

XOOTIC survey 1998

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On behalf of the survey committee

In august 1998, a questionnaire was sent out to all XOOTIC members to ask them about their OOTI background and their current career. In the consecutive months, the results of these questionnaires were gathered and presented to both the XOOTIC community and the external advisory board of OOTI. This article presents the survey results and some of the feedback that we got from our presentations.

Introduction

The XOOTIC survey has become a 2-year tradition. It provides valuable feedback to both the OOTI and XOOTIC board on their activities. Previous surveys were held in 1993, 1994, and 1996 (see XOOTIC Magazine September 1993, September 1994, April 1996, respectively). In the beginning of 1998, Gertjan Schouten, Rob Knubben and myself set out to organise the survey for 1998. The first thing we did, was looking at suggestions for improvements that were given during the previous surveys.

One remark was that the XOOTIC community is becoming more diverse and this makes it more difficult to interpret the results. Older generations were still criticizing *their* OOTI curriculum although a lot has changed since then. On the other hand, their years of experience in the industry is *very* valuable to the survey. With younger generations it is the other way around: they can better judge the *current* OOTI curriculum, but have less industry experience. We considered different options, but eventually we chose to add the question about the year in which every ex-OOTI started the OOTI course. We made a subdivision in 4 groups of generations such that each group contains roughly the same number of OOTI graduates.

Second, we tried to resolve some confusion about

employer and working place. If you participate in 'flexible staffing' (dutch: detachering), employer and working place can be very different, so we made separate questions about each one. Another source of confusion is the employer: if you are working for Philips Medical is it Philips or Philips Medical, TNO or TNO-FEL, KPN or KPN Research, etc. In these examples we asked everybody to perceive the latter as their employer.

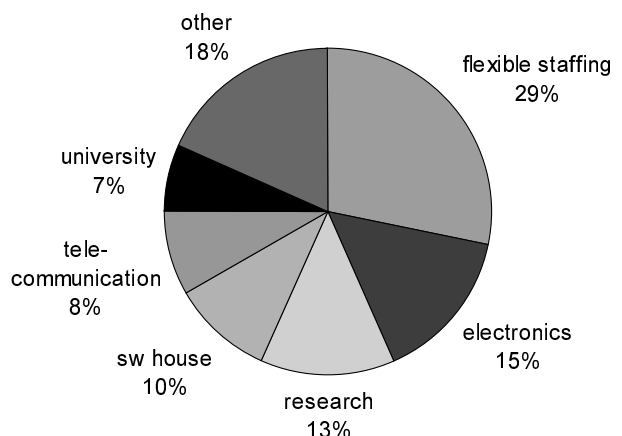


Figure 1: Branch distribution

After taking these suggestions into account, we re-ordered some of the questions, tried to make every question as clear as possible, gave the whole questionnaire a new outlook, and added additional questions about courses. We think that we have im-

survey	generation	#sent	#received	%
1993	all together	22	17	77%
1994	all together	41	24	59%
1996	all together	88	43	49%
1998	'98 - dec.'91	39	16	41%
	sep.'92 - jan.'94	48	18	38%
	sep.'94 - mar.'96	47	26	55%
	sep.'96 - aug.'98	21	9	43%
	all together	155	69	45%

Table 1: History of returned XOOTIC survey forms

proved the survey, but the downside is that it is a bit harder this year to compare the results with those of earlier years because questions have changed.

The new survey was sent to every XOOTIC member in august 1998. Table 1 shows the number of surveys that were sent out and the number of surveys that were returned this year as well as for the previous years. The questionnaire was returned this year by 60 ex-OOTIS and 9 OOTIS. In the results concerning professional career the results from the 9 OOTIS have been taken out. Hence in these results, one person is about 1.5%.

Employer

Figure 1 on page 23 shows the major branches where current ex-OOTIS are working. In 1996, the category 'flexible staffing' was not given explicitly and (a larger part of) those probably ended up in the category 'software house'. Nevertheless, combining 'flexible staffing' and software house we see an increase by almost a factor of two. Telecommunication is also a new category.

employer generation	1st	2nd	3rd
'88 - dec.'91	4	11	1
sep.'92 - jan.'94	11	5	2
sep.'94 - mar.'96	25	1	

Table 2: Job hopping by the ex-OOTIS that returned the survey

Job hopping was not common among ex-OOTIS in 1996. That has changed somewhat. Table 2 shows how many of the ex-OOTIS that returned the survey have changed employer. In contrast to April 1996, we see that most of the ex-OOTIS in the first generations have changed employer by now. They left the OOTI course roughly 6 till 9 years ago.

The survey results show that 18 out of the 60 ex-OOTIS got their current job through their final OOTI project. This is quite high considering the fact that already 20 of those 60 are with their second or third employer.

Function

Figure 2 shows the current function of ex-OOTIS. 'Project leader' has grown from 3% to 15%, but the external advisory board still found it surprisingly low. The number of researchers among ex-OOTIS has dropped from 51% in 1994, 33% in 1996 to 17% in 1998. The category 'software architect' is new.

Ex-OOTIS are working in a multi-disciplinary environment. On average every ex-OOTI mentioned more than 3 different disciplines that he/she comes into contact with in his/her daily work (not including computing science). Electronics, information technology, and telecommunication are mentioned most frequently (48%, 40%, and 38% respectively). Also high ranking are business management and mathematics.

Current ex-OOTI salaries are indicated in Table 3. Five ex-OOTI s reported to be working on a short-term contract, two started their own company, nobody said to be working freelance.

We had several questions concerning the tools and methods that are being used around the working place of an ex-OOTI. Formal methods are (still) not being used in the industry. Object oriented techniques are very popular: both OMT and UML were mentioned by one third of the returned questionnaires. The main implementation languages being used are: (Visual) C++, C, and Java. With 43% Java scores surprisingly high. The dominant platforms

Generation	<40K	<50K	<60K	<70K	<80K	<90K	<100K	>100K
'88 - dec.'91	1		1	1	1	3	4	5
sep.'92 - jan.'94		1		1	8	7		
sep.'94 - mar.'96	1	2	6	9	7			1

Table 3: Salary distribution over the 59 ex-OOTIs that filled in the question (in absolute ex-OOTI numbers)

are: Windows, Unix, and real-time kernels. A distinction between development and system platform was not made here. 60% mentioned that in their environment attention was given to Software Process Improvement (SPI).

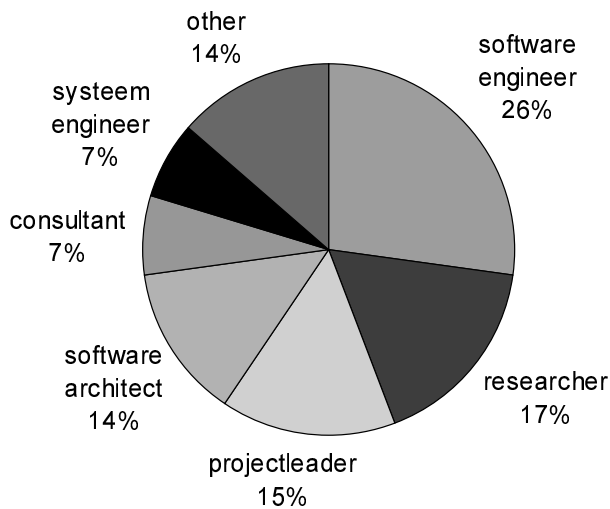


Figure 2: Function distribution

OOTI curriculum

In the latest survey, appreciation of OOTI curriculum courses could be given on a scale from 1 (useless) to 4 (very useful). The results are shown in Table 4. The first column gives the number of ex-OOTIs that followed the course and returned the survey. The second column gives the average appreciation on the usefulness of the module in ones current job. The third column gives the average appreciation of the module to become more multi-disciplinary. The last column indicates how many persons would rather have done another one of the optional modules.

Software engineering still scores highest as it did in April 1994. The appreciation of formal meth-

ods remains low. Except for the formal method Chi, as developed by the mechanical engineering department of the TUE, nobody mentions the use of formal methods within their working environment.

OOTI curriculum modules	#	use	multi	else
software engineering	59	3.4	-	-
formal methods	59	1.6	-	-
homologation	19	2.6	-	7
VLSI design	30	1.5	2.3	7
discrete manufacturing	22	1.7	2.9	6
embedded systems	2	3.0	3.0	1
laboratory automation	10	2.1	2.8	3
logistics	27	2.3	3.2	2

Table 4: Appreciation of the OOTI curriculum modules (scale 1 to 4)

With these small numbers of attendees at the various courses, it is hard to make a statement about the appreciation of the different courses over the different generations. With larger numbers, we could have looked whether the courses have improved over the years.

OOTI curriculum modules	#	use
technical writing and editing	58	3.8
projects	51	3.2
meetings	47	2.8
management	52	2.9
communication (for technicians)	25	3.4
design	15	2.8

Table 5: Appreciation of the personal development course (scale 1 to 4)

The personal development course are, as always, appreciated very highly by all attendees as shown in Table 5.

The overall appreciation of the OOTI course is 3.5 (on a scale from 1 to 4). The relevance of the OOTI course to ones current job is given a 2.9.

We asked everyone to give suggestions to improve the OOTI course. Most people suggested to spend

more time during the course on actually designing systems. This should be practiced more often also in combination with different design methods. In this context, related design techniques are mentioned such as design patterns, component technology, the design of very large systems, and the design of embedded real-time systems. Others suggest to give more attention to the initial phase of a project: requirement engineering and analysis and writing a design and test specification.

We discussed these suggestions with the externally advisory board. Traditionally, formal methods were perceived to play a role in the initial and design phase of project. Apparently, they fall short here and it seems that ex-OOTIs are looking for other techniques to help them. It was decided that the next meeting of the externally advisory board will be devoted solely to this topic. The survey committee has been invited to show additional and more detailed results on this issue from the survey then.

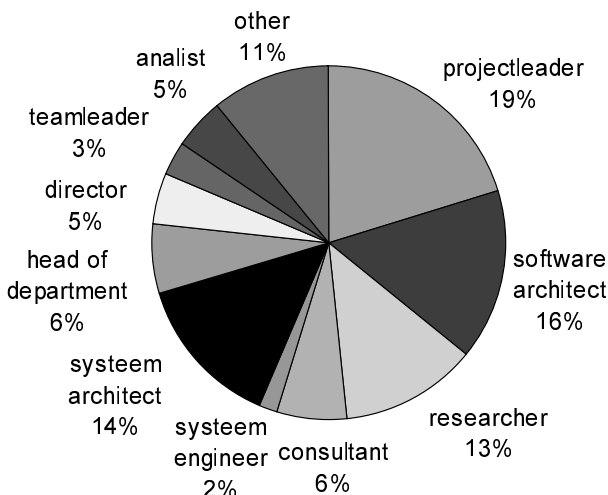


Figure 3: Desired ex-OOTI job within 5 till 10 years

Future

Figure 3 gives the desired function of an ex-OOTI within the next 5 till 10 years. Although the largest group of ex-OOTIs is now working as a software engineer, apparently no one wants to keep that job.

Xootic

The social contacts with other ex-OOTIs remains the primary reason to be a member of XOOTIC. ‘To re-

main informed about the OOTI course’ also scores more than 60%. The ‘XOOTIC magazine’ and lectures scores about half. This would indicate that of all the activities organized by XOOTIC the lectures are appreciated most highly across the whole ex-OOTI community. In general, the XOOTIC activities are rated a 3.0 on scale from 1 to 4.

XOOTIC members had asked the XOOTIC board to organize more activities outside Eindhoven. To test the overall opinion, we added the question whether you would attend more, less or an equal number of activities if they were held in a more central place in our country. The numbers were around 25% less, 25% more, and 50% equal. This gave us confidence to organize the presentation of the survey results in ‘s Hertogenbosch in the beginning of this year. Initially we were worried about the limited number of registrations, but it turned out to be quite a success.

Finally, we wanted to help our travel agent Harry to decide on XOOTIC’s next trip abroad so we asked for suggestions. A lot of suggestions were given, unfortunately there wasn’t much commonality among them. We have handed the complete list to Harry, but it will take him about 30 years to organize every trip suggested!

Conclusion

We think the survey was valuable. Some of the developments that we saw, were new and not shown in previous surveys. Others that were already there, now signal a clear trend. We had expected a bit more from differentiating the results over different generations, but in general the numbers were too small to make a reliable statement here, especially for the optional OOTI courses.

As mentioned already, a presentation to the external advisory board has been given and a follow-up meetings is already planned. More detailed results of the XOOTIC survey have been given to both the OOTI and XOOTIC board. These detailed results include a list of courses that ex-OOTIs have shown interested in. We hope that this inspires both OOTI and XOOTIC to a follow-up of their very successful SPI initiative.