

within a suite of software packages. Delphi or Visual Basic can provide the front end. Data can be read from and written to any ODBC-compliant database. Information can be fetched and despatched using TCP/IP to an organisational intranet or the Internet itself.

What does this imply for future system developers? Well, we'll need to become multi-skilled or to work in teams, with each member bringing a particular domain of systems-design expertise to the table. All we've done is to create the channels through which we can communicate with other processes. I still want to be sure that everything from the user interface to the relational database has been designed to support wide-ranging demands and to perform optimally. At the front end, if the Causeway development environment is adapted for J and ported to APL2 for Windows 95 and NT, there will be at least one product which will provide a common tool across these array processing languages. Taken a step further, it may well be that individual modules or entire applications built around an APL server will lend themselves to compilation using the Snake Island Research product or something similar.

In summary, APL96 was, as always, rewarding in terms of catching up with colleagues and bringing oneself up to date with developments in a variety of areas. Product development announcements were generally positive and the tutorial/workshop orientation of the conference was highly desirable. I missed the session and subsequent report on legacy systems, so am



Walter Spunde and his daughter enjoy the Banquet evening

unable to comment on any conclusions or strategies that emerged. On the downside, I can't say that I have significantly more confidence in a bright future for APL and J. From the perspective of a system developer, the technology appears to be pushing me toward hybrid systems. I can see lots of learning curves ahead and a greater need for APL and J to collaborate well with a multitude of other software products. ■

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APL96 Conference Survey Results

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THIS ARTICLE SUMMARIZES A SURVEY of APL96 Conference attenders in Lancaster, England. Its purpose is to help design better future conferences. Each survey question is quoted, and then followed by a summary of respondents' answers.

Q1: How satisfied are you with the following APL96 features?
(1 = most satisfied; 5 = least satisfied)

Table 1 shows average scores for various conference features. APL96 data are only for the 90% of respondents who had attended a previous APL Conference (see Q4 below). Scores (on the same scale) from a more general 1994 survey are also shown [Ref 1]. 1994 data are for only those respondents who attended an APL conference between 1990 and 1994.

Table1: Satisfaction with Conference Features

APL96	1994 Survey
Tutorials 1.89	Proceedings 1.73 *
Workshops 1.94	Location 1.76
Location 2.12	Vendor information . . 1.80
Housing 2.18	Program 2.00
Vendor Information . . . 2.22	Social/Vacation 2.08
Program 2.51	Workshops 2.20
Software Exchange 2.60	Banquet 2.23
Business Opportunities . 2.78 *	Birds of a Feather . . . 2.52 *
Cost 2.81	Tutorials 2.58
Social/Vacation 2.81	Housing 2.59
Birds of a Feather 2.83 *	Poster Sessions 2.67 *
Banquet 3.22	Software Exchange . . 2.69
Job Opportunities 3.50 *	Cost 3.01
Poster Sessions 3.70 *	Business/job oppty . . 3.38 *

* Birds of a Feather, Poster Sessions, and Proceedings were absent at APL96. Business and job opportunities were combined in the 1994 survey, but split in the APL96 survey.

These two surveys sampled different populations (see Q8 below), so no statistical inference is possible. APL96 data tell us mainly what Europeans who have attended a prior APL conference think about APL96. 1994 data tell us mainly what North Americans think about APL conferences between 1990 and 1994. Even so, some of the data are suggestive, if not statistically conclusive.

APL96 features *increasing* in rank

- *Tutorials, Workshops, Housing, Software Exchange, and Cost*

In open-ended questions, satisfaction with tutorials and workshops was solid and widespread. Many respondents noted that learning to use new operating environments was more important than papers on applications per se. Increased satisfaction with tutorials and workshops was partly offset by complaints of overcrowding and the need for more computers. Yet overcrowding is a measure of demand, if not satisfaction. Several respondents suggested that attenders bring their own laptops. APL96 Organizers, in reviewing a draft of this report, suggested that multiple sessions of popular workshops would be a better solution than more laptops, which entail problems of their own.

Satisfaction with the SIGAPL Software Library (formerly the Software Exchange) increased. This feature was redesigned in 1996 to operate electronically and year-round, not as a Conference-only annual event [Ref 2]. Software Library disks were available at APL96, so 1994 data are partially comparable.

Cost, a chronic complaint, was less a factor of dissatisfaction for APL96 than in earlier data—probably because the APL96 location was more affordable for the predominantly European attenders of APL96 (see Q8 below). However, this question suffers from non-response bias. Those for whom cost was an obstacle were, ipso facto, not included in the survey. Cost data are hard to interpret: neither survey distinguished among cost factors such as travel and lost wages (highly variable), and housing and registration (relatively fixed). Most APL96 attenders were repeat attenders (see Q4 and Q5 below). Travel costs of these attenders should average out over the years.

Another cost factor mentioned was the need to justify the cost of the Conference to employers. Justifications cited for conference attendance were: business related, gaining new work-related skills, and presenting a paper.

Increased satisfaction with housing is an artifact of a split between the Lancaster House Hotel (which drew compliments), and University housing (which drew complaints).

APL95 features *decreasing* in rank

- *Banquet, Vendor Information, Program, and Social/Vacation*

In open-ended questions, no APL96 feature drew more criticism than the banquet. Respondents said that having the banquet on the last day was inconvenient and expensive because an extra day of housing had to be paid for.

Some respondents also complained about the lack of up-to-date APL96 information in *APL Quote Quad*, and poor program organization.

Program, and Vendor Information, declined slightly compared to 1994. These small rank differences are statistically meaningless.

Q1a: Other(s)? (open ended)

Features rated 1 or 2 (*most* satisfied):

- Success stories
- Papers
- Local arrangements
- Hotel
- Lunch

Features rated 4 or 5 (*least* satisfied):

- University breakfast, lunch, and dinner
- Papers
- Social events (particularly for accompanying persons)
- University housing (cold showers, uncomfortable beds)

Apparently APL96 attenders were divided in their satisfaction with lunch, Conference papers, and housing.

Q2: Most useful feature (and why)?

“Most Useful” features clustered in two areas: (1) workshops and tutorials, and (2) opportunities to meet people and network.

Tutorials and workshops were a *big* hit. Attenders’ own words were: “*informal, interactive, informative, TCP/IP, help for daily work, good organization of each day (plenary, announcements, small group break-outs), hands-on tutorials, functional programming in J and Role of Operators, good hands-on experience, hands-on workshops with PCs, details of forthcoming vendor products, plus detailed info gained about related fields, e.g., ODBC, TCP/IP, OLE, etc. excellent learning environment, great way to teach use of APL.*”

For meeting people, here again are attenders’ own words: “*schedule allowed time for personal networking, meeting people, opportunity to meet people and discuss problems, opportunity to meet and discuss, meetings with APLers.*”

Q3: Least useful feature (and why)?

Responses to this open-ended question were scattered. Attenders mentioned, in no particular order: *“job opportunities, business opportunities, program arrangement, nested arrays—no structure in presentation, too-long coffee breaks, workshops too crowded, program organization clashed badly, general disorganization, banquet, cost (\$500 for conference registration is too much), papers of little of direct interest (mentioned twice), gap between morning and afternoon workshops—too long!”*

Q4: Have you attended a previous SIGAPL Conference?

90.0% = Yes

Q5: Are you likely to attend a future SIGAPL Conference?

92.5% = Yes

Q5a: Why? (are you likely to attend another SIGAPL Conference)

Echoing the responses of Q2 (Most useful features), responses to this question centered on two main themes: (1) to get training, information, and experience with new features of modern operating environments within which APL and J must work, and (2) to keep in touch with colleagues, meet people, network, and make contacts.

Q6: Are you a member of SIGAPL?

Yes = 90.0% (1994 Yes = 55%).

Q7: Years experience with APL?

Average = 16.9 (1994 average = 15.6).

Q8: Your State/Province/Country?

This question is key to the validity of the APL96 survey analysis. Survey results are valid only if the sample (questionnaire respondents) is representative of the population (all APL96 attenders).

Sample/population comparisons

	APL96 Survey		1994 Survey	
	APL96 sample	all APL96 attenders	1994 sample	all SIGAPL members
North America	25%	28%	74%	66%
Europe	68%	64%	17%	26%
Other/blank	8%	7%	9%	8%

The APL96 survey sample is demographically representative of APL96 attenders, easily within the two sigma limits of a bootstrap analysis [Ref 1]. The APL96 sample is *not* representative of SIGAPL membership, or of the 1994 sub-sample of attenders of earlier APL Conferences. The overall response rate for this survey was 27%.

Q9: Your Occupation?

The largest single group (30%) of attenders were Programmers or Analysts. Professor or Lecturer was the next largest (17.5%), and Retired, Consultant, Engineer or Scientist, and Other accounted for about 10%–15% each.

Q10: Other comments or suggestions?

Open-ended responses to this question are incorporated in the summaries above.

Do your own analysis

ASCII file APL96DTA.ZIP, containing all survey data, is available at “<ftp://archive.waterloo.ca/languages/apl/software-library>”, and at the BBS\APL, 703-528-7617, in FileArea Free. Some data are re-ordered to assure respondents’ confidentiality. ■

References

- [1] Dick Holt, “1994 SIGAPL Survey Results,” *APL Quote Quad*, Volume 25, Number 3; March 1995; pp. 9–15
- [2] Dick Holt, “The SIGAPL Software Exchange,” *APL Quote Quad*, Volume 26, Number 2; December 1995; p10

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