

## Study Habits and Level of Difficulty Encountered by Maltese Students Studying Biology Advanced Level Topics

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**Abstract :** This research was performed to investigate the study habits and level of difficulty perceived by post-secondary students in Biology at Advanced-level topics after completing their first year of study. At the end of a two-year &lsquo;sixth form&rsquo; course, Maltese students sit for the Matriculation and Secondary Education Certificate (MATSEC) Advanced-level biology exam as a requirement to pursue science-related studies at the University of Malta. The sample was composed of 23 students (16 taking Chemistry and seven taking some &lsquo;Other&rsquo; subject at the Advanced Level). The cohort comprised seven males and 16 females. A questionnaire constructed by the authors, was answered anonymously during the last lecture at the end of the first year of study, in May 2016. The Chi square test revealed that gender plays no effect on the various study habits ( $\chi^2(6) = 5.873, p = 0.438$ ). &lsquo;Reading both notes and textbooks&rsquo; was the most common method adopted by males (71.4%), whereas &lsquo;Writing notes on each topic&rsquo; was that mostly used by females (81.3%). The Mann-Whitney U test showed no significant difference in the study habits of students and the mean assessment mark obtained at the end of the first year course ( $p = 0.231$ ). Statistical difference was found with the One-ANOVA test when comparing the mean assessment mark obtained at the end of the first year course when students are clustered by their Secondary Education Certificate (SEC) grade ( $p < 0.001$ ). Those obtaining a SEC grade of 2 and 3 got the highest mean assessment of 68.33% and 66.9%, respectively [SEC grading is 1-7, where 1 is the highest]. The Friedman test was used to compare the mean difficulty rating scores provided for the difficulty of each topic. The mean difficulty rating score ranges from 1 to 4, where the larger the mean rating score, the higher the difficulty. When considering the whole group of students, nine topics out of 21 were perceived as significantly more difficult than the other topics. Protein synthesis, DNA Replication and Biomolecules were the most difficult, in that order. The Mann-Whitney U test revealed that the perceived level of difficulty in comprehending Biomolecules is significantly lower for students taking Chemistry compared to those not choosing the subject ( $p = 0.018$ ). Protein Synthesis was claimed as the most difficult by Chemistry students and Biomolecules by those not studying Chemistry. DNA Replication was the second most difficult topic perceived by both groups. The Mann-Whitney U test was used to examine the effect of gender on the perceived level of difficulty in comprehending various topics. It was found that females have significantly more difficulty in comprehending Biomolecules than males ( $p=0.039$ ). Protein synthesis was perceived as the most difficult topic by males (mean difficulty rating score = 3.14), while Biomolecules, DNA Replication and Protein synthesis were of equal difficulty for females (mean difficulty rating score = 3.00). Males and females perceived DNA Replication as equally difficult (mean difficulty rating score = 3.00). Discovering the students&rsquo; study habits and perceived level of difficulty of specific topics is vital for the lecturer to offer guidance that leads to higher academic achievement.

**Keywords :** biology, perceived difficulty, post-secondary, study habits

**Conference Title :** ICSEET 2018 : International Conference on Science Education and Effective Teaching

**Conference Location :** Vienna, Austria

**Conference Dates :** June 14-15, 2018