecturer which went down from 4.78 in 2019 to 4.6 in 2020. In the same vein, the decline is associated with the EMI course. It is of importance to note, however, that one of the parameters related to lectures' dynamics and how interesting they are run counter to the overall tendency. According to the students, the course on microbiology in the chemical industry was more dynamic and more interesting when it was taught through English (4.8) than the one delivered via Hebrew (4.67).

**5.3. Finding emerging from the course "Physical Mathematics" (2019-2020)**

Course	Year	Response to the survey (%)	Satisfaction with the lecturer	Taught clearly and distinctly	Respectful and fair attitude	Responsive to students' questions and inquiries	The course was well organized and understandable	The lectures were dynamic and interesting
Physical Mathematics	2019 (HMI)	91.67	5.73	5.09	5.73	5.73	5.36	5.73
	2020 (EMI)	50	5	4.5	6	5.25	5	4.75

Table 6. Students' evaluation grades in the course "Physical Mathematics"

By the same token, the evaluation grades associated with the course on physical mathematics fall within the scope of the decline in the grades on the EMI course. In case of physical mathematics (Table 6), for example, the decrease in the parameter of satisfaction with the lecturer is even sharper (13%) than the one in the courses on microbiology in the chemical industry and advanced topics in control of mechatronics (see Tables 4 and 5). There is yet one parameter in Table 6 that stands in contrast to the tendency - lecturers' respectful and fair attitude towards their students. As can be seen from the table, the responders are of the opinion that the attitude is more respectful and fairer in the EMI-based course than in the HMI one.

**5.4. Finding emerging from the course "Spatial Structures" (2019-2020)**

Course	Year	Response to the survey (%)	Satisfaction with the lecturer	Taught clearly and distinctly	Respectful and fair attitude	Responsive to students' questions and inquiries	The course was well organized and understandable	The lectures were dynamic and interesting
Spatial Structures	2019 (HMI)	12.12	4.75	4.75	4.75	4.5	5	4.75
	2020 (EMI)	22.22	3.75	3.5	4	3.75	3.75	3.5

Table 7. Students' evaluation grades in the course "Spatial Structures"

Along similar lines, there is a significant decrease in the scores across all the parameters pertaining to the taught via English course on spatial structures in comparison to the one taught via Hebrew in the academic years 2019/2020. In relation to the earlier discussed parameter of the learners' satisfaction with the lecturer, the decline in the grades in the EMI lectures is much more significant (21%) than the one in other disciplines: the degree of satisfaction dropped from 4.75 in 2019 to 3.75 in 2020 (see Table 7). Interestingly enough, the overall evaluation grade of the HMI course on spatial structures was mediocre, and the grade of the same EMI-based course was even lower.

**5.5. Finding emerging from the course "Discrete Signal Control" (2019-2020)**

Course	Year	Response to the survey (%)	Satisfaction with the lecturer	Taught clearly and distinctly	Respectful and fair attitude	Responsive to students' questions and inquiries	The course was well organized and understandable	The lectures were dynamic and interesting
Discrete Signal Control	2019 (HMI)	41.67	5.73	5.47	5.93	5.87	5.53	5.13
	2020 (EMI)	38.63	5.7	6	5.7	5.6	5.6	5.2

Table 8. Students' evaluation grades in the course "Discrete Signal Control"

A particular attention needs to be accorded to the results received from the respondents who took the course on discrete signal control as it falls outside the scope of the above mentioned decline in the evaluation grades. As it is evident from Table 8, there is a

quite slight decline across a number of parameters that the students were asked of in 2020 academic year in comparison to 2019 academic year (see Table 8). Additionally, in contrast to the earlier illustrated results, some of the grades of certain parameters of the English-based course were higher than the grades of the Hebrew-based one. The aforesaid slight decline and the increase can be seen, for instance, in the parameters of participants' satisfaction with the lecturer (from 5.73 to 5.7) and their responses concerning the way the lectures were taught (from 5.47 to 6).

## **6. Conclusions**

The selected for conducting the present research courses are considered to be the core ones that represent most fields of engineering. The researchers chose courses that are taught in various engineering fields, such as mechanical engineering, chemical engineering, electrical engineering and electronics, and civil engineering. With regards to the first two fields, they are related to the courses on advanced topics in control of mechatronics and the one on discrete signal control. With respect to the course on microbiology in the chemical industry, it was taught to chemical engineering students. As to the course on physical mathematics, it was delivered to the students of electrical engineering and electronics. Concerning the students of civil engineering, they were taught the course on physical mathematics.

In regard to the lecturers of the above-mentioned courses, they have substantial and extensive general teaching experience, as well as the one in teaching the courses in Hebrew. In addition, the academics are researchers who are fluent in English and write their academic papers in English. Yet, it needs to be emphasized, however, that without detracting from the significance of the experience and high fluency in English, the academics were completely unexperienced in teaching a full academic course via the medium of English during the semester. Not only that, the lecturers never taught an EMI course consisted of learners who were non-native speakers of English. That being said, it is plausible to expect that the experience the lecturers will gain teaching the courses will provide a breeding ground for more effective transfer of content knowledge through the language of instruction in subsequent EMI courses in various disciplines. To this can be added that the efficiency in delivering the content knowledge will lay a solid foundation for higher students' evaluation ratings.

Coming from this angle, a high value needs to be placed on the role of HEI in assisting educators to embrace the EMI approach. Not unexpectedly, it is reasonable to assume that appreciable results can be yielded given that HEI provide preliminary preparation for academic staff prior to the beginning of the semester and continue with the assistance throughout the semester.

As for the EMI courses, it should be highlighted that the number of students who took the courses in 2020 academic year was lower than the one in the previous year (except for physical mathematics course). A possible reason for the reduction in the

number of learners enrolled in the courses taught through the medium of English is their fear of taking the courses delivered via the language of instruction. An additional possible restraining factor influencing students' decisions to avoid taking an EMI course is the availability of opportunity for them to enroll in another HMI course instead of taking the EMI one.

Interestingly enough, the average grade of the students learning content knowledge via English medium of instruction in 2020 was higher than the average grade of the students who learnt the academic content through their L1, i. e. Hebrew. It seems probable to assume that the increase in the grades resulted from the educators' awareness of their students' difficulties in acquiring subject content knowledge via EMI, and consequently, they were quite generous in their evaluations of their students' work over the course of the semester.

However reasonable this assumption may seem, there is another noteworthy aspect associated with the EMI courses. Interestingly enough, in spite of the fact that the average grade of the students enrolled in the EMI courses was relatively high, students' evaluation ratings of their lecturers was lower compared to 2019 academic year. The decrease in the ratings probably emanates from a higher degree of efforts required from a majority of students learning subject content material through the non-native language of instruction. This need for more efforts results from the students' poor command of the language.

Along similar lines, the academic staff devoted additional efforts to change the structure of the EMI courses and translate them into English. Being busy with performing these important responsibilities may be deemed as a possible reason for the lecturers' lack of availability for the students' questions and inquiries during the semester.

In the light of the aforementioned findings and the findings of a broad array of research devoted to explore the emerging and mushrooming demand for switching to English as a medium for knowledge acquisition in the arena of higher education, there appears to be a general consensus among researchers that the accelerating trend towards adopting the EMI approach in HEI of NESC is fraught with a whole host of challenges that need to be addressed by the stakeholders. Failure in effectively tackling the challenges will lay a negative imprint on the educational process and stifle the acquisition of valuable knowledge. This suggests a need to seek durable, high-quality solutions to keep abreast with the demand for embracing the EMI approach within a wide gamut of academic settings.

## **7. Limitations of the study**

The quantitative nature of the study poses a number of limitations that need to be taken into account. The study touches upon five academic courses falling within the

scope of different engineering fields. The courses are taken by the students in the advanced years of their degree studies. It remains to be emphasized, however, that the courses cannot be considered as the representative sample of all the courses of the fields of engineering or other, falling outside the scope of engineering, fields.

An additional limitation that is worth paying attention to pertains to the fact that all the Israeli students who participated in the study are non-native speakers of English. This brings us to the possibility of receiving different results if the study is conducted in another country. To this can be added that the response rate of the students in the surveys regarding their lecturers varied from 20% to 80%.

### **8. Continued research**

Needless to say that there is a wide variety of additional domains falling within the tenets of this rapidly developing field of EMI that are yet to be thoroughly examined by the researchers. As to the present study, it lays groundwork for further research into the domain associated with a possible impact, either positive or negative, of lecturers' experience in delivering EMI courses upon the students' evaluation ratings and their average grade. The researchers presume that conducting another study among the same lecturers will likely yield different results owing to the experience the academics will gain teaching their first EMI courses.

In addition, it would be highly expedient to carry out further study with the view of examining an impact, or lack of such impact, of educators' mother tongue upon their students' evaluation ratings and the average result of all their grades. In other words, future study needs to be aimed at understanding the role of lecturers who native speakers of English in the educational process based on the medium of English and examine if there are differences in the results between EMI courses taught by the lecturers and the ones delivered by non-native speakers of English.

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