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CONTINUING EDUCATION NEEDS SURVEY RESULTS

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by

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ABSTRACT

A survey of CIM members' interests and needs for continuing education was designed in 1985 and mailed with the Institute's notices of annual dues. About 2,000 members completed the questionnaires. This was seen as a major expression of interest by the community that the CIM takes a more active role on the issue. Subsequently, the data was inputted for analysis on an IBM-PC computer using DBASE III. The results have now been compiled and interpreted.

This presentation shows the results of the survey, and indicates possible actions that could be followed by the CIM in order to satisfy its members' stated needs.

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RÉSULTATS DU SONDAGE CONCERNANT LES BESOINS DE FORMATION CONTINUE

par

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RÉSUMÉ

Une formule de sondage concernant les intérêts et besoins de formation des membres de l'Institut canadien des mines (ICM) a été conçue en 1985 et postée en même temps que les avis de renouvellement de carte de membre de l'Institut. Les membres ont perçu ce geste comme une grande marque d'intérêt et une indication de la participation accrue de l'Institut à l'étude de la question. Ensuite, les données du sondage ont été traitées au moyen d'un ordinateur IBM-PC, en utilisant la Base de données III. La compilation et l'interprétation des résultats sont maintenant terminées.

Cette présentation comprend les résultats du sondage et indique les mesures que l'ICM pourrait prendre en vue de répondre aux besoins mentionnés par ses membres.

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Mots-clé : Formation continue, membres de l'ICM, résultats du sondage, durée de la formation, lieu, cours, matériel de soutien, frais.

INTRODUCTION

In 1985, the CIM Education Committee considered orientating its major action towards fostering the continuing education of members. This was due to the completion of its previous project, the Curriculum Development Kits for the three cycles of elementary schools. This had been the main thrust of the Committee for over a decade. The needs of Members for continuing education then seemed to be a logical continuation of the Committee's work.

There were, however, various opinions within the Committee about how the problem might be addressed. A significant problem, in a diminishing resource environment, would be the resources needed at CIM headquarters in order to support any potential action.

For purposes of simplicity, the survey (figure 1) was restricted to very general questions. This resulted in close to 2000 members filling and returning the questionnaire by the end of April 1986. This represented approximately 20% of the CIM membership. Compiling and treating the accumulated data required about six months of part time effort.

CIM INVOLVEMENT

The first question addressed the issue as to whether or not the CIM should be involved in the continuing education of members. The question was: "Is it essential for a professional society to increase the knowledge of its members?" The answer (table 1) was a very strong 'essential', with an average score of 5.38 on a scale of 6.

This may be somewhat surprising when considering the different groups that are already involved in higher learning. The point, however, is that CIM should not develop courses on its own, but rather act as a link between potential suppliers and recipients. What members expect of the CIM, as perceived by the Committee, is an endorsement of the quality and usefulness of various course materials.

COURSE LENGTH

The second question was divided into three categories. The first category was aimed at defining the length of intensive courses. The second part looked at correspondence courses, which may be more suited for personnel located at remote sites, such as field geologists. The third part was for a different arrangement, ie courses spread over a session.

Answers (table 1) to the first part were very sensible: either 3 days or a full week were the preferred durations. Some have noted, however, that topic was the real limitating item. The average time was found to be four days, but much variation, depending on subject material, can be anticipated.

According to our interpretation, there are two different clienteles involved: administrative staff who cannot leave for a full week at a time, and technical staff who can. For technical updates or refreshers, time can be limited. Advanced topics require lengthier sessions.

It was surprising that the responses concerning correspondence courses were evenly divided as regards duration (435 for open-ended against 482 for limited course duration). This could create a problem in course planning, since student files would have to be maintained, with associated costs, for long periods.

For courses of limited duration, three months was the preferred duration of 51% of the interested members. The remainder were evenly divided between six months and a year. In this case, the goal is to put together a course that could be taught by different lecturers. Sometimes it is impossible to ensure that all teachers are available at a specific date. Through courses spread over sessions of three hours or six hours per week during a prolonged period, it is possible to cover a topic by specialists, while maintaining some flexibility of operation. With this type of arrangement, there is also more potential to bring specialty courses to remote mining camps.

The Education Committee believes that, ideally, courses should lead to formal professional recognition through written tests.

PREFERRED LOCATION

Local courses were preferred by the majority (70%) of members answering the question (table 1). Most younger staff members are not permitted the travel which might be required in order to attend courses. Because of limited budgets, these people are not normally sent to CIM district, technical or annual general meetings. Line management are not in a position to devote much time to travelling and being away from their responsibilities for long periods.

Another important point is that very few (8%) would favor the Annual General Meeting period for specialty courses. This can also be understood in the light of attendants management responsibilities and the time already devoted to conferences.

About a quarter of the CIM members would be interested in attending short courses during district/technical meetings. This rises to close to 50% when considering

second choices. More technical persons attend these meetings, and it seems reasonable for two and three day courses to be organized around such events.

When it came to specifying cities (table 2), most members of the Petroleum Society asked for activities located in Calgary and Edmonton (26% of answers received). The other most popular centers for learning activities were Toronto and Ottawa (25% of answers), perhaps reflecting the origins of responding members. Vancouver (15%) and Montréal (12%) were the other major centers preferred. The remaining responses were distributed among mining camps, with Sudbury and Timmins being the most popular (9%). As previously noted, this distribution of locations possibly indicates the origins of members answering the questionnaire.

SUBJECTS

Over 80% of respondents selected technical subjects as first preferences (table 1), with data processing and administrative topics being evenly divided as remaining choices. This situation is relatively uniform among the various CIM divisions/societies, as shown on table 3, and may result from the more technically oriented CIM members having replied to the survey. This result is also coherent with that concerning preferred locations (local courses or technical meeting ones). Another point stressed by a good portion of members was computer-oriented topics, thus showing a preoccupation for updating fast-evolving skills.

In geology, the preferred topics (table 4) were exploration and prospecting techniques (54% of answers), followed by economic appraisal of orebodies (15%). As a footnote, it should be added that the Redpath organization, under contract to Supply & Services Canada and CANMET, has recently completed a reference book on the subject of preliminary economic assessments of orebodies.

In mining, there was a diversity of interests expressed by the members. Mine planning, mining methods and operations were the main subjects mentioned (42%).

In mineral processing, ore concentration and automation were the most often mentioned subjects (53%), with unspecified topics being chosen by a large group (27%).

In metallurgy, the specific technologies for ferrous, base and precious metals were the primary choices of a majority (42%). The design, planning and construction of plants were second in importance (16%).

In the petroleum sector, extraction from reservoirs was the main need expressed by members (45%). Prospecting was second (27%). Reservoir extraction simulation or fracturing was often mentionned and is worth mentioning.

In the maintenance area, mining mobile equipment was a primary concern. Mill and smelter stationary equipment was also often mentioned.

Administrative topics, mainly in relation to finance and general budget co-ordination, were popular. Supervision and personnel management, however, received little interest.

SUPPORT MATERIAL

Audio-visual aids and course preprints were considered to be essential, while demonstrations were considered to be topic-specific. Members would prefer to receive course material in advance, in order to permit thorough pre-course preparation. Speaker's communicating skills were considered to be as important as technical competence.

RANGE OF COSTS PROJECTED

The ideal cost of sessions (table 5) was considered to be between $106 and $128 per day. This cost is considered to be low; one should look in the $150/$200 per day range for normal course fees. When travelling is also included, a more realistic figure would be in the $350/$400 per day range for three day to one week courses. The cost of transportation per day can be reduced with the longer courses. On this point, 80% of members said that they could find some financial support from their organization to attend courses related to their jobs.

For local courses (table 1), the total cost ranged between $242 and $465. The average figure given by members for the cost of attending a course at a CIM meeting course was $524. For courses at central locations outside of CIM activities, the average cost was projected at $780.

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FIGURE 1: **SURVEY RELATED TO THE CONTINUING EDUCATION NEEDS OF CIM MEMBERS**

1- Do you believe that for a professional society increasing the knowledge of its members is 6 5 4 3 2 1

essential ☐ ☐ ☐ ☐ ☐ ☐ negligible

2- If you answered the above question positively, the best means would be

. intensive courses of 2 weeks ☐ 1 week ☐ 4 days ☐

3 days ☐ 2 days ☐

. correspondence courses with ☐ without ☐ a time limit

. courses with lecturers spread over a year ☐ six months ☐

three months ☐

3- For courses with lecturers, the best location would be (please quote 1, 2, 3)

Locally ☐ at CIM district/technical meeting ☐ at the CIM AGM ☐

4- The subjects most interesting for your concern (please quote 1, 2, 3)

data processing ☐ technical subjects ☐ administration ☐

specify:_____

_____

5- For these courses, the following material is considered

	essential--------unimportant					
. audio-visual aids	6	5	4	3	2	1
. preprints of the conference	6	5	4	3	2	1
. demonstrations	6	5	4	3	2	1

. others (please specify):_____

_____

6- The total cost (including transportation, living expenses, registration) for such activities should not exceed

. for a local course _____$

. for a CIM meeting course _____$

. for a central location course _____$

7- Would it be possible for you to obtain financial support from your employer for such courses

yes ☐ no ☐

8- If the CIM could fulfill your own personal needs, please summarize them by filling out the sentence below:

A _____ day course on _____ (subject) at

_____ (place) costing no more than $_____.

9- In what Division/Society are you registered?

Canadian Mineral Processors ☐ Coal ☐ Geology ☐

Industrial Minerals ☐ Maintenance/Engineering ☐

Metallurgical ☐ Metal Mining ☐ Petroleum ☐

Prepared by the CIM Education Committee

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TABLE 1: RESULTS DERIVED FROM 1,974 REPLIES TO A SURVEY RELATED TO THE CONTINUING EDUCATION NEEDS OF CIM MEMBERS

ANSWER TO QUESTION 1 IMPLICATION OF CIM ESSENTIAL	MEAN 5.38/6	STANDARD DEVIATION 0.81
ANSWER TO QUESTION 2A INTENSIVE COURSES	MEAN 4.18 DAYS	STANDARD DEVIATION 1.84 DAY
	LENGTH 2 WEEKS 1 WEEK 4 DAYS 3 DAYS 2 DAYS	NUMBER OF REPLIES 97 589 218 464 210
ANSWER TO QUESTION 2B CORRESPONDANCE COURSES	TIME LIMIT YES NO	NUMBER OF REPLIES 482 435
ANSWER TO QUESTION 2C LECTURERS SPREAD OVER	LENGTH 1 YEAR 6 MONTHS 3 MONTHS	NUMBER OF REPLIES 177 158 346
ANSWER TO QUESTION 3 LOCATION: LOCALLY CIM DISTRICT/TECH. MEET. CIM AGM	CHOICE 1 1128 344 131	CHOICE 2 91 387 75
ANSWER TO QUESTION 4 DATA PROCESSING TECHNICAL SUBJECT ADMINISTRATION	CHOICE 1 115 1418 172	CHOICE 2 333 117 325
ANSWER TO QUESTION 5 AUDIO-VISUAL AIDS(1858 DATA) COURSE PREPRINTS(1842 DATA) DEMONSTRATIONS(1734 DATA)	MEAN 4.96/6 5.09/6 4.41/6	STANDARD DEVIATION 1.06 1.12 1.27
ANSWER TO QUESTION 6 LOCAL COURSE(1423 DATA) CIM MEETING COURSE(1116 DATA) CENTRAL LOCATION(1050 DATA)	MEAN COST ($) 318 524 780	STANDARD DEVIATION 283 462 583
ANSWER TO QUESTION 7 CORPORATE FINANC. SUPPORT	YES 1468	NO 320
ANSWER TO QUESTION 8 COURSE LENGTH AND COST	NUMBER OF DAYS 4.28 MEAN COST/DAY	COST ($) 441 118
ANSWER TO QUESTION 9	DIVISION CMP COAL GEOLOGY INDUST. MIN. MAINT./ENG. METALL. METAL MIN. PETSOC UNCLASS.	NUMBER OF REPLIES 159 100 510 38 108 228 395 395 41

TABLE 2: PREFERRED LOCATIONS FOR COURSES (8/PLACE)

LOCATION	NUMBER OF REPLIES
VANCOUVER	171
OTHER B.C.	17
CALGARY/EDMONTON	303
SASKATOON	43
MANITOBA	30
SUDBURY	69
TIMMINS	29
TORONTO/OTTAWA	286
VAL D'OR/ROUYN	24
MONTRÉAL/QUÉBEC CITY	141
NEW BRUNSWICK	16
ELSEWHERE IN CANADA OR AGM	23

TABLE 3: CLASSIFICATION OF ANSWERS TO QUESTION 4

	UNIDENTIFIED	CMP	COAL	GEOLOGY	INDUST. MIN.	MAINT./ENG.	METALLURGY	METAL MIN.	PETROLEUM
A) DATA PROCESSING									
NO ANSWER	28	100	50	246	19	65	118	223	216
CHOICE 1	3	9	4	37	5	7	16	24	10
CHOICE 2	2	23	24	117	6	13	44	48	56
CHOICE 3	5	22	20	71	7	20	35	77	96
OTHER CHOICE	2	5	2	39	1	3	15	23	17
B) TECHNICAL SUBJECT									
NO ANSWER	15	20	7	60	7	11	19	62	32
CHOICE 1	17	115	74	363	22	74	174	264	314
CHOICE 2	5	8	10	24	4	11	13	25	17
CHOICE 3	1	4	0	7	2	4	2	9	5
OTHER CHOICE	2	12	9	56	3	8	20	35	27
C) ADMINISTRATION									
NO ANSWER	26	96	36	273	16	55	124	203	202
CHOICE 1	8	13	9	29	5	16	10	47	35
CHOICE 2	2	20	18	65	7	17	35	72	88
CHOICE 3	3	23	28	110	8	12	44	50	54
OTHER CHOICE	1	7	9	33	2	8	15	23	16

TABLE 4: SUBJECT INTEREST BY DISCIPLINE EXPRESSED IN QUESTION 4 (SPECIFY) AND QUESTION 8 (SUBJECT)

	REPLIES TO QUESTION 4	REPLIES TO QUESTION 8
I) GEOLOGY		
A) EXPLORATION/PROSPECTING	152	227
B) GEOPHYSICS	9	12
C) GEOCHEMISTRY	6	13
D) ORE RESERVE ASSESSMENT	18	33
E) ECONOMIC APPRAISAL	26	64
F) MARKETS AND MARKETING	6	21
COMPUTER-RELATED	34	53
II) MINING		
A) DRILL, BLAST, MAT. HANDLING	55	64
B) EQUIPMENT i)OPERATIONS	6	7
ii)MAINTENANCE	21	35
C) MINE PLANNING/MIN. METHODS	43	68
D) GROUND CONTROL/FILL ENG.	30	37
E) MINE ENVIRONMENT	10	28
F) OTHERS	27	77
COMPUTER-RELATED	65	139
III) MINERAL PROCESSING		
A) GENERAL	33	31
B) MILL DESIGN/CONSTRUCTION	1	7
C) CRUSHING/GRINDING	4	7
D) CONCENTRATION i)FLOTATION	1	10
ii)OTHERS	7	27
E) AUTOMATION	13	23
F) TAILINGS	3	6
G) MAINTENANCE	13	2
COMPUTER-RELATED	5	12
IV) METALLURGY		
A) GENERAL	16	17
B) DESIGN/CONSTRUCTION	4	12
C) METALS TECHNOLOGY i)FERROUS	5	10
ii)BASE	8	20
iii)PRECIOUS	1	2
D) MAINTENANCE	7	15
COMPUTER-RELATED	9	15
V) PETROLEUM		
A) GENERAL	22	29
B) EXPLORATION	27	47
C) EXTRACTION	52	78
D) MARKETS	4	11
E) OIL SANDS	4	10
COMPUTER-RELATED	10	17
VI) ADMINISTRATION		
A) SUPERVISION/PERSONNEL	8	20
B) FINANCE/GENERAL	96	167

TABLE 5: TOTAL COST PER ACTIVITY (QUESTION 6) AND COST PER DAY (QUESTION 8) FOR EACH CIM DIVISION OR SOCIETY

		CMP	COAL	GEOLOGY	INDUST.MIN.	MAINT./ENG.	METALLURGY	METAL MIN.	PETROLEUM
LOCAL COURSE	NUMBER OF REPLIES	112	82	368	27	81	154	270	314
	MEAN COST ($)	299	355	253	292	242	279	288	465
	STANDARD DEVIATION	299	320	230	212	169	271	307	284
CIM MEETING COURSE	NUMBER OF REPLIES	96	69	309	21	52	121	238	196
	MEAN COST ($)	530	602	469	485	434	540	515	610
	STANDARD DEVIATION	530	448	401	316	395	463	471	524
CENTRAL LOCATION	NUMBER OF REPLIES	94	62	277	21	53	116	216	201
	MEAN COST ($)	761	852	666	860	621	727	776	996
	STANDARD DEVIATION	604	485	515	424	491	517	655	618
COST/DAY	NUMBER OF REPLIES	97	69	357	27	67	127	245	237
	MEAN COST/DAY ($)	123	121	106	124	120	125	119	128
	STANDARD DEVIATION	99	85	110	78	95	102	102	74