

Making choices: how do medical students choose between bachelor electives?

L.S. Schouten, C.C.M. Janssen, E. Bazelmans and G.J.C.G.M. Bosman

Corresponding author: Dr. G. Bosman Giel.Bosman@radboudumc.nl

Department: Department of Biochemistry (286), Radboud University Medical Centre, P.O. Box 9101, 6500 HB Nijmegen, The Netherlands.

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Abstract

Background: Little is known about the sources of information used by medical students, and on the influence of the course characteristics, to select an elective, science-centered course. Therefore, the aim of this work was to gain more insight into these factors, in order to increase satisfaction with students and faculty.

Methods: A digital questionnaire immediately after registration for an elective course program in the sixth semester of the bachelor program.

Results: The most important source of information was the student-authored elective guide. In-depth treatment of a specific medical topic and wanting to acquire more knowledge of a postgraduate training program contributed most to the final selection. Students who attached much value to the educational format, considered many practicals and many lectures as positive aspects. Opinion was divided on the time spent on scientific topics, and on a written test as part of the grading process. When a group effort was a major factor in determining the final grade, this was considered a negative factor.

Conclusions: The information on elective courses should include student-authored information. The students' selection criteria for elective courses reflect the variation in student attitude. Therefore, the information on the elective program should clearly identify its main goals.

Keywords: Options/ electives.

Article

Introduction

Elective courses in the medical bachelor curriculum at the Radboud University Medical Centre

In the final semester of the bachelor curriculum of the Radboud University Medical Centre (RUMC) in Nijmegen, every medical student has to take three elective courses of four weeks each (5.5 ECTs). These courses constitute the main component of the scientific education part of the bachelor curriculum. After one of these courses, small groups (two to three) of students select a course-related subject, on which they write a research proposal in the two months following the course, under guidance of a senior researcher.

Each year, 45 elective courses are available. The topics of the courses are based on the main research programs of the RUMC, and vary from ethics and public health to clinical practice and medical sciences. The

elective program is supervised by a steering committee, that is responsible for its design, organization and quality control.

The main goal of the elective program is to provide the students with the skills required for (pre)clinical research and for the development of a scientific attitude towards clinical practice. The specific learning outcomes of the elective program are: (1) the student is able to demonstrate the capacity to identify the origin and boundaries of a specific medical field; (2) the student can identify the current main research questions, and the methods that are presently employed in this research; (3) the student has an analytical and critical attitude, and can work as a team member; (4) the student is aware of the historical and ethical perspectives of the relevant medical areas; (5) the student has the verbal and writing skills to present information in a clear and interesting manner and in a relevant format. The relatively small groups (15-30 students per course) facilitate a feedback-intensive practice of teaching, evaluation and testing. Grades are based on varying combinations of a written test (mostly consisting of essay questions), a thesis, and at least one oral presentation.

Choosing: sources of information

Students can use three sources of information to choose from the available courses: (1) the official study guide, which contains a short description of each elective course provided by the course coordinator; (2) the 'electives guide' composed by the faculty student organization (SOOS). The latter guide does not only provide information on the course content as provided by the course coordinator, but also positive and negative aspects, based on the input of students who participated in the course in question in the preceding years; (3) an 'elective market', organized by the steering committee for elective education. The market starts with a short introduction of the goals and structure of the elective courses, after which teachers and course coordinators are available to provide information on their course in various forms (movies, demonstrations, manuals) and to answer questions. In the weeks following this event, the students must choose their elective courses using a web-based application. Almost 70% of the students can be placed in a course of their first or second choice.

Choosing: students' motives

There is little information available on the students' motives for the choice of a particular course. Insight into these motives is important for optimizing the sources and type of information. Also, such an insight will increase the knowledge on the relationship between subjects and goals of the courses on one hand and, on the other hand, the driving forces of the students, such as interest in a subject that is not part of the regular curriculum or acquiring more knowledge of the field of a postgraduate training program. This information will be helpful in making the students aware of the benefit they can obtain from the elective part of the curriculum [Koceic et al., 2010].

Therefore, we sought to gain more insight into the external and internal factors that influence the students' choices, by addressing the following questions: What was the main source of information used by the students for determining their preferences, and why? What was the relative importance of the various course aspects (subject matter, teaching and examination format, etc) in making a choice? We asked the students to fill out a questionnaire immediately after they had registered and ranked their preferences.

Methods

Approach

Immediately after registering for the elective courses and ranking his or her preferences for the year 2010/2011, each student received a digital questionnaire. Students were informed about the goal of the questionnaire, that participation was voluntarily and that the anonymity of the participants was guaranteed. This questionnaire was available during the registration period of 30 days.

Questionnaire

The questionnaire consisted of questions on the sources of information that were used, and their contribution to the final choice. The questions on the sources also enquired on the contribution of the opinion of fellow students and teachers, and on the extent of usefulness (1 = ‘not’; 2 = ‘a little’; 3 = ‘a lot’). Furthermore, the questionnaire contained questions about the importance of the course characteristics, such as subject matter, method of testing, etc. When the answer was a 2 or a 3, the student was asked if this characteristic was considered to be positive or negative.

Results

Of the 396 students who had registered, 220 had filled out the questionnaire completely, and 42 partially. The female/male ratio was 192/70, which is similar to that of the total student population.

Sources of information

The majority of the students had attended the ‘elective market’, and had acquired the students’ elective guide’ (Table 1-A). Most students felt they had been able to acquire sufficient information (Table 1-B). The information in the students’ elective guide had clearly contributed most to the decision on which courses to choose (Table 1-C).

Table 1: Sources and impact of information

A: sources of information			
	yes	no	total number
attended the elective market	64 %	36 %	262
acquired the students’ elective guide	82 %	18 %	262

B: sufficiency of information				
	yes	yes, but with difficulty	no, some information could not be found	total number
was sufficient information available for deciding on preferences?	79 %	12 %	9 %	221

C: contribution to decision				
	not or hardly	a little	a lot	total number
students’ guide	0 %	13 %	87 %	214
elective market	8 %	56 %	36 %	167
study guide	57 %	31 %	12 %	262
fellow student(s)	45 %	44 %	11 %	262
teachers	61 %	36 %	3 %	262

Course content

The major factors in making a choice were wanting to know more about a familiar subject or about the subject matter of a postgraduate specialty program, followed by interest in an unfamiliar topic (Table 2).

Of the other course aspects, the number of hours spent on clinical practice during the course was a major determining factor. The preferences of friends were of minor importance (Table 2).

Table 2: Aspects of course content, general course characteristics, and their contribution to the choice

contribution to choice	not or hardly	a little	a lot	total number
in depth treatment of a familiar medical topic	5 %	29 %	66 %	239
subject matter related to intended specialty	13 %	41 %	46 %	239
amount of time devoted to clinical practice and casuistry	21 %	48 %	31 %	231
interest in a less known medical area	24 %	57 %	19 %	239
teachers' reputation	32 %	47 %	21 %	231
quality of supervision	32 %	52 %	16 %	231
examination format	34 %	48 %	18 %	232
amount of time devoted to science	34 %	55 %	12 %	231
organisation/schedule	35 %	48 %	17 %	231
opinion of students who took the course in previous years	36 %	46 %	18 %	231
educational format (self study, group work, tutorials)	38 %	53 %	9 %	232
estimated study load	40 %	50 %	10 %	232
degree of collaboration with other students	43 %	50 %	7 %	231
field trips	45%	40 %	15 %	232
number of presentations	49 %	44 %	7 %	231
quality of feedback on presentation and writing skills	50 %	42 %	8 %	231
amount of time devoted to reflection/discussion	53 %	42 %	5 %	231
acquaintance with the course coordinator	66 %	29 %	5 %	231
preferences of friends	70 %	26 %	4 %	231

Further inquiries into a selected number of aspects show that emphasis on clinical practice was considered as a positive aspect. For most students who reported that the study load played a role in their choice, a high load was a negative factor. Nevertheless, for 40 percent of the students, the study load was not relevant, and for nine percent this was even a positive factor (Table 3). For one third of the students the time spent on scientific topics was not relevant, whereas one third found 'science' a positive, and one third a negative factor. Most of the students for whom educational formats were important considered a large number of practicals and lectures to be positive aspects. Many group work sessions are equally seen as positive and negative. When asked for the impact of the level of collaboration, most students considered much focus on teamwork a positive factor. Overall, much collaboration was seldom seen as negative, and equally as positive or as not relevant for making a choice. A dichotomy is seen for the assessment format; one third of the students

consider a written test as a positive aspect, but a similar fraction regarded a written test as a negative factor. When a group effort was dominant in determining the final grade, e.g. when the final grade is mostly determined by group presentations, most of the students consider this as a negative factor in making their choice (Table 3).

Table 3: The contribution of course content to choice

contribution to choice	contributed not or hardly N (%)	when contributed to choice			total N
		positive N (%)	negative N (%)	no opinion N (%)	
<i>educational formats (self study, group work, tutorials)</i> - many practicals many lectures - many group work sessions	89 (38)				232
		91 (39)	20 (9)	32 (13)	232
		83 (36)	25 (11)	35 (15)	232
		49 (21)	52 (23)	42 (18)	232
<i>examination format</i> - written test - final grade highly dependent on group presentation	78 (34)				232
		54 (23)	40 (17)	60 (26)	232
		43 (18)	75 (32)	36 (16)	232
<i>amount of time devoted to clinical practice and casuistry</i> - much clinical practice	48 (21)				231
		175 (76)	5 (2)	3* (1)	231
<i>amount of time devoted to science</i> - much science/scientific research	79 (34)				231
		74 (32)	75 (32)	3* (1)	231
<i>amount of time spent on collaboration with other students</i> - much collaboration/teamwork	100 (43)				231
		95 (41)	33 (14)	3* (1)	231
<i>amount of time devoted to reflection and discussion</i> - much reflection / discussion	122 (53)				231
		72 (31)	34 (15)	3* (1)	231
<i>number of presentations</i> - many presentations	113 (49)				231
		39 (17)	76 (33)	3* (1)	231
<i>estimated study load</i> - high study load	94 (40)				232
		20 (9)	115 (50)	3* (1)	232

*, no answer given

When asked for aspects that had not been dealt with in the questionnaire, some logistical aspects were mentioned, such as the order of the electives and the possibility to combine the course with other courses or jobs.

Discussion

The results of the questionnaire show that a majority of the medical students rely mostly on the information in the electives' guide of the faculty student organization for choosing between elective courses in the final semester of the bachelor curriculum. The information on the courses' subject matter in this student-authored guide is essentially similar to that provided in the official study guide, and to the information provided by the course coordinators at the elective market. Apparently, most students attach much value to the additional, more informal and often anecdotal information provided by fellow students on course difficulty, organization, test frequency and format, that are only provided in the student-authored electives guide. This apparent

discrepancy between the opinion of teachers and students on the factors determining the students' interest in a course has been noted before [Vieira et al., 2004].

Together with the relatively low contribution of the electives market to the students' decisions, these data suggest that the form as well as the content of the information on the elective courses could be optimized, with emphasis on the complementarity provided by the various sources. In this respect, a closer collaboration between faculty and student organizations is recommended.

As expected, our data also show that the subject matter of a course is an important aspect in selecting an elective course of interest. Elaboration on a medical subject that is also taught in the core curriculum, or the possibility to learn more about a future specialty, are major content-related factors. This is in contrast to a previous observation that elective courses aimed at deepening core subjects received no applications [Vieira et al., 2004]. These differences may be caused by the level of the students (bachelor versus master, undergraduate versus postgraduate) and the heterogeneity in the courses, e.g. competition with courses offering training in practical skills. Also in contrast to other studies [Koceic et al., 2010; Babad & Tayeb, 2003; Murdoch-Eaton et al., 2004], for most of our students the study load was not a major determinant for choosing a particular course.

The majority of the students for whom much teamwork contributed to their choice, considered much teamwork as a positive aspect. At the same time, when the educational formats played a role in choosing, a (small) majority considered many group work sessions a negative aspect. Thus, for students for whom both the degree of collaboration and the educational formats affected their course preferences, we found no relationship between a preference for teamwork and a preference for group work sessions. This suggests that, in the students' experience, one of the major goals of the current group work sessions, namely collaboration, is not reached sufficiently. Half of the students for whom the assessment format was important, did not appreciate it when grades are mainly determined by team effort. This raises the question if these students have acquired the competence to cooperate in an effective way. It is interesting to note that even if students consider much teamwork a positive aspect, most of them (60%) do not advocate a grade which is dominantly determined by a team effort. This finding justifies attention to improving the assessment program, not only including a more formative testing format aimed at individual development, but also assessment of the competence to collaborate with others. Obviously, this requires a study program with explicit attention for cooperation and feedback, and above all the possibilities to practice under expert guidance.

Authors:

L.S. Schouten¹, C.C.M. Janssen², E. Bazelmans³, G.J.C.G.M. Bosman⁴

Affiliations

1, Radboud University Nijmegen; 2, Academic Educational Institute; 3, Department of Medical Psychology; 4, Department of Biochemistry and Nijmegen Centre for Molecular Life Sciences; Radboud University Medical Centre, Nijmegen, The Netherlands

References

- (1) Koceic A, Mestrovic A, Vrdoljak L, Vukojevic K, Barac-Latas V, Drenjancevic-Peric I, Biocina-Lukenda D, Sapunar D, Puljak L. Analysis of the elective curriculum in undergraduate medical education in Croatia. *Med Educ* 2010;44:387-95.
<http://dx.doi.org/10.1111/j.1365-2923.2010.03621.x>
- (2) Vieira JE, Bellodi PL, Marcondes E, Martins, MA. Practical skills are most popular elective choice. *Med Edu* 2004;38:1015–1016.
<http://dx.doi.org/10.1111/j.1365-2929.2004.01944.x>
- (3) Babad E, Tayeb A. Experimental analysis of students' course selection. *Br J Educ Psychol* 2003;73:373–93.
<http://dx.doi.org/10.1348/000709903322275894>
- (4) Murdoch-Eaton D, Ellershaw J, Garden A, Newble D, Perry M, Robinson L, Smith J, Stark P, Whittle S. Student-selected components in the undergraduate medical curriculum: a multi-institutional consensus on purpose. *Med Teach* 2004;26:33-8.
<http://dx.doi.org/10.1080/0142159032000150494>