

# SUBJECT CHOICE AFTER HAVING THE THREE SCIENCE SUBJECTS AT SCHOOL: IS IT BENEFICIAL?

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# Presentation Layout

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# 1. Introduction

- Aim: to investigate the factors that influence secondary school students from different school sectors in their choice of Science subjects – in Form 2 (in most schools), and comparing it with subject choice in Form 3.
- The Maltese “*educational system . . . four stages: Pre-primary (ages 3 to 5), Primary (5 to 11), Secondary (11 to 18) and Tertiary education. Attending school is compulsory up to the age of 16.*” (Gov. of Malta, 2013, para. 17)
- In Malta, secondary school students study a vast range of subjects.

# 2. Methodology

- 7 Form 5 classes, from different school sectors, one each from:
  - ▣ a boys' Church school; a girls' Church school
  - ▣ a boys' state school; a girls' state school
  - ▣ two independent (co-educational) schools – subject choice in Form 2.
  - ▣ A boys' Church school – subject choice in Form 3 (CSBF3 in Tables).
  
- Questionnaires to students who study at least 2 Science subjects (Biology, Chemistry, Physics). Physics compulsory in all schools in study.
  
- Questionnaires to the Science teachers.
  
- Questionnaires to parents of participating students.

# 3. Results

		Gender of Students		
		Male (47.4%)	Female (52.6%)	Total (100.0%)
School Type	State	2	14	16
	Church	10	9	19
	Independent	10	17	27
	CSBF3	14	-	14
Total		36	40	76

# 3. Results

		Gender of Parents		
		Male (23.6%)	Female (76.4%)	Total (100.0%)
<b>School Type</b>	State School Girls	0	13	13
	Church School Girls	2	6	8
	State School Boys	0	2	2
	Church School Boys	4	6	10
	Independent	6	20	26
	CSBF3	5	8	13
<b>Total</b>		<b>17</b>	<b>55</b>	<b>72</b>

An overwhelming female participation – 76.4% v. 23.6% males, indicating that educational matters are usually taken care of by mothers.

# 3. Results

What Science subjects have you chosen?				
		Biology	Chemistry	Physics
School Type	State	39.0%	22.0%	39.0%
	Church	34.5%	30.9%	34.5%
	Independent	35.3%	25.0%	39.7%
	CSBF3	28.2%	35.9%	35.9%
Total		34.5%	28.1%	37.4%

Physics was the most popular Science subject, followed by Biology and Chemistry.

# 3. Results

Reasons behind subject choice . . .

- Top three student responses:
  - i. related to work you wish to pursue (23.2%)
  - ii. found Integrated Science interesting (20.7%)
  - iii. obtained good grades in Integrated Science (18.1%)
- Three least popular responses:
  - i. influenced by friends (0.7%)
  - ii. had no choice due to subject choice offers in this school (1.5%)
  - iii. influenced by brothers/sisters (2.2%)
- Results similar to those by McQuaid and Bond (2004) and Rodeiro (2007) – the main factor behind students' subject choice was the usefulness for future careers.



# 3. Results

- Low number of students indicated their choice as being influenced by other people (teachers, parents, friends).
  - Edwards and Quinter (2011): students are faced with a problem in order to match their abilities and school performance when doing subject choice.
  - Smyth and Darmody (2009): students choose the subjects that they perceive as interesting and useful, and those in which they score higher grades.
  - Edwards and Quinter (2011): it could be that schools do not give substantial background and practical occupational opportunities to help students with appropriate career choices.
  - Cochrane (2007): Form 2 students may have doubts about their future career prospects, may find subject choice difficult and confusing. At age 13 they are too young to have concrete ideas regarding the matter.
  - Santrock (2005): adolescents can be overwhelmed, and often experience considerable uncertainty, when considering educational and career prospects.

# 3. Results

Do you feel your school provided you with adequate guidance in your choice of optional subjects?		Yes	No
School Type	State	62.5%	37.5%
	Church	89.5%	10.5%
	Independent	96.3%	3.7%
	CSBF3	92.9%	7.1%
	<b>Total</b>	<b>86.8%</b>	<b>13.2%</b>

- 86.8% indicated that their school provided them with adequate guidance.
- Lowest positive feedback in state schools – low percentage when compared to Church and Independent schools, and the school where choice is at Form 3.
- Guidance in state schools may be improved. This may be due to Church and independent schools generally having a smaller student population.

# 3. Results

Have your expectations regarding the chosen Science subjects been met?			
		Yes	No
School Type	State	80.0%	20.0%
	Church	78.9%	21.1%
	Independent	88.9%	11.1%
	CSBF3	57.1%	42.9%
Total		78.7%	21.3%

- The vast majority of participants (78.7%) were satisfied with Science subject choice.
- The most satisfied with subject choice come from where subject choice is in Form 2, the lowest (57.1%) for the Form 3 choice group.
- Although state school students were not so satisfied with guidance, Science subject choices met the expectations of their vast majority (80.0%).
- Although practically all respondents (92.9%) in the Form 3 choice group were satisfied with the guidance offered, a relatively low 57.1% were satisfied with their choice.

# 3. Results

If you had the opportunity to change a subject, which subject/s would you change?				
		Biology	Chemistry	Physics
School Type	State	57.1%	42.9%	0.0%
	Church	15.4%	38.5%	46.2%
	Independent	37.5%	0.0%	62.5%
	CSBF3	12.5%	75.0%	12.5%
	<b>Total</b>	<b>27.8%</b>	<b>38.9%</b>	<b>33.3%</b>

- ❑ The highest number of students who would change their Science subject choice is for Chemistry, followed by Physics and Biology.
- ❑ State schools: highest number for Biology, followed by Chemistry, and no student indicating Physics.
- ❑ Church schools: highest percentage in Physics, then Chemistry and Biology.
- ❑ Independent schools: highest choice for Physics, followed by Biology and no change in Chemistry.
- ❑ Students from Form 3 choice group: a significant change for Chemistry, with Physics and Biology both at 12.5%.
- ❑ No clear pattern emerged across the different school sector groups.

# 3. Results

Do you think that experiencing all subject options at Form 3, before subject choice is done, would help you better in your choice of Science subject/s?

		Yes	No
School Type	State	81.3%	18.8%
	Church	73.7%	26.3%
	Independent	59.3%	40.7%
	CSBF3	85.7%	14.3%
Total		72.4%	27.6%

- 72.4% of all participants declared that experiencing all subjects in Form 3 prior to actual subject choice enables better subject choice in Science.
- Highest percentage (85.7%) for the ones who studied the 3 Sciences in Form 3 before subject choice, with all other groups showing clear majorities: state schools (81.3%), Church schools (73.7%) and independent schools (59.3%).
- Majority of students (72.4%), teachers (75.6%) and parents (69.0%) believe that having all Science subjects in Form 3 would help subject choice in Science.

# 3. Results

- Even though the majority of students, teachers and parents indicated that subject choice at Form 3 would be more beneficial, students who actually have subject choice at Form 3 do not show any distinctive differences in either their performance or their prospects of pursuing a Science subject at a higher educational level.
- Student responses showed no particular difference between students choosing in Form 3 and the other student groups.
- The group with subject choice in Form 3 did not show any significant, distinctive differences in their Form 4 annual examination performance.
- This data indicates that subject choice at Form 3, instead of at Form 2, does not give any particular advantage in the students' performance in the three Science subjects.

# 4. Conclusion

- Considering this study, one understands that although most students, teachers and parents perceive that subject choice at Form 3 (following exposure to the individual subjects) is more beneficial, those students who actually had subject choice in Form 3 did not show any distinctive differences in their performance or their prospects for further study in a given Science subject.
- Moreover, such students were found to be the ones who would have mostly preferred to change their Science subject choices.

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**Questions?**



**Thank you**