

Comparative study of learning skills among students pursuing an education in healthcare

Judit Tanczos+, Troy B.Wiwczaroski*, Ildiko Tar*

**University of Debrecen, Foreign Languages Institute*

+University of Debrecen OEC, Institute of Behavioral Science

Introduction

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In a globalized era when life-long learning is a basic requirement to maintain job safety and the key of finding new ones, it is pivotal to learn more in less time. Therefore, efficiency in learning is on the leading edge of research for university lecturers who wish to educate practical skills and strategies for their students.

There have been several models constructed to boost the efficiency of the learning process, all of which list various numbers of necessary elements. The social constructivist model, for example, lists four key factors which are highly influential teachers, learners, tasks and contexts. Other models supplement the latter with the importance of developing good learning habits, the significance of motivation (intrinsic-extrinsic), learner-based approaches, stimulation from educators, social support, anxiety, gender-based psychosocial properties, engagement, the significance of the hidden curriculum, learning styles etc.

However, “Education is concerned not just with theories and instruction, but with learning to learn, developing skills and strategies to continue to learn, with making learning experiences meaningful and relevant to the individual, with developing and growing a whole person.” (Williams and Burden, 2004)

The research sample and applied methodology

The study discusses the second set of results on the academic competencies of L2 medical students (DEOEC University of Debrecen, Hungary), who pursued their undergraduate diploma courses in English between 2010 and 2011. The survey includes 503 first and third year Hungarian and foreign students at the Faculty of Dentistry, the Medical Faculty and The Faculty of Public Health and Physiotherapy.

The comprehensive study, based on the Study Skills Checklist (source: Cook Counselling Centre, Virginia Tech Research University) focuses on students’ learning skills in terms of the following categories:

- time management
- concentration
- note taking

- reading
- exam skills
- writing skills (creation of coherent written texts) – the core academic skills requiring solid bases for successful academic performance.

Related to the above mentioned learning skills, the survey formulated 21 statements (e.g. “*I spend too much time studying for what I am learning.*”) which suggest an inappropriate level of the given learning skill. Students were asked to evaluate the statements and give true or false answers. If anyone answered “true” for two or more statements in any categories, it suggested that the student should seek help in the related area. If the number of “true” answers was 1 or lower, the student was not likely to face difficulties in that area.

In the light of the above mentioned, the whole sample was investigated as for the distribution of problems by major and gender in relation to the skills mentioned above. A separate examination was dedicated to find out if differences existed in the learning skills profile of foreign students in the Medical and the Dentistry Faculties between L1 and L2 students pursuing their studies in English. As to our presupposition, pursuing academic studies in L2 language may pose extra difficulty for students and may lead to differences in the learning skills of the two groups.

Statistical analysis

The responses were recorded in a LibreOffice Calc spreadsheet, and aggregated into six high level study skill categories for each student. Each category's aggregated value was determined by the majority of responses in that category (majority function, also called the median operator). One additional field combines the six categories using the Boolean OR operator - this indicates whether the student has reported any study related difficulties. The aggregated values were then analysed using DataPilot tables (also known as Pivot tables) by cross-referencing study skill categories with various data fields such as faculty, gender and language.

Results

1. Frequency of learning problems and their distribution by majors

More than 72% of students out of the total group of 503 revealed inadequate levels of one or several learning skills which caused considerable difficulties for them in meeting their academic requirements. Dentistry students showed the worst results: 90% of them struggled with various learning difficulties. Public health students accounted for the least problematic learning skills; nevertheless 66% of them had problems due to their low levels of learning competency. Tables 1. and 2. demonstrate the data in detail, and Graph 1. shows the rate of problematic and non-problematic students by major.

Count - Has problems	Has problems		Total Result
	FALSE	TRUE	
Faculty	140	363	503
Dentistry	5	46	51
General Medicine	72	171	243
Physiotherapy	21	64	85
Public Health	42	82	124
Total Result	140	363	503

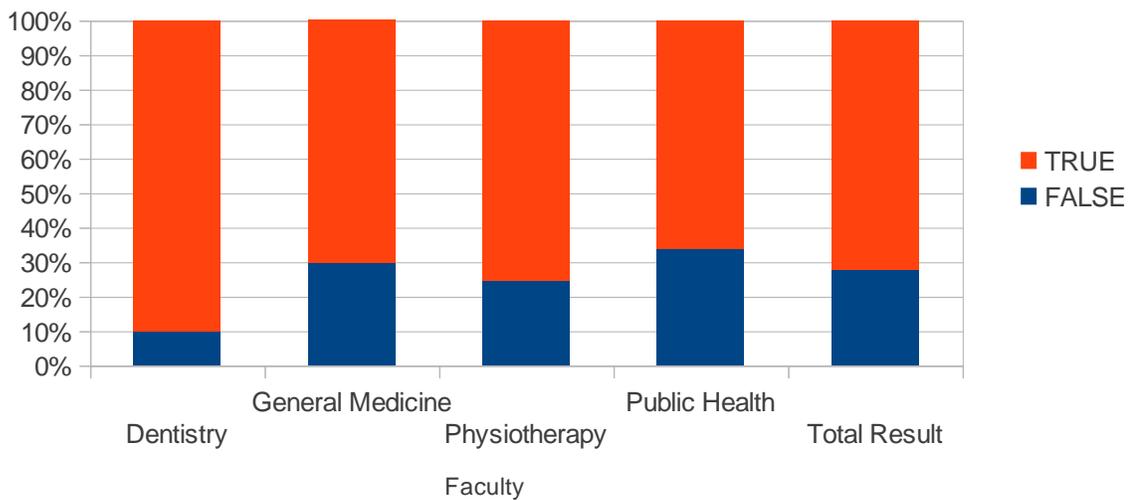
Table 1. Number of problematic students by major

% - Has problems	Has problems		Total Result
	FALSE	TRUE	
Faculty	27.83%	72.17%	100.00%
Dentistry	9.80%	90.20%	100.00%
General Medicine	29.63%	70.37%	100.00%
Physiotherapy	24.71%	75.29%	100.00%
Public Health	33.87%	66.13%	100.00%
Total Result	27.83%	72.17%	100.00%

Table 2. Percentage of problematic students by major

Students with problems

TRUE=has problems



Graph 1. Distribution of problematic and non-problematic students by major

II. *Distribution of problematic skills by major*

As for the six learning skills, dentistry students proved to be the most problematic out of the students of the four studied majors. Most of them had difficulties with scheduling their learning tasks, and they found note taking the least problematic.

Similarly, most medical students found time management the most, whereas written assignments the least problematic.

Physiotherapy students also struggled mostly with time management and found note taking, reading relatively easy.

Public health students also considered time management the most problematic skill; note taking and reading the least problematic ones.

In an attempt to investigate the question from the viewpoint of academic competencies, time management was the most problematic (45% of students had problems), whereas the least problematic were reading and note taking: merely 18% of students indicated some difficulties.

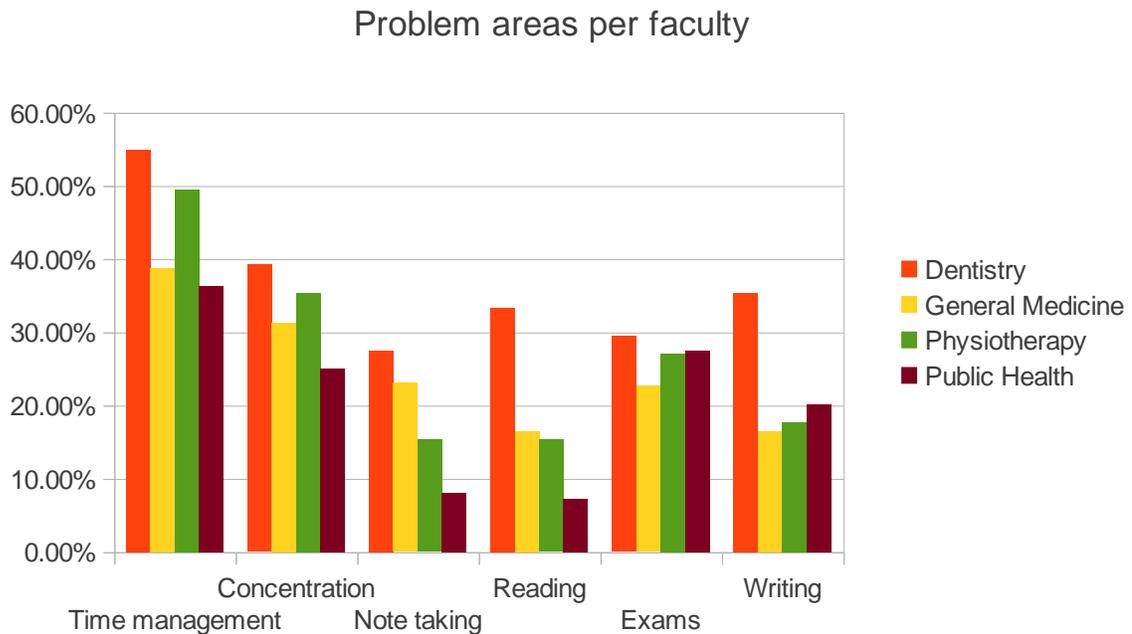
Tables 3. and 4. demonstrate the related data in detail, graph 2. compares the results.

	Faculty				
Data	Dentistry	General Medicine	Physiotherapy	Public Health	Total Result
Sum - Time management	28	94	42	45	209
Sum - Concentration	20	76	30	31	157
Sum - Note taking	14	56	13	10	93
Sum - Reading	17	40	13	9	79
Sum - Exams	15	55	23	34	127
Sum - Writing	18	40	15	25	98
Count - Faculty	51	243	85	124	503

Table 3. Number of problematic students by major and skill

Data	Dentistry	General Medicine	Physiotherapy	Public Health
Time management	54,90%	38,68%	49,41%	36,29%
Concentration	39,22%	31,28%	35,29%	25,00%
Note taking	27,45%	23,05%	15,29%	8,06%
Reading	33,33%	16,46%	15,29%	7,26%
Exams	29,41%	22,63%	27,06%	27,42%
Writing	35,29%	16,46%	17,65%	20,16%
Count - Faculty	100,00%	100,00%	100,00%	100,00%

Table 4. Distribution of problematic students by major and skill



Graph 2. Distribution of problematic areas by major

III. *Distribution of problematic areas by gender*

On one hand, our study examined the distribution of problems by genders and between genders in the case of students who revealed learning difficulties, i.e. among students who accounted for difficulties in relation to one or more skills; on the other hand, within the whole sample.

First the number of male and female students was detected in terms of problems related to each skill and the problem areas were identified where the highest and lowest number of difficulties occurred.

Data	Gender		
	Female	Male	Total Result
Sum - Time management	151	58	209
Sum - Concentration	112	45	157
Sum - Note taking	52	41	93
Sum - Reading	55	24	79
Sum - Exams	92	35	127
Sum - Writing	73	25	98

Table 5. Students with learning problems by gender and skill

The representatives of both genders indicated primarily time management problems. Male students found reading and writing, whereas female students note taking and reading the least problematic.

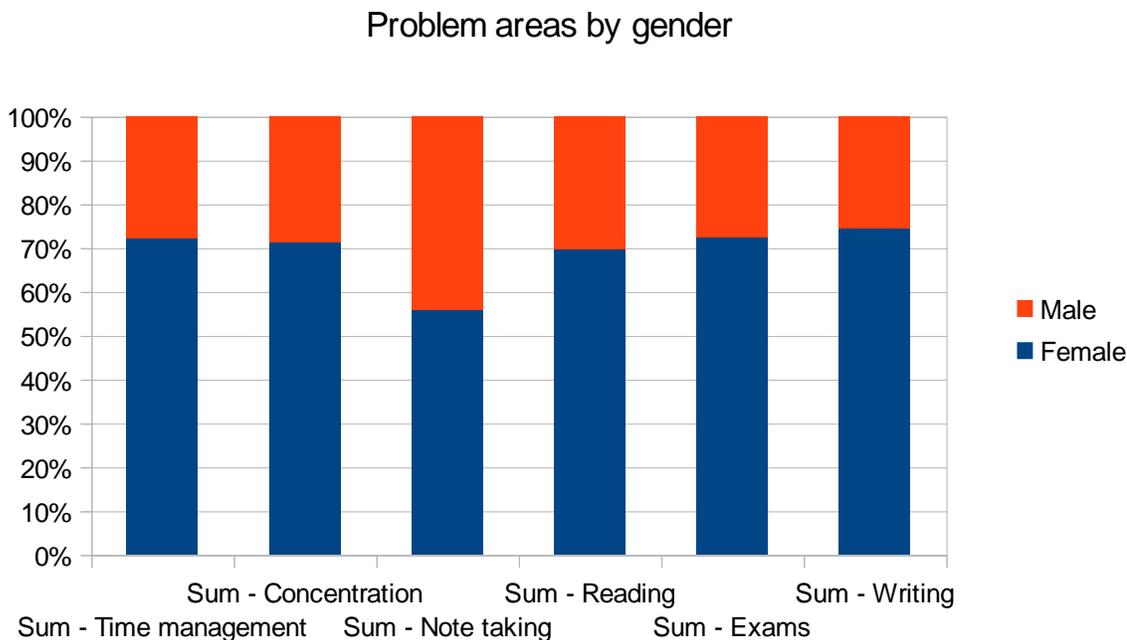
Next our investigations focused on the rate of genders set against each other in terms of learning problems.

Data	Gender		
	Female	Male	Total Result
Sum - Time management	72,25%	27,75%	100,00%
Sum - Concentration	71,34%	28,66%	100,00%
Sum - Note taking	55,91%	44,09%	100,00%
Sum - Reading	69,62%	30,38%	100,00%
Sum - Exams	72,44%	27,56%	100,00%
Sum - Writing	74,49%	25,51%	100,00%

Table 6. Distribution of learning problems between genders by skill

The graphic representation of results (Graph 3.) clearly shows that with the exception of note taking, female students fell behind males in the ratio of about two thirds to one third: about 70% of female students indicated to have difficulties with each learning skill, whereas only 30% of male students accounted of the same.

As for note taking, the difference between female and male students evened out by fewer females and more males indicating problems. However, even with this skill, female students accounted for more difficulties than male students (in the ratio of 55:44%).



Graph 3. Distribution of learning problems by skill

A better understanding of the division of learning problems by gender within the whole sample and the ratio of male students' and female students' performance in terms of certain skills was of critical importance. The number of females and males with learning difficulties is represented on Table 7, their percentage on Table 8.

Data	Gender		Total Result
	Female	Male	
Sum - Time management	151	58	209
Sum - Concentration	112	45	157
Sum - Note taking	52	41	93
Sum - Reading	55	24	79
Sum - Exams	92	35	127
Sum - Writing	73	25	98
Count - Gender	361	143	504

Table 7. Distribution of learning problems between genders by skill in the whole sample group

Data	Female	Male
Sum - Time management	41,83%	40,56%
Sum - Concentration	31,02%	31,47%
Sum - Note taking	14,40%	28,67%
Sum - Reading	15,24%	16,78%
Sum - Exams	25,48%	24,48%
Sum - Writing	20,22%	17,48%

Table 8. Percentage allocation of learning problems between genders by skill in the whole sample group

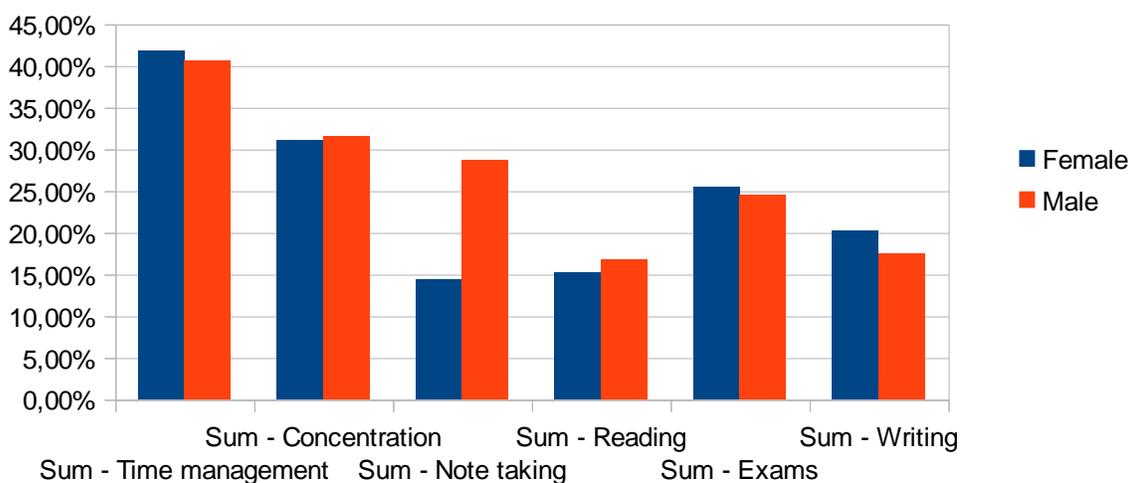
Findings indicate that for both male and female students the majority of learning problems emerged in time management and the fewest problems were found in reading. A similarly less problematic area was note taking for females and writing for males.

Graph 4. summarizes the findings of Table 8. explicitly, showing that the occurrence frequency of learning difficulties balances out between genders within each skill in the whole sample group.

In the case of all but one skill the magnitude of problems is approximately equal for both genders, with the exclusion of note taking, where almost twice as many male students reported problems.

Problem areas by gender

% of all female/male



Graph 4. Distribution of learning problems by gender and skill in the whole sample group

IV. Distribution of problematic skills in L1 and L2 speakers of English (foreign students)

As the Medical, Dentistry, Public Health and Physiotherapy Faculty of DEOEC provide education in English for its foreign students, it was especially imperative to find out whether education in L1 or L2 English influenced the level of students' learning skills. Therefore we compared the learning skills of L1 medical and dentistry students with those of L2 foreign students. We chose these two faculties only because on the other two faculties the number of foreign students is still rather few.

L1 medical students of English reported mostly time management and concentration related difficulties, whereas merely few of them revealed writing problems. L2 medical students mostly had problems with time management and similarly to L1 students, the rate of writing problems was insignificant. The distribution of learning problems by skills is demonstrated in Tables 9. and 10.

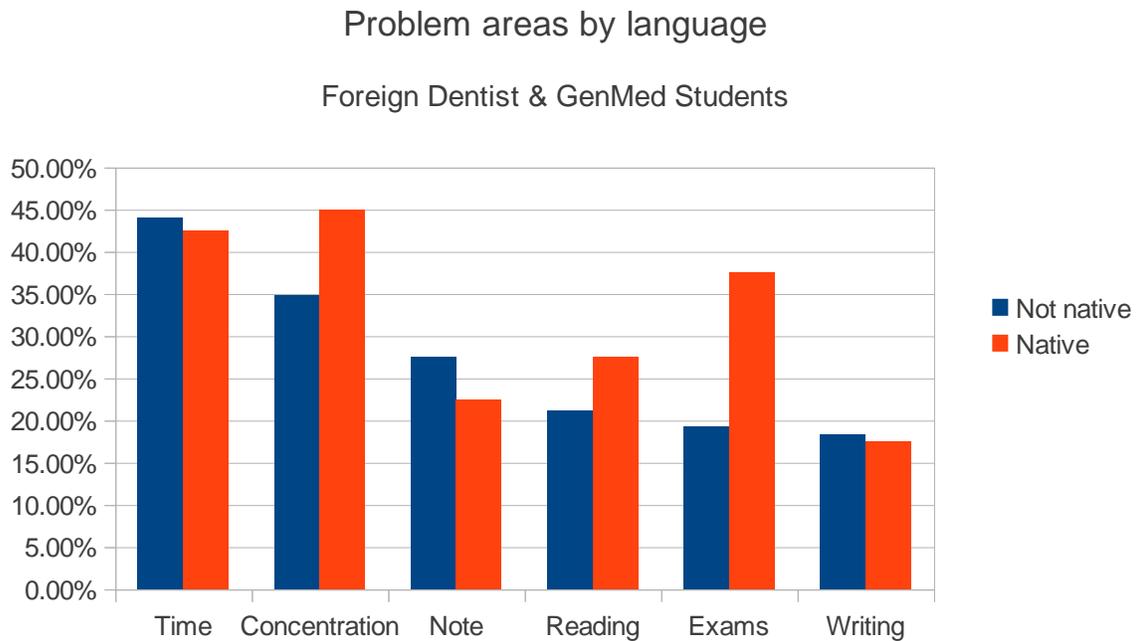
	Native English speaker		
Data	No	Yes	Total Result
Sum - Time management	48	17	65
Sum - Concentration	38	18	56
Sum - Note taking	30	9	39
Sum - Reading	23	11	34
Sum - Exams	21	15	36
Sum - Writing	20	7	27
Count - Native English speaker	109	40	149

Table 9. Number of foreign students with learning problems, by skill

	Not native	Native
Time	44.04%	42.50%
Concentration	34.86%	45.00%
Note	27.52%	22.50%
Reading	21.10%	27.50%
Exams	19.27%	37.50%
Writing	18.35%	17.50%

Table 10. Distribution of foreign students with learning problems, by skill

The comparison between the skills of L1 and L2 students (Graph 5.) shows that considerable differences emerge in merely two areas: concentration and exam skills. Surprisingly, concentration and exam skills proved to be more problematic for L1 students than for L2 students.



Graph 5. Problematic areas by language

Discussion

I. Frequency of learning problems and their distribution by majors

Our research findings give rise to grave concerns as one or several learning problems hinder the learning performance of more than two thirds (72%) of the studied students. Most urgently dentistry students need guidance and assistance, as 90% of them experience difficulties with learning. The relatively favorable results of students of public health (who were in their first years in the survey) can be explained by the fact that they faced less complex subject requirements in their first academic semesters than the others in the sample group.

II. Distribution of problematic skills by major

As to learning skills, time management posed the greatest problem for all the students of the four diploma courses. The fact that the most striking change occurred in this area might explain this result. Regular testing in secondary schools urged students to prepare for lessons continuously, whereas at university there is no testing during the semester in certain subjects, only in the examination period. Students tend to believe that they can survive in the academe without scheduled, conscious and regular preparation and they only have to step up their efforts in the exam period. They also seem to disregard the complexity and amount of study materials and this may easily overturn their time schedules.

Reading was ranked by medical, physiotherapy and public health students to be the least problematic skill. Writing was listed almost into the same category by medical students; notetaking by public health students and exam taking by dentistry students.

The high level of reading skills can be traced back to high entrance requirements for the graduate courses of DEOEC, which inspire students to read and study considerably more than average students.

The fact that note taking and writing proved to be strong points for students was partly justifiable by their not having to prepare written assignments on their own in lower years. Therefore, students faced their difficulties in this area when it came to Scientific Student Competitions or when writing their theses.

Note taking seemed to present us with a similar case: as most of students failed to make notes in the classroom (attending lectures was not compulsory, lecture notes were available on the Internet) and they were not even aware of their incompetence in note taking.

Interestingly, dentistry students listed their exam skills to be the least difficult ones; however, percentages gained from the comparison of the three majors reveal that this skill proved to be highly problematic for them.

III. Distribution of problematic skills by gender

It may seem shocking at first glance that female students indicated significantly more learning problems than male students in terms of all learning skills. This is even more striking, as generally females showed better examination results than males. One possible explanation might be, on one hand, females students' more powerful metacognition, i.e. they ponder more over their learning processes than males; on the other hand, in contrast with male students, they are more likely to admit their difficulties in learning.

In view of the whole sample group the occurrence frequency of problems between the two genders leveled off. Stark difference emerged between the two genders only in note taking, as it posed difficulties for twice as many male than female students. The reasons behind this phenomenon might include females' more frequent note taking in classes, which leads to their better performance.

IV. Distribution of problematic skills between L1 and L2 speakers of English

Our presuppositions suggested that L2 students would account for a much higher number of difficulties. However, with the exception of concentration and exam skills, which posed problems mostly for L1 students, no significant difference occurred between the two groups. The underlying reasons for concentration difficulties with L1 students might include that no extra effort was required from them to get a good understanding of the subject matter, and their attention might have wandered more vigorously. Contrastingly, L2 students needed to pay strict attention to get a precise understanding of lectures.

No explanation has been found for the difference of exam skills in the two groups. The above comparison should be conducted with a sample group of higher student population and be supplemented with individual interviews.

Summary

The study discussed the second set of results on the academic competencies of L2 medical students (DEOEC University of Debrecen), who pursued their undergraduate diploma courses in English between 2010 and 2011. The survey included 503 first and third year Hungarian and foreign students at the Faculty of Dentistry, the Medical Faculty and The Faculty of Public Health and Physiotherapy. 72% of students had various problems in learning, which took their tolls on their study performance and fuelled considerable stress.

Time management proved to be the key problem in all the 4 majors, and the least problematic skill was reading (in 3 majors). With the exception of note taking, females indicated significantly more problems than males: 70:30%. However, significant differences leveled off between the two genders and the rate of problems became roughly equal.

In reflection of our findings we suggest that learning skill development should be enhanced and existing problems should be handled more effectively in university education. Our research findings will be discussed with students to explore the possible reasons and to identify the most efficient methods of intervention and prevention.

Bibliography

Williams, M., Burden, R. L. (2004): *Psychology for Language Teachers*. Cambridge University Press. p. 44.