OBJECTIVE-BASED CODES

TRAINING NEEDS ASSESSMENT

FINAL REPORT

Prepared for: National Steering Committee on
Training & Education for Objective-based Codes
Canadian Commission on Building and Fire Codes

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CONTENTS

			Page No.
Executive Summary – Background, Findings, Observations, Recommendations			i - v
1.0 Introduction			1 - 2
2.0 Respondent Information - Observations			3 – 4
3.0 Training and Development Needs – Observations			5 - 9
4.0 Greatest Training Need – Observations			10
5.0 Other Training Topics – Respondent Comments and Observations			11-12
6.0 Preference for Delivery Mode – Observations			13
7.0 Need for Recognition of Training – Observations			14
8.0 Preferences for Training Delivery Agent – Observations			15
9.0 Preference of Tools / Support Materials – Observations			16
10.0 Other Tools or Materials - Respondent Comments and Observations			17-19
11.0 Respondent Additional Comments and Observations			20-22
12.0 Highlights of Focus Group Comments			23-25
13.0 Recommendations			26-27
Appendix “A”	Respondent Information - Histograms		A1-9
Appendix “B”	Training and Development Needs - Histograms		B1-21
Appendix “C”	Greatest Training Need - Histograms		C1-5
Appendix “D”	Preferences for Training Delivery - Histograms		D1-9
Appendix “E”	Requirements for Recognition - Histograms		E1-5
Appendix “F”	Preference for Training Delivery Provider - Histograms		F1-9
Appendix “G”	Tools and Support Materials Preferences - Histograms		G1-13
Appendix “H”	National Questionnaire Survey		H1 – 5

Appendix "I"	Topics for Expanded Discussion		I1 – 2
Appendix "J"	Guidelines for Conducting a Focus Group		J1 – 10
Appendix "K"	Summary of Focus Group Comments		K1 – 15
Appendix "L"	Comments Made by British Columbia		L1 – 5
Appendix "M"	Proposed Learning Objectives for Group One		M1 – 4
Appendix "N"	Cost Estimate for Training Program Options		N1

EXECUTIVE SUMMARY

BACKGROUND

The National Steering Committee on Training and Education for Objective-based Codes, reporting to the Canadian Commission on Building and Fire Codes, in conjunction with the Provinces and Territories, commissioned an investigation into the specific non-technical training needs for transition training to support the introduction of Objective-Based Codes.

The investigation consisted of a National Questionnaire Survey and Provincial and Territorial Focus Groups. The questionnaire was distributed at meetings across Canada, where presentations on code-related content were made. Focus Group meetings followed the presentations and were conducted with a set of standard questions and a Facilitator's Guide. The questionnaire was also available on a web site.

This report outlines the findings and observations made on the data collected during this research investigation that took place between 15th January 2003 and 15th June 2003.

FINDINGS

Questionnaire

Some 303 completed questionnaires were received from 10 Provinces and Territories. None were received from respondents in British Columbia, New Brunswick, or Quebec. The individuals who were at the focus groups held in Alberta, British Columbia, Manitoba and Nova Scotia also completed questionnaires.

Respondents were divided into three groups:

- Group One – Building, Fire and Plumbing Officials – 136 Respondents
- Group Two – Architects, Consulting Engineers, and Technologists – 121 Respondents
- Group Three – Contractors, Educators, Home Builders, and Trades persons – 46 Respondents

Some 214 of the 303 Respondents were from Alberta, Saskatchewan, and Manitoba.

Nationally most of the respondents, some 179 that answered the questionnaire, reside or work in a community of greater than 60,000, with 160 of those living in communities of over 100,000. Certainly, most or 227 of the respondents live in communities of over 10,000.

Training and Development Needs

The questionnaire asked respondents to: *"Indicate your requirement for non-technical training to assist you to apply Objective-Based Codes"*. The following five topics were presented:

1. Structure, Format and Organization of the Code Content
2. New Key Concepts
3. Submitting Equivalent / Alternative Solutions
4. Evaluating Equivalent /Alternative Solutions
5. Approving Equivalent / Alternative Solutions

For each topic respondents were to:

"Indicate if this information is required"

- *To have a basic understanding*
- *To outline to others*
- *To discuss with others*
- *To explain to others*
- *No requirement*

"*Indicate the time required to achieve level"*

- *1 hour or less*
- *2 hours*
- *3 hours*
- *4 hours*
- *5 hours*
- *6 hours*
- *More than 6 hours*

The data is presented in the report by Topic and by Group. The data is also displayed both by Province or Territory and Nationally.

A pattern emerged. The requirement was either for training to allow individuals to have a "*basic understanding"* or to allow them to *"explain to others".* This was directly matched by the selection of either *"1 to 2 hours"* of training or "*More than 6 hours".*

There was general endorsement for the topics, with only an insignificant number indicating no requirement for training. The no requirement indicator varied among the topics, thereby indicating a *"no requirement "* for that specific topic, meaning only that not everyone in a group would need all the topics.

Understandably the priority for a topic requirement varied among the groups and is believed to be a correlation to the work they perform. The number one choice of topics *"that you consider is of the greatest need for your training and development",* for all groups was Topic Two – *NEW KEY CONCEPTS.*

Respondents were asked to *"identify other topics directly related to Objective-Based Codes you consider may require formal non-technical training or development".* The comments did not yield additional topics.

The investigation included a question related to *"personal preferences for non-technical training delivery".* The choices were:

(a) classroom-based, instructor/facilitator-led
(b) web-based, instructor/facilitator assisted
(c) web-based, independent learning
(d) non web-based, independent learning
(non web -based may including print, CD Rom, video training materials)

The most popular choice, some 212 of the 303 respondents, picked *"classroom-based"*. The next request, 38 out of 303, was for *"web-based independent learning".*

The survey asked: *"do you require recognition for the non-technical training, such as continuing education credits, for professional certification or professional development?"* Nationally, slightly more than half, 158 out of 303 wanted recognition.

Question 10 of the questionnaire asked:

> *From the choices given below, rank your personal preferences for training delivery from 1 to 4 - one (1) being the most preferred and four (4) your least preferred:*
>
> *(a)* _____ *Community College / University*
> *(b)* _____ *Professional / Industry Association*
> *(c)* _____ *Regulatory Authority (e.g. provincial or Territorial government)*
> *(d)* _____ *Trade School*

First choice by the three groups combined was 119 out of 303 for *"Regulatory Authority"* with the next preferred, 94 out of 303, for *"Professional/Industry Association".* The ranking did vary among the three groups.

This investigation also included an approach to identify Tools and Support Materials that would assist individuals in the application of the codes.

Question 11 asked respondents:

> *From your experience with existing codes and your interpretation of the implications of the Proposed Objective-Based Codes, review the following list of potential tools and support materials that might be of benefit to you in the application of the codes. Please rank your order of preference from 1 to 5 – one (1) being the most preferred and five (5) your least preferred.*
>
> *(a)* *A flow chart that outlines the application process for submitting/proposing alternative solutions*
> *(b)* *A process flow chart that provides general guidelines to evaluating alternative solutions.*
> *(c)* *Guidelines for proposing/submitting alternative solutions.*
> *(d)* *A web-based shared repository of alternative solutions accepted by various jurisdictions to facilitate information exchange.*
> *(e)* *"Best Practices"* of approaches for evaluating equivalent/ alternative solutions.

Of the 303 respondents, 98 selected *"A web-based shared repository",* 72 selected *"Best Practices"*, and 68 selected *"Guidelines"*. Some 33 persons did not respond to the question. Respondents were also asked to *"identify other tools and/or support materials that might be of benefit to you in the application of Objective-Based Codes"*. The respondents' verbatim comments are provided in Section 10.0 of the report.

Focus Groups

The comments of the Focus Groups, as submitted by the Facilitators, have been organized by question, with the comments from each group, identified by city or group. Focus groups were held in Alberta, British Columbia, Manitoba and Nova Scotia. Highlights of the focus group comments are provided in Section 12.0 of the report and a complete listing of verbatim comments is provided at Appendix "K".

Focus Group Discussion Questions

1. What are your concerns that require clarification or further elaboration related to the STRUCTURE, FORMAT AND ORGANIZATION of the codes?
   (Remind participants that the functional statement number(s) attributed to each requirement is listed with each requirement in Division B)
2. What are your concerns that require clarification or further elaboration related to NEW KEY CONCEPTS?
3. What are your concerns that require clarification or further elaboration related to SUBMITTING EQUIVALENT / ALTERNATIVE SOLUTIONS?
4. What are your concerns that require clarification or further elaboration related to EVALUATING EQUIVALENT / ALTERNATIVE SOLUTIONS?
5. What are your concerns that require clarification or further elaboration related to APPROVING EQUIVALENT / ALTERNATIVE SOLUTIONS?
6. Describe other topics for training that you require due to the introduction of objective-based codes.
7. Describe other tools/support materials (review list in questionnaire) that would help with evaluation of equivalents / alternative solutions.
8. Describe any other concerns you have with the introduction of objective-based codes.

OBSERVATIONS

- The respondents appear to have endorsed the five topics for training and development. There was a clear choice for the need by all groups for Topic Two – New Key Concepts.
- There was an almost even split between a requirement of one to two hours of training and a requirement of 6 hours or more for each topic. The requirement for the more extensive training is directly linked to a need to "explain to others" the code-related content. There are sufficient numbers to warrant the development of more extensive (6-hour) training modules.
- No new topics for training and development resulted from the analysis of the comments supplied by the respondents.
- Curriculum developers should take into account that there is a concern among potential learners for liability issues and documentation procedures when they use the Objective Based Codes.
- Classroom-delivered training is the preferred delivery mode for a significant percentage of the questionnaire respondents.
- Approximately half of the respondents indicated that they would want recognition for any training and development programming that they participated in.
- A Regulatory Authority was selected by a third of the respondents as their preference for the delivery agent for training and development.

- A web-based shared repository of acceptable solutions was ranked first as a preferred Tool/Support Material. Several respondents (10%) did not answer the question about Tools/Support materials. This may have been because they were unclear as to how these work aids could be of benefit.
- There was an indication that information technology is a concern. Several comments indicated that the level of computer literacy and information technology ability in the field is more basic than highly technical and that hard copy of documents would be required as well as electronic versions.
- The additional comments that respondents were invited to record are supplied verbatim in the report. Comments range from critical of the questionnaire, cynicism about change, fear of change, a sense of urgency to provide support as outlined in the questionnaire, to highly positive comments regarding the survey process.
- The comments from the Focus Groups, also appendixed to the report, may prove helpful in the curriculum development process. Some respondents noted the need for case study methodology and concern for documentation and liability. The comments cover a wide range of issues, which seem to indicate that participants will find the introduction of Objective Based Codes a challenge.

RECOMMENDATIONS

- Proceed to develop training materials for all the topics presented in the survey, with a priority for “New Key Concepts”.
- Develop training units of a minimum of six hours to accommodate the need for in-depth training sessions. The unit objectives would state that “participants on successful completion, would be able to explain to others….”
- Develop training units of one to two hours in length to accommodate the need for overview sessions. The unit objectives would state that “participants on successful completion, would have a basic understanding of…”
- Develop training sessions designed for delivery in the classroom and subsequent delivery as web-based learning. Case-study methodology should be a major aspect of the curriculum.
- Contact Regulatory Authority agencies to deliver developed training and provide recognition for the training.
- Proceed with the development of a web-based shared repository of acceptable solutions. Where possible the other tools/support materials as outlined in the questionnaire should be developed and made available.
- Review the comments made by the respondents in the questionnaire and the comments made by participants in the Focus Groups.
- Begin to develop training materials and the tools/support materials as soon as possible.

1.0 INTRODUCTION

The National Steering Committee on Training and Education for Objective-based Codes, reporting to the Canadian Commission on Building and Fire Codes (CCBFC) in conjunction with the provinces and territories, commissioned Humber College to undertake an investigation into the non-technical specific training needs for transition training to support the introduction of Objective-Based Codes.

The investigation research consisted of a National Questionnaire Survey shown as Appendix "H" and Provincial and Territorial Focus Groups. Topics for Expanded Discussion, Focus Groups is shown as Appendix "I". Guidelines for Conducting a Focus Group is shown as Appendix "J". The data collection methods were designed to identify the specific non-technical training requirements of the following three designated target groups of building, fire and plumbing stakeholders.

Group One:	Building, Fire and Plumbing Officials.
Group Two:	Architects, Consulting Engineers, and Technologists.
Group Three:	Contractors, Educators, Home Builders, and Trades persons.

It was agreed that the data collection instruments of questionnaire and focus group would be developed and distributed at public consultations and focus groups to be held in each Province and Territory across Canada. The survey questionnaire and the focus group questions were pilot tested with a representative group from Ontario. The questionnaire was also available on a web site.

This report provides the findings and observations of the investigation that took place from 15 January 2003 to 15 June 2003. The report summarizes the data collected and outlines the training requirement survey and focus group findings both quantitative and qualitative.

The data gathered in the returned survey questionnaire is presented with narrative observations ordered by survey questions. The questionnaire data is also displayed in histograms organized by Group, by Province and Territory, and Nationally, presented as Appendices "A" through "G".

The data gathered in focus groups held in provinces and territories has been presented as Appendices "K" through "L". The data in Appendix "K" is sorted by questions displaying the verbatim comments collected for that question. The report contains highlights of the focus group comments.

Appendix "L" contains comments made by British Columbia. They are presented without observations.

Appendix “M” outlines the proposed Learning Objectives for Group One. The learning objectives are ordered in the priority in which respondents in Group One indicate the greatest need. The Learning Objectives for Group One can be adapted to meet the training needs of Groups Two and Three based on survey findings.

Appendix “N” provides an estimate of the cost associated with the development and delivery of training for Group One.

Research recommendations follow the findings and observations presented for all the survey questions and focus group comments.

2.0 RESPONDENT INFORMATION - OBSERVATIONS

A. The questionnaires were received from 10 Provinces and Territories. Quebec, British Columbia and New Brunswick did not participate. Some 303 responses where received in total.

Respondents were divided into three groups:

- Group One – Building, Fire and Plumbing Officials
- Group Two – Architects, Consulting Engineers and Technologists.
- Group Three – Contractors, Educators, Home Building and Trades persons.

- Group One – 136 respondents
- Group Two – 121 respondents
- Group Three – 46 respondents

Some 214 of the 303 respondents were from Alberta, Saskatchewan and Manitoba.

It cannot be stated that the data received can be interpreted in a reliable, significant statistical way. The respondents were not chosen randomly and may not represent the total population of possible respondents who will be affected by the new objective-based codes. The largest number of responses comes from Alberta, Saskatchewan and Manitoba in all groups. Some 214 of the 303 responses are from these three. A large number, per capita came from Nunavut. The survey may not reliably represent the national opinion.

Group One (1)

The largest number of Group One respondents is Building Officials, some 88 respondents. Fire Officials are the second largest representation group (49), with Plumbing Officials third (26). Some respondents indicated that they have more than one responsibility, since the 136 respondents indicated an overall total of 175 areas of responsibility because respondents were allowed to select more than one.

Group Two (2)

The largest number of respondents in Group Two was Architects (44) with Consulting Engineers second by numbers (27) and Technologists third (25). Again, it should be noted that of the 121 respondents in Group Two, they indicated they sometimes had more than one responsibility. There were 15 people that had more than one responsibility.

Group Three (3)

The largest group represented by Group Three was Educators, some 16 of the 46 respondents for Group Three. These Educators also had other roles or responsibilities such as Contractors (14), Home Builders (10), or Tradesperson/ Apprentices (10), totaling some 63 responses to the question that asked respondents to indicate their occupation.

B. To enhance the respondent information, respondents were asked to complete the statement "*I work in a community with a population of* "

Nationally most of the respondents, some 179 that answered the question, reside or work in a community of greater than 60,000, with 160 of those living in communities of over 100,000. Certainly most or 227 of the respondents live in communities of over 10,000.

The demographics for the national group are predominantly urban. This could mean that training delivery could be carried out with some efficiency through classroom delivery. If the profile had been predominantly rural, there would be a stronger case for on-line delivery of training.

3.0 TRAINING AND DEVELOPMENT NEEDS - OBSERVATIONS

The respondents were asked to identify topics for training and the level of training needed for each topic. The topics were:

1. Structure, format and organization of the code content
2. New key concepts (Objectives, functional statements, acceptable solutions, intent statements, application statements, alternative solutions and attributions)
3. Submitting equivalent/alternative solutions
4. Evaluating equivalent/alternative solutions
5. Approving equivalent/alternative solutions

The following observations are derived from the data presented in histograms in Appendix "B".

Group One (1) - Building, Fire and Plumbing Officials

Topic One – Structure, Format and Organization of Code Content

Requirement – Almost evenly split between "need a basic understanding" 56/136 and "need to explain to others" 55/136. Only 2 said there was no requirement for training. The responses are polarized between the two choices.

Some 46 (24 + 22)* persons out of 136 required one or two hours of training, while some 43 (11 + 32)* out of the 136 respondents in Group One required six hours of training or more. There is a direct co-relation between the depth of training and the number of hours required. The survey reflects this co-relation.

Topic Two – New Key Concepts

A larger number of respondents felt the requirement was to "explain this to others" 62/136 than other requirements. Still some 47/136 felt they needed only "a basic understanding". The length of training for New Key Concepts is higher also for six hours or more. 50 out of 136 (14 + 36)* with those who required only "a basic understanding" requesting one or two hours 43 (21 + 22)* out of 136.

Topic Three – Submitting Equivalent / Alternative Solutions

Almost an equal number of respondents saw the need for either "a basic understanding" at one end of the spectrum (54/136) and the requirement "to explain to others" on the other end (55/136). Some 49/136 (30 + 19)* requiring only one or two hours training while 36/136 (9 + 27)* thought they needed six hours of training or more. The length of training does not directly match the training requirement in this instance. The responses are much more scattered among the choices provided. One hour or six hours plus are still the predominant choice. Respondents do not appear clear as to just how much training is required.

Topic Four – Evaluating Equivalent / Alternative Solutions
Respondents chose either the need for “a basic understanding” 48/136 or the “need to explain to others” 50/136. This corresponds to the length of training potentially required. Some 42/136 (15 + 27*) selected one to two hours of training and 47/136 (11 + 36)* selected six hours or more.

Topic Five – Approving Equivalent / Alternative Solutions
The pattern of an almost equal split between the need for “a basic understanding” 51/136 and the need to have sufficient training ”to explain to others” 47/136 is apparent. Respondents also indicated the same split between one or two hours training 45/136 (17 + 28)* and a need for six or more hours training 47/136 (12 + 35)*.

* These figures represent two columns added together. Please refer to appropriate histogram.

Summary for Group One

All respondents saw a need for training for Topics Two and Five. For the other three topics there was an extremely small indicator that training was not required in these topics as to be almost negative. There appears to be a universal endorsement for training all five topic areas.

There is a pattern in the responses for Group One. The requirement appears to be for some training of one to two hours in length that would enable the participants to have a basic understanding of the topic. There is on the other hand an equal or slightly larger group that requires training of six hours or more that would enable them to explain the topics to others.

* These figures represent two columns added together. Please refer to appropriate chart.

Group Two (2) - Architects, Consulting Engineers and Technologists

Some 121 individuals responded to the survey. The same pattern emerges for the group as for Group One. There is an understandable correlation between the training requirement and the amount of time required for delivery.

There is however, for Group Two, a larger requirement for “a basic understanding” than for the need “to explain to others”, but the two requirements are still polarized.

Topic One - Structure, Format and Organization of Code Content

Basic 50/121	Explain 36/121	No Training 36/121

Topic Two – New Key Concepts

Basic 45/121	Explain 37/121	No Training 3/121

Topic Three – Submitting Equivalent / Alternative Solutions

Basic 40/121	Explain 35/121	No Training 2/121

Topic Four – Evaluating Equivalent / Alternative Solutions

Basic 50/121	Explain 36/121	No Training 36/121

Topic Five – Approving Equivalent / Alternative Solutions

Basic 50/121	Explain 36/121	No Training 36/121

Summary for Group Two

For all topics there were individuals who indicated they required no training. The highest was for Topic Five – Approving Equivalent / Alternative Solutions.

When the profile of the respondents is matched to these responses the explanation for the response is probably based on the nature of their work. Group Two respondents have less need to explain the content of Objective-Based Codes to others than members of Group One. They also have less involvement in the approval process.

Group Three (3) - Contractors, Educators, Home Building and Tradespersons

There were 46 respondents. As with Groups One and Two, there is an observable preference for having training to provide “a basic understanding” or “to explain to others”. The co-relation between the nature of the requirement and the hours of training required is consistent. The preference for “a basic understanding” is about the same as that of “to explaining to others”.

Topic One - Structure, Format and Organization of Code Content

Basic 24/46	Explain 15/46	No Training 1/46

Topic Two – New Key Concepts

Basic 18/46	Explain 20/46	No Training 0/46

Topic Three – Submitting Equivalent / Alternative Solutions

Basic 16/46	Explain 26/46	No Training 3/46

Topic Four – Evaluating Equivalent / Alternative Solutions

Basic 15/46	Explain 17/46	No Training 3/46

Topic Five – Approving Equivalent / Alternative Solutions

Basic 14/46	Explain 13/46	No Training 7/46

Summary for Group Three

Everyone in Group Three requested New Key Concepts. Again the nature of work performed by group members influences their choices. As with Group Two, several respondents saw no requirement for training related to the approval of Equivalent / Alternative Solutions

National Reponses – Training and Development Topics
Groups One, Two and Three - 303 respondents

Topic One - Structure, Format and Organization of Code Content

Basic 130/303	Discuss 31/303	Explain 106/303	No Training 7/303

Topic Two – New Key Concepts

Basic 110/303	Discuss 36/303	Explain 119/303	No Training 3/303

Topic Three – Submitting Equivalent / Alternative Solutions

Basic 110/303	Discuss 37/303	Explain 106/303	No Training 8/303

Topic Four – Evaluating Equivalent / Alternative Solutions

Basic 111/303	Discuss 49/303	Explain 97/303	No Training 11/303

Topic Five – Approving Equivalent / Alternative Solutions

Basic 111/303	Discuss 5 1/303	Explain 83/303	No Training 20/303

National Summary

When the three groups are combined the total number of individuals who required training to allow them “to discuss” the content of Object-Based Codes becomes significant. The predominant requirement is still for either a basic understanding or “to explain to others”. Topics four and five have the greatest number of responses for no training requirement. These topics are seen as more relevant to Group One than to Groups Two and Three. There is still general endorsement for the topics.

4.0 GREATEST TRAINING NEED - OBSERVATIONS

Respondents were asked which of the following topics represented the greatest training need:

1. Structure, format and organization of the code content
2. New key concepts (Objectives, functional statements, acceptable solutions, intent statements, application statements, alternative solutions and attributions)
3. Submitting equivalent/alternative solutions
4. Evaluating equivalent/alternative solutions
5. Approving equivalent/alternative solutions

The following observations are derived from the data presented in histograms in Appendix "C".

Group One - Building, Fire and Plumbing Officials (136 Respondents)

First Two Choices:

Topic Two (47/136) Topic Four (36/136)

Group Two – Architects, Consulting Engineers and Technologists (121 Respondents)

First Two Choices:

Topic Two (40/121) Topic Three (26/121)

Group Three – Contractors, Educators, Home Building and Tradespersons (46 Respondents)

First Two Choices:

Topic Two (20/46) Topic One (11/46)

National Response – (303 Respondents)

First Three Choices:

Topic Two 107/303 Topic Four 62/303 Topic Five 42/303

The greatest training need appears to be for Topic Two, New Key Concepts, which is consistently identified by all groups. Each group has a different second choice.

5.0 OTHER TRAINING TOPICS (for non-technical training)

Respondents were asked to identify any other topics directly related to objective-based codes they consider may require formal non-technical training or development.

Respondent Comments And Observations

Group One (1) – Building, Fire and Plumbing Officials

- Training courses be developed to assist Building Officials in Obtaining their Provincial License and knowledge of the Codes
- Building systems (new) products for approval
- NFPA – 101 Life Safety Code Insert
- Documentation needed to be retained on Equivalents
- Identifying and communicating where a designer is using acceptable Solution and where using alternative solutions
- A glossary of test outcomes to access in objective achievement of code requirements [This appears to be a tool]
- Impacts of Objective-Based Codes on Fire Inspectors
- Records Management requirements
- Methodologies for approval
- Design of Checklist and Resources
- Liability
- Buildings permit process and approval for compliance to the new code.

Some of the topics appear to be very narrow in scope and would not constitute sufficient content breadth to warrant development as stand-alone modules. These suggested topics, however, such as Liability and Records Management Requirements (documentation) should be considered as specific Learning Outcomes of other broader topics.

One of the five topic choices given in the questionnaire dealt with Approvals. “Methodologies for Approval” might constitute a significantly large enough topic that it should be considered for development as a learning unit.

“Impacts of Objective-Based Codes on Fire Inspectors” could be sufficiently comprehensive to allow for development of several hours of training. There are two questions, however; would the impact not be directly related to Submitting, Evaluating, and Approving Equivalent/Alternative Solutions (three topics from the survey); and secondly, is a unique course of study required for Plumbing and Building Officials?

Group Two (2) – Architects, Consulting Engineers and Technologists

- Navigating through the Code with CD ROM format
- AHJ trained to accept alternatives
- Implementation process required between those using (applying) the Code and the "authority having jurisdiction"
- National repository is very important to communicate acceptance criteria for 'alternatives' to the model and Provincial Codes [this has been proposed as a 'Tool' in another section of the questionnaire.]
- Liability – responsibility between approving authority and architect
- Occupational Health and Safety Act
- Fire Code Act

The reference to 'Navigating through the Code' will hopefully be covered under the suggested Topic Number One that deals with Structure and Format. It may be significant that a member of Group Two also was a member of Group One, sufficiently concerned about 'Liability' to record their comments. It appears that this might well constitute a learning outcome for a potential course.

Group Three (3) – Contractors, Educators, Home Building and Tradespersons

- Drawing explanations
- Understanding of Objective-Based Codes to instruct Fire Inspectors' Investigators on how to use and understand codes
- Diagram Interpretation
- Use of CD ROM
- How to understand what the codes are and how to read and understand Objective-Based Codes
- Provincial applications – enforcement procedures

An interpretation is required regarding the complexity and scope of "Drawing Explanations" and "Diagram Interpretation" to appreciate how this related to the Code. Again there is concern for the use of CD-ROM.

The understanding and use of the Codes should be covered in the Technical Training, while this investigation was for the Non-Technical Training requirement. Topic Two, as presented in the non-technical training requirement questionnaire may very well deal with the concern related to an appreciation and understanding of the Code.

SUMMARY OF QUALITATIVE DATA

It would appear that there are no additional topics to be added to a possible curriculum for non-technical training to support the introduction of Objective-Based Codes as a result of a review of the comments related to potential course topics. Curriculum developers should take into account the concern for liability and documentation.

6.0 PREFERENCE FOR DELIVERY MODE - OBSERVATIONS

Respondents were asked to rank their preferences for training delivery given the following choices:

(a) classroom-based, instructor/facilitator-led
(b) web-based, instructor/facilitator assisted
(c) web-based, independent learning
(d) non web-based, independent learning (non web-based may include print, CD Rom, video training materials)

The following observations are derived from the data presented in histograms in Appendix "D".

Group One – Building, Fire and Plumbing Officials

First Choice - Classroom-Based Instruction/Facilitation - 112/136 respondents

Group Two – Architects, Consulting Engineers and Technologists

First Choice - Classroom-Based Instruction/Facilitation - 76/121 respondents

Group Three – Contractors, Educators, Home Building and Tradespersons

First Choice - Classroom-Based Instruction/Facilitation - 24/46 respondents

National Response

First Choice - Classroom-Based Instruction/Facilitation - 212/303 respondents
Next First Choice by Numbers - Web-Based Independent Learning – 38/303

There appears to be a clear indicator that most respondents prefer classroom instruction.

7.0 NEED FOR RECOGNITION OF TRAINING - OBSERVATIONS

Respondents were asked if they required recognition for the training, such as continuing education credits, for professional certification or professional development.

The following observations are derived from the data presented in histograms in Appendix "E".

Group One – Building, Fire and Plumbing Officials (136 Respondents)

Most indicated they wanted recognition 68/136 with an equal amount being unsure 30/136 or not requiring recognition 31/136

Group Two – Architects, Consulting Engineers and Technologists (121 Respondents)

Most indicated yes to this question 68/121

Group Three – Contractors, Educators, Home Building and Tradespersons (46 Respondents)

Approximately half of the respondents wanted recognition 22/46

National Response

When added together the response from all groups was a "yes" response. Approximately half or 158/303 wanted recognition.

8.0 PREFERENCES FOR TRAINING DELIVERY AGENT - OBSERVATIONS

Respondents were asked to rank their preference for training delivery provider from the following choices:

(a) Community college/university
(b) Professional/industry association
(c) Regulatory authority (e.g. provincial or territorial government)
(d) Trade school

The following observations are derived from the data presented in histograms in Appendix F.

Group One – Building, Fire and Plumbing Officials (136 Respondents)

First choice was Regulatory Authority – 71/136
Second choice was equally divided between Community College/University 25/136 and Professional/Industry Association 25/136

Group Two – Architects, Consulting Engineers and Technologists (121 Respondents)

First choice was Professional/Industry Association 59/121
Second choice was Regulatory Authority 39/121

Group Three – Contractors, Educators, Home Building and Tradespersons (46 Respondents)

First choice – Community College/University 12/46
The ranking was almost equally distributed among the choices with Community College/University only slightly ahead of the others.

National Response – 303 Respondents

First choice by the three groups combined was for Regulatory Authority 119/303 with Professional/Industry Association the next preferred 94/303.

The preference for training delivery is by an agency directly associated with professions, either the Regulatory Authority or an Association.

9.0 PREFERENCE OF TOOLS/SUPPORT MATERIALS - OBSERVATIONS

Respondents were asked to rank the suggested tools and support materials that might be of benefit in the application of the codes, given the following choices:

(a) A flow chart that outlines the application process for submitting/proposing alternative solutions
(b) A process flow chart that provides general guidelines to evaluating alternative solutions
(c) Guidelines for proposing/submitting alternative solutions
(d) A web-based shared repository of alternative solutions accepted by various jurisdictions to facilitate information exchange
(e) "Best Practices" of approaches for evaluating equivalent/alternative solutions

Group One – Building, Fire and Plumbing Officials (136 Respondents)

First ranked – Web-Based Shared Repository 45/136
Second ranked – Guidelines for Proposing/Submitting Alternative Solutions 33/136

Group Two – Architects, Consulting Engineers and Technologists (121 Respondents)

First ranked – Web Based Shared Repository 45/121
Second ranked – Best Practices 33/121

Group Three – Contractors, Educators, Home Building and Tradespersons (46 Respondents)

First choice – Best Practices 11/46
Second ranked – Flow Chart 9/46

National Response – 303 Respondents

First ranked – A Web-Based Shared Repository 98/303
Second ranked – Best Practices 72/303
Third ranked – Guidelines for Proposing/Submitting Alternative Solutions 68/303

There appears to be an endorsement for a Web-Based Shared Repository. The comments elsewhere indicate that the repository should be at Provincial as well as National level. It should be noted that an average of 33 or the 303 respondents (approximately 10%) did not respond to this question. This could be interpreted that they did not concur with the tool or did not understand what the tool could accomplish.

10.0 OTHER TOOLS OR MATERIALS - RESPONDENT COMMENTS AND OBSERVATIONS

Survey Question Twelve (12)

Respondents were asked to identify any other tools or support materials that might be of benefit in the application of objective-based codes.

Group One – Building, Fire and Plumbing Officials

- More in-house seminars hosted by local and provincial AHJ's
- Reference to what other jurisdictions are doing e.g. support of fixtures; non-combustible building in Las Vegas
- Training course should be developed and made available to provinces to use in conducting training, such as Building Official Associations
- Computer models/software "risk index point system" for functional statements and/or objectives
- CD disk be available for training of others at work place and industry.
- Suggest using a case study approach.
- A clear definitive interpretation of the code when required.
- Mail out material
- Items listed above would be helpful
- List of equivalencies
- A series of "generic" code-based examples, which follow through the alternative process.
- I believe a course on legal implications of enforcing an objective based code is essential to provide a level of comfort to regulatory officials.
- A process flow chart and guidelines for approving equivalent/alternative solutions
- Forum of chat room on web to discuss issues with other officials/experts.
- Topic # 4 – Evaluating Equivalent/Alternative Solutions. [Not sure how this translates to a Tool –perhaps if course materials were available]
- An actual scenario that groups can work through. Educating designers about the minimum requirements and information required to make an objective based request.
- An example case using a small part 3 building.
- Examples and clear drawings supporting the "whys"
- Mentoring by more experienced or specialized SCO at a regular and as needed schedule.
- Access to peers or consultants for assistance & reference
- Checklists & forms
- Ongoing support is a must. By phone fax or email so that one is able to get assistance to ensure we are using objective based codes as intended.
- Check lists for various applications such as: residential high-rise, houses, retail, hospital, hotel etc.
- Advice line similar to Ontario Ministry Code Consultants.

Some of the requests are rather too vague to begin development of tools and materials without further investigation. Some of the suggestions are too narrow in scope, while other

comments are endorsements of the tools suggested in the questionnaire or are topics for course development.

Group Two – Architects, Consulting Engineers and Technologists

- CD ROM containing information outlined above
- Methods of determining the quantitative performance of provisions of the Code to enable comparison with an alternative proposed solution that avoids personal biases of the reviewer. This relates to topics 3, 4 and 5.
- Set-up library located forums (with large monitor).
- Best practice guide (explanatory guide for field use).
- Mailed (handout type) documents (non-web site).
- Web-based inquiry assistance for code clarifications & interpretations would be of great value to code users.
- Training of AHJ to consider alternatives
- Evaluating application to existing buildings
- Online presentation
- On site support
- An 800 number to get technical support from a human being.
- Electronic - CD & written copies together - Lon-ease of reference & providing cut & paste references to consumers.
- More graphics would be nice.
- User guide similar to “Part 3” user guide to 1995 NBC.
- The best practices idea, as well as a list of acceptable exiting/fire protection assumptions
- Coordinating with other acts on web.
- Liaison groups to discuss issues and gain deeper insight

There appear to be some suggestions that require follow-up, especially the 1-800 number, if that is not already under consideration. The User Guide similar to 1995 might warrant consideration. Note should be taken with regard to the use of web sites. Comments elsewhere in the survey indicate the presence of some ‘technophobia’.

Group Three – Contractors, Educations, Home Building and Tradespersons

- NFPA 101A Guide on Alternative Approaches to Life Safety, 2001 - SFPE Engineering Guide to Performance Based Fire Protection Analysis & Design of Buildings, 2002
- Drawing & diagram explanations.
- Quick specific access to building types, such as schools, offices, residential.
- Flip chart type guide outlining major items such as that was published by “international code” in the USA.
- Model curriculum materials linked to National Occupational Analysis for the various trades involved
- Illustrations
- To have a curriculum developed to provide this training to those in industry.
- Realistic situations as example for proposing/submitting alternative solutions.

- Presenters need to know background information on way. The prescriptive codes were developed in the first place - historical information. [This appears to be a comment related to the presentation and not a tool to be developed. The Objective-Based Codes were developed to replace the prescriptive codes]
- NFPA101A Guide on alternative approaches to life safety
- SFPE Engineering guide to Performance based Fire Protection Analysis & Design of building, 2002

Some of the comments are endorsements of the proposed training rather than requests for Tools and materials. Also some of the comments relate to the presentation of materials related to Objectives-Based Codes that was to be delivered prior to the distribution of the questionnaire. The reference to the 'Flip Chart' used in the USA may be a model worth investigating. Some of the suggested guides appear to exist already.

SUMMARY OF COMMENTS

The question of Tools and Materials is a difficult question to answer, without a lot of insight into the Objective-Based Codes and how they will be operationalized. The fact that many of the comments were endorsements for training rather than non-training solutions may indicate that the training will need to be developed first. Training that uses as its prime methodology case studies, which is what many individuals suggested, could be the basis of discovery for the tools and materials required by the professionals in the field.

11.0 RESPONDENT ADDITIONAL COMMENTS AND OBSERVATIONS

Survey Question Thirteen (13)

Respondents were invited to identify additional concerns or comments.

Group One – Building, Fire and Plumbing Officials

- Question 11 does not make sense without a more detailed explanation and examples.
- Provincial Building Official Associations would be a good source to assist in providing training courses.
- Risk index point system so that the total performance of the building can be evaluated in comparison with acceptable solution designs.
- Older existing buildings not made mandatory to bring up to a more acceptable level of health and safety
- I have a great deal of concern with respect to the proposed “alternative solutions” sections. It is my belief that most authorities particularly in smaller municipalities will shy away from participating or promoting these alternatives from fear of repercussions from judicial judgments that may ensue as a result of straying from the norm.
- Provide diagrams with intent clauses
- General contractors’ knowledge of the existing codes can vary greatly from the well informed to rudimentary.
- Seminars should be given to the building industry (trades etc.) A lot of the building industry is ignorant to the previous cycles. This will need to be explained in a simplified manner.
- Repository - alternatives (already accepted) should be independently reverted to verify equivalency not relaxation.
- Make sure speaker knows and uses the subject. Will an authority have to justify saying “no” to an alternative solution as much as a designer does in suggesting the solution?
- Would it be considerable to offer a “train” the trainer session or will a uniform training method be implemented countrywide?
- The lack of access to more experienced consultation resources by smaller areas or municipalities
- Training should expand to include designers and other users.
- A series of checks & balances would help the AHJ’s.
- Phase building/fire officials approval
- I still have a fear of loosing what little consistency we have developed through technical training. What is the effect of liability in making the "judgment calls"?
- I believe that the reason for a lack of response from Ontario is the concerns and unwillingness to listen to the industry's comments.
- Timing of this change with BRRAG may stress Building Departments
- This questionnaire has turned out to be a waste of my time. It tells me nothing, and I suspect the process will evolve along the same lines
- Training courses on the new building code act should start immediately

Perhaps it was unfair to ask participants to rank 'Tools' that they did not understand. There appears to be some concern that the presenters of some sessions were not as expert in the Codes as the participants would have liked. The comments appear to go to the degree of frustration that individuals may be experiencing. Fear of the unknown is always a factor in the resistance to change.
There does appear to be an openness for training, but there does appear to be a concern that it is not intended for a wide enough range of individuals. There is also a concern for access to help for smaller areas of the country. There is a degree of cynicism from some respondents in Ontario

Group Two – Architects, Consulting Engineers and Technologists

- Information/training is provided in a timely manner to all parties
- It is difficult to make comments on the new code format until after you have seen it.
- On reserve native inspection services who is presently providing training.
- If the code will be easier to use & interpret, as it seems may the case, then I see this as being a very positive state for code users.
- Training and experience give me an understanding of objective based codes.
- New information proposed for CD-ROM only (FS, OS) needs to be in book - not CD only. This limits use on site.
- For the objective based code approach to work it must be 1. Fast 2. Fast 3. Fast - To delay is to [be defeated].
- Is there a chance that some aspects of the "good enough" process could be incorporated also? Often, obtaining a building permit in a renovation project involves negotiation and trade-offs being made. That does not necessarily fall under "equivalence".
- 2005 NBC looks like a big improvement.
- Especially regarding public vs. private buildings In relation to the province's architects acts.
- The turn around time for building permits as the building officials try to evaluate alternate system proposals.

The tone is positive seeing improvement, however, there appears to be also an air of urgency. There appears to be openness for training. Some individuals have some concerns as to how the new Codes will work, with some very specific issues. There is also a concern with technology, as individuals want hard copy and not just CD-ROM.

Group Three – Contractors, Educators, Home Building and Tradespersons

- This questionnaire is much too complex and difficult to understand. Should be rewritten.
- Alternative solutions should also consider existing tools well established and in use in Canada i.e. NFPA101A and SFPE Handbook for Performance based design.
- "14 minutes" to address "Plumbing Code Changes" is not enough time - should be done as a separate session -spent the whole day waiting for 14 minutes - "no discussion" - I'm disappointed [This comment refers to the presentation given before the questionnaire was handed out. Consideration for any future presentations]
- The inequities & different objectives that may be created between jurisdictions for the same type of occupancy.
- Proposed changes should be available on CD for organizations to facilitate sharing of changes & formulate responses among groups.
- Although I put myself in Group Three - 'applied knowledge of codes only, my teaching also includes theory'
- Alternative Solutions should also consider existing tools. Well established and in use in Canada i.e. NFPA 101A and SFPE Handbook for Performance based Design.

The questionnaire was indeed too difficult for anyone who had not done any pre-work. The questionnaire begins by stating that it is intended for those who had attended a session on Objective-Based Codes or followed the presentation on the Web Site. Perhaps the presentation was not sufficient –others commented about the nature of the presentation as in the instance where someone waited all day for 14 minutes that were disappointing.

The comments have been segregated by Groups, but indicate as well as other indicators on the questionnaire, that some of the respondents wear several 'hats'.

SUMMARY OF COMMENTS

Several of the comments deal with the presentations that were given before the respondents completed the questionnaire. That should be indicative that if training is to be developed, it must not only be comprehensive, but must be learner friendly and basic. Comprehension of the language and the concepts must not be taken for granted. Tools also must be in several formats. There appears to be some concern with having information only available on Web Sites and CD-ROM.

There were several comments related to the presentations. This may indicate that the presenters require some instruction themselves. It may well be that the suggestion that a Trainer- the-Trainer course should be available. There is such a consistent thread of comments about the presentations, that train-the-trainer should be considered as a requirement.

12.0 HIGHLIGHTS OF FOCUS GROUP COMMENTS
(Expansion of Issues Covered in Survey Questionnaire)

Focus groups were organized by the provinces of Nova Scotia, Manitoba, Ontario, Alberta, and British Columbia. For the British Columbia focus group results, see Appendix "L".

The focus group discussion guide used by Nova Scotia, Manitoba and Alberta is located in Appendix "I". The complete set of responses may be found in Appendix "K". Key points raised in these four provinces are summarized below.

1. WHAT ARE YOUR CONCERNS THAT REQUIRE CLARIFICATION OR FURTHER ELABORATION RELATED TO THE **STRUCTURE, FORMAT AND ORGANIZATION** OF THE CODES?

- Need for a Module on the topic
- Require CD-ROM training
- There needs to be step-by-step information presented on the changes to the Code
- Training needs to include practice working with the new code – Case Studies and Examples
- An overview of the Structure, Format, and Organization of the Codes is required
- Any courses would require pre-course materials
- A basic understanding of the Codes is required [Course Objective]
- There are legal considerations that should be taken into account
- The relationship between Divisions A and B, needs clarification

2. WHAT ARE YOUR CONCERNS THAT REQUIRE CLARIFICATION OF FURTHER ELABORATION RELATED TO **NEW KEY CONCEPTS**?

- Concerns for clarity of definition
- Training required
- Need for flow chart to describe hierarchy of function
- Case study methodology and examples

3. WHAT ARE YOUR CONCERNS THAT REQUIRE CLARIFICATION OR FURTHER ELABORATION RELATED TO **SUBMITTING EQUIVALENT / ALTERNATIVE SOLUTIONS**?

- There is a need for a standard format
- Guidelines for consideration in evaluating submissions including what is acceptable
- Record keeping, need basic standards for Canada and a data bank
- Training should focus on how to make submissions

4. WHAT ARE YOUR CONCERNS THAT REQUIRE CLARIFICATION OR FURTHER ELABORATION RELATED TO **EVALUATING EQUIVALENT / ALTERNATIVE SOLUTIONS**?

- Guidelines and criteria for considerations in evaluating submissions
- Template/checklist for submis sions and solutions
- Record keeping is critical
- Liability is an important aspect
- Need for consistency throughout province [Across Canada]
- Standardization of inspection/plans review
- Create a national repository [repository/depository]
- Need a methodology for evaluating solutions and training in the METHODOLOGY
- Documentation is critical

5. WHAT ARE YOUR CONCERNS THAT REQUIRE CLARIFICATION OR FURTHER ELABORATION RELATED TO **APPROVING EQUIVALENT / ALTERNATIVE SOLUTIONS**?

- Provincial/national repository of solutions
- Training in use of central repository
- Storage of documents
- Training for architects/engineers/designers on how to submit alternative solutions
- Approving of testing agencies
- Legal implications of rejections by national repository
- National approval system
- Need training on solutions
- Professional independent 'third party' review
- 'Life of building' issues

6. DESCRIBE OTHER **TOPICS FOR TRAINING** THAT YOU REQUIRE DUE TO THE INTRODUCTION OF OBJECTIVE-BASED CODES.

- Liability and responsibility
- Innovation designs and evaluation
- Fire protection design
- Communication and interpersonal skills
- Use and application of codes
- Life safety issues
- Train-the –trainer [shown under tools]
- Computer-based training [shown under tools]

7. DESCRIBE OTHER **TOOLS / SUPPORT MATERIALS** (REVIEW LIST IN QUESTIONNAIRE) THAT WOULD HELP WITH EVALUATION OF EQUIVALENTS / ALTERNATIVE SOLUTIONS.

- toll free call for assistance [1-800 number]
- Networking resource list
- Palm-based solution link with web site
- Self-learning internet-based training
- Case scenarios with answers
- NRC to provide technical support
- Web-based repository needs to be provincial as well as national
- Endorsement for tools show in survey questionnaire

8. DESCRIBE **ANY OTHER CONCERNS** YOU HAVE WITH THE INTRODUCTION OF OBJECTIVE-BASED CODES.

- Need for on-the-job training
- Cost of evaluating equivalencies
- Continuing education credits
- Accessibility and cost of training
- Mechanism for appeals if solution not given favourable consideration
- Need for provincial sounding board
- Advice on what documentation should be retained
- Training materials should include lots of examples, case studies, guidelines and best practices

13.0 RECOMMENDATIONS

1. Proceed to develop training materials for all the topics presented in the survey. While priorities might vary among the groups the number one choice of topic was Topic Number Two, "New Key Concepts".

   In order of priority following Topic Two are:

   - Topic Four – Evaluating Equivalent/Alternative Solutions
   - Topic Five – Approving Equivalent/Alternative Solutions
   - Topic One – Structure, Format and Organization of the Code Content
   - Topic Three – Submitting Equivalent/Alternative Solutions

   From the subject matter alone, New Key Concepts would be a session, which should be developed first, presented first and a pre-requisite for others. The other courses could be developed later and are specialized and of interest to those individuals who are primarily Explaining Code Content, or Submitting, Evaluating or Approving Solutions.

2. It is also considered that a session should be developed for Train-the-Trainer as well as the content specialties. There were no new topics that emerged from the survey.

3. Proceed to develop training sessions that could be delivered in a day (6 or 6+ hours). While many respondents were looking for only a brief session of two hours or less, a significant number were indicating a need for more in-depth programming. The development of modules designed to be delivered in a daylong period would satisfy both requirements. A six-hour session could also be used for an orientation or overview by judicious selection to provide participants with a basic understanding. Several comments from respondents indicated that a case study method should be used that would allow participants in the training to solve problems related to the Code. If that suggestion were followed, the sessions would naturally be extended to more than two hours to make them feasible.

4. Develop the training materials to be delivered in the classroom. There is a clear preference indicated in the survey. Also the case study method is enhanced by such delivery. On-line programming is normally developed from a classroom model, so the evolution can be from classroom to web-based. The reverse transition from web-based to classroom is not as easily accomplished.

   Most respondents live in urban communities of 60,000 plus and therefore could more easily access classroom training. There is, however, no reason to make an assumption that the respondents, who completed the survey, reliably represent the total population of potential individuals who might require training.

5. Contact Regulatory Authority agencies to negotiate training delivery. The other potential candidates are the Professional and Industrial Associations who were also preferred over Colleges and Universities and Trade Schools.

   The response rate from the survey should not be used to extrapolate numbers of potential users of training. A further survey to ascertain potential students could be carried out, now that topics have been endorsed and the potential for curriculum established.

   Colleges and Universities and Trade Schools while not a first choice for these respondents could still benefit from published training materials and revised training content for any programs they are currently delivering or plan to deliver in the future.

6. Proceed with the development of a web-based shared repository. This tool appears to be of most interest to those who participated in the survey. Care should be taken to work out the establishment of both Provincial and centrally based repositories and linkages established.

   The other suggested tools and materials received support. No significant new tools or materials beyond those suggested in the survey were put forward.

   It is recommended that the development of the tools and support materials be undertaken. There has been an expectation raised at least with some three hundred persons who completed the survey. By ranking the tools they have endorsed them and might expect that the tools would become available.

7. While there may be some cynical remarks in the qualitative aspects of the survey, there is no clear theme that emerges. The tone of the responses on the whole is positive. The comments made in the focus groups should prove helpful in the development of the proposed training materials. There was no theme or trend that emerged that would indicate that the next step is to develop the training materials for the Five Topics as outlined in the survey and as extended by the Learning Objectives for Group One as outlined in this report.

   While the survey did not produce statistically reliable data (data which could be said to be truly representative of the total population of those affected by Objective-Based Codes) there were sufficient responses to the survey as to claim an endorsement for those topics and those tools as presented. Respondents did give clear preferences for delivery agents and delivery modes. It is therefore recommended that NRC commence development of both the tools and materials and the training materials to support the content topics as outlined in the survey.

   The survey has provided interest and momentum to proceed with the development of training and the development of work aids for those who will be affected by Objective-Based Codes.

APPENDICES A - N

NATIONAL SURVEY QUESTIONNAIRE

RESPONDENT INFORMATION HISTOGRAMS

- NATIONAL RESPONSES
  for GROUPS ONE, TWO AND THREE

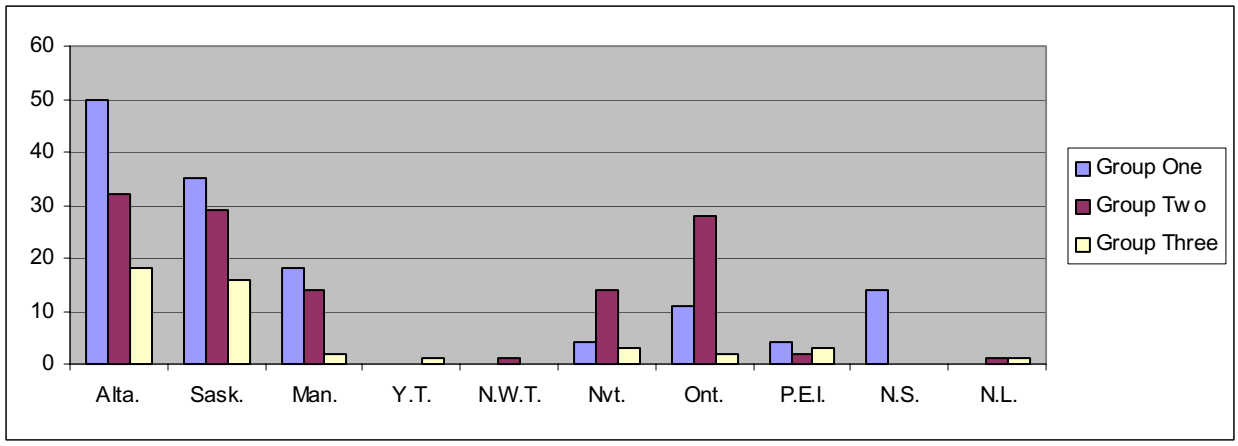
- PROVINCIAL AND TERRITORIAL
  RESPONSES
  for GROUPS ONE, TWO AND THREE

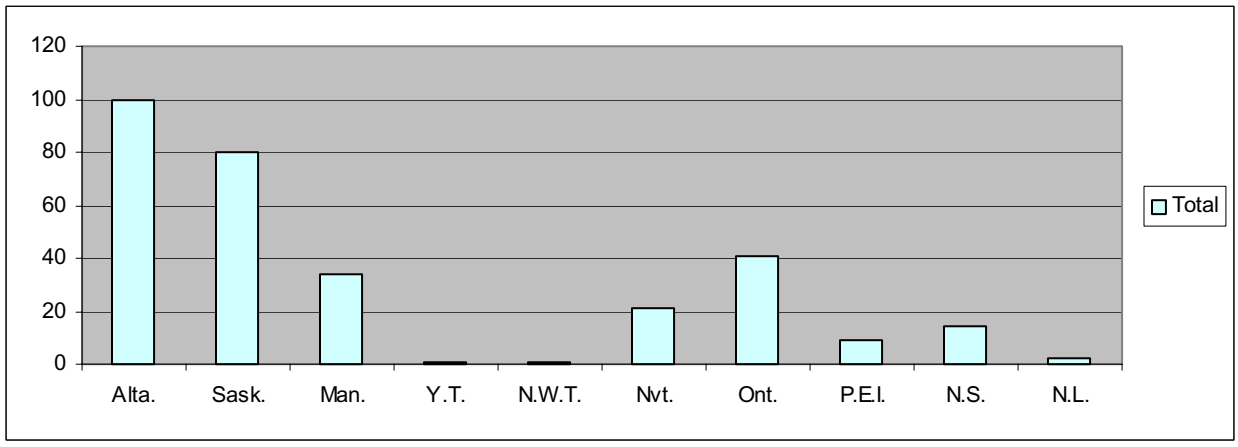
RESPONDENT INFORMATION

NATIONAL RESPONSES

Province: **Questionnaires were received from ten provinces and territories. A total of 303 responses were received, as shown below.**

Province	Group One	Group Two	Group Three	Total
Alta.	50	32	18	100
Sask.	35	29	16	80
Man.	18	14	2	34
Y.T.	0	0	1	1
N.W.T.	0	1	0	1
Nvt.	4	14	3	21
Ont.	11	28	2	41
P.E.I.	4	2	3	9
N.S.	14	0	0	14
N.L.	0	1	1	2
Total	136	121	46	303

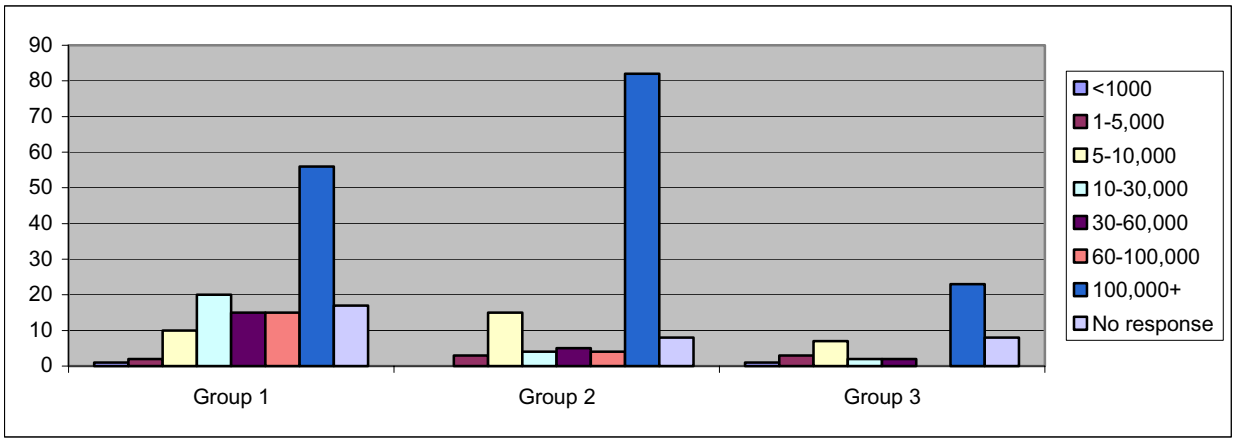




NATIONAL RESPONSES

Population: I work in a community with a population of:

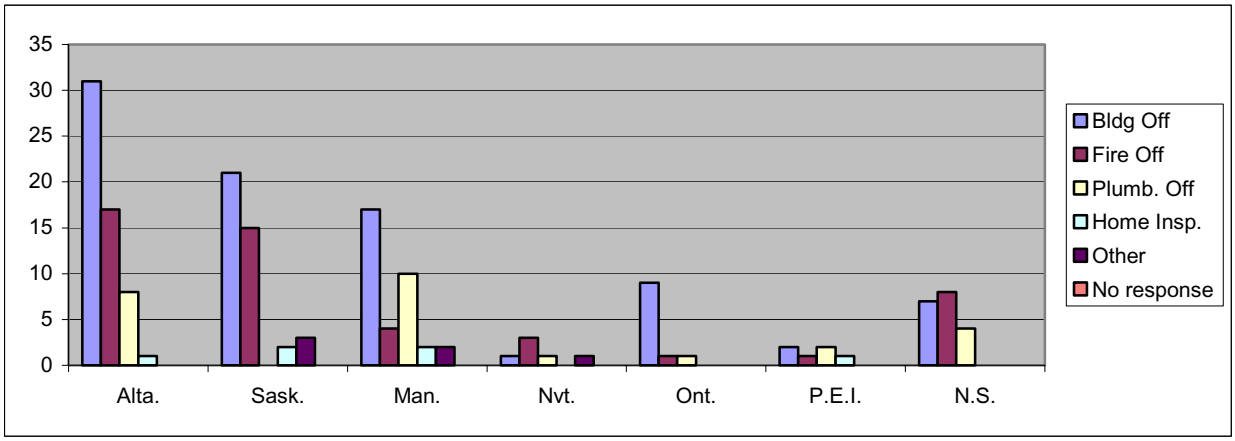
	<1000	1-5,000	5-10,000	10-30,000	30-60,000	60-100,000	100,000+	No response	Total
Group 1	1	2	10	20	15	15	56	17	136
Group 2	0	3	15	4	5	4	82	8	121
Group 3	1	3	7	2	2	0	23	8	46
Total	2	8	32	26	22	19	161	33	303



GROUP ONE RESPONDENTS BY PROVINCE

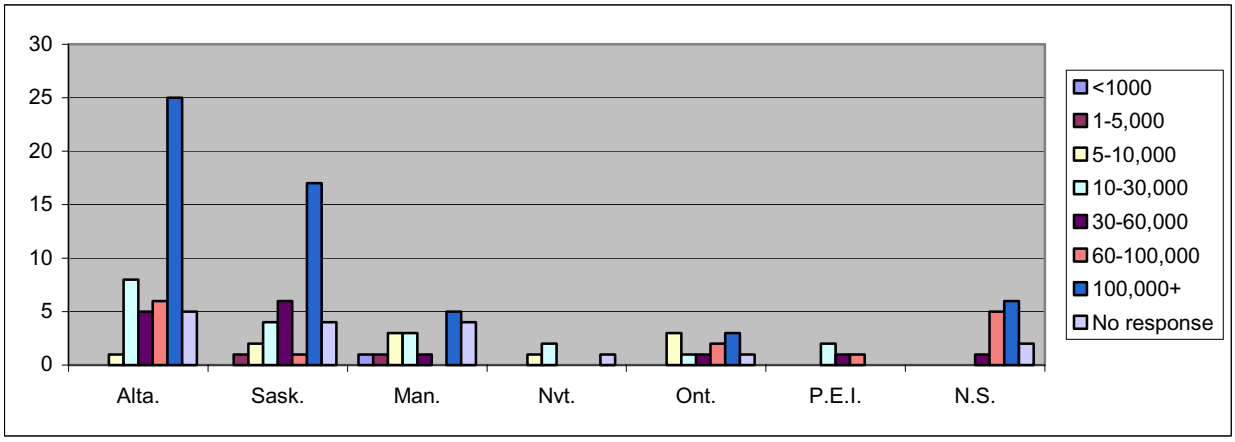
Responsible for administering the code regulation

	Bldg Off	Fire Off	Plumb. Off	Home Insp.	Other	No response	Total
Alta.	31	17	8	1	0	0	57
Sask.	21	15	0	2	3	0	41
Man.	17	4	10	2	2	0	35
Nvt.	1	3	1	0	1	0	6
Ont.	9	1	1	0	0	0	11
P.E.I.	2	1	2	1	0	0	6
N.S.	7	8	4	0	0	0	19
Total	88	49	26	6	6	0	175



Population: I work in a community with a population of:

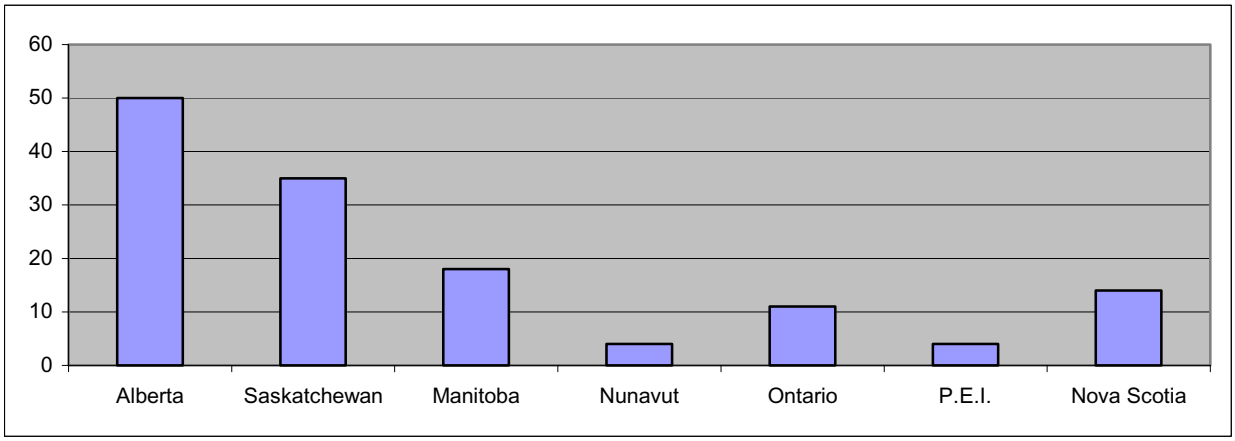
	<1000	1-5,000	5-10,000	10-30,000	30-60,000	60-100,000	100,000+	No response	Total
Alta.	0	0	1	8	5	6	25	5	50
Sask.	0	1	2	4	6	1	17	4	35
Man.	1	1	3	3	1	0	5	4	18
Nvt.	0	0	1	2	0	0	0	1	4
Ont.	0	0	3	1	1	2	3	1	11
P.E.I.	0	0	0	2	1	1	0	0	4
N.S.	0	0	0	0	1	5	6	2	14
Total	1	2	10	20	15	15	56	17	136



GROUP ONE RESPONDENTS BY PROVINCE

Province: I work in the following Province / Territory:

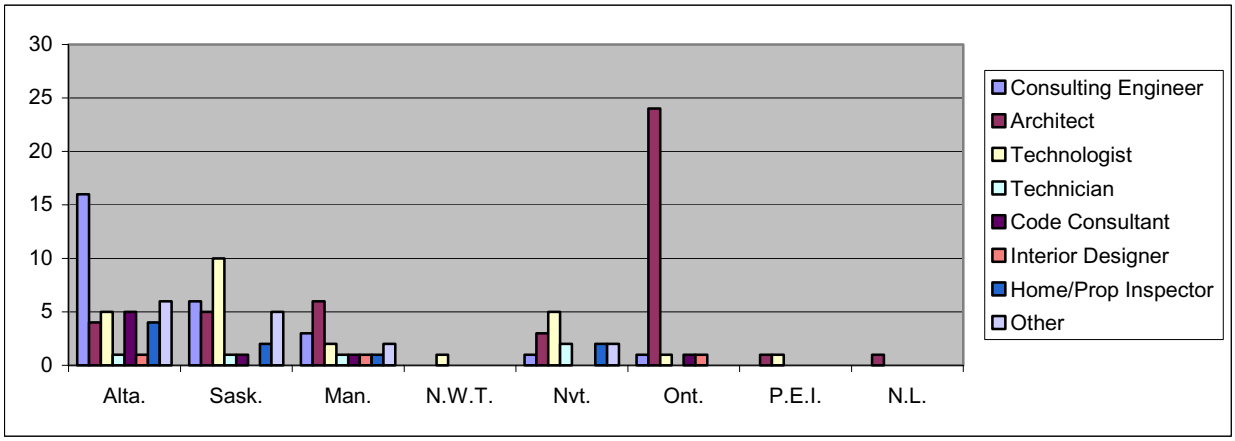
	Responses
Alberta	50
Saskatchewan	35
Manitoba	18
Nunavut	4
Ontario	11
P.E.I.	4
Nova Scotia	14
Total	136



GROUP TWO RESPONDENTS BY PROVINCE

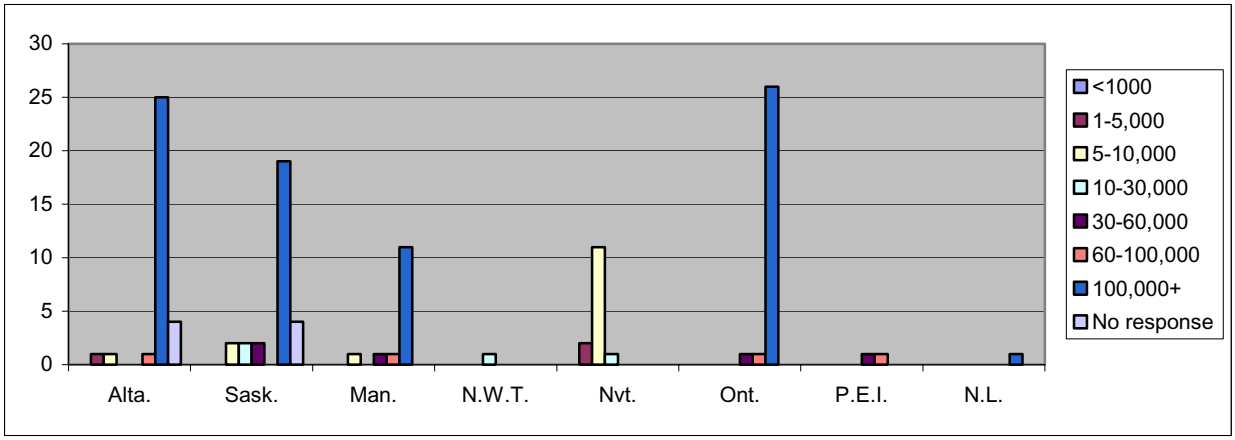
Responsible for ensuring designs/buildings comply with the codes

	Consulting Engineer	Architect	Technologist	Technician	Code Consultant	Interior Designer	Home/Prop Inspector	Other	Total
Alta.	16	4	5	1	5	1	4	6	42
Sask.	6	5	10	1	1	0	2	5	30
Man.	3	6	2	1	1	1	1	2	17
N.W.T.	0	0	1	0	0	0	0	0	1
Nvt.	1	3	5	2	0	0	2	2	15
Ont.	1	24	1	0	1	1	0	0	28
P.E.I.	0	1	1	0	0	0	0	0	2
N.L.	0	1	0	0	0	0	0	0	1
Total	27	44	25	5	8	3	9	15	136



Population: I work in a community with a population of:

	<1000	1-5,000	5-10,000	10-30,000	30-60,000	60-100,000	100,000+	No response	Total
Alta.	0	1	1	0	0	1	25	4	32
Sask.	0	0	2	2	2	0	19	4	29
Man.	0	0	1	0	1	1	11	0	14
N.W.T.	0	0	0	1	0	0	0	0	1
Nvt.	0	2	11	1	0	0	0	0	14
Ont.	0	0	0	0	1	1	26	0	28
P.E.I.	0	0	0	0	1	1	0	0	2
N.L.	0	0	0	0	0	0	1	0	1
Total	0	3	15	4	5	4	82	8	121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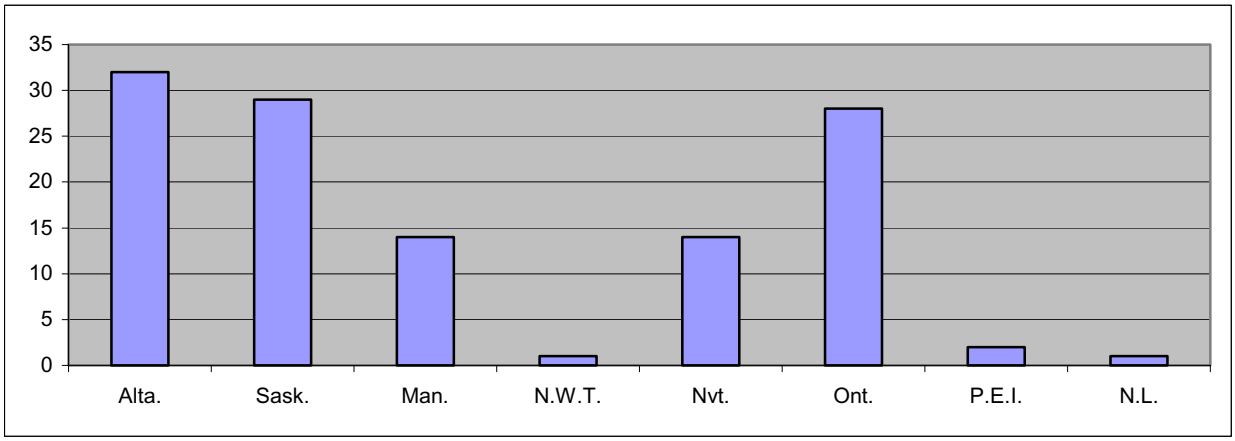
20
15
10
5
0
Alta.
Sask.
Man.
N.W.T.
Nvt.
Ont.
P.E.I.
N.L.
<1000
1-5,000
5-10,000
10-30,000
30-60,000
60-100,000
100,000+
No response

GROUP TWO RESPONDENTS BY PROVINCE

Province: I work in the following Province / Territory:

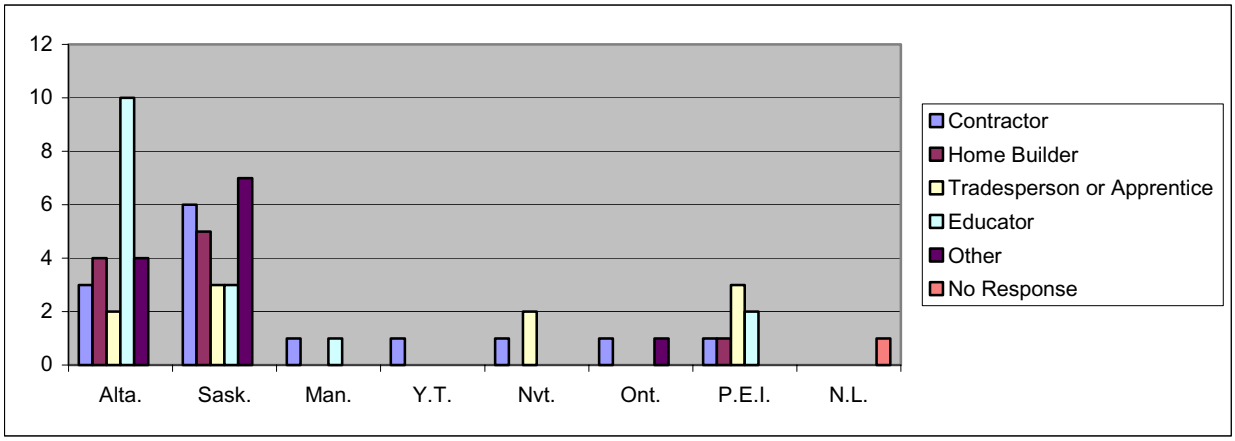
	Responses
Alta.	32
Sask.	29
Man.	14
N.W.T.	1
Nvt.	14
Ont.	28
P.E.I.	2
N.L.	1
Total	121



GROUP THREE RESPONDENTS BY PROVINCE

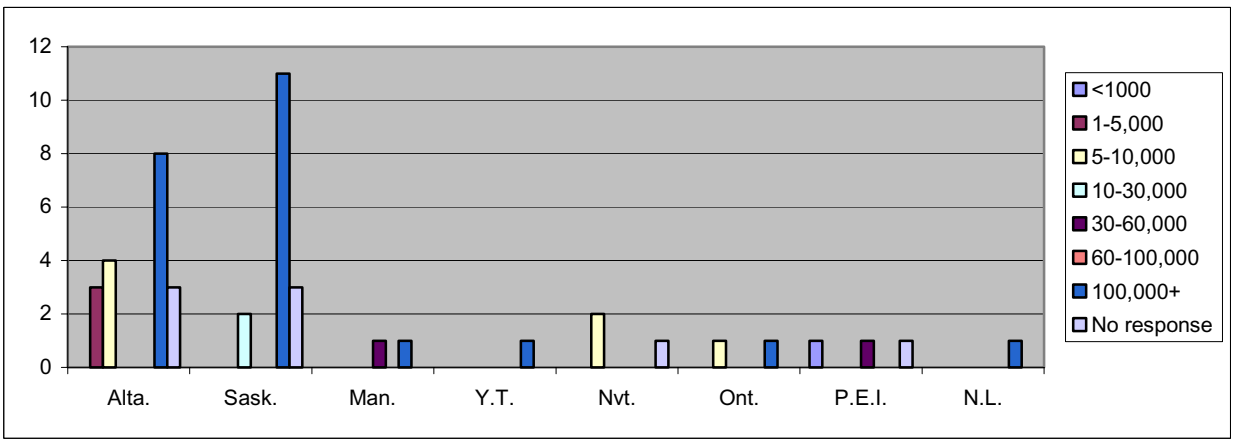
Occupation that requires applied knowledge of the codes only.

	Contractor	Home Builder	Tradesperson or Apprentice	Educator	Other	No Response	Total
Alta.	3	4	2	10	4	0	23
Sask.	6	5	3	3	7	0	24
Man.	1	0	0	1	0	0	2
Y.T.	1	0	0	0	0	0	1
Nvt.	1	0	2	0	0	0	3
Ont.	1	0	0	0	1	0	2
P.E.I.	1	1	3	2	0	0	7
N.L.	0	0	0	0	0	1	1
Total	14	10	10	16	12	1	63



Population: I work in a community with a population of:

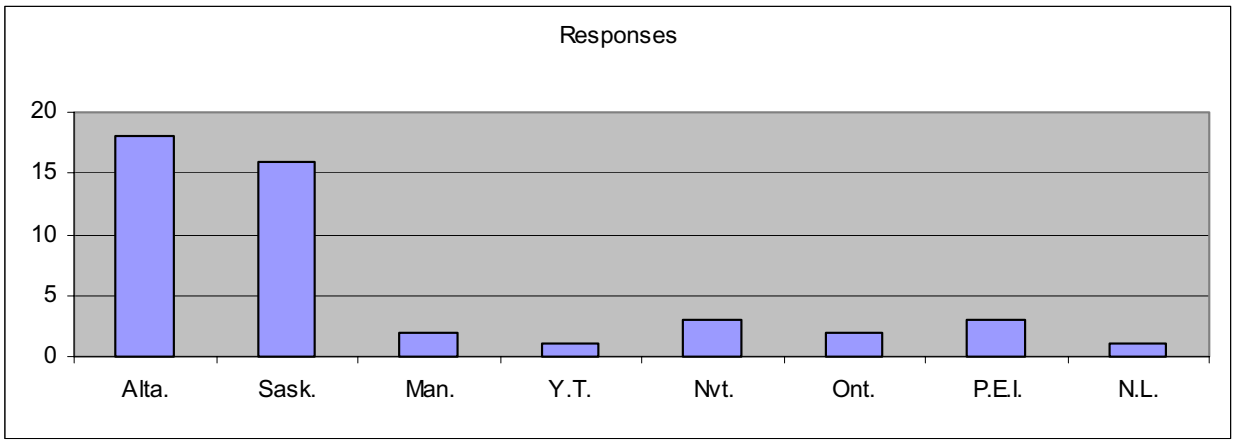
	<1000	1-5,000	5-10,000	10-30,000	30-60,000	60-100,000	100,000+	No response	Total
Alta.	0	3	4	0	0	0	8	3	18
Sask.	0	0	0	2	0	0	11	3	16
Man.	0	0	0	0	1	0	1	0	2
Y.T.	0	0	0	0	0	0	1	0	1
Nvt.	0	0	2	0	0	0	0	1	3
Ont.	0	0	1	0	0	0	1	0	2
P.E.I.	1	0	0	0	1	0	0	1	3
N.L.	0	0	0	0	0	0	1	0	1
Total	1	3	7	2	2	0	23	8	46



GROUP THREE RESPONDENTS BY PROVINCE

Province: I work in the following Province / Territory:

	Responses
Alta.	18
Sask.	16
Man.	2
Y.T.	1
Nvt.	3
Ont.	2
P.E.I.	3
N.L.	1
Total	46



NATIONAL SURVEY QUESTIONNAIRE

TRAINING AND DEVELOPMENT NEEDS HISTOGRAMS

- GROUP ONE RESPONSES BY TRAINING TOPIC AND BY PROVINCE/TERRITORY
- GROUP TWO RESPONSES BY TRAINING TOPIC AND BY PROVINCE/TERRITORY
- GROUP THREE RESPONSES BY TRAINING TOPIC AND BY PROVINCE/TERRITORY
- NATIONAL RESPONSES BY TRAINING TOPIC

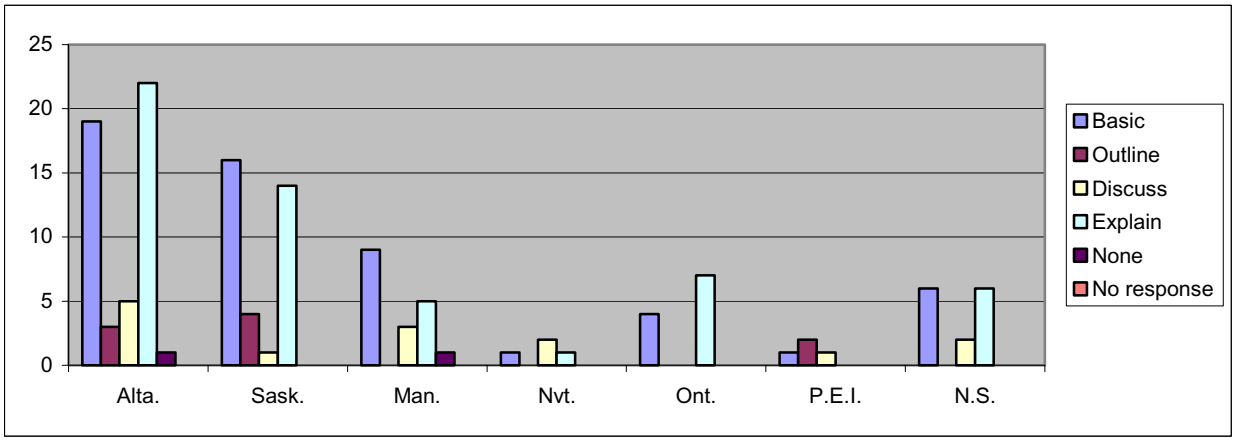
TRAINING AND DEVELOPMENT NEEDS

The questionnaire findings are displayed by group and by province/territory for questions one through ten. A summary of all respondents is included at the end of each section.

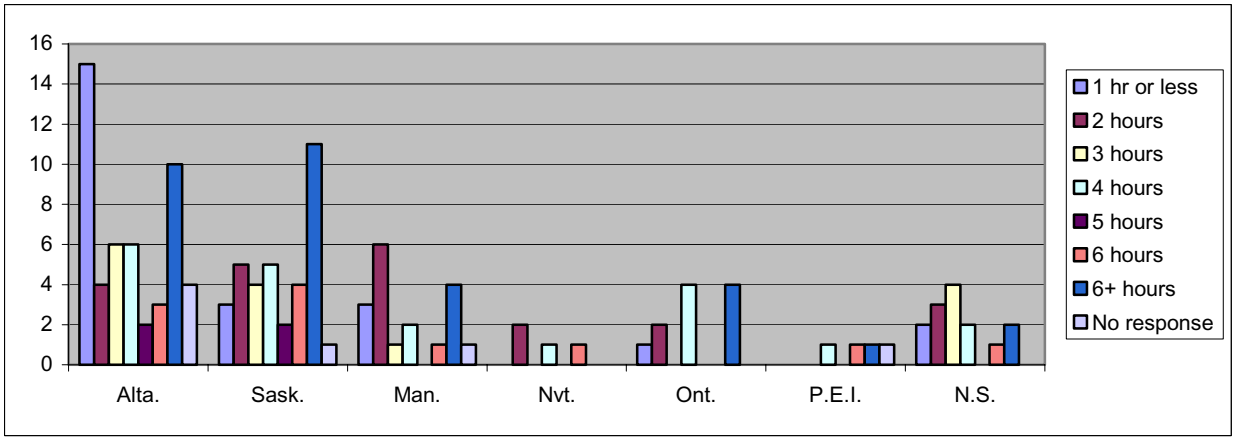
GROUP ONE RESPONDENTS BY PROVINCE

1. Topic - Structure, Format and Organization of Code Content

(a)	Basic	Outline	Discuss	Explain	None	No response	Total
Alta.	19	3	5	22	1	0	50
Sask.	16	4	1	14	0	0	35
Man.	9	0	3	5	1	0	18
Nvt.	1	0	2	1	0	0	4
Ont.	4	0	0	7	0	0	11
P.E.I.	1	2	1	0	0	0	4
N.S.	6	0	2	6	0	0	14
Total	56	9	14	55	2	0	136



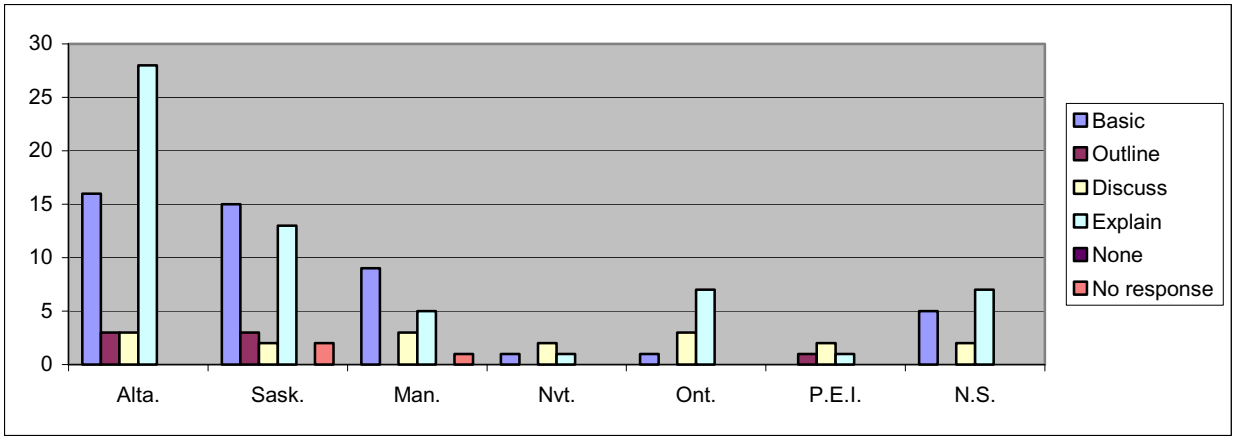
(b)	1 hr or less	2 hours	3 hours	4 hours	5 hours	6 hours	6+ hours	No response	Total
Alta.	15	4	6	6	2	3	10	4	50
Sask.	3	5	4	5	2	4	11	1	35
Man.	3	6	1	2	0	1	4	1	18
Nvt.	0	2	0	1	0	1	0	0	4
Ont.	1	2	0	4	0	0	4	0	11
P.E.I.	0	0	0	1	0	1	1	1	4
N.S.	2	3	4	2	0	1	2	0	14
Total	24	22	15	21	4	11	32	7	136



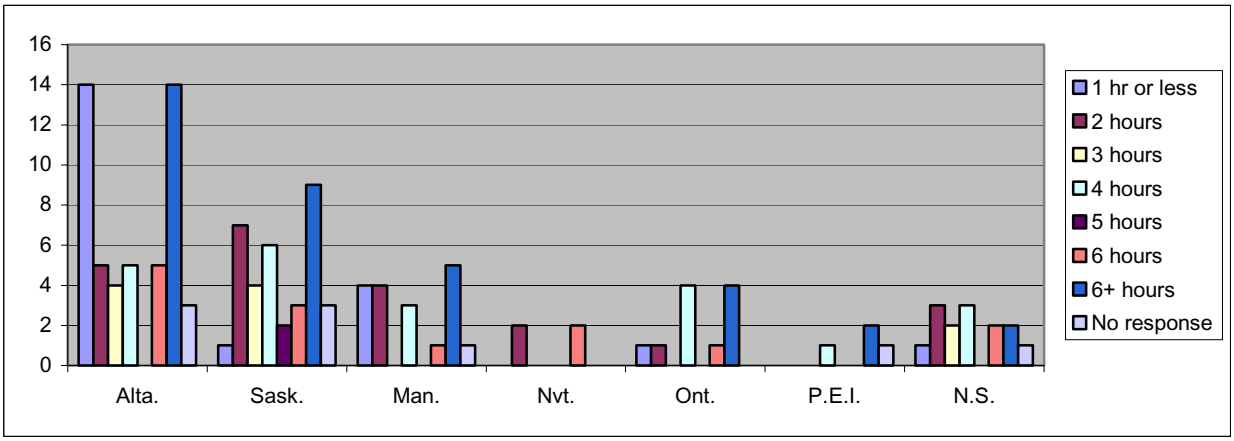
GROUP ONE RESPONDENTS BY PROVINCE

2. Topic - New Key Concepts

(a)	Basic	Outline	Discuss	Explain	None	No response	Total
Alta.	16	3	3	28	0	0	50
Sask.	15	3	2	13	0	2	35
Man.	9	0	3	5	0	1	18
Nvt.	1	0	2	1	0	0	4
Ont.	1	0	3	7	0	0	11
P.E.I.	0	1	2	1	0	0	4
N.S.	5	0	2	7	0	0	14
Total	47	7	17	62	0	3	136



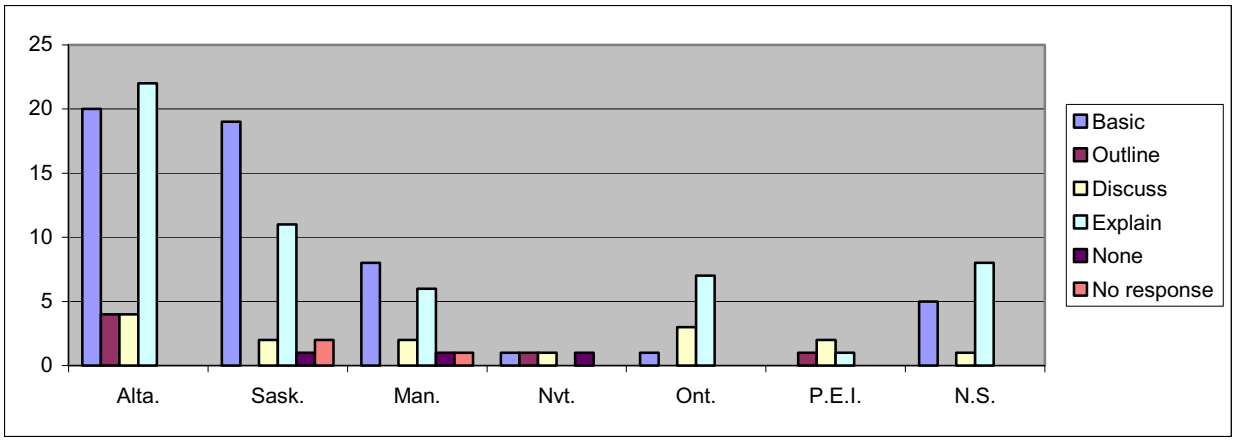
(b)	1 hr or less	2 hours	3 hours	4 hours	5 hours	6 hours	6+ hours	No response	Total
Alta.	14	5	4	5	0	5	14	3	50
Sask.	1	7	4	6	2	3	9	3	35
Man.	4	4	0	3	0	1	5	1	18
Nvt.	0	2	0	0	0	2	0	0	4
Ont.	1	1	0	4	0	1	4	0	11
P.E.I.	0	0	0	1	0	0	2	1	4
N.S.	1	3	2	3	0	2	2	1	14
Total	21	22	10	22	2	14	36	9	136



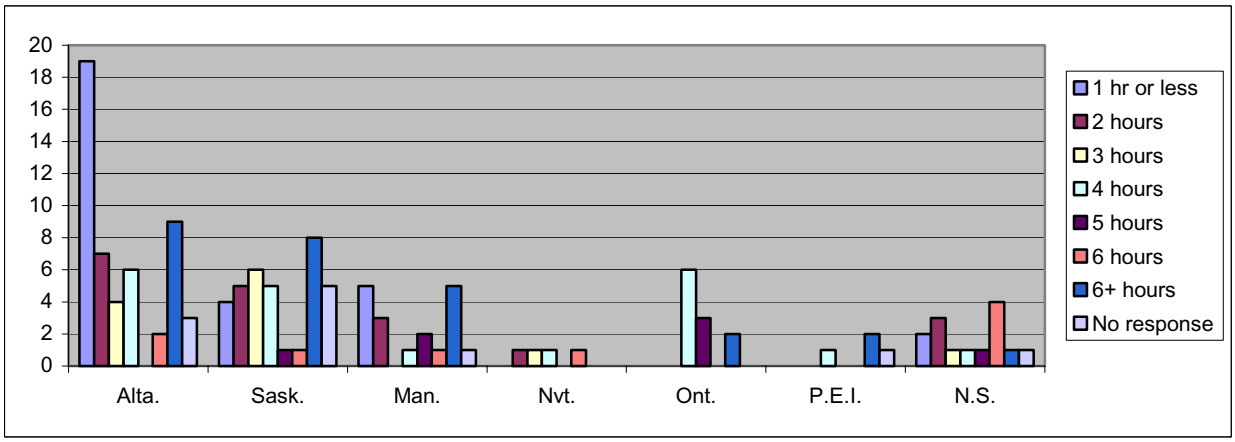
GROUP ONE RESPONDENTS BY PROVINCE

3. Topic - Submitting Equivalent / Alternative Solutions

(a)	Basic	Outline	Discuss	Explain	None	No response	Total
Alta.	20	4	4	22	0	0	50
Sask.	19	0	2	11	1	2	35
Man.	8	0	2	6	1	1	18
Nvt.	1	1	1	0	1	0	4
Ont.	1	0	3	7	0	0	11
P.E.I.	0	1	2	1	0	0	4
N.S.	5	0	1	8	0	0	14
Total	54	6	15	55	3	3	136



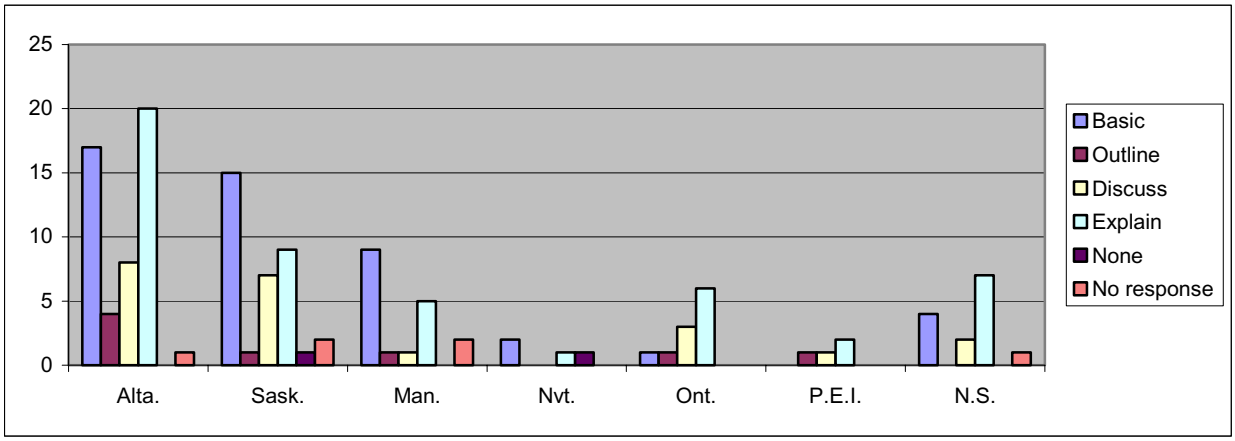
(b)	1 hr or less	2 hours	3 hours	4 hours	5 hours	6 hours	6+ hours	No response	Total
Alta.	19	7	4	6	0	2	9	3	50
Sask.	4	5	6	5	1	1	8	5	35
Man.	5	3	0	1	2	1	5	1	18
Nvt.	0	1	1	1	0	1	0	0	4
Ont.	0	0	0	6	3	0	2	0	11
P.E.I.	0	0	0	1	0	0	2	1	4
N.S.	2	3	1	1	1	4	1	1	14
Total	30	19	12	21	7	9	27	11	136



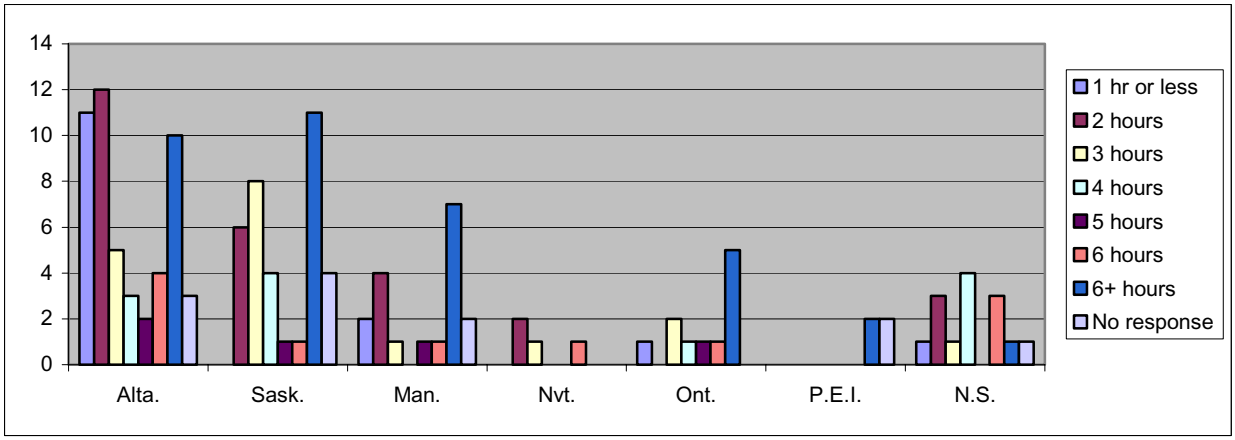
GROUP ONE RESPONDENTS BY PROVINCE

4. Topic - Evaluating Equivalent / Alternative Solutions

(a)	Basic	Outline	Discuss	Explain	None	No response	Total
Alta.	17	4	8	20	0	1	50
Sask.	15	1	7	9	1	2	35
Man.	9	1	1	5	0	2	18
Nvt.	2	0	0	1	1	0	4
Ont.	1	1	3	6	0	0	11
P.E.I.	0	1	1	2	0	0	4
N.S.	4	0	2	7	0	1	14
Total	48	8	22	50	2	6	136



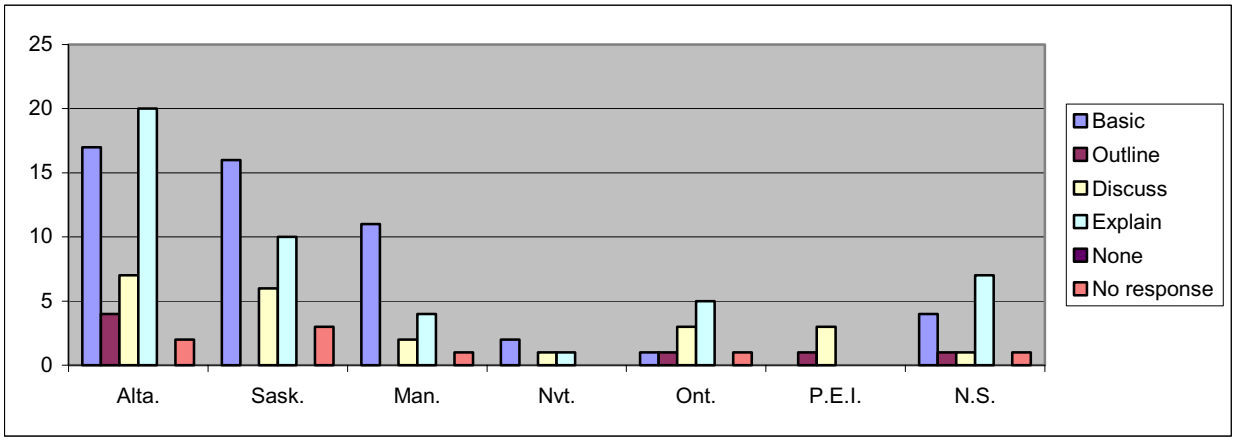
(b)	1 hr or less	2 hours	3 hours	4 hours	5 hours	6 hours	6+ hours	No response	Total
Alta.	11	12	5	3	2	4	10	3	50
Sask.	0	6	8	4	1	1	11	4	35
Man.	2	4	1	0	1	1	7	2	18
Nvt.	0	2	1	0	0	1	0	0	4
Ont.	1	0	2	1	1	1	5	0	11
P.E.I.	0	0	0	0	0	0	2	2	4
N.S.	1	3	1	4	0	3	1	1	14
Total	15	27	18	12	5	11	36	12	136



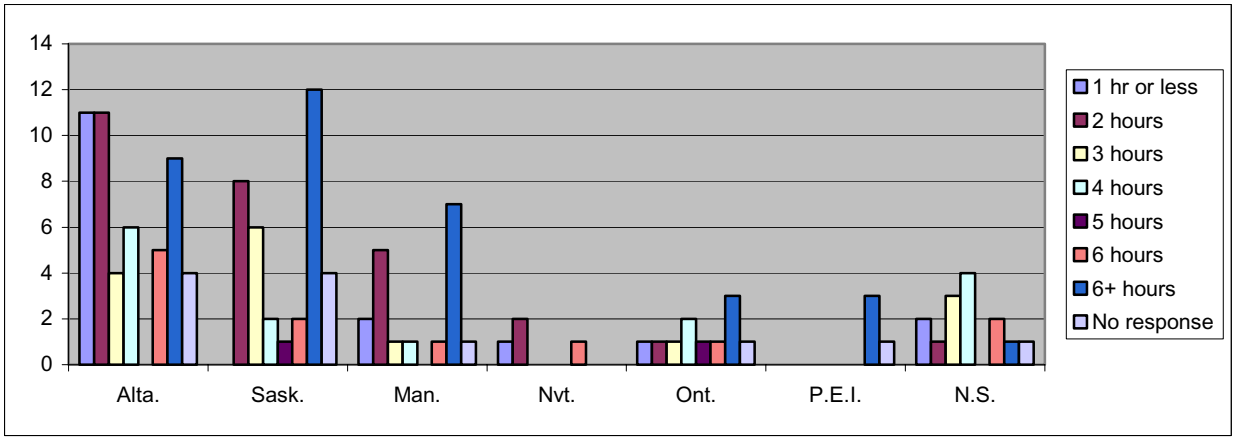
GROUP ONE RESPONDENTS BY PROVINCE

5. Topic - Approving Equivalent / Alternative Solutions

(a)	Basic	Outline	Discuss	Explain	None	No response	Total
Alta.	17	4	7	20	0	2	50
Sask.	16	0	6	10	0	3	35
Man.	11	0	2	4	0	1	18
Nvt.	2	0	1	1	0	0	4
Ont.	1	1	3	5	0	1	11
P.E.I.	0	1	3	0	0	0	4
N.S.	4	1	1	7	0	1	14
Total	51	7	23	47	0	8	136



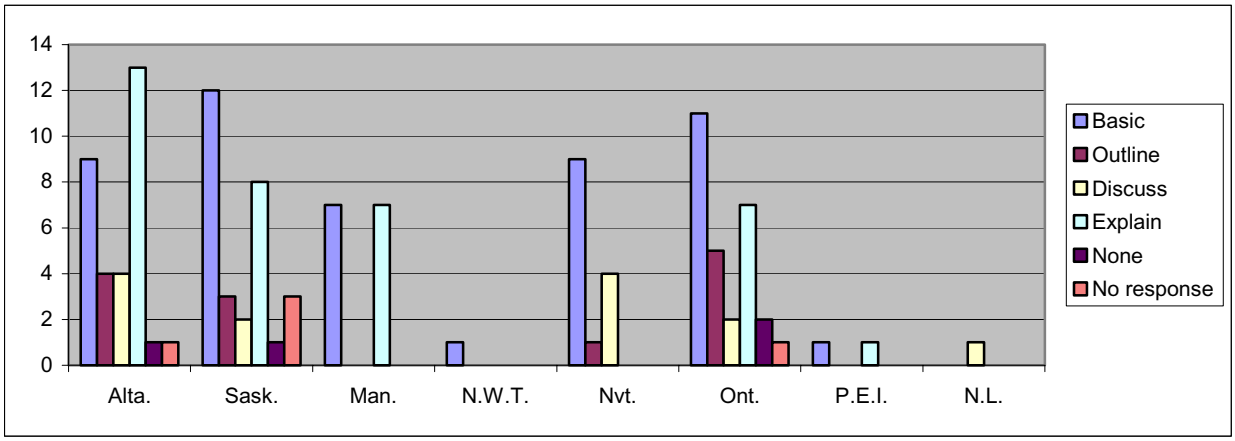
(b)	1 hr or less	2 hours	3 hours	4 hours	5 hours	6 hours	6+ hours	No response	Total
Alta.	11	11	4	6	0	5	9	4	50
Sask.	0	8	6	2	1	2	12	4	35
Man.	2	5	1	1	0	1	7	1	18
Nvt.	1	2	0	0	0	1	0	0	4
Ont.	1	1	1	2	1	1	3	1	11
P.E.I.	0	0	0	0	0	0	3	1	4
N.S.	2	1	3	4	0	2	1	1	14
Total	17	28	15	15	2	12	35	12	136



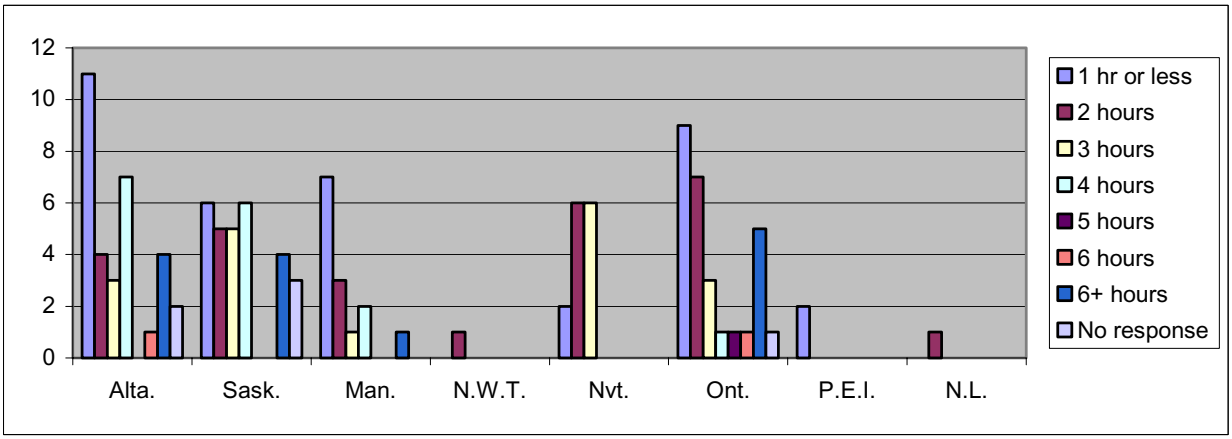
GROUP TWO RESPONDENTS BY PROVINCE

1. Topic - Structure, Format and Organization of Code Content

(a)	Basic	Outline	Discuss	Explain	None	No response	Total
Alta.	9	4	4	13	1	1	32
Sask.	12	3	2	8	1	3	29
Man.	7	0	0	7	0	0	14
N.W.T.	1	0	0	0	0	0	1
Nvt.	9	1	4	0	0	0	14
Ont.	11	5	2	7	2	1	28
P.E.I.	1	0	0	1	0	0	2
N.L.	0	0	1	0	0	0	1
Total	50	13	13	36	4	5	121



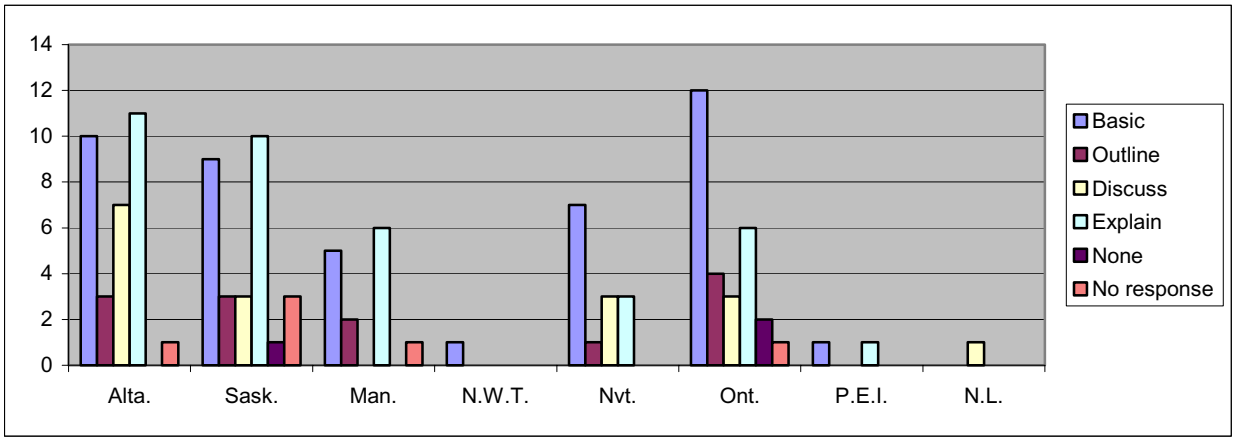
(b)	1 hr or less	2 hours	3 hours	4 hours	5 hours	6 hours	6+ hours	No response	Total
Alta.	11	4	3	7	0	1	4	2	32
Sask.	6	5	5	6	0	0	4	3	29
Man.	7	3	1	2	0	0	1	0	14
N.W.T.	0	1	0	0	0	0	0	0	1
Nvt.	2	6	6	0	0	0	0	0	14
Ont.	9	7	3	1	1	1	5	1	28
P.E.I.	2	0	0	0	0	0	0	0	2
N.L.	0	1	0	0	0	0	0	0	1
Total	37	27	18	16	1	2	14	6	121



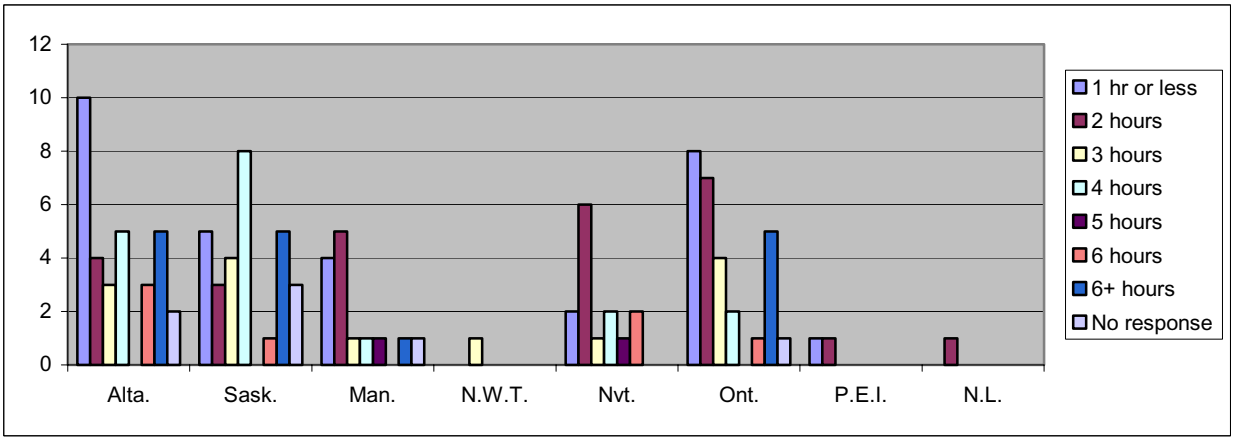
GROUP TWO RESPONDENTS BY PROVINCE

2. Topic - New Key Concepts

(a)	Basic	Outline	Discuss	Explain	None	No response	Total
Alta.	10	3	7	11	0	1	32
Sask.	9	3	3	10	1	3	29
Man.	5	2	0	6	0	1	14
N.W.T.	1	0	0	0	0	0	1
Nvt.	7	1	3	3	0	0	14
Ont.	12	4	3	6	2	1	28
P.E.I.	1	0	0	1	0	0	2
N.L.	0	0	1	0	0	0	1
Total	45	13	17	37	3	6	121



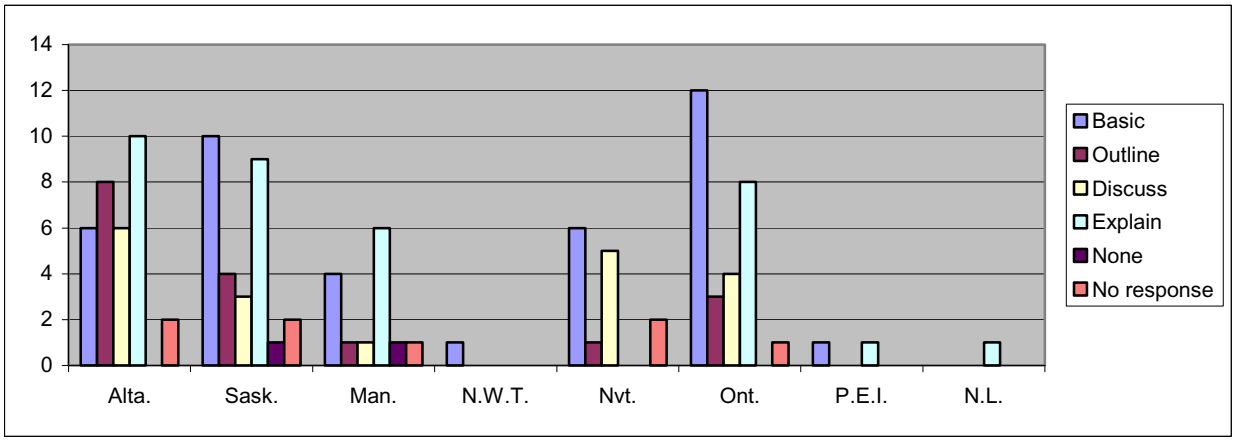
(b)	1 hr or less	2 hours	3 hours	4 hours	5 hours	6 hours	6+ hours	No response	Total
Alta.	10	4	3	5	0	3	5	2	32
Sask.	5	3	4	8	0	1	5	3	29
Man.	4	5	1	1	1	0	1	1	14
N.W.T.	0	0	1	0	0	0	0	0	1
Nvt.	2	6	1	2	1	2	0	0	14
Ont.	8	7	4	2	0	1	5	1	28
P.E.I.	1	1	0	0	0	0	0	0	2
N.L.	0	1	0	0	0	0	0	0	1
Total	30	27	14	18	2	7	16	7	121



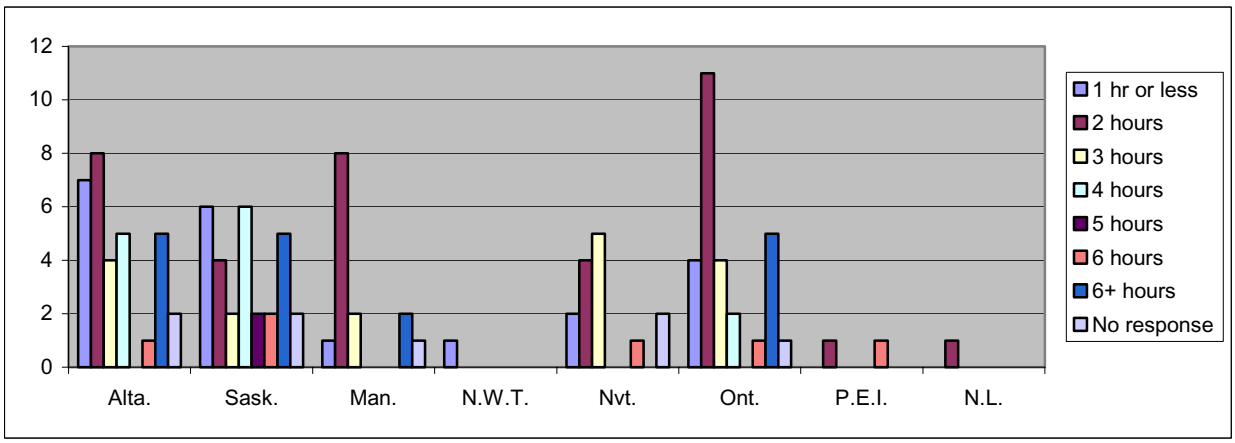
GROUP TWO RESPONDENTS BY PROVINCE

3. Topic - Submitting Equivalent / Alternative Solutions

(a)	Basic	Outline	Discuss	Explain	None	No response	Total
Alta.	6	8	6	10	0	2	32
Sask.	10	4	3	9	1	2	29
Man.	4	1	1	6	1	1	14
N.W.T.	1	0	0	0	0	0	1
Nvt.	6	1	5	0	0	2	14
Ont.	12	3	4	8	0	1	28
P.E.I.	1	0	0	1	0	0	2
N.L.	0	0	0	1	0	0	1
Total	40	17	19	35	2	8	121



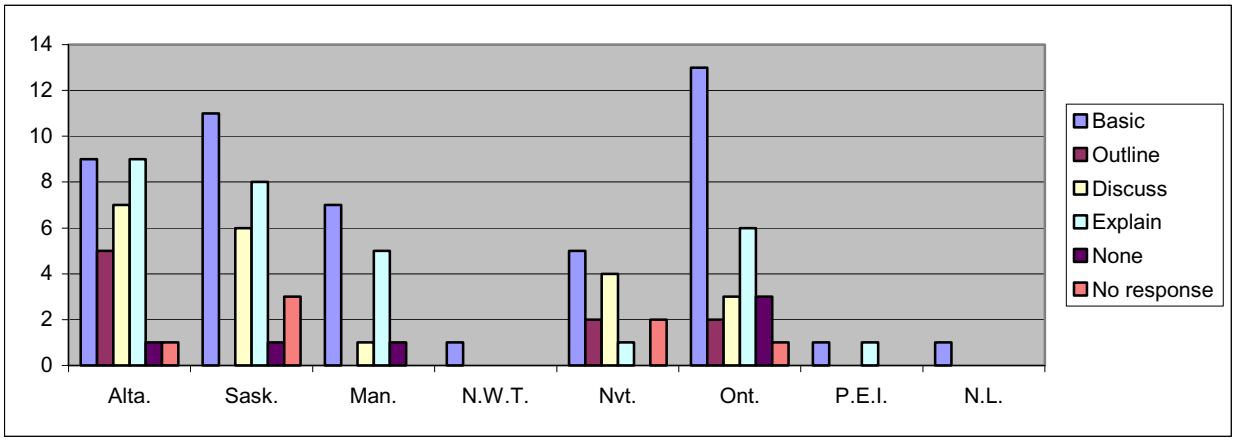
(b)	1 hr or less	2 hours	3 hours	4 hours	5 hours	6 hours	6+ hours	No response	Total
Alta.	7	8	4	5	0	1	5	2	32
Sask.	6	4	2	6	2	2	5	2	29
Man.	1	8	2	0	0	0	2	1	14
N.W.T.	1	0	0	0	0	0	0	0	1
Nvt.	2	4	5	0	0	1	0	2	14
Ont.	4	11	4	2	0	1	5	1	28
P.E.I.	0	1	0	0	0	1	0	0	2
N.L.	0	1	0	0	0	0	0	0	1
Total	21	37	17	13	2	6	17	8	121



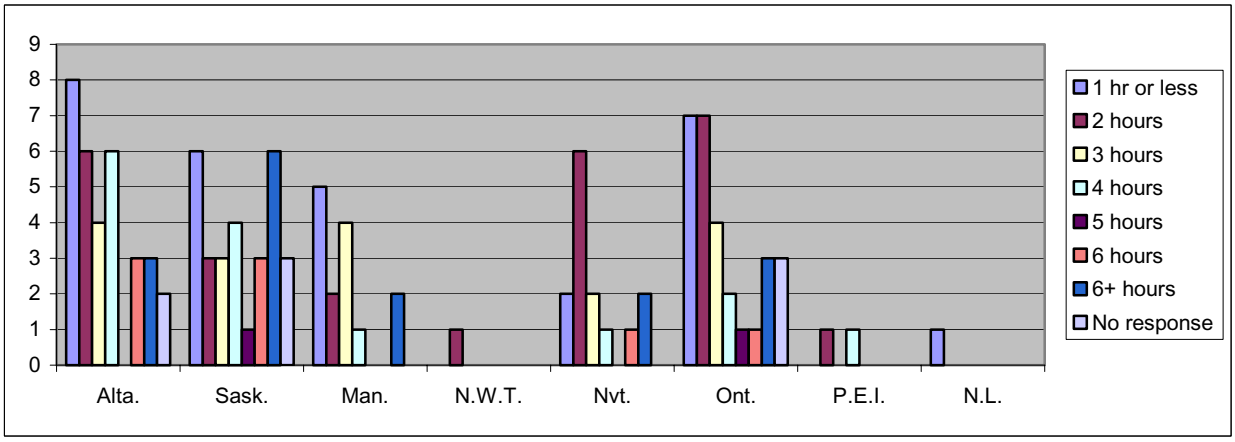
GROUP TWO RESPONDENTS BY PROVINCE

4. Topic - Evaluating Equivalent / Alternative Solutions

(a)	Basic	Outline	Discuss	Explain	None	No response	Total
Alta.	9	5	7	9	1	1	32
Sask.	11	0	6	8	1	3	29
Man.	7	0	1	5	1	0	14
N.W.T.	1	0	0	0	0	0	1
Nvt.	5	2	4	1	0	2	14
Ont.	13	2	3	6	3	1	28
P.E.I.	1	0	0	1	0	0	2
N.L.	1	0	0	0	0	0	1
Total	48	9	21	30	6	7	121



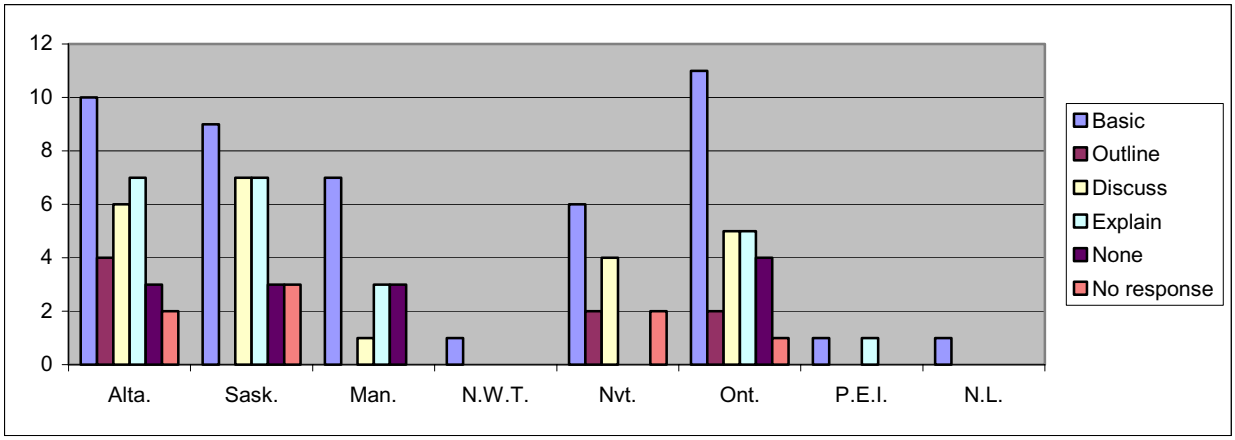
(b)	1 hr or less	2 hours	3 hours	4 hours	5 hours	6 hours	6+ hours	No response	Total
Alta.	8	6	4	6	0	3	3	2	32
Sask.	6	3	3	4	1	3	6	3	29
Man.	5	2	4	1	0	0	2	0	14
N.W.T.	0	1	0	0	0	0	0	0	1
Nvt.	2	6	2	1	0	1	2	0	14
Ont.	7	7	4	2	1	1	3	3	28
P.E.I.	0	1	0	1	0	0	0	0	2
N.L.	1	0	0	0	0	0	0	0	1
Total	29	26	17	15	2	8	16	8	121



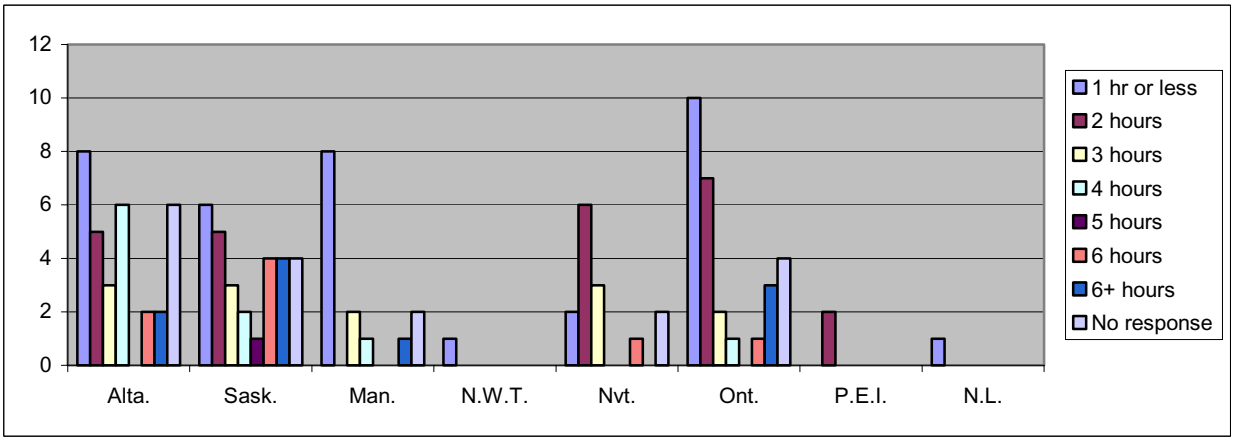
GROUP TWO RESPONDENTS BY PROVINCE

5. Topic - Approving Equivalent / Alternative Solutions

(a)	Basic	Outline	Discuss	Explain	None	No response	Total
Alta.	10	4	6	7	3	2	32
Sask.	9	0	7	7	3	3	29
Man.	7	0	1	3	3	0	14
N.W.T.	1	0	0	0	0	0	1
Nvt.	6	2	4	0	0	2	14
Ont.	11	2	5	5	4	1	28
P.E.I.	1	0	0	1	0	0	2
N.L.	1	0	0	0	0	0	1
Total	46	8	23	23	13	8	121



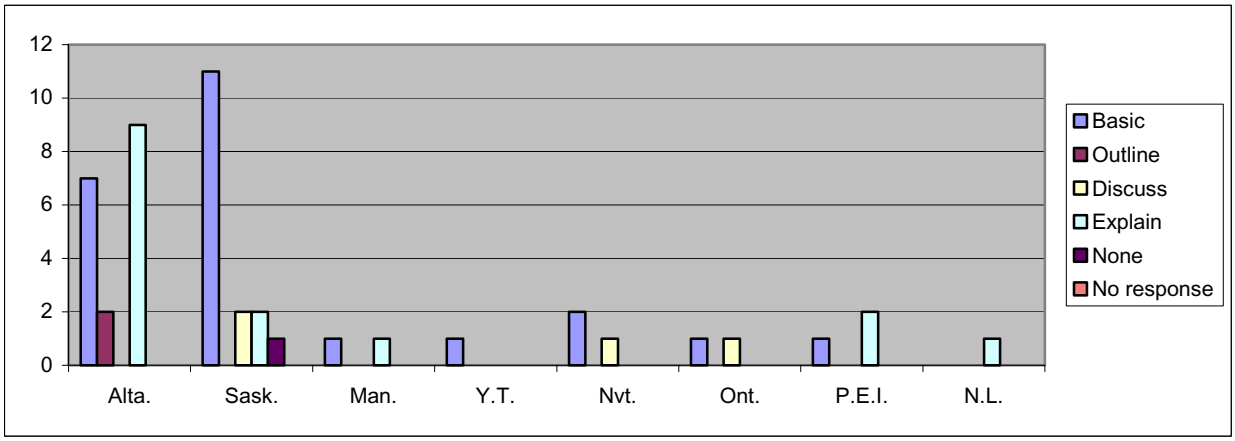
(b)	1 hr or less	2 hours	3 hours	4 hours	5 hours	6 hours	6+ hours	No response	Total
Alta.	8	5	3	6	0	2	2	6	32
Sask.	6	5	3	2	1	4	4	4	29
Man.	8	0	2	1	0	0	1	2	14
N.W.T.	1	0	0	0	0	0	0	0	1
Nvt.	2	6	3	0	0	1	0	2	14
Ont.	10	7	2	1	0	1	3	4	28
P.E.I.	0	2	0	0	0	0	0	0	2
N.L.	1	0	0	0	0	0	0	0	1
Total	36	25	13	10	1	8	10	18	121



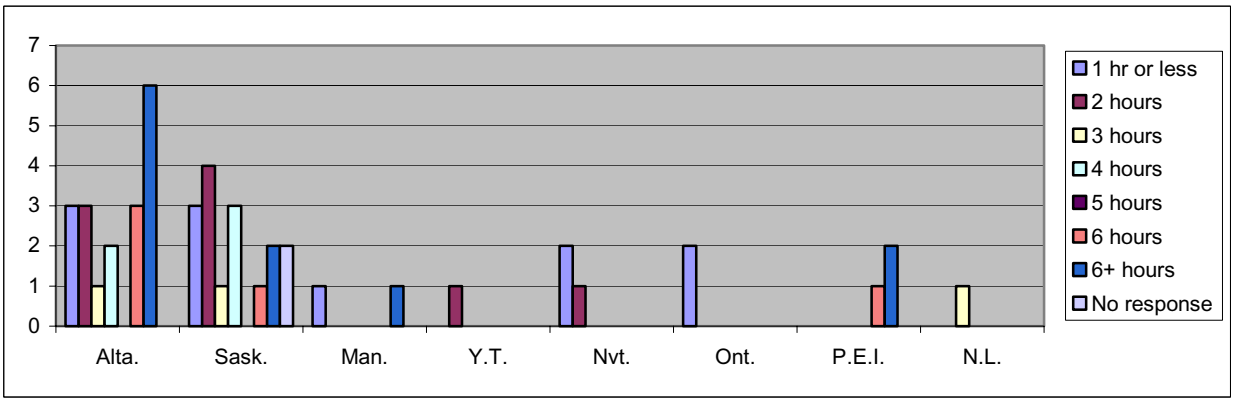
GROUP THREE RESPONDENTS BY PROVINCE

1. Topic - Structure, Format and Organization of Code Content

(a)	Basic	Outline	Discuss	Explain	None	No response	Total
Alta.	7	2	0	9	0	0	18
Sask.	11	0	2	2	1	0	16
Man.	1	0	0	1	0	0	2
Y.T.	1	0	0	0	0	0	1
Nvt.	2	0	1	0	0	0	3
Ont.	1	0	1	0	0	0	2
P.E.I.	1	0	0	2	0	0	3
N.L.	0	0	0	1	0	0	1
Total	24	2	4	15	1	0	46



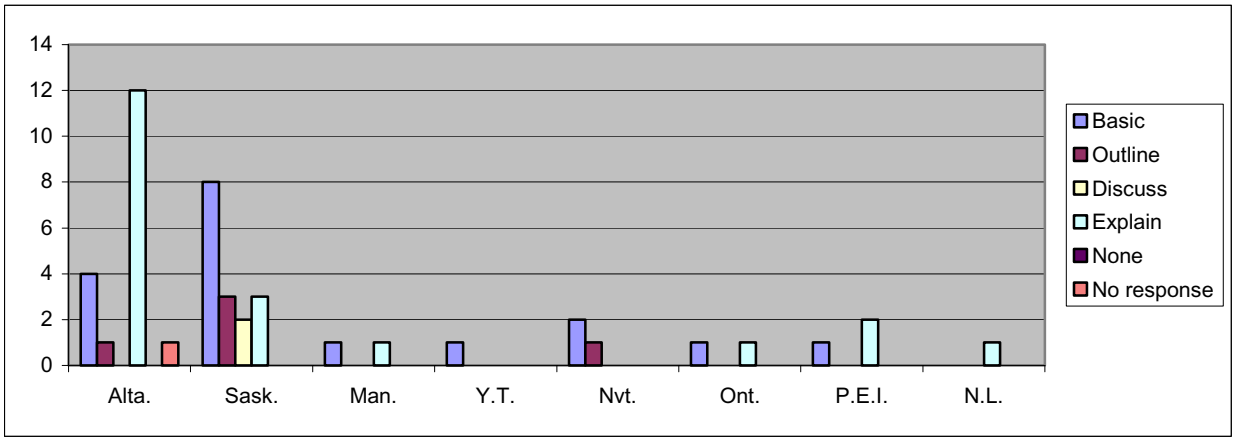
(b)	1 hr or less	2 hours	3 hours	4 hours	5 hours	6 hours	6+ hours	No response	Total
Alta.	3	3	1	2	0	3	6	0	18
Sask.	3	4	1	3	0	1	2	2	16
Man.	1	0	0	0	0	0	1	0	2
Y.T.	0	1	0	0	0	0	0	0	1
Nvt.	2	1	0	0	0	0	0	0	3
Ont.	2	0	0	0	0	0	0	0	2
P.E.I.	0	0	0	0	0	1	2	0	3
N.L.	0	0	1	0	0	0	0	0	1
Total	11	9	3	5	0	5	11	2	46



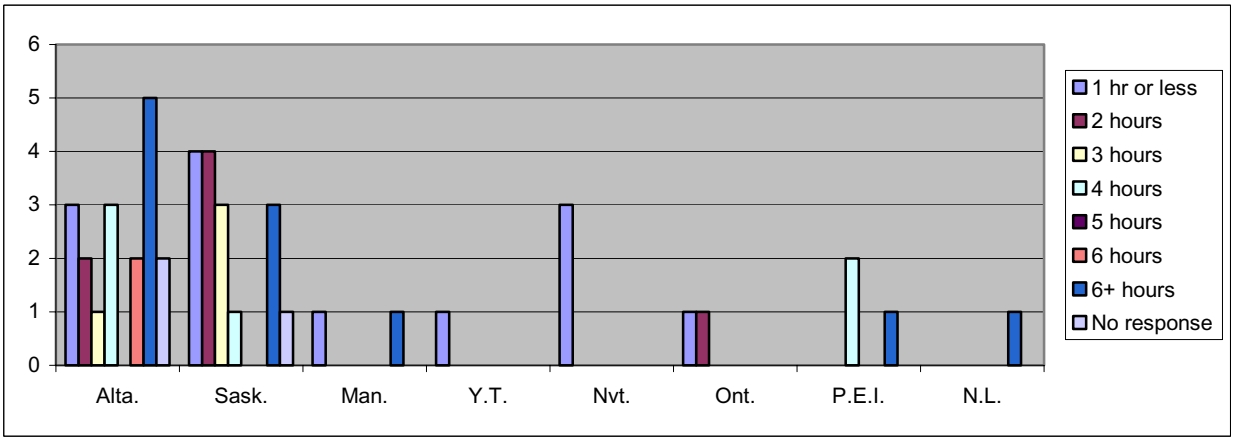
GROUP THREE RESPONDENTS BY PROVINCE

2. Topic - New Key Concepts

(a)	Basic	Outline	Discuss	Explain	None	No response	Total
Alta.	4	1	0	12	0	1	18
Sask.	8	3	2	3	0	0	16
Man.	1	0	0	1	0	0	2
Y.T.	1	0	0	0	0	0	1
Nvt.	2	1	0	0	0	0	3
Ont.	1	0	0	1	0	0	2
P.E.I.	1	0	0	2	0	0	3
N.L.	0	0	0	1	0	0	1
Total	18	5	2	20	0	1	46



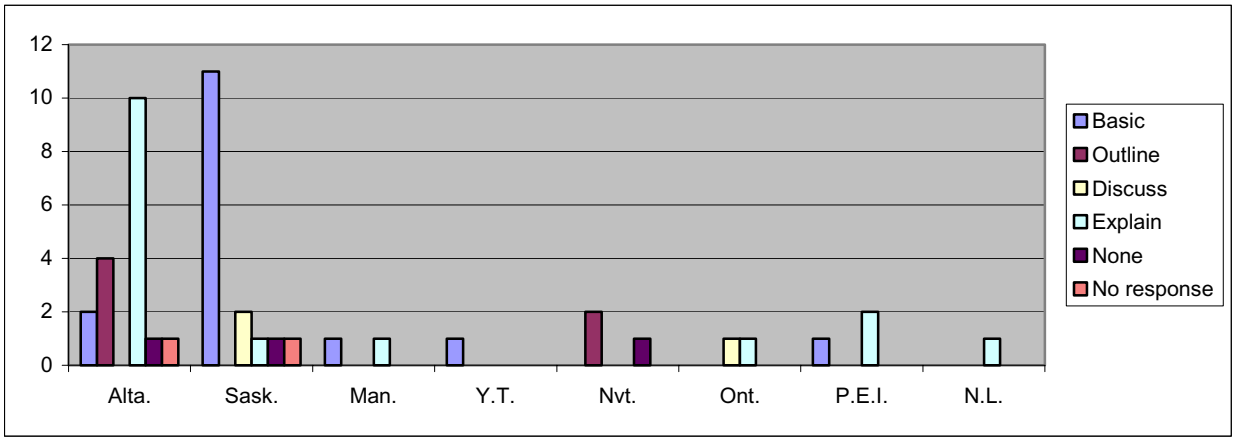
(b)	1 hr or less	2 hours	3 hours	4 hours	5 hours	6 hours	6+ hours	No response	Total
Alta.	3	2	1	3	0	2	5	2	18
Sask.	4	4	3	1	0	0	3	1	16
Man.	1	0	0	0	0	0	1	0	2
Y.T.	1	0	0	0	0	0	0	0	1
Nvt.	3	0	0	0	0	0	0	0	3
Ont.	1	1	0	0	0	0	0	0	2
P.E.I.	0	0	0	2	0	0	1	0	3
N.L.	0	0	0	0	0	0	1	0	1
Total	13	7	4	6	0	2	11	3	46



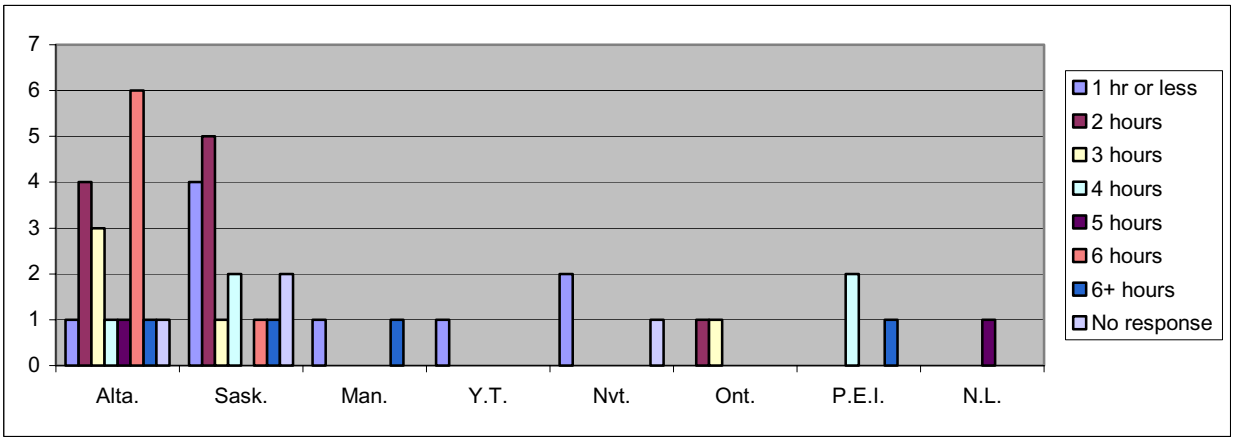
GROUP THREE RESPONDENTS BY PROVINCE

3. Topic - Submitting Equivalent / Alternative Solutions

(a)	Basic	Outline	Discuss	Explain	None	No response	Total
Alta.	2	4	0	10	1	1	18
Sask.	11	0	2	1	1	1	16
Man.	1	0	0	1	0	0	2
Y.T.	1	0	0	0	0	0	1
Nvt.	0	2	0	0	1	0	3
Ont.	0	0	1	1	0	0	2
P.E.I.	1	0	0	2	0	0	3
N.L.	0	0	0	1	0	0	1
Total	16	6	3	16	3	2	46



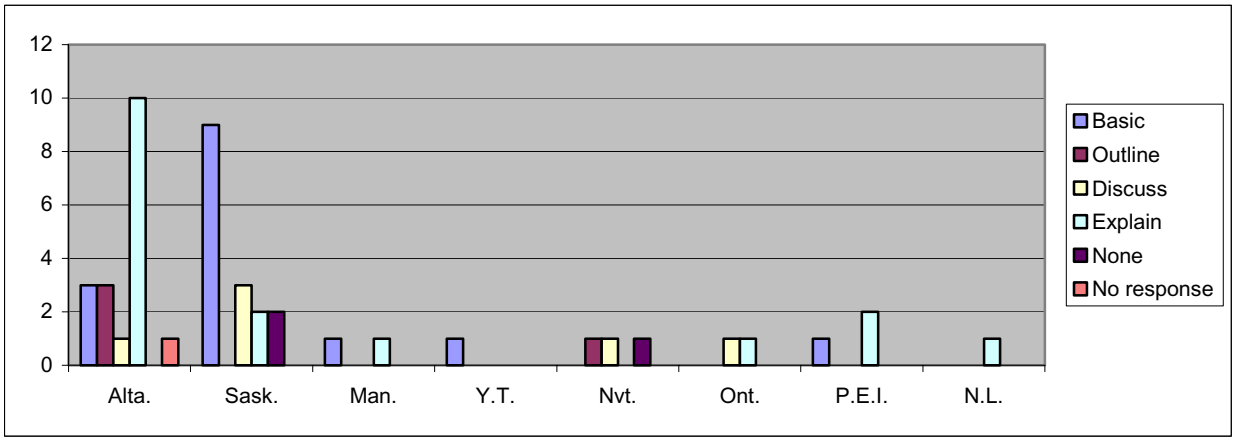
(b)	1 hr or less	2 hours	3 hours	4 hours	5 hours	6 hours	6+ hours	No response	Total
Alta.	1	4	3	1	1	6	1	1	18
Sask.	4	5	1	2	0	1	1	2	16
Man.	1	0	0	0	0	0	1	0	2
Y.T.	1	0	0	0	0	0	0	0	1
Nvt.	2	0	0	0	0	0	0	1	3
Ont.	0	1	1	0	0	0	0	0	2
P.E.I.	0	0	0	2	0	0	1	0	3
N.L.	0	0	0	0	1	0	0	0	1
Total	9	10	5	5	2	7	4	4	46



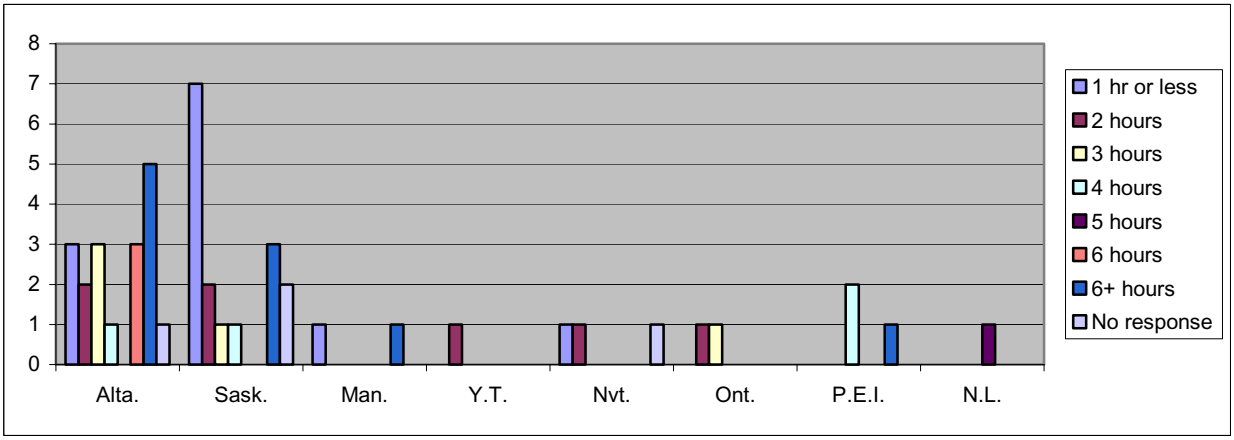
GROUP THREE RESPONDENTS BY PROVINCE

4. Topic - Evaluating Equivalent / Alternative Solutions

(a)	Basic	Outline	Discuss	Explain	None	No response	Total
Alta.	3	3	1	10	0	1	18
Sask.	9	0	3	2	2	0	16
Man.	1	0	0	1	0	0	2
Y.T.	1	0	0	0	0	0	1
Nvt.	0	1	1	0	1	0	3
Ont.	0	0	1	1	0	0	2
P.E.I.	1	0	0	2	0	0	3
N.L.	0	0	0	1	0	0	1
Total	15	4	6	17	3	1	46



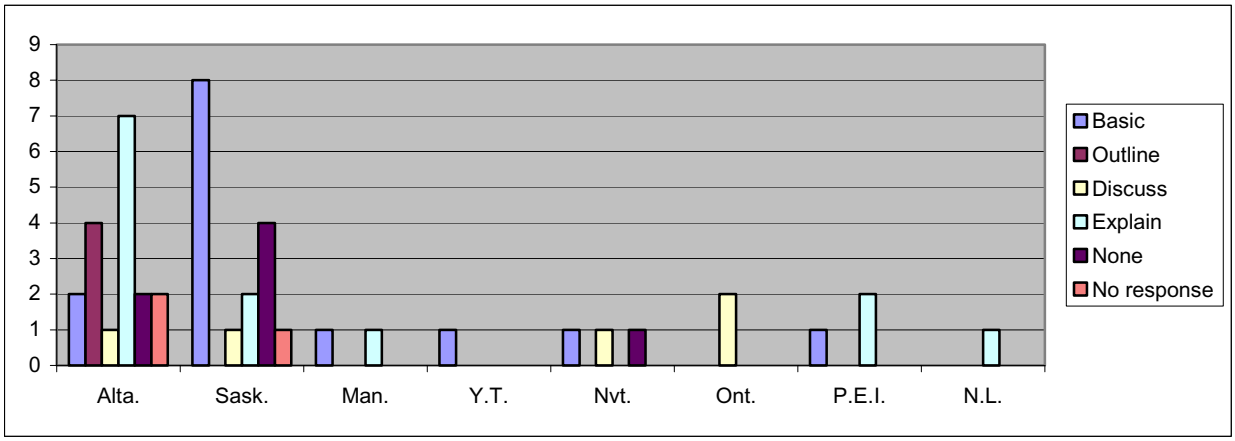
(b)	1 hr or less	2 hours	3 hours	4 hours	5 hours	6 hours	6+ hours	No response	Total
Alta.	3	2	3	1	0	3	5	1	18
Sask.	7	2	1	1	0	0	3	2	16
Man.	1	0	0	0	0	0	1	0	2
Y.T.	0	1	0	0	0	0	0	0	1
Nvt.	1	1	0	0	0	0	0	1	3
Ont.	0	1	1	0	0	0	0	0	2
P.E.I.	0	0	0	2	0	0	1	0	3
N.L.	0	0	0	0	1	0	0	0	1
Total	12	7	5	4	1	3	10	4	46



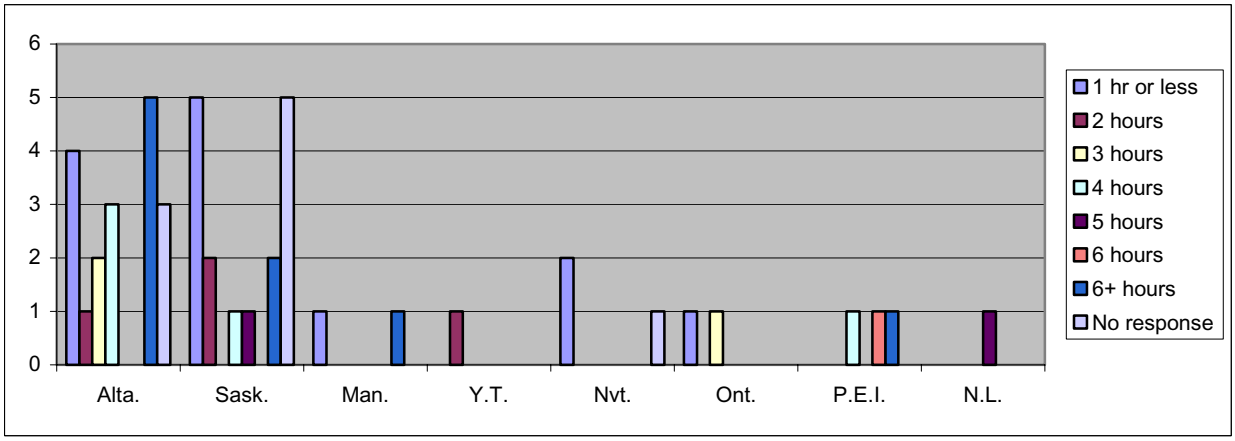
GROUP THREE RESPONDENTS BY PROVINCE

5. Topic - Approving Equivalent / Alternative Solutions

(a)	Basic	Outline	Discuss	Explain	None	No response	Total
Alta.	2	4	1	7	2	2	18
Sask.	8	0	1	2	4	1	16
Man.	1	0	0	1	0	0	2
Y.T.	1	0	0	0	0	0	1
Nvt.	1	0	1	0	1	0	3
Ont.	0	0	2	0	0	0	2
P.E.I.	1	0	0	2	0	0	3
N.L.	0	0	0	1	0	0	1
Total	14	4	5	13	7	3	46



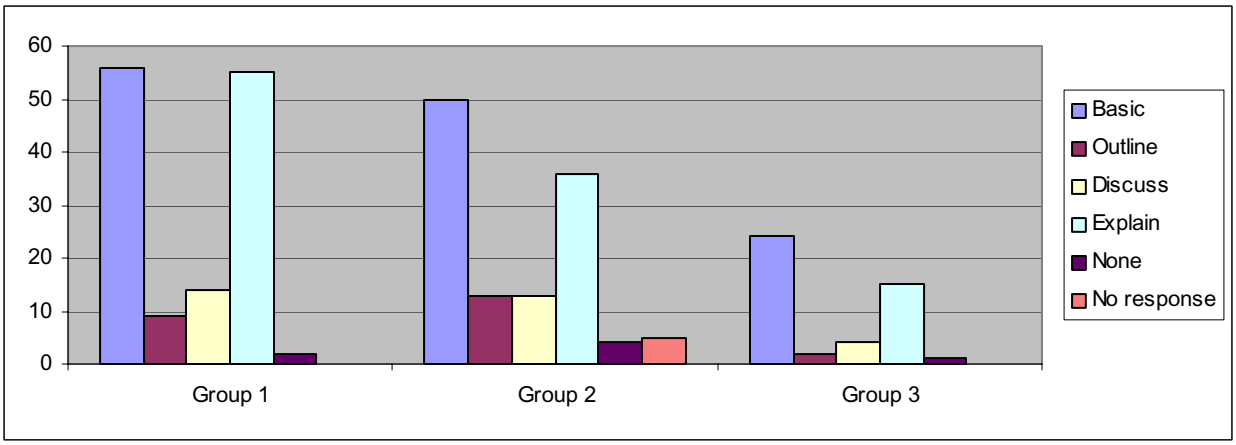
(b)	1 hr or less	2 hours	3 hours	4 hours	5 hours	6 hours	6+ hours	No response	Total
Alta.	4	1	2	3	0	0	5	3	18
Sask.	5	2	0	1	1	0	2	5	16
Man.	1	0	0	0	0	0	1	0	2
Y.T.	0	1	0	0	0	0	0	0	1
Nvt.	2	0	0	0	0	0	0	1	3
Ont.	1	0	1	0	0	0	0	0	2
P.E.I.	0	0	0	1	0	1	1	0	3
N.L.	0	0	0	0	1	0	0	0	1
Total	13	4	3	5	2	1	9	9	46



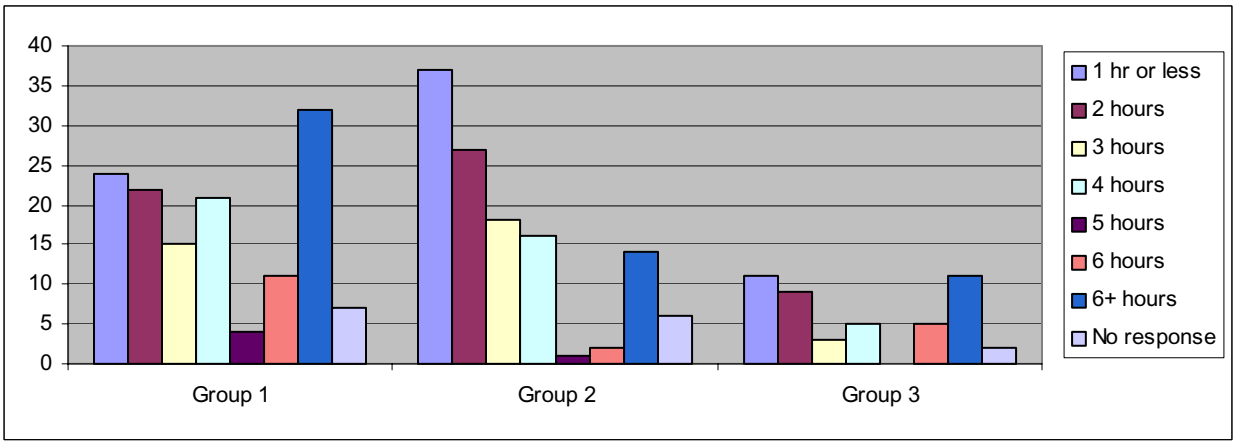
NATIONAL RESPONSES

1. Topic - Structure, Format and Organization of Code Content

(a)	Basic	Outline	Discuss	Explain	None	No response	Total
Group 1	56	9	14	55	2	0	136
Group 2	50	13	13	36	4	5	121
Group 3	24	2	4	15	1	0	46
Total	130	24	31	106	7	5	303



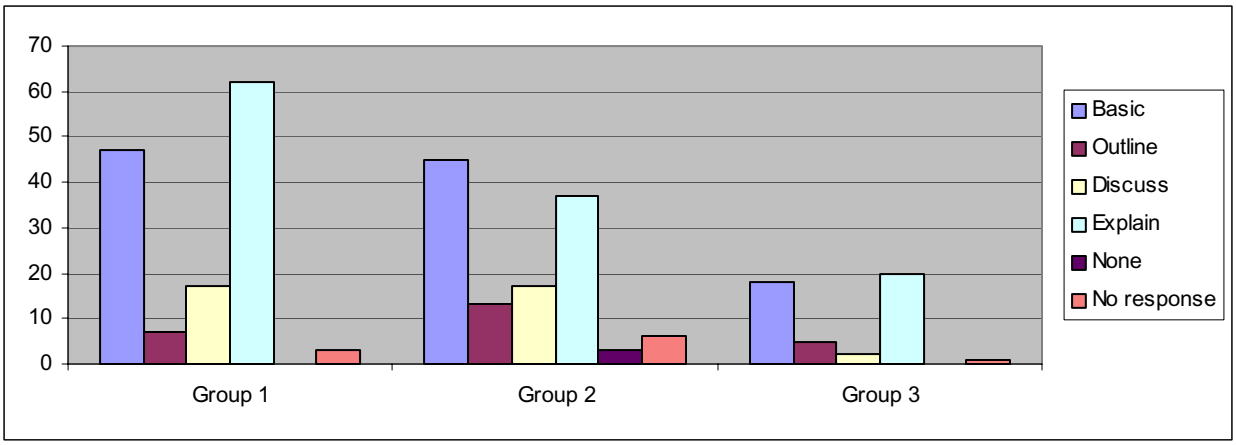
(b)	1 hr or less	2 hours	3 hours	4 hours	5 hours	6 hours	6+ hours	No response	Total
Group 1	24	22	15	21	4	11	32	7	136
Group 2	37	27	18	16	1	2	14	6	121
Group 3	11	9	3	5	0	5	11	2	46
Total	72	58	36	42	5	18	57	15	303



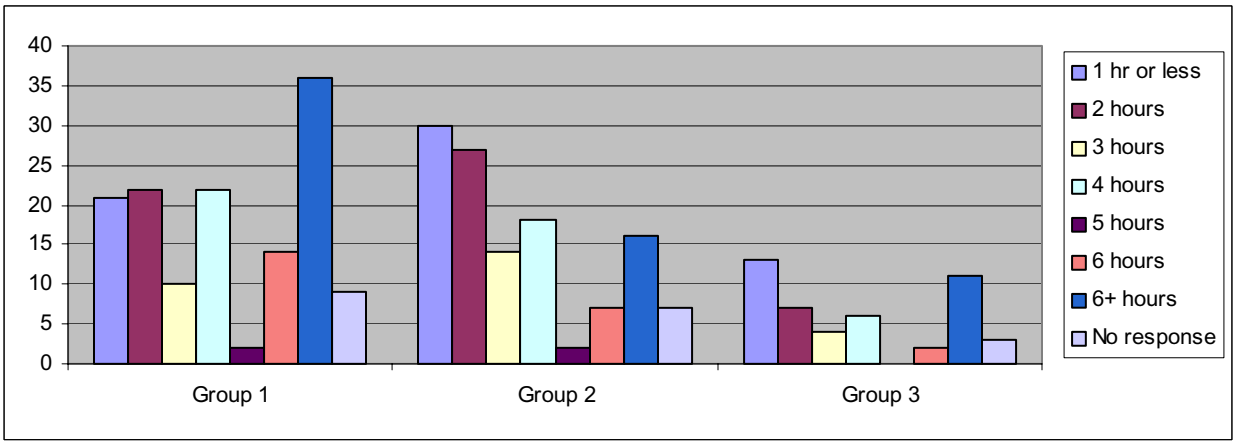
NATIONAL RESPONSES

2. Topic - New Key Concepts

(a)	Basic	Outline	Discuss	Explain	None	No response	Total
Group 1	47	7	17	62	0	3	136
Group 2	45	13	17	37	3	6	121
Group 3	18	5	2	20	0	1	46
Total	110	25	36	119	3	10	303



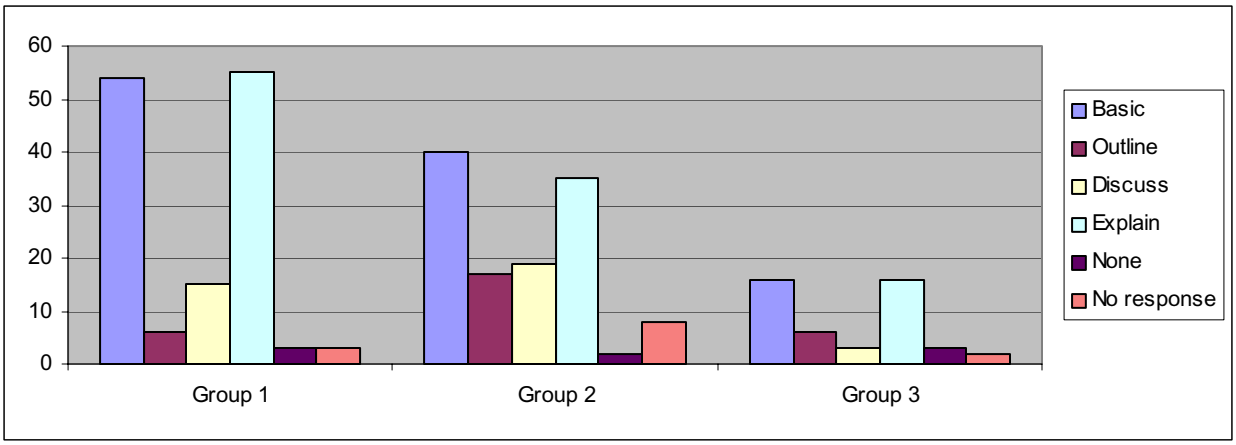
(b)	1 hr or less	2 hours	3 hours	4 hours	5 hours	6 hours	6+ hours	No response	Total
Group 1	21	22	10	22	2	14	36	9	136
Group 2	30	27	14	18	2	7	16	7	121
Group 3	13	7	4	6	0	2	11	3	46
Total	64	56	28	46	4	23	63	19	303



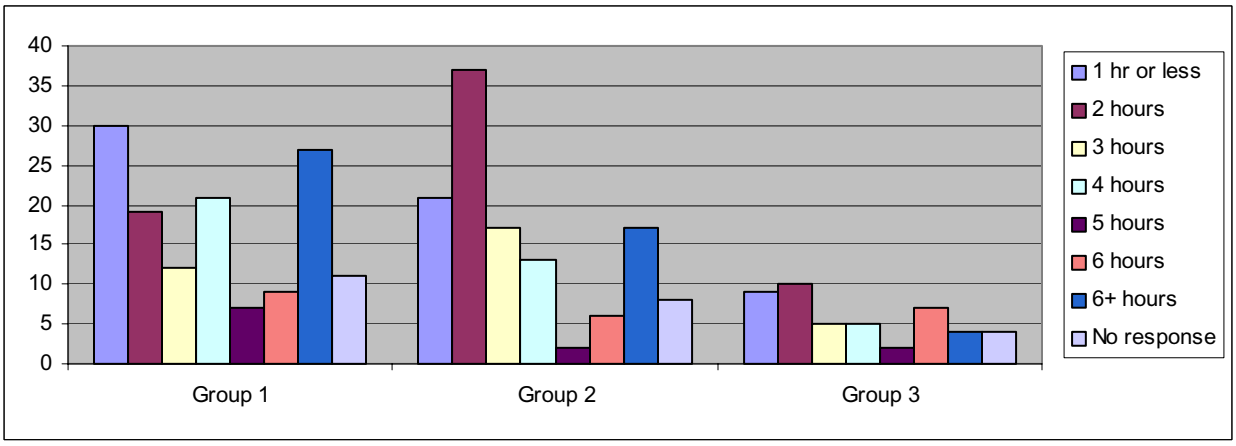
NATIONAL RESPONSES

3. Topic - Submitting Equivalent / Alternative Solutions

(a)	Basic	Outline	Discuss	Explain	None	No response	Total
Group 1	54	6	15	55	3	3	136
Group 2	40	17	19	35	2	8	121
Group 3	16	6	3	16	3	2	46
Total	110	29	37	106	8	13	303



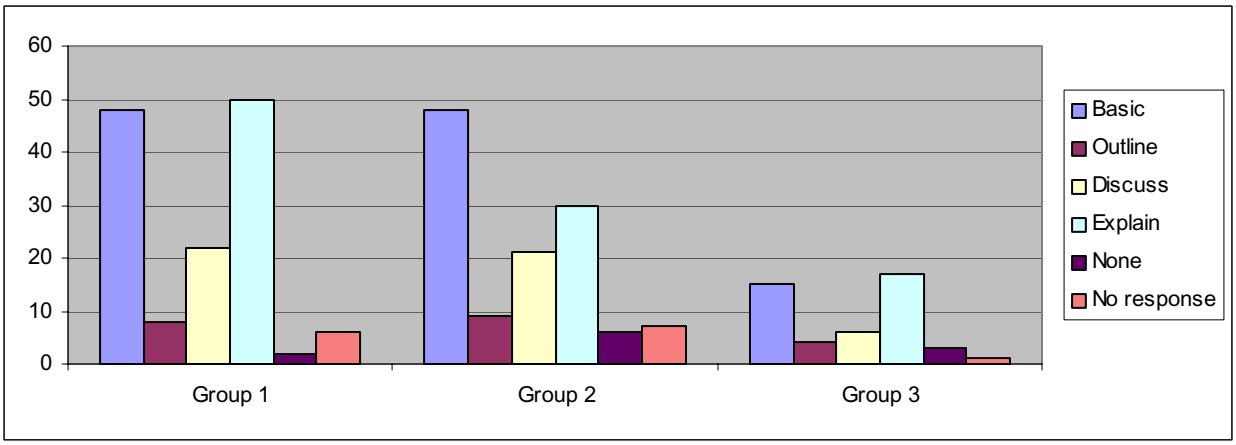
(b)	1 hr or less	2 hours	3 hours	4 hours	5 hours	6 hours	6+ hours	No response	Total
Group 1	30	19	12	21	7	9	27	11	136
Group 2	21	37	17	13	2	6	17	8	121
Group 3	9	10	5	5	2	7	4	4	46
Total	60	66	34	39	11	22	48	23	303



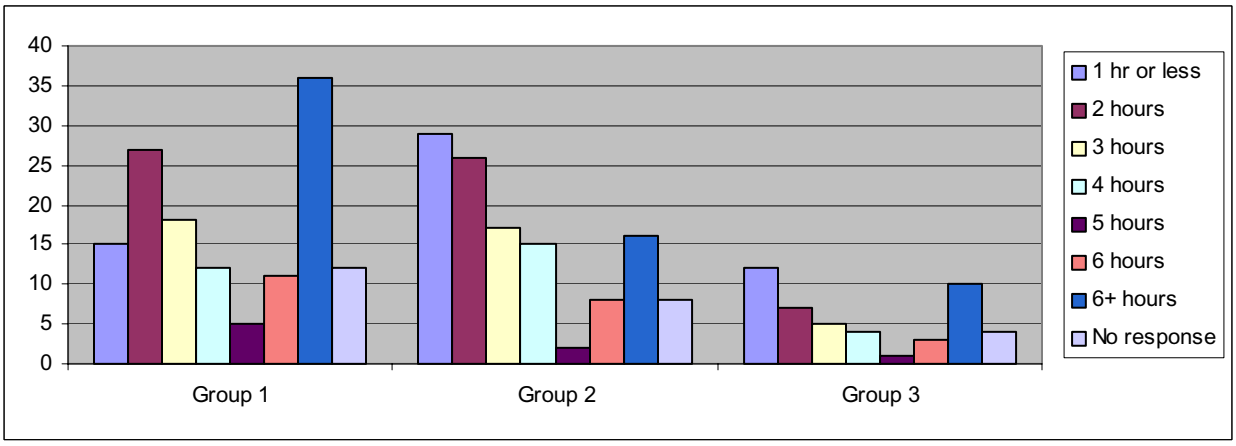
NATIONAL RESPONSES

4. Topic - Evaluating Equivalent / Alternative Solutions

(a)	Basic	Outline	Discuss	Explain	None	No response	Total
Group 1	48	8	22	50	2	6	136
Group 2	48	9	21	30	6	7	121
Group 3	15	4	6	17	3	1	46
Total	111	21	49	97	11	14	303



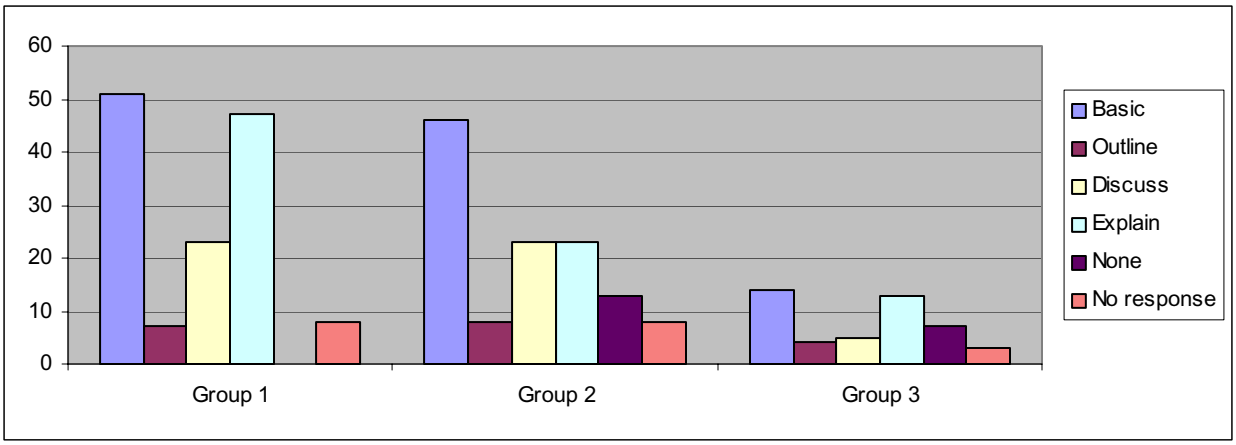
(b)	1 hr or less	2 hours	3 hours	4 hours	5 hours	6 hours	6+ hours	No response	Total
Group 1	15	27	18	12	5	11	36	12	136
Group 2	29	26	17	15	2	8	16	8	121
Group 3	12	7	5	4	1	3	10	4	46
Total	56	60	40	31	8	22	62	24	303



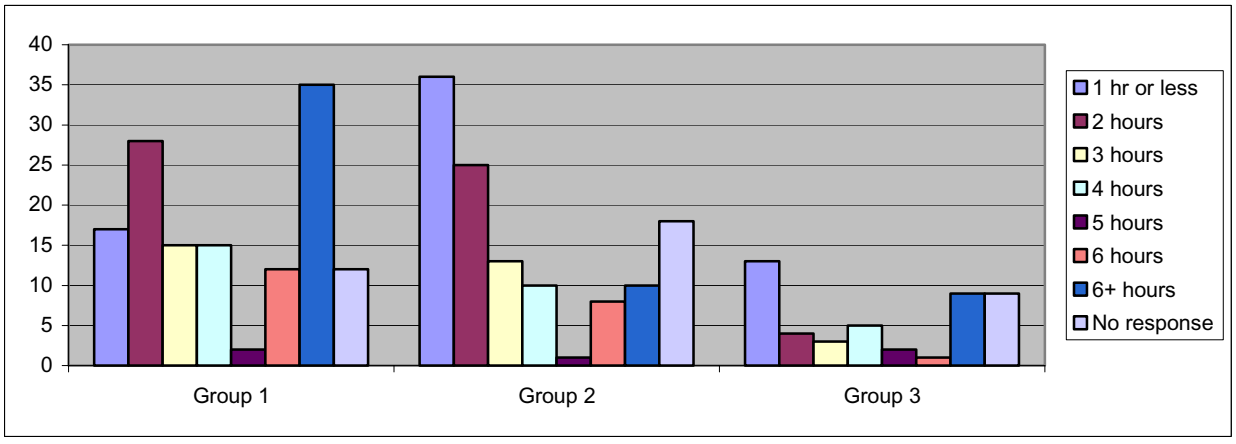
NATIONAL RESPONSES

5. Topic - Approving Equivalent / Alternative Solutions

(a)	Basic	Outline	Discuss	Explain	None	No response	Total
Group 1	51	7	23	47	0	8	136
Group 2	46	8	23	23	13	8	121
Group 3	14	4	5	13	7	3	46
Total	111	19	51	83	20	19	303



(b)	1 hr or less	2 hours	3 hours	4 hours	5 hours	6 hours	6+ hours	No response	Total
Group 1	17	28	15	15	2	12	35	12	136
Group 2	36	25	13	10	1	8	10	18	121
Group 3	13	4	3	5	2	1	9	9	46
Total	66	57	31	30	5	21	54	39	303



NATIONAL SURVEY QUESTIONNAIRE

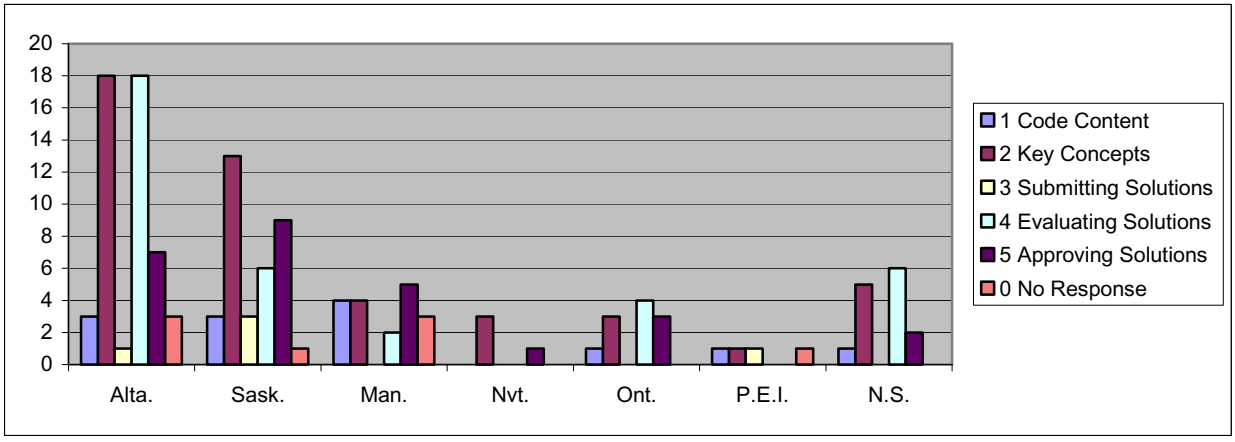
GREATEST TRAINING NEED HISTOGRAMS

- GROUP ONE RESPONSES
  BY PROVINCE/TERRITORY
- GROUP TWO RESPONSES
  BY PROVINCE/TERRITORY
- GROUP THREE RESPONSES
  BY PROVINCE/TERRITORY
- NATIONAL RESPONSE

GROUP ONE RESPONDENTS BY PROVINCE

6. Greatest Training Need

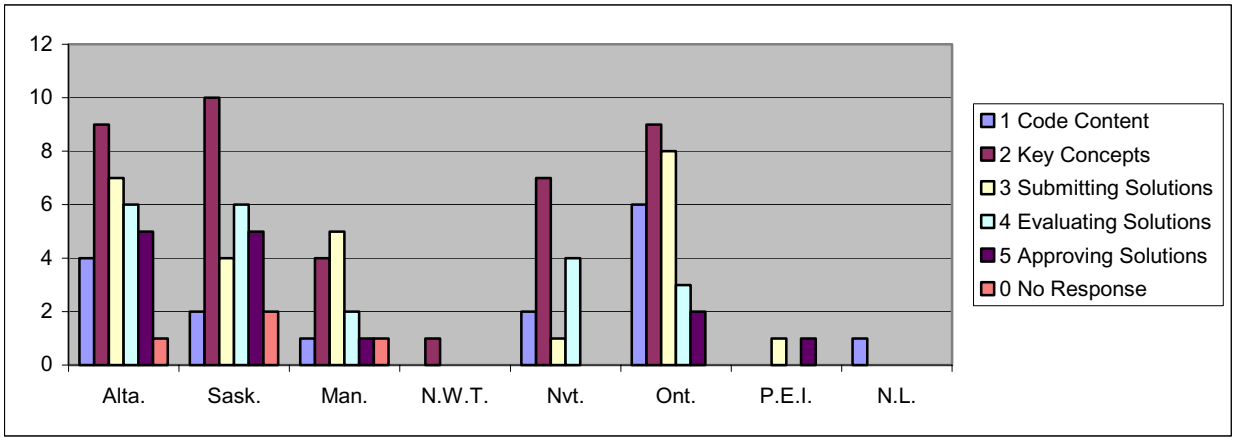
	1 Code Content	2 Key Concepts	3 Submitting Solutions	4 Evaluating Solutions	5 Approving Solutions	0 No Response	Total
Alta.	3	18	1	18	7	3	50
Sask.	3	13	3	6	9	1	35
Man.	4	4	0	2	5	3	18
Nvt.	0	3	0	0	1	0	4
Ont.	1	3	0	4	3	0	11
P.E.I.	1	1	1	0	0	1	4
N.S.	1	5	0	6	2	0	14
Total	13	47	5	36	27	8	136



GROUP TWO RESPONDENTS BY PROVINCE

6. Greatest Training Need

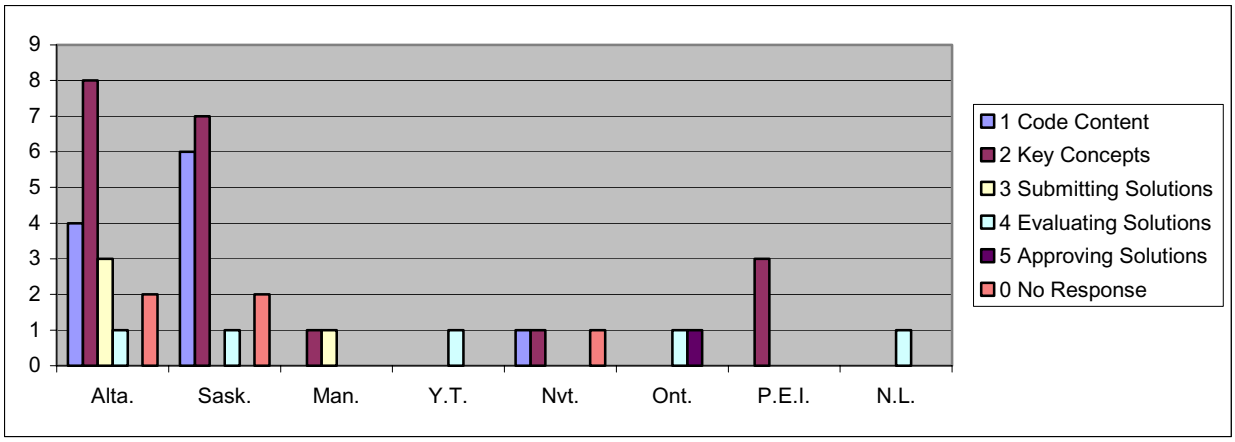
	1 Code Content	2 Key Concepts	3 Submitting Solutions	4 Evaluating Solutions	5 Approving Solutions	0 No Response	Total
Alta.	4	9	7	6	5	1	32
Sask.	2	10	4	6	5	2	29
Man.	1	4	5	2	1	1	14
N.W.T.	0	1	0	0	0	0	1
Nvt.	2	7	1	4	0	0	14
Ont.	6	9	8	3	2	0	28
P.E.I.	0	0	1	0	1	0	2
N.L.	1	0	0	0	0	0	1
Total	16	40	26	21	14	4	121



GROUP THREE RESPONDENTS BY PROVINCE

6. Greatest Training Need

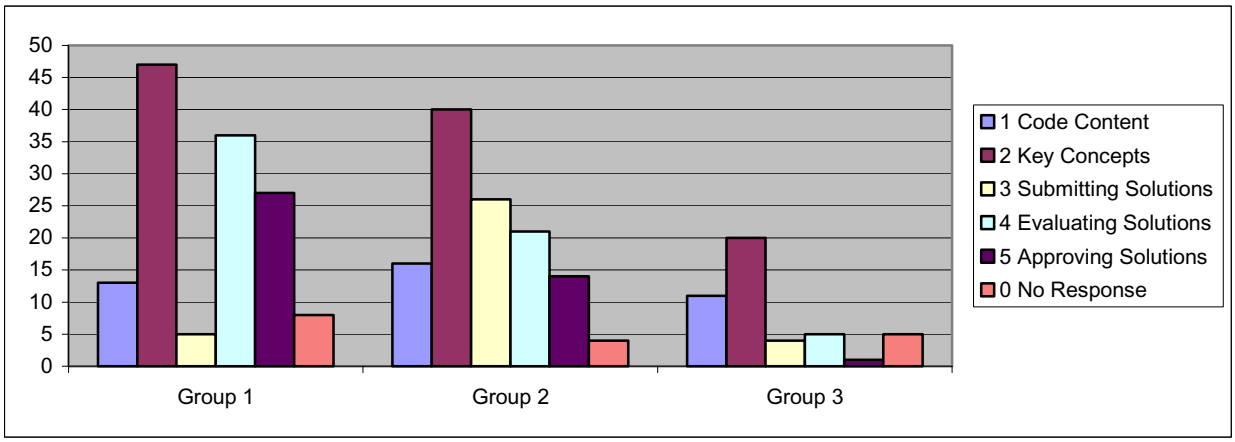
	1 Code Content	2 Key Concepts	3 Submitting Solutions	4 Evaluating Solutions	5 Approving Solutions	0 No Response	Total
Alta.	4	8	3	1	0	2	18
Sask.	6	7	0	1	0	2	16
Man.	0	1	1	0	0	0	2
Y.T.	0	0	0	1	0	0	1
Nvt.	1	1	0	0	0	1	3
Ont.	0	0	0	1	1	0	2
P.E.I.	0	3	0	0	0	0	3
N.L.	0	0	0	1	0	0	1
Total	11	20	4	5	1	5	46



NATIONAL RESPONSES

6. Greatest Training Need

	1 Code Content	2 Key Concepts	3 Submitting Solutions	4 Evaluating Solutions	5 Approving Solutions	0 No Response	Total
Group 1	13	47	5	36	27	8	136
Group 2	16	40	26	21	14	4	121
Group 3	11	20	4	5	1	5	46
Total	40	107	35	62	42	17	303



NATIONAL SURVEY QUESTIONNAIRE

PREFERENCES FOR TRAINING DELIVERY HISTOGRAMS

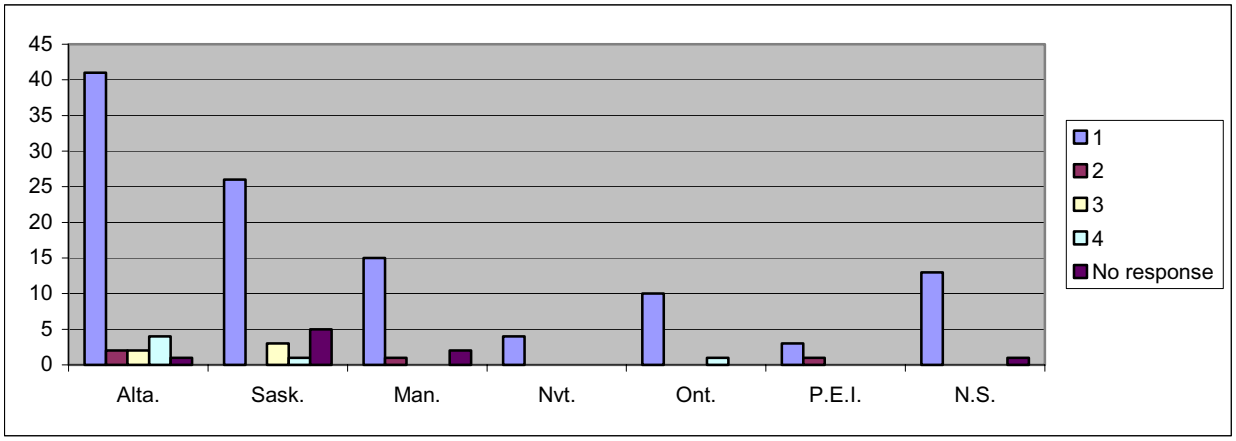
- GROUP ONE RESPONSES BY PROVINCE/TERRITORY
- GROUP TWO RESPONSES BY PROVINCE/TERRITORY
- GROUP THREE RESPONSES BY PROVINCE/TERRITORY
- NATIONAL RESPONSES

GROUP ONE RESPONDENTS BY PROVINCE

8. Preferences for non-technical training delivery ranked from 1 (most) to 4 (least)

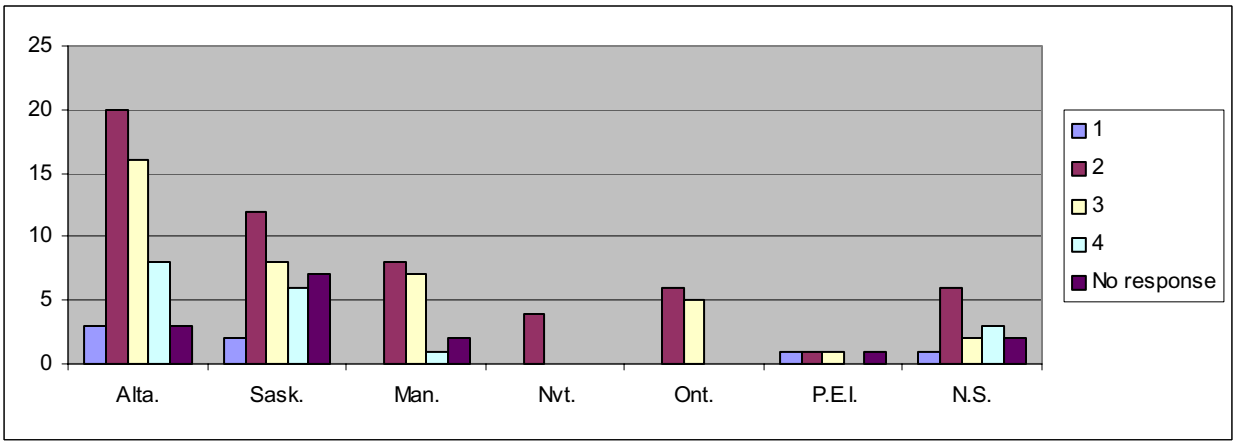
(a) Classroom-based instructor/facilitator

	1	2	3	4	No response	Total
Alta.	41	2	2	4	1	50
Sask.	26	0	3	1	5	35
Man.	15	1	0	0	2	18
Nvt.	4	0	0	0	0	4
Ont.	10	0	0	1	0	11
P.E.I.	3	1	0	0	0	4
N.S.	13	0	0	0	1	14
Total	112	4	5	6	9	136



(b) Web-based, instructor/facilitator assisted

	1	2	3	4	No response	Total
Alta.	3	20	16	8	3	50
Sask.	2	12	8	6	7	35
Man.	0	8	7	1	2	18
Nvt.	0	4	0	0	0	4
Ont.	0	6	5	0	0	11
P.E.I.	1	1	1	0	1	4
N.S.	1	6	2	3	2	14
Total	7	57	39	18	15	136

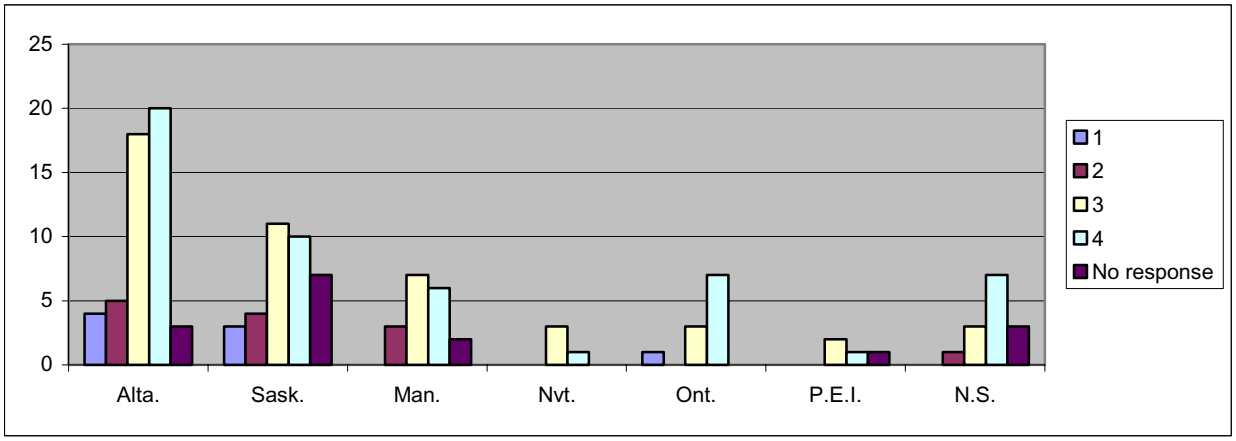


GROUP ONE RESPONDENTS BY PROVINCE

8. Preferences for non-technical training delivery ranked from 1 (most) to 4 (least)

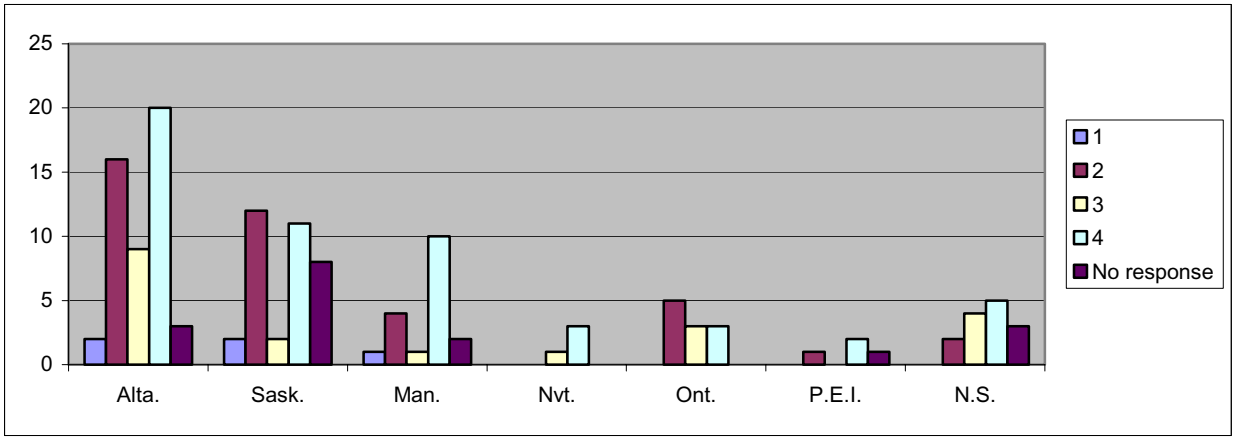
(c) Web-based, independent learning

	1	2	3	4	No response	Total
Alta.	4	5	18	20	3	50
Sask.	3	4	11	10	7	35
Man.	0	3	7	6	2	18
Nvt.	0	0	3	1	0	4
Ont.	1	0	3	7	0	11
P.E.I.	0	0	2	1	1	4
N.S.	0	1	3	7	3	14
Total	8	13	47	52	16	136



(d) Non web-based, independent learning

	1	2	3	4	No response	Total
Alta.	2	16	9	20	3	50
Sask.	2	12	2	11	8	35
Man.	1	4	1	10	2	18
Nvt.	0	0	1	3	0	4
Ont.	0	5	3	3	0	11
P.E.I.	0	1	0	2	1	4
N.S.	0	2	4	5	3	14
Total	5	40	20	54	17	136

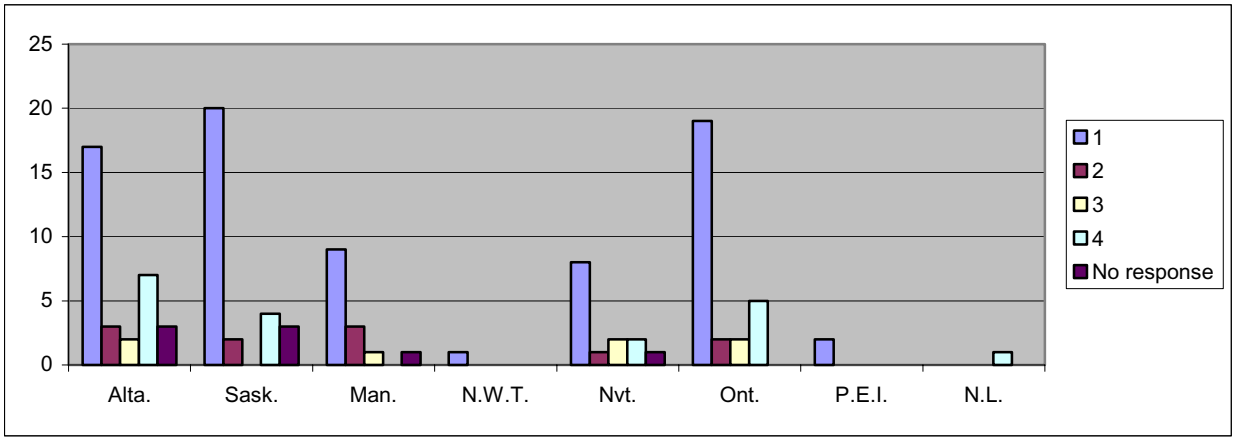


GROUP TWO RESPONDENTS BY PROVINCE

8. Preferences for non-technical training delivery ranked from 1 (most) to 4 (least)

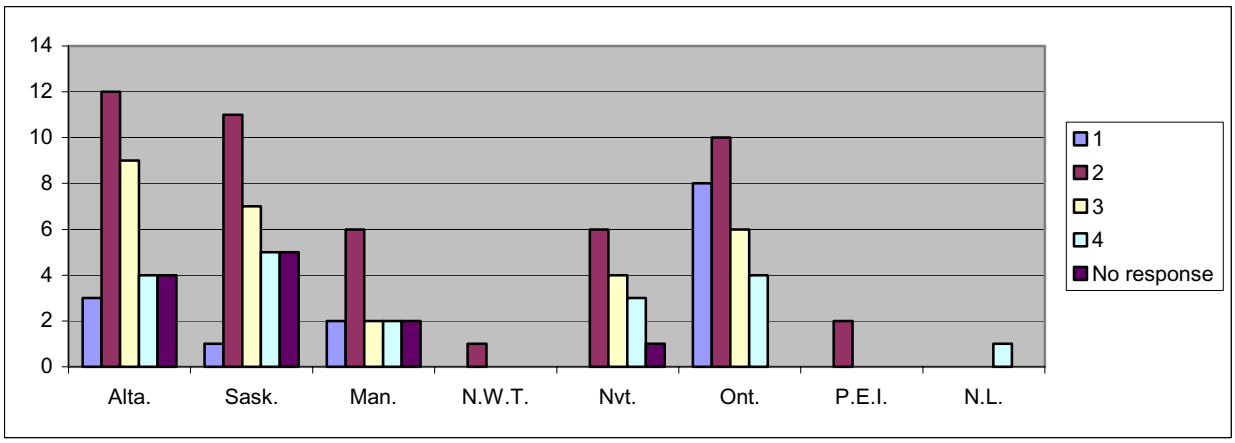
(a) Classroom-based instructor/facilitator

	1	2	3	4	No response	Total
Alta.	17	3	2	7	3	32
Sask.	20	2	0	4	3	29
Man.	9	3	1	0	1	14
N.W.T.	1	0	0	0	0	1
Nvt.	8	1	2	2	1	14
Ont.	19	2	2	5	0	28
P.E.I.	2	0	0	0	0	2
N.L.	0	0	0	1	0	1
Total	76	11	7	19	8	121



(b) Web-based, instructor/facilitator assisted

	1	2	3	4	No response	Total
Alta.	3	12	9	4	4	32
Sask.	1	11	7	5	5	29
Man.	2	6	2	2	2	14
N.W.T.	0	1	0	0	0	1
Nvt.	0	6	4	3	1	14
Ont.	8	10	6	4	0	28
P.E.I.	0	2	0	0	0	2
N.L.	0	0	0	1	0	1
Total	14	48	28	19	12	121

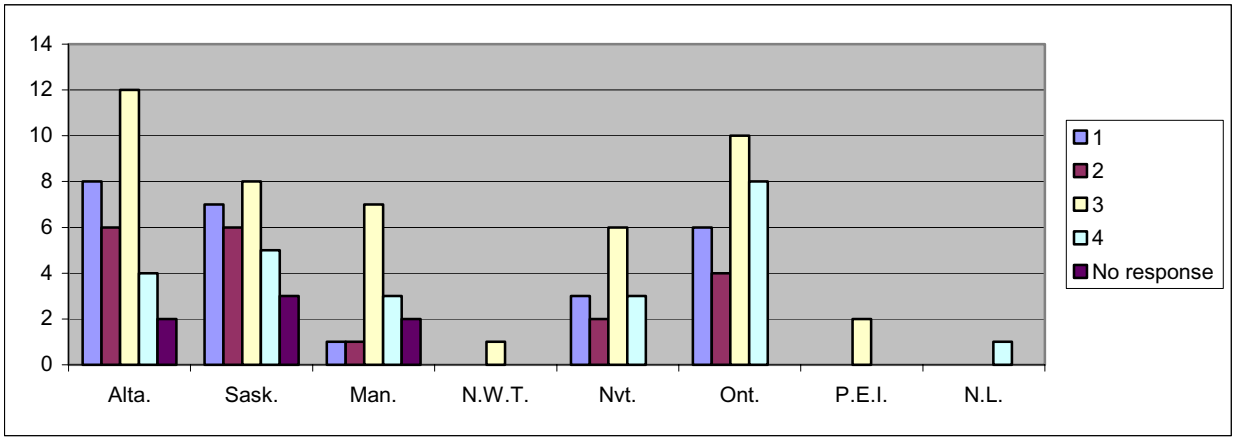


GROUP TWO RESPONDENTS BY PROVINCE

8. Preferences for non-technical training delivery ranked from 1 (most) to 4 (least)

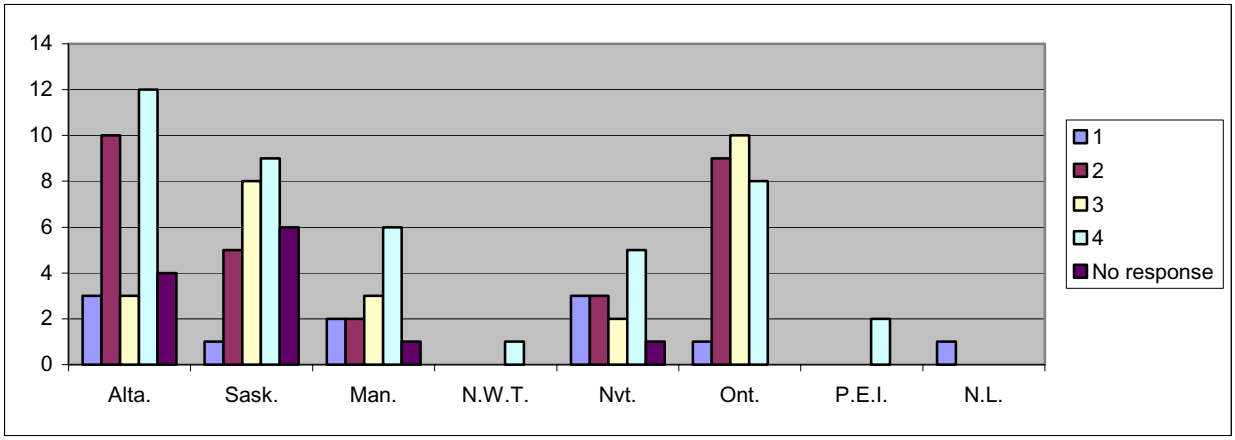
(c) Web-based, independent learning

	1	2	3	4	No response	Total
Alta.	8	6	12	4	2	32
Sask.	7	6	8	5	3	29
Man.	1	1	7	3	2	14
N.W.T.	0	0	1	0	0	1
Nvt.	3	2	6	3	0	14
Ont.	6	4	10	8	0	28
P.E.I.	0	0	2	0	0	2
N.L.	0	0	0	1	0	1
Total	25	19	46	24	7	121



(d) Non web-based, independent learning

	1	2	3	4	No response	Total
Alta.	3	10	3	12	4	32
Sask.	1	5	8	9	6	29
Man.	2	2	3	6	1	14
N.W.T.	0	0	0	1	0	1
Nvt.	3	3	2	5	1	14
Ont.	1	9	10	8	0	28
P.E.I.	0	0	0	2	0	2
N.L.	1	0	0	0	0	1
Total	11	29	26	43	12	121

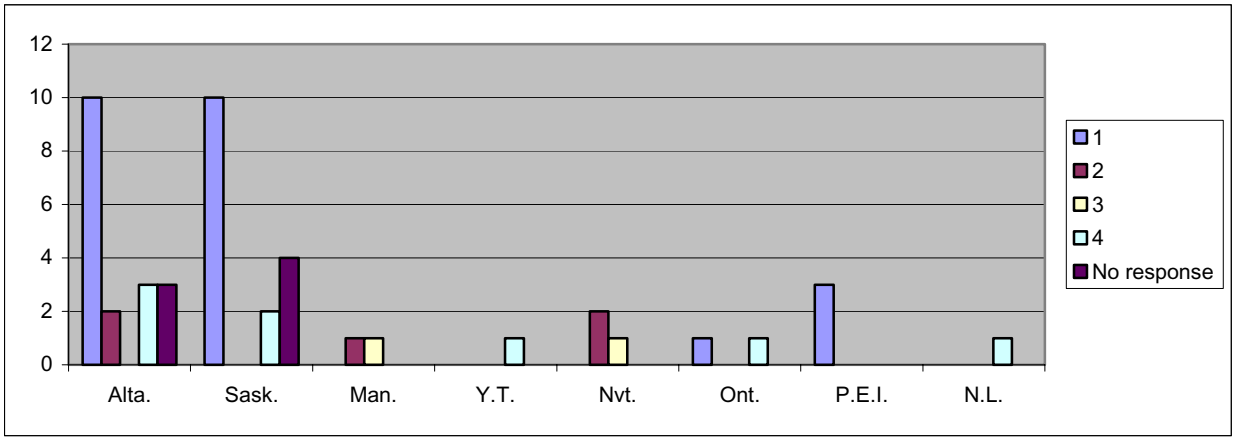


GROUP THREE RESPONDENTS BY PROVINCE

8. Preferences for non-technical training delivery ranked from 1 (most) to 4 (least)

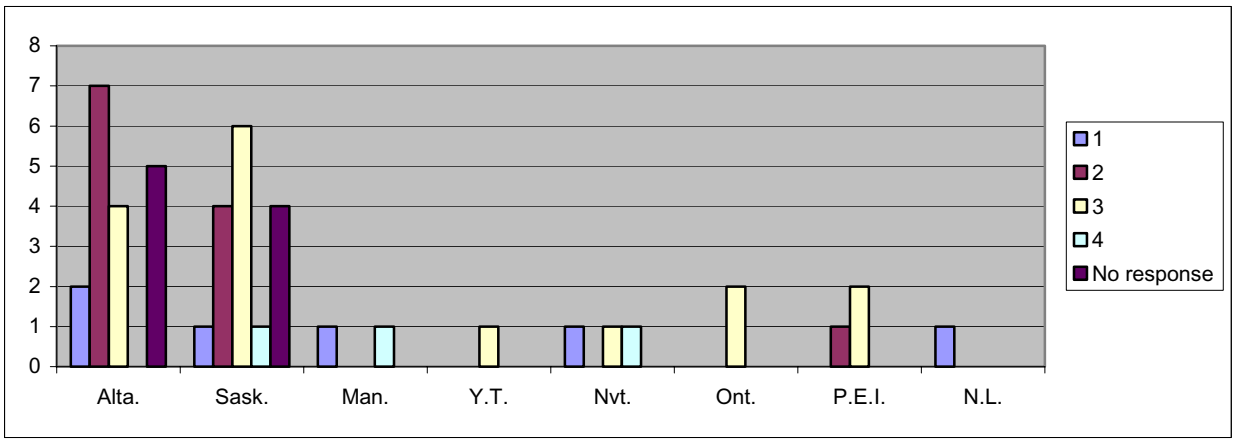
(a) Classroom-based instructor/facilitator

	1	2	3	4	No response	Total
Alta.	10	2	0	3	3	18
Sask.	10	0	0	2	4	16
Man.	0	1	1	0	0	2
Y.T.	0	0	0	1	0	1
Nvt.	0	2	1	0	0	3
Ont.	1	0	0	1	0	2
P.E.I.	3	0	0	0	0	3
N.L.	0	0	0	1	0	1
Total	24	5	2	8	7	46



(b) Web-based, instructor/facilitator assisted

	1	2	3	4	No response	Total
Alta.	2	7	4	0	5	18
Sask.	1	4	6	1	4	16
Man.	1	0	0	1	0	2
Y.T.	0	0	1	0	0	1
Nvt.	1	0	1	1	0	3
Ont.	0	0	2	0	0	2
P.E.I.	0	1	2	0	0	3
N.L.	1	0	0	0	0	1
Total	6	12	16	3	9	46

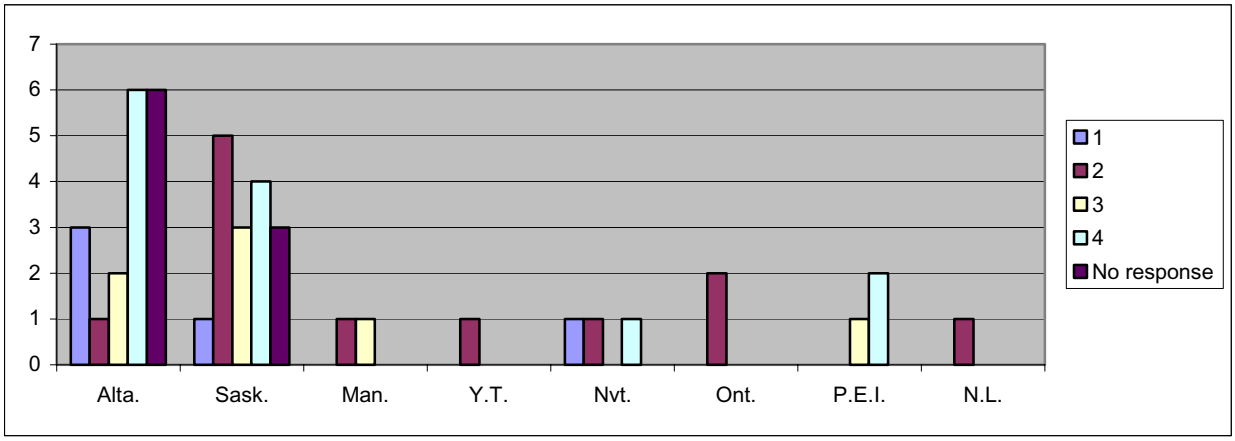


GROUP THREE RESPONDENTS BY PROVINCE

8. Preferences for non-technical training delivery ranked from 1 (most) to 4 (least)

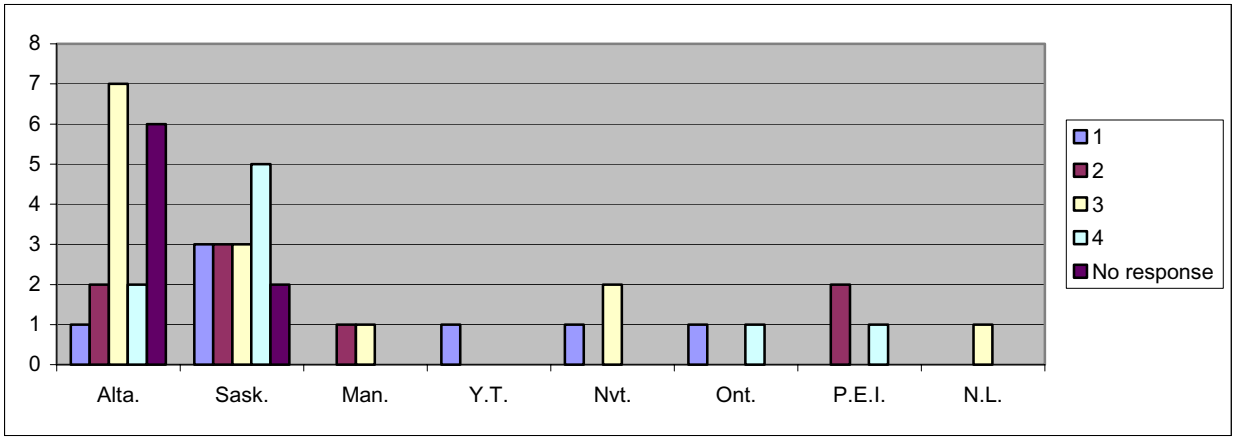
(c) Web-based, independent learning

	1	2	3	4	No response	Total
Alta.	3	1	2	6	6	18
Sask.	1	5	3	4	3	16
Man.	0	1	1	0	0	2
Y.T.	0	1	0	0	0	1
Nvt.	1	1	0	1	0	3
Ont.	0	2	0	0	0	2
P.E.I.	0	0	1	2	0	3
N.L.	0	1	0	0	0	1
Total	5	12	7	13	9	46



(d) Non web-based, independent learning

	1	2	3	4	No response	Total
Alta.	1	2	7	2	6	18
Sask.	3	3	3	5	2	16
Man.	0	1	1	0	0	2
Y.T.	1	0	0	0	0	1
Nvt.	1	0	2	0	0	3
Ont.	1	0	0	1	0	2
P.E.I.	0	2	0	1	0	3
N.L.	0	0	1	0	0	1
Total	7	8	14	9	8	46

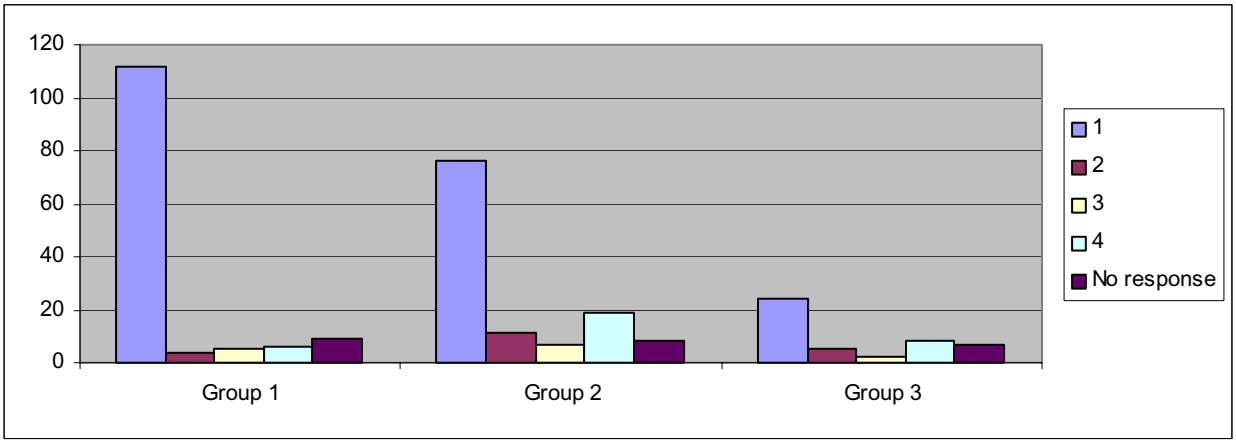

8
7
6
5
4
3
2
1
0
Alta.
Sask.
Man.
Y.T.
Nvt.
Ont.
P.E.I.
N.L.
1
2
3
4
No response

NATIONAL RESPONSES

8. Preferences for non-technical training delivery ranked from 1 (most) to 4 (least)

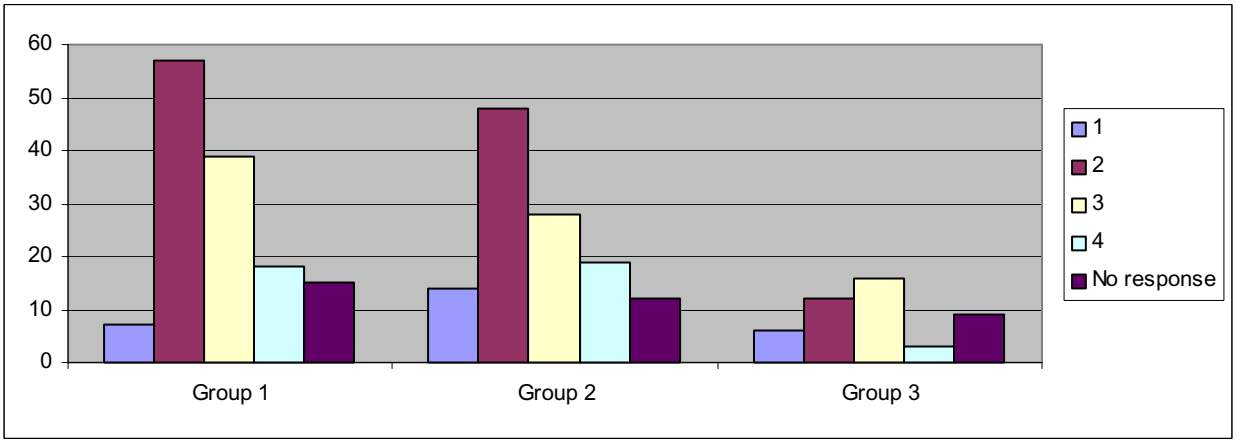
(a) Classroom-based instructor/facilitator

	1	2	3	4	No response	Total
Group 1	112	4	5	6	9	136
Group 2	76	11	7	19	8	121
Group 3	24	5	2	8	7	46
Total	212	20	14	33	24	303



(b) Web-based, instructor/facilitator assisted

	1	2	3	4	No response	Total
Group 1	7	57	39	18	15	136
Group 2	14	48	28	19	12	121
Group 3	6	12	16	3	9	46
Total	27	117	83	40	36	303

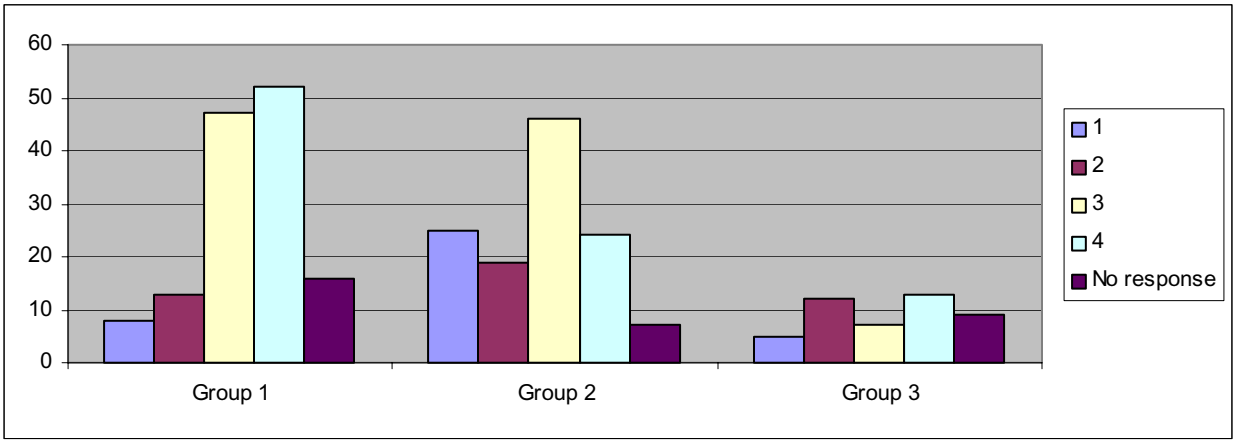


NATIONAL RESPONSES

8. Preferences for non-technical training delivery ranked from 1 (most) to 4 (least)

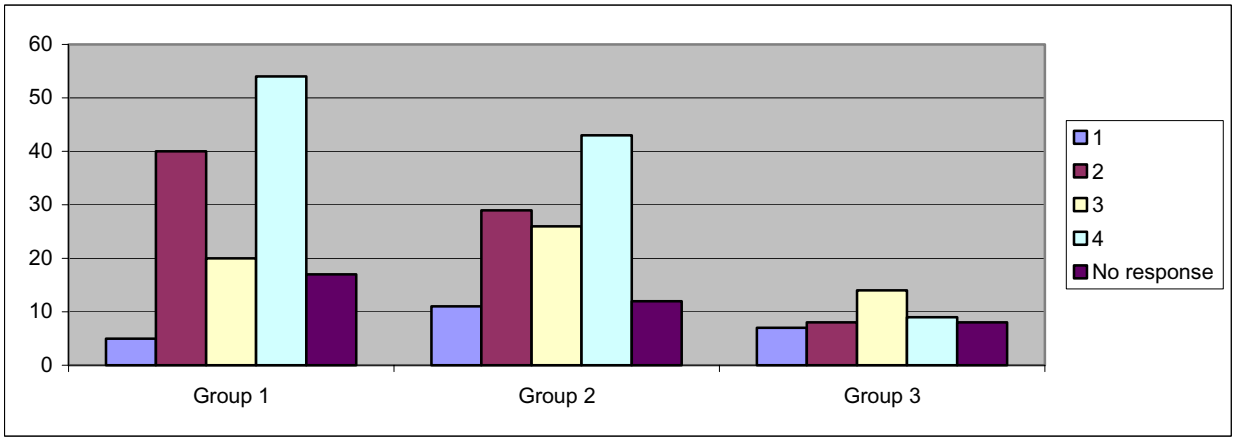
(c) Web-based, independent learning

	1	2	3	4	No response	Total
Group 1	8	13	47	52	16	136
Group 2	25	19	46	24	7	121
Group 3	5	12	7	13	9	46
Total	38	44	100	89	32	303



(d) Non web-based, independent learning

	1	2	3	4	No response	Total
Group 1	5	40	20	54	17	136
Group 2	11	29	26	43	12	121
Group 3	7	8	14	9	8	46
Total	23	77	60	106	37	303



NATIONAL SURVEY QUESTIONNAIRE

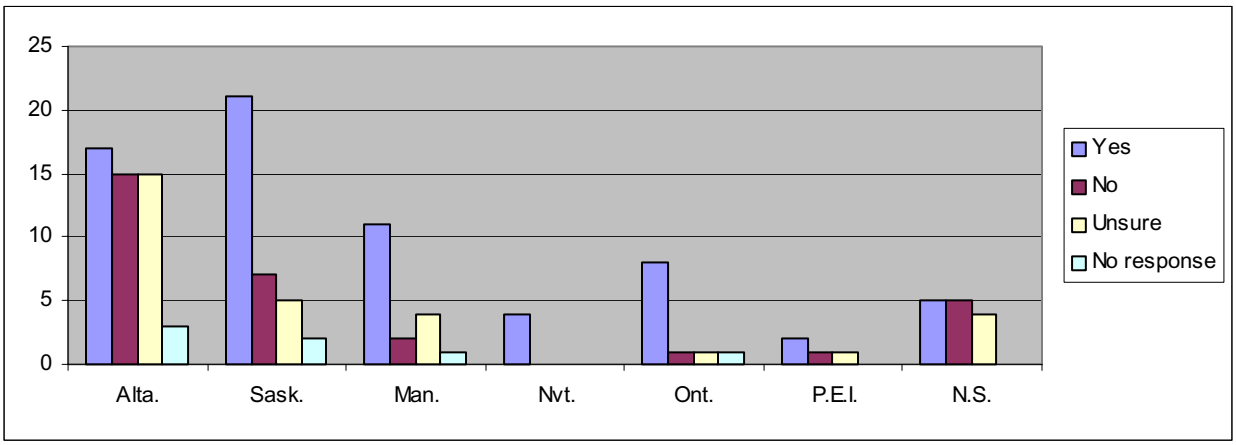
REQUIREMENT FOR RECOGNITION HISTOGRAMS

- GROUP ONE RESPONSES BY PROVINCE/TERRITORY
- GROUP TWO RESPONSES BY PROVINCE/TERRITORY
- GROUP THREE RESPONSES BY PROVINCE/TERRITORY
- NATIONAL RESPONSES

GROUP ONE RESPONDENTS BY PROVINCE

9. Do you require recognition for the non-technical training?

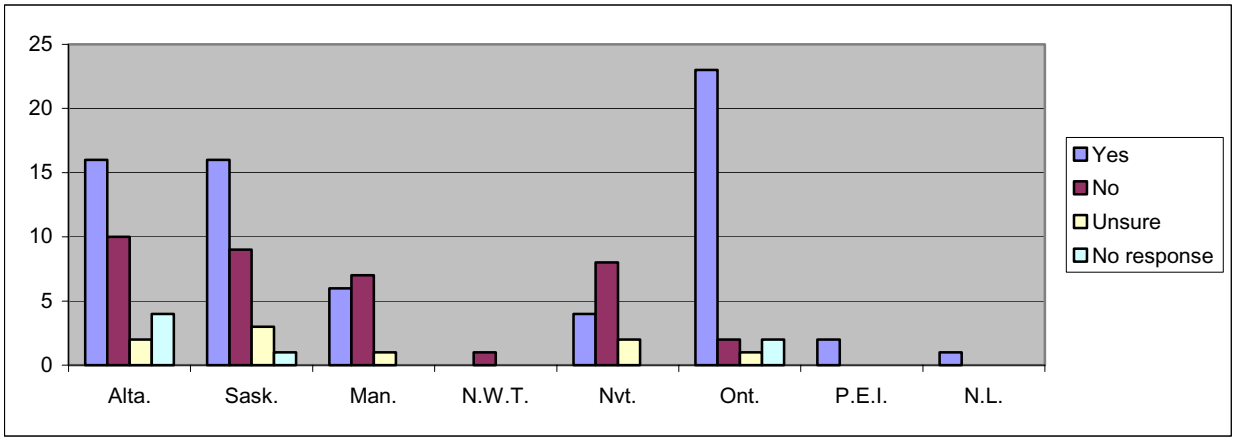
	Yes	No	Unsure	No response	Total
Alta.	17	15	15	3	50
Sask.	21	7	5	2	35
Man.	11	2	4	1	18
Nvt.	4	0	0	0	4
Ont.	8	1	1	1	11
P.E.I.	2	1	1	0	4
N.S.	5	5	4	0	14
Total	68	31	30	7	136



GROUP TWO RESPONDENTS BY PROVINCE

9. Do you require recognition for the non-technical training?

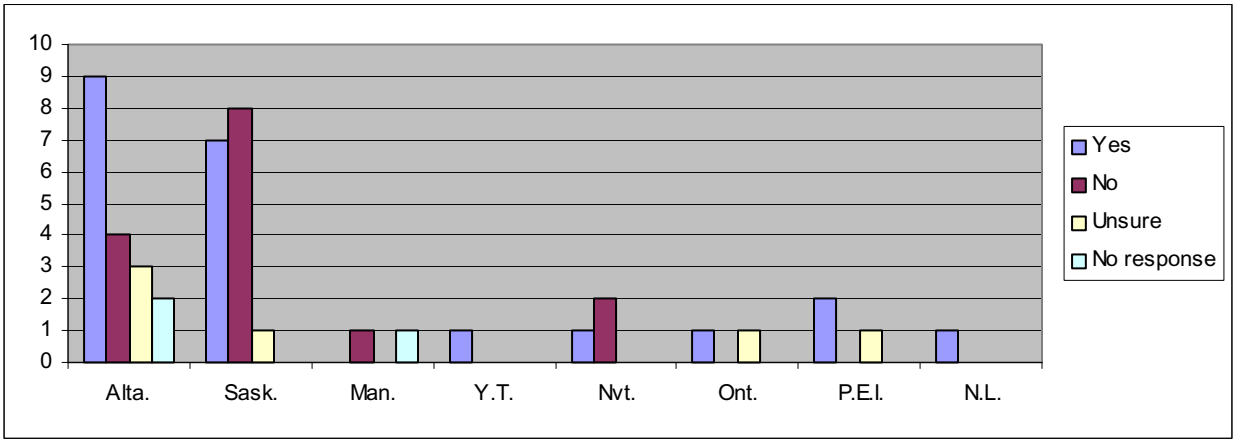
	Yes	No	Unsure	No response	Total
Alta.	16	10	2	4	32
Sask.	16	9	3	1	29
Man.	6	7	1	0	14
N.W.T.	0	1	0	0	1
Nvt.	4	8	2	0	14
Ont.	23	2	1	2	28
P.E.I.	2	0	0	0	2
N.L.	1	0	0	0	1
Total	68	37	9	7	121



GROUP THREE RESPONDENTS BY PROVINCE

9. Do you require recognition for the non-technical training?

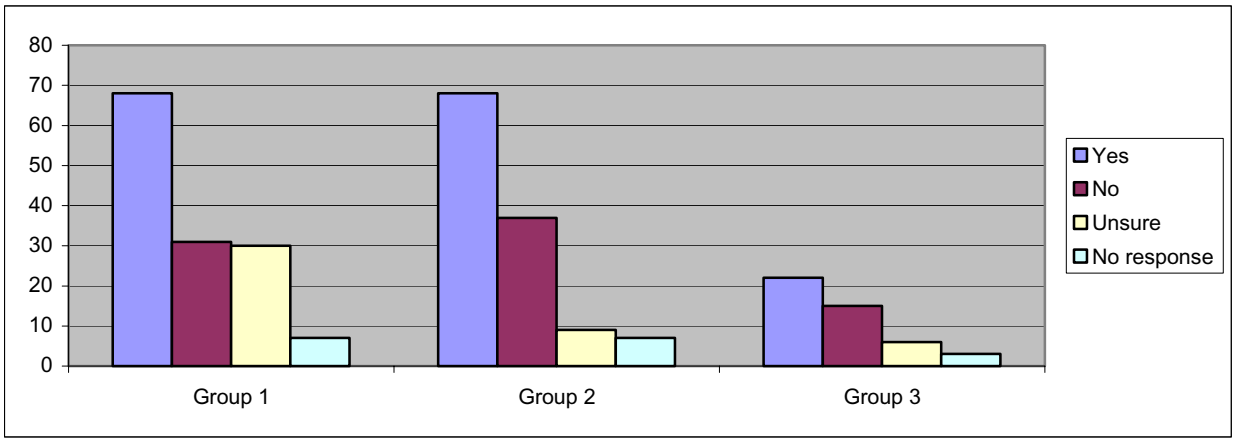
	Yes	No	Unsure	No response	Total
Alta.	9	4	3	2	18
Sask.	7	8	1	0	16
Man.	0	1	0	1	2
Y.T.	1	0	0	0	1
Nvt.	1	2	0	0	3
Ont.	1	0	1	0	2
P.E.I.	2	0	1	0	3
N.L.	1	0	0	0	1
Total	22	15	6	3	46



NATIONAL RESPONSES

9. Do you require recognition for the non-technical training?

	Yes	No	Unsure	No response	Total
Group 1	68	31	30	7	136
Group 2	68	37	9	7	121
Group 3	22	15	6	3	46
Total	158	83	45	17	303



NATIONAL SURVEY QUESTIONNAIRE

PREFERENCE FOR TRAINING DELIVERY PROVIDER HISTOGRAMS

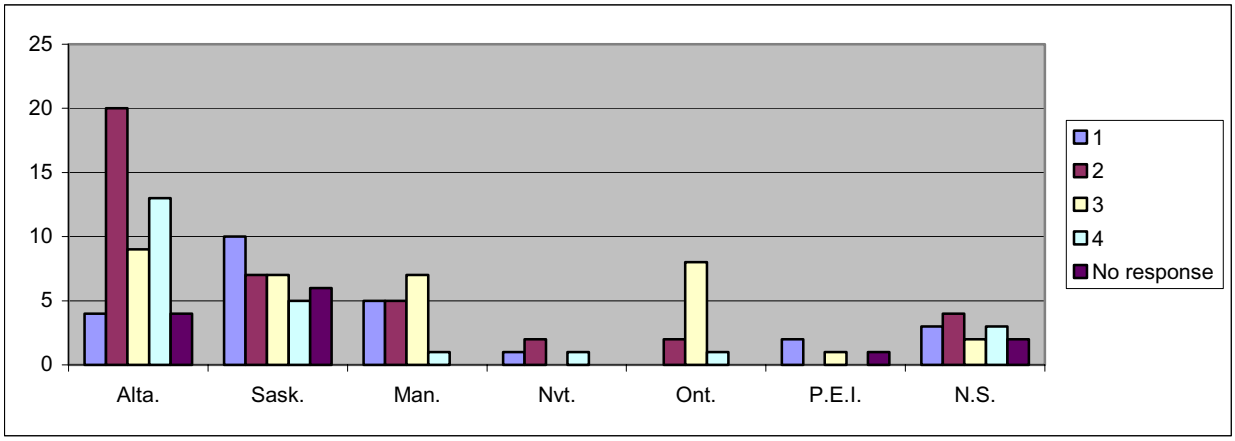
- GROUP ONE RESPONSES BY PROVINCE/TERRITORY
- GROUP TWO RESPONSES BY PROVINCE/TERRITORY
- GROUP THREE RESPONSES BY PROVINCE/TERRITORY
- NATIONAL RESPONSES

GROUP ONE RESPONDENTS BY PROVINCE

10. Preferences for training delivery ranked from 1 (most) to 4 (least)

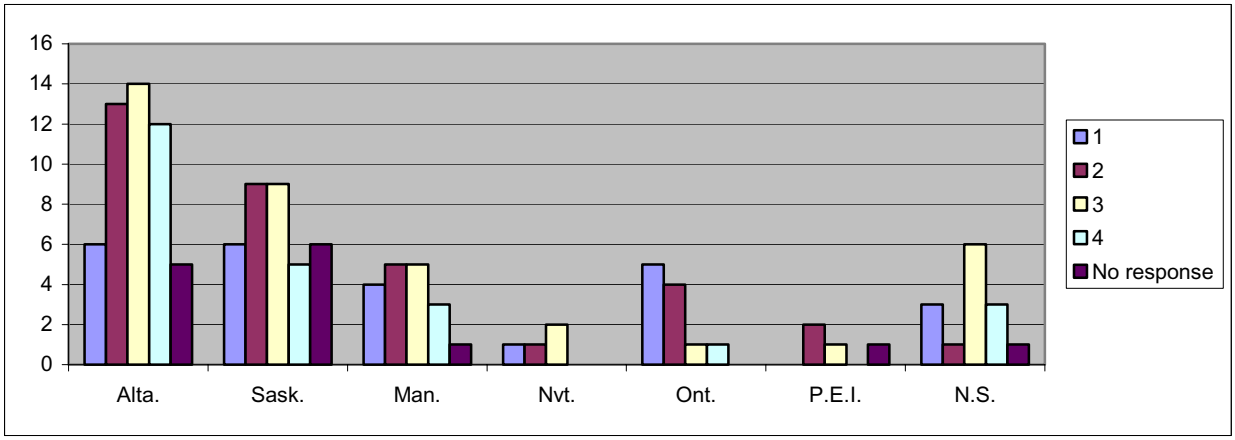
(a) Community College / University

	1	2	3	4	No response	Total
Alta.	4	20	9	13	4	50
Sask.	10	7	7	5	6	35
Man.	5	5	7	1	0	18
Nvt.	1	2	0	1	0	4
Ont.	0	2	8	1	0	11
P.E.I.	2	0	1	0	1	4
N.S.	3	4	2	3	2	14
Total	25	40	34	24	13	136



(b) Professional / Industry Association

	1	2	3	4	No response	Total
Alta.	6	13	14	12	5	50
Sask.	6	9	9	5	6	35
Man.	4	5	5	3	1	18
Nvt.	1	1	2	0	0	4
Ont.	5	4	1	1	0	11
P.E.I.	0	2	1	0	1	4
N.S.	3	1	6	3	1	14
Total	25	35	38	24	14	136

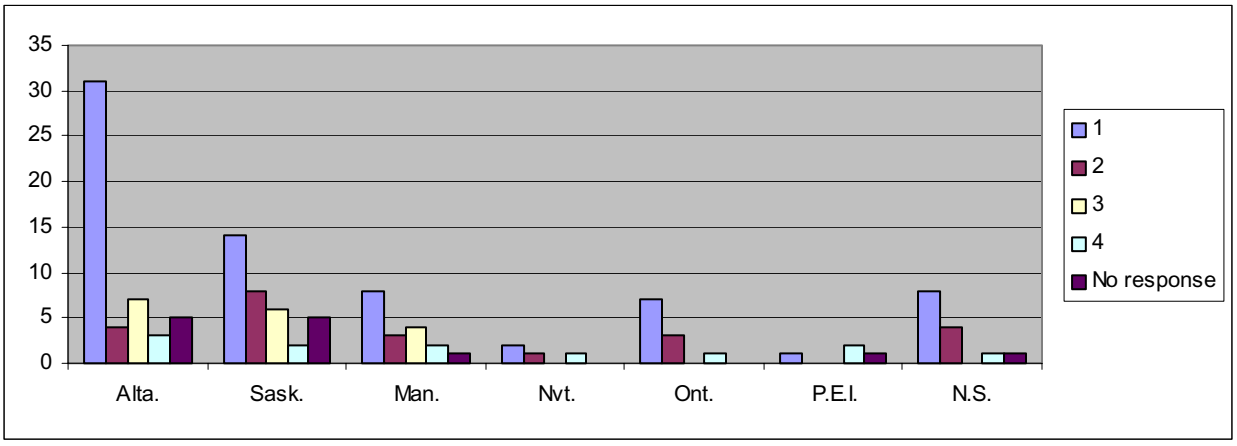


GROUP ONE RESPONDENTS BY PROVINCE

10. Preferences for training delivery ranked from 1 (most) to 4 (least)

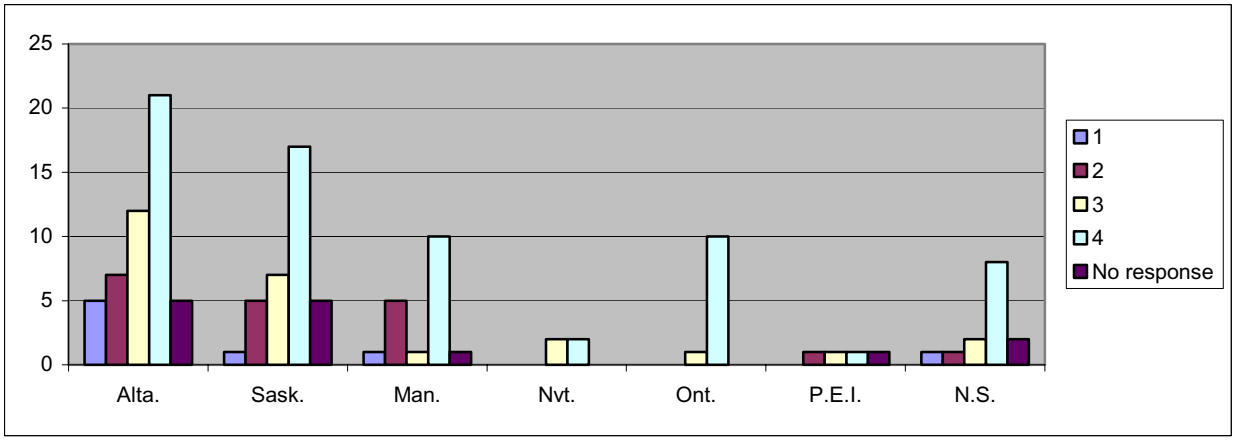
(c) Regulatory Authority

	1	2	3	4	No response	Total
Alta.	31	4	7	3	5	50
Sask.	14	8	6	2	5	35
Man.	8	3	4	2	1	18
Nvt.	2	1	0	1	0	4
Ont.	7	3	0	1	0	11
P.E.I.	1	0	0	2	1	4
N.S.	8	4	0	1	1	14
Total	71	23	17	12	13	136



(d) Trade School

	1	2	3	4	No response	Total
Alta.	5	7	12	21	5	50
Sask.	1	5	7	17	5	35
Man.	1	5	1	10	1	18
Nvt.	0	0	2	2	0	4
Ont.	0	0	1	10	0	11
P.E.I.	0	1	1	1	1	4
N.S.	1	1	2	8	2	14
Total	8	19	26	69	14	136

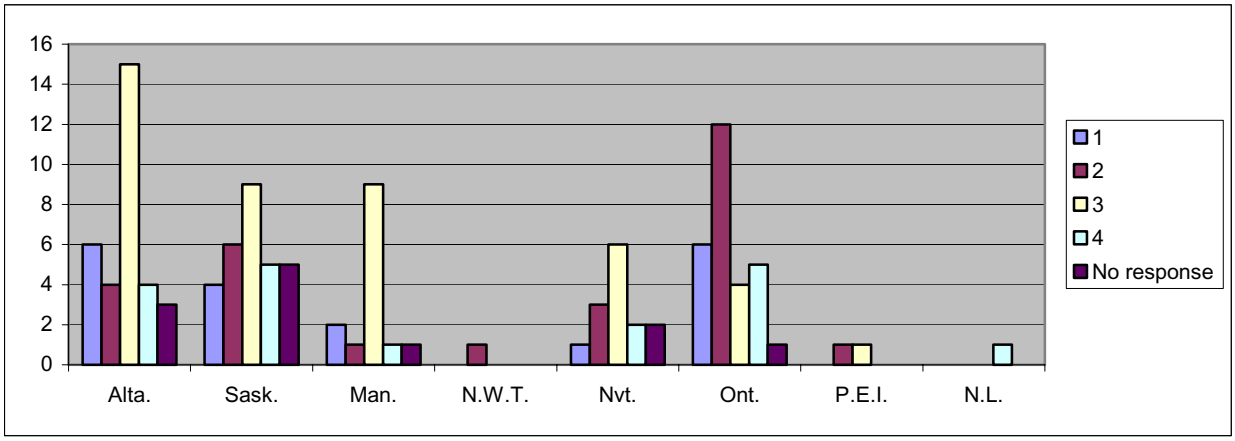


GROUP TWO RESPONDENTS BY PROVINCE

10. Preferences for training delivery ranked from 1 (most) to 4 (least)

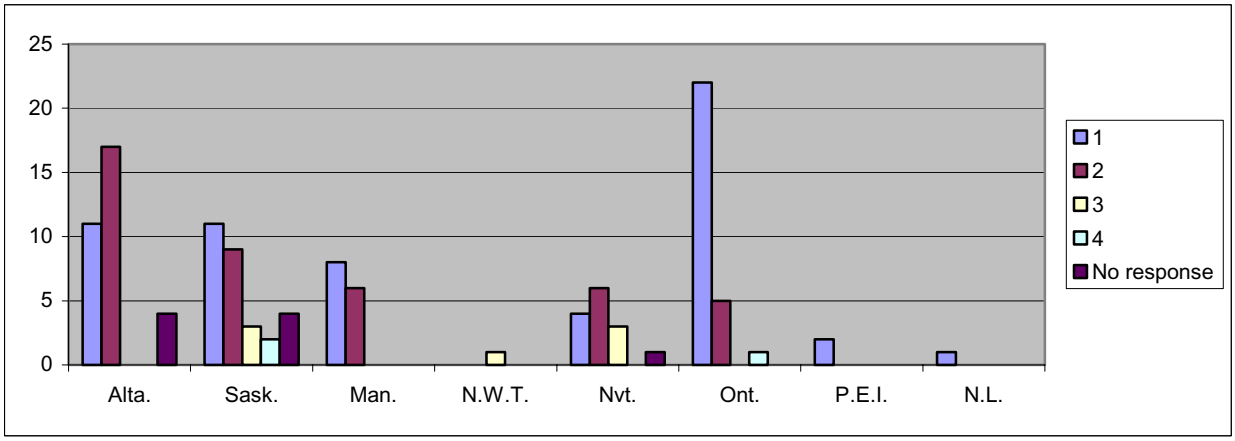
(a) Community College / University

	1	2	3	4	No response	Total
Alta.	6	4	15	4	3	32
Sask.	4	6	9	5	5	29
Man.	2	1	9	1	1	14
N.W.T.	0	1	0	0	0	1
Nvt.	1	3	6	2	2	14
Ont.	6	12	4	5	1	28
P.E.I.	0	1	1	0	0	2
N.L.	0	0	0	1	0	1
Total	19	28	44	18	12	121



(b) Professional / Industry Association

	1	2	3	4	No response	Total
Alta.	11	17	0	0	4	32
Sask.	11	9	3	2	4	29
Man.	8	6	0	0	0	14
N.W.T.	0	0	1	0	0	1
Nvt.	4	6	3	0	1	14
Ont.	22	5	0	1	0	28
P.E.I.	2	0	0	0	0	2
N.L.	1	0	0	0	0	1
Total	59	43	7	3	9	121

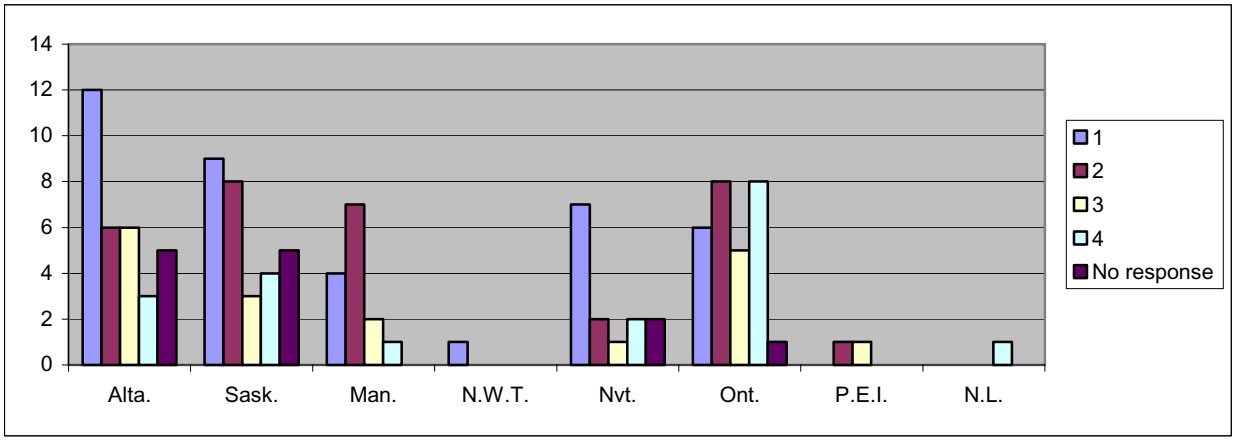


GROUP TWO RESPONDENTS BY PROVINCE

10. Preferences for training delivery ranked from 1 (most) to 4 (least)

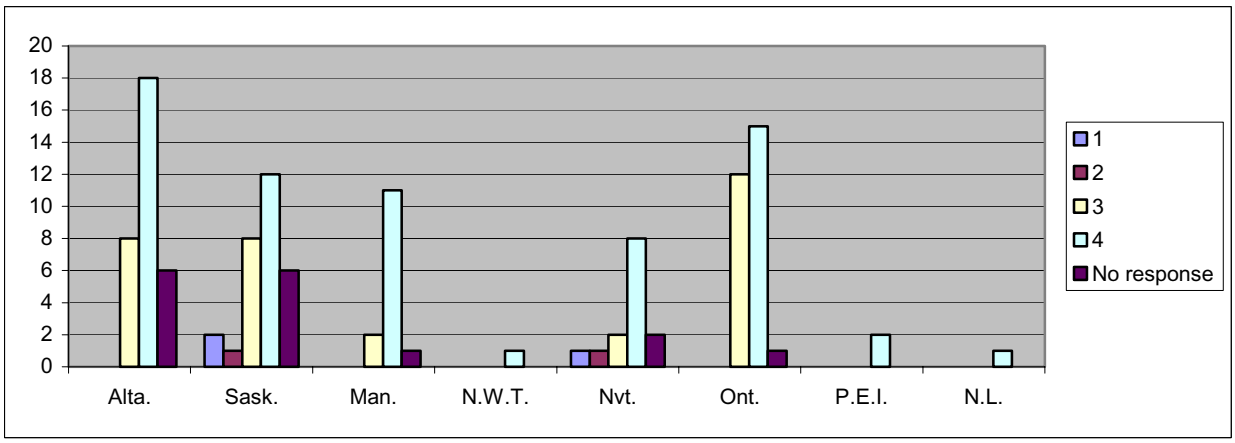
(c) Regulatory Authority

	1	2	3	4	No response	Total
Alta.	12	6	6	3	5	32
Sask.	9	8	3	4	5	29
Man.	4	7	2	1	0	14
N.W.T.	1	0	0	0	0	1
Nvt.	7	2	1	2	2	14
Ont.	6	8	5	8	1	28
P.E.I.	0	1	1	0	0	2
N.L.	0	0	0	1	0	1
Total	39	32	18	19	13	121



(d) Trade School

	1	2	3	4	No response	Total
Alta.	0	0	8	18	6	32
Sask.	2	1	8	12	6	29
Man.	0	0	2	11	1	14
N.W.T.	0	0	0	1	0	1
Nvt.	1	1	2	8	2	14
Ont.	0	0	12	15	1	28
P.E.I.	0	0	0	2	0	2
N.L.	0	0	0	1	0	1
Total	3	2	32	68	16	121

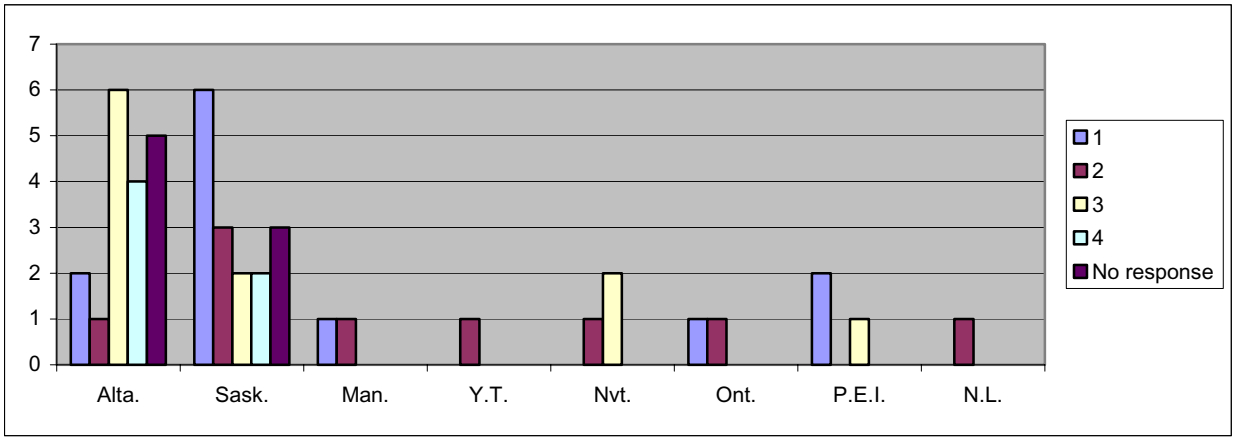


GROUP THREE RESPONDENTS BY PROVINCE

10. Preferences for training delivery ranked from 1 (most) to 4 (least)

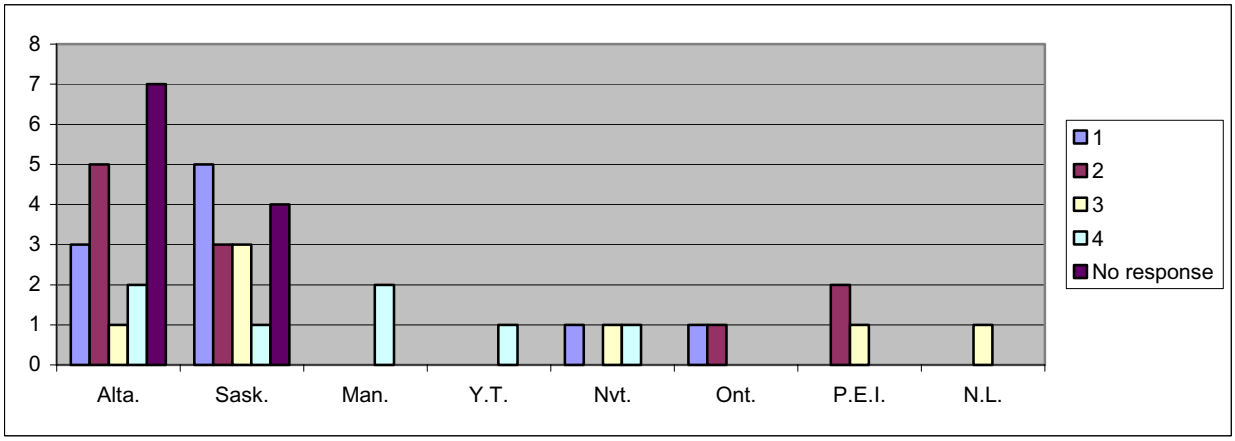
(a) Community College / University

	1	2	3	4	No response	Total
Alta.	2	1	6	4	5	18
Sask.	6	3	2	2	3	16
Man.	1	1	0	0	0	2
Y.T.	0	1	0	0	0	1
Nvt.	0	1	2	0	0	3
Ont.	1	1	0	0	0	2
P.E.I.	2	0	1	0	0	3
N.L.	0	1	0	0	0	1
Total	12	9	11	6	8	46



(b) Professional / Industry Association

	1	2	3	4	No response	Total
Alta.	3	5	1	2	7	18
Sask.	5	3	3	1	4	16
Man.	0	0	0	2	0	2
Y.T.	0	0	0	1	0	1
Nvt.	1	0	1	1	0	3
Ont.	1	1	0	0	0	2
P.E.I.	0	2	1	0	0	3
N.L.	0	0	1	0	0	1
Total	10	11	7	7	11	46

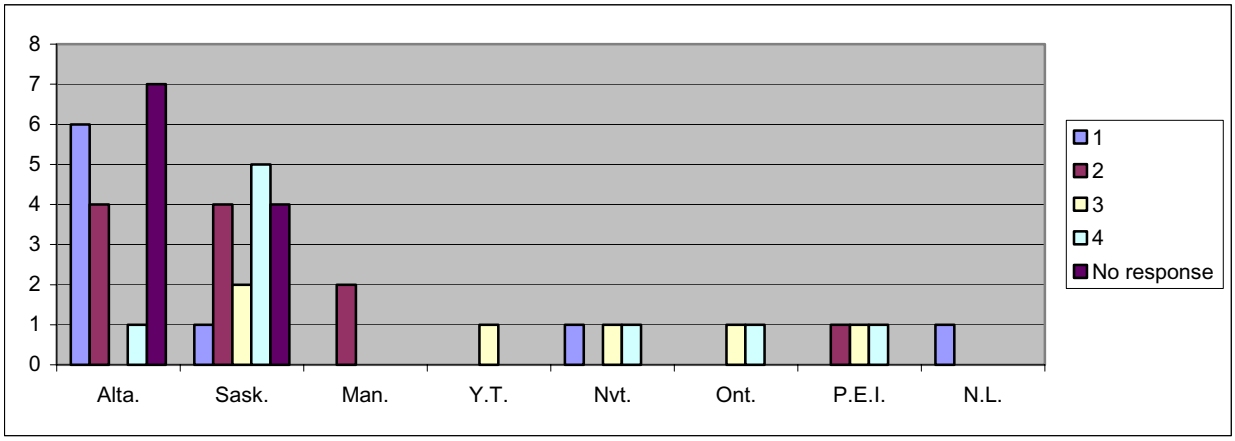


GROUP THREE RESPONDENTS BY PROVINCE

10. Preferences for training delivery ranked from 1 (most) to 4 (least)

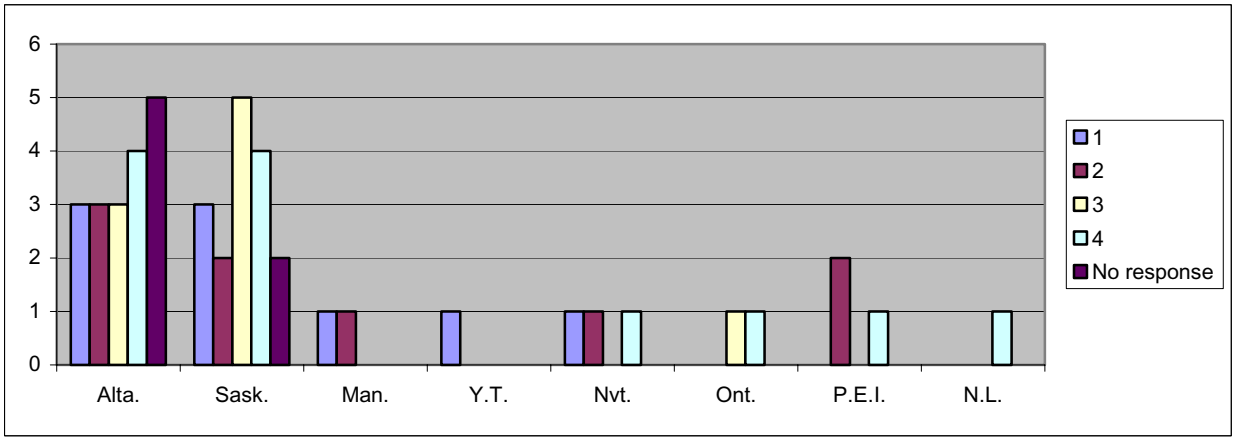
(c) Regulatory Authority

	1	2	3	4	No response	Total
Alta.	6	4	0	1	7	18
Sask.	1	4	2	5	4	16
Man.	0	2	0	0	0	2
Y.T.	0	0	1	0	0	1
Nvt.	1	0	1	1	0	3
Ont.	0	0	1	1	0	2
P.E.I.	0	1	1	1	0	3
N.L.	1	0	0	0	0	1
Total	9	11	6	9	11	46



(d) Trade School

	1	2	3	4	No response	Total
Alta.	3	3	3	4	5	18
Sask.	3	2	5	4	2	16
Man.	1	1	0	0	0	2
Y.T.	1	0	0	0	0	1
Nvt.	1	1	0	1	0	3
Ont.	0	0	1	1	0	2
P.E.I.	0	2	0	1	0	3
N.L.	0	0	0	1	0	1
Total	9	9	9	12	7	46

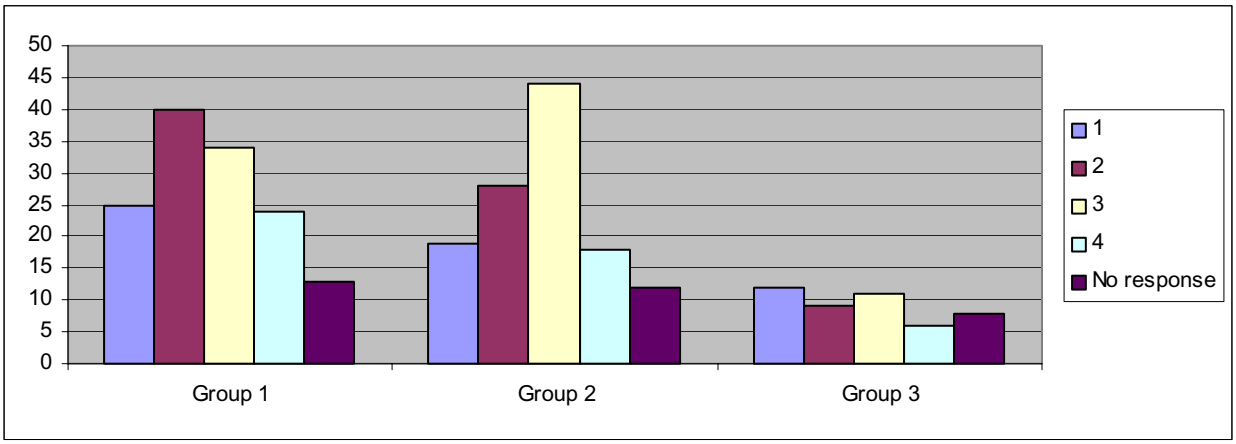


NATIONAL RESPONSES

10. Preferences for training delivery ranked from 1 (most) to 4 (least)

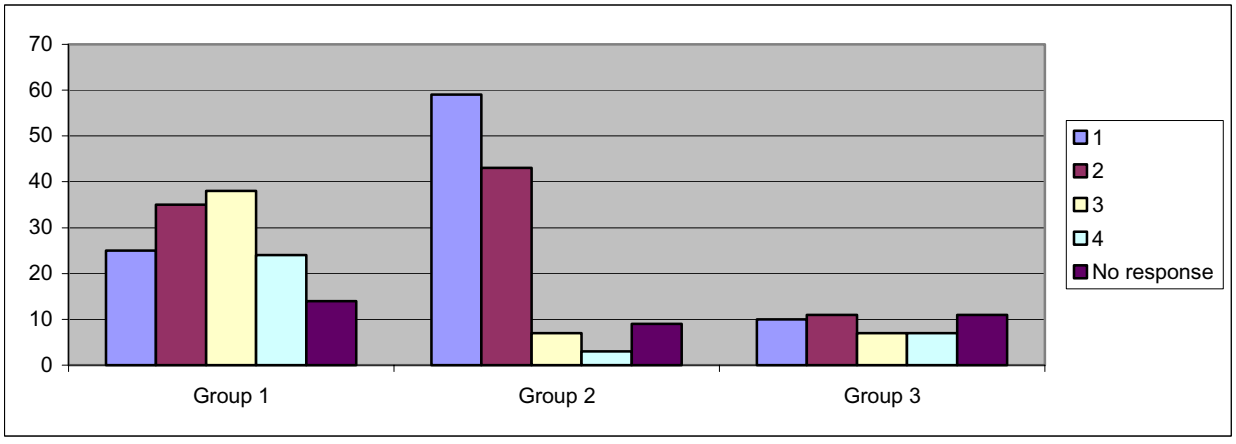
(a) Community College / University

	1	2	3	4	No response	Total
Group 1	25	40	34	24	13	136
Group 2	19	28	44	18	12	121
Group 3	12	9	11	6	8	46
Total	56	77	89	48	33	303



(b) Professional / Industry Association

	1	2	3	4	No response	Total
Group 1	25	35	38	24	14	136
Group 2	59	43	7	3	9	121
Group 3	10	11	7	7	11	46
Total	94	89	52	34	34	303

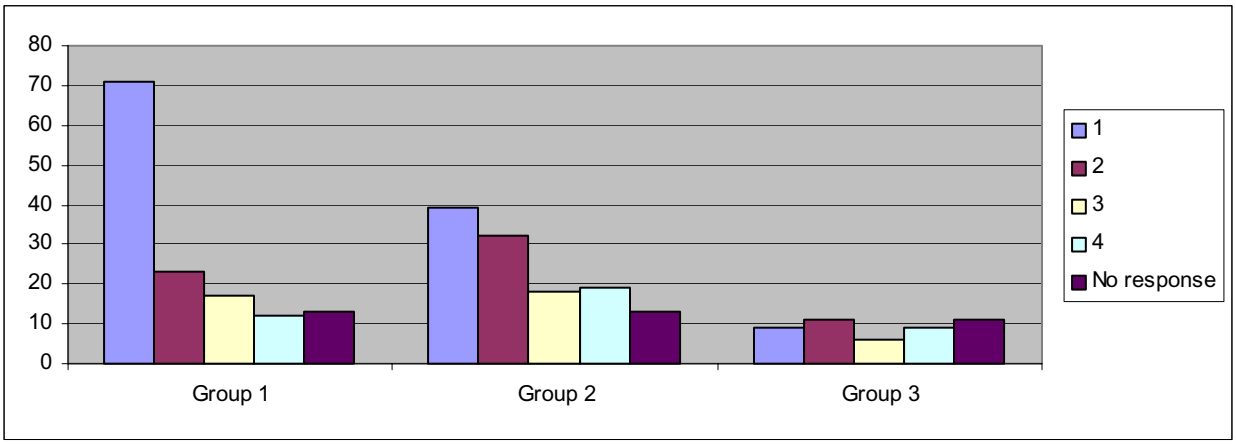


NATIONAL RESPONSES

10. Preferences for training delivery ranked from 1 (most) to 4 (least)

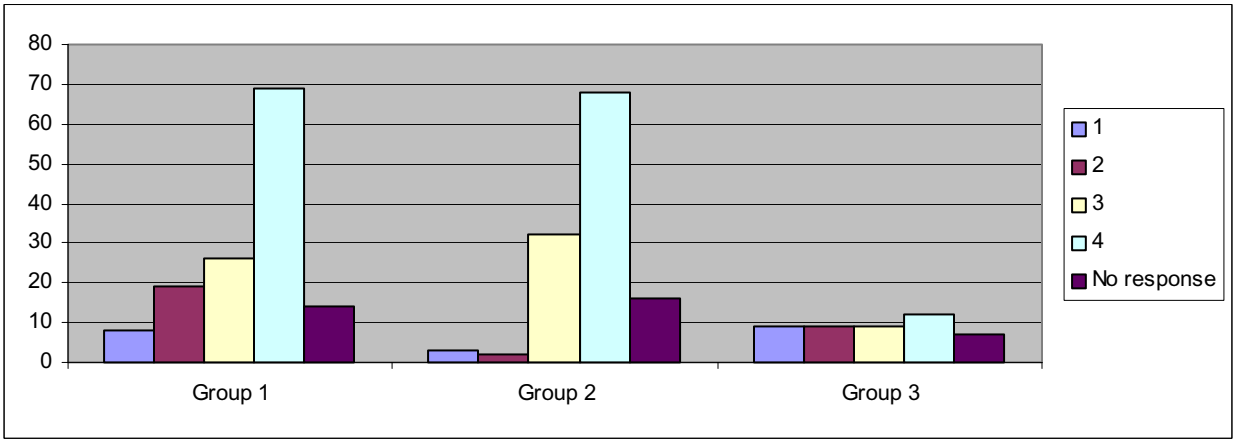
(c) Regulatory Authority

	1	2	3	4	No response	Total
Group 1	71	23	17	12	13	136
Group 2	39	32	18	19	13	121
Group 3	9	11	6	9	11	46
Total	119	66	41	40	37	303



(d) Trade School

	1	2	3	4	No response	Total
Group 1	8	19	26	69	14	136
Group 2	3	2	32	68	16	121
Group 3	9	9	9	12	7	46
Total	20	30	67	149	37	303



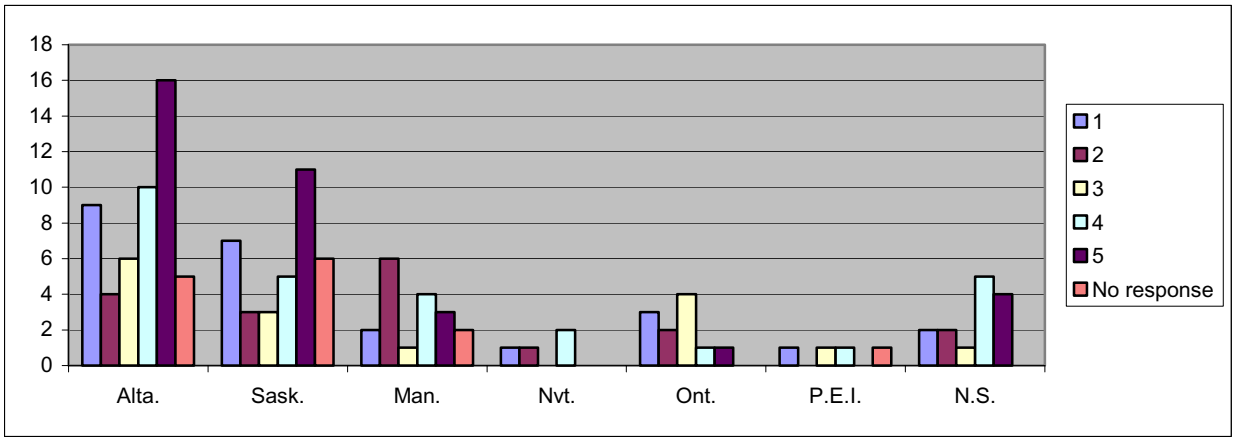
NATIONAL SURVEY QUESTIONNAIRE

TOOLS AND SUPPORT MATERIALS PREFERENCES HISTOGRAMS

- GROUP ONE RESPONSES BY PROVINCE/TERRITORY
- GROUP TWO RESPONSES BY PROVINCE/TERRITORY
- GROUP THREE RESPONSES BY PROVINCE/TERRITORY
- NATIONAL RESPONSES

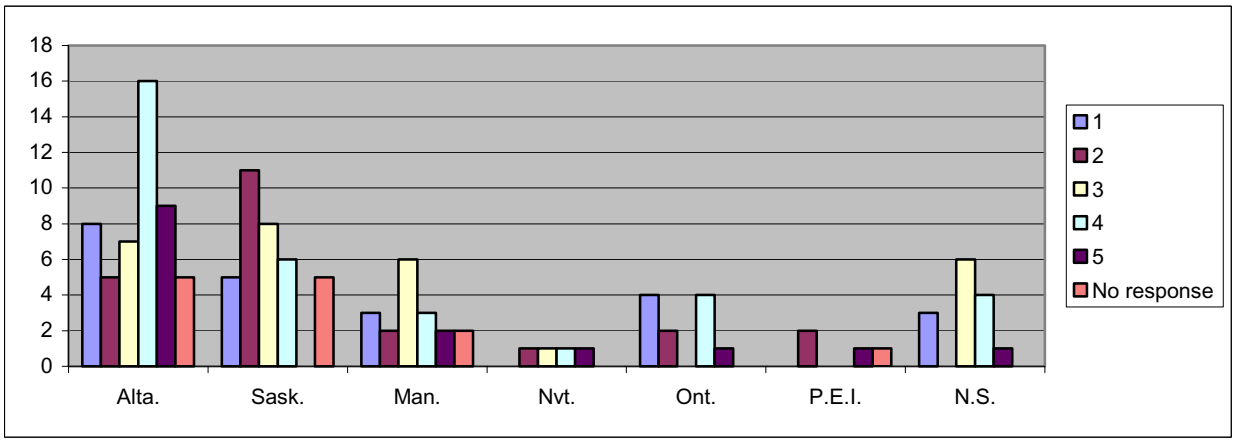
TOOLS AND SUPPORT MATERIAL NEEDS
GROUP ONE RESPONDENTS BY PROVINCE
11. Preferences of tools/support materials for application of code ranked from 1 (most) to 5 (least)
(a) A flow chart that outlines the application process for submitting / proposing alternatives.

	1	2	3	4	5	No response	Total
Alta.	9	4	6	10	16	5	50
Sask.	7	3	3	5	11	6	35
Man.	2	6	1	4	3	2	18
Nvt.	1	1	0	2	0	0	4
Ont.	3	2	4	1	1	0	11
P.E.I.	1	0	1	1	0	1	4
N.S.	2	2	1	5	4	0	14
Total	25	18	16	28	35	14	136



(b) A process flow chart the provides general guidelines to evaluating alternative solutions.

	1	2	3	4	5	No response	Total
Alta.	8	5	7	16	9	5	50
Sask.	5	11	8	6	0	5	35
Man.	3	2	6	3	2	2	18
Nvt.	0	1	1	1	1	0	4
Ont.	4	2	0	4	1	0	11
P.E.I.	0	2	0	0	1	1	4
N.S.	3	0	6	4	1	0	14
Total	23	23	28	34	15	13	136

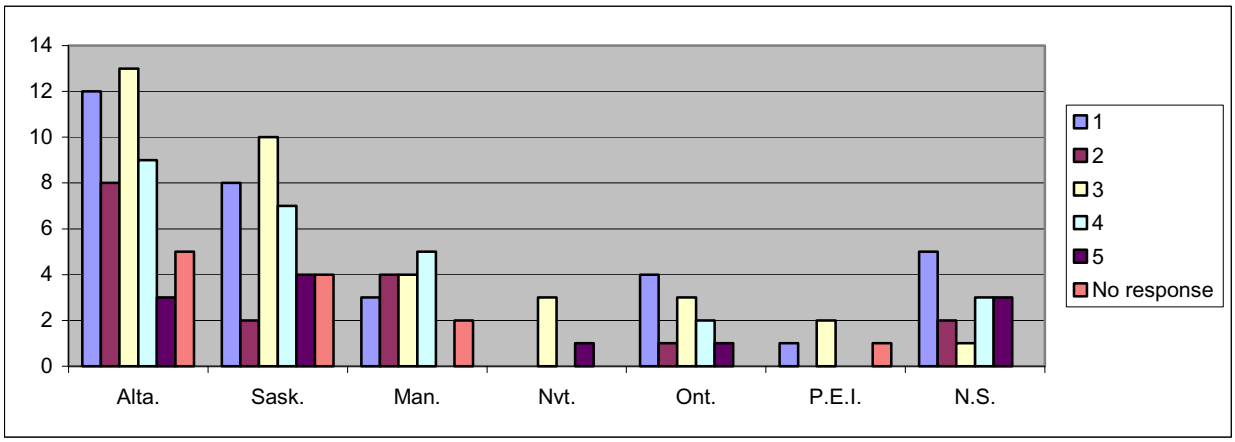


GROUP ONE RESPONDENTS BY PROVINCE

11. Preferences of tools/support materials for application of code ranked from 1 (most) to 5 (least)

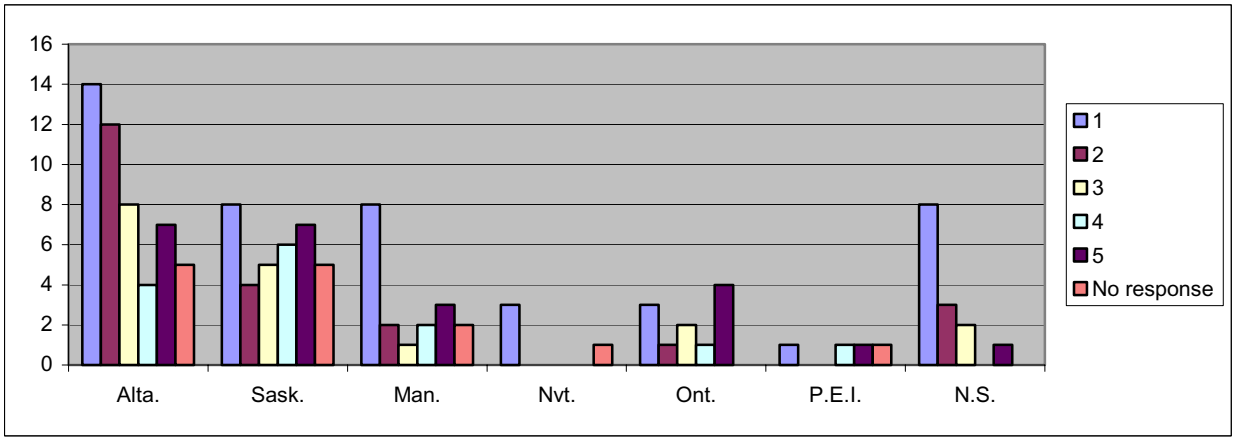
(c) Guidelines for proposing / submitting alternative solutions.

	1	2	3	4	5	No response	Total
Alta.	12	8	13	9	3	5	50
Sask.	8	2	10	7	4	4	35
Man.	3	4	4	5	0	2	18
Nvt.	0	0	3	0	1	0	4
Ont.	4	1	3	2	1	0	11
P.E.I.	1	0	2	0	0	1	4
N.S.	5	2	1	3	3	0	14
Total	33	17	36	26	12	12	136



(d) A web-based shared repository of alternative solutions accepted by various jurisdictions.

	1	2	3	4	5	No response	Total
Alta.	14	12	8	4	7	5	50
Sask.	8	4	5	6	7	5	35
Man.	8	2	1	2	3	2	18
Nvt.	3	0	0	0	0	1	4
Ont.	3	1	2	1	4	0	11
P.E.I.	1	0	0	1	1	1	4
N.S.	8	3	2	0	1	0	14
Total	45	22	18	14	23	14	136

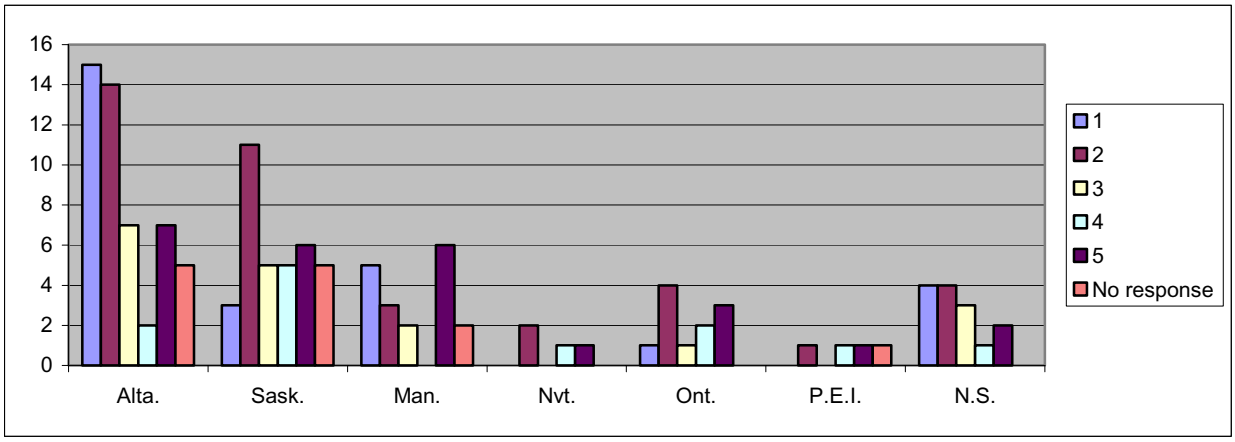


GROUP ONE RESPONDENTS BY PROVINCE

11. Preferences of tools/support materials for application of code ranked from 1 (most) to 5 (least)

(e) "Best Practices" of approaches for evaluating equivalent / alternative solutions.

	1	2	3	4	5	No response	Total
Alta.	15	14	7	2	7	5	50
Sask.	3	11	5	5	6	5	35
Man.	5	3	2	0	6	2	18
Nvt.	0	2	0	1	1	0	4
Ont.	1	4	1	2	3	0	11
P.E.I.	0	1	0	1	1	1	4
N.S.	4	4	3	1	2	0	14
Total	28	39	18	12	26	13	136

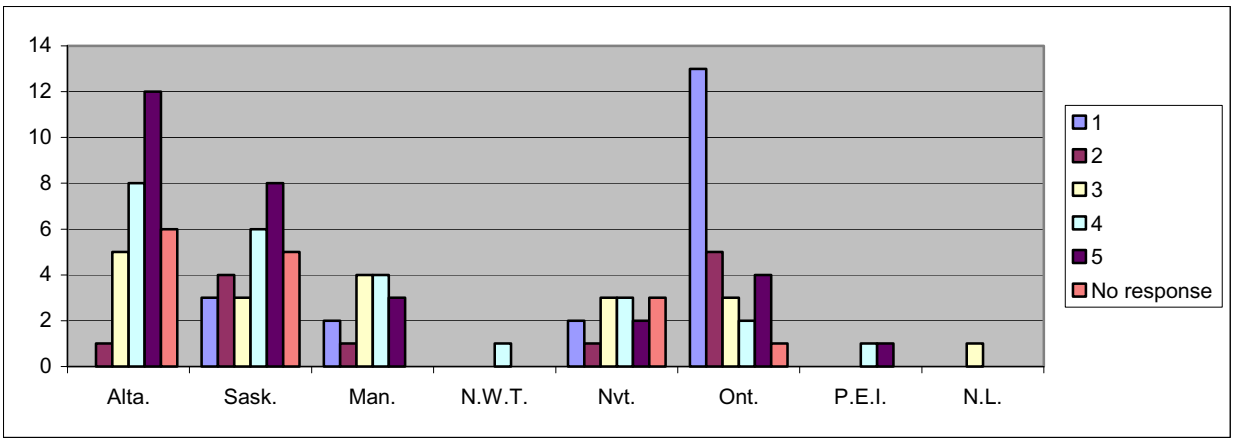


GROUP TWO RESPONDENTS BY PROVINCE

11. Preferences of tools/support materials for application of code ranked from 1 (most) to 5 (least)

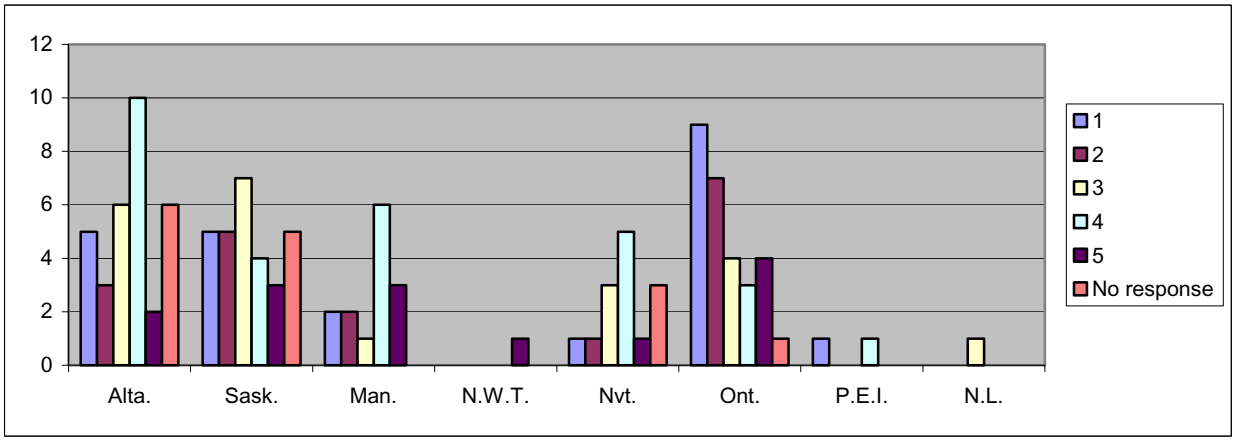
(a) A flow chart that outlines the application process for submitting / proposing alternatives.

	1	2	3	4	5	No response	Total
Alta.	0	1	5	8	12	6	32
Sask.	3	4	3	6	8	5	29
Man.	2	1	4	4	3	0	14
N.W.T.	0	0	0	1	0	0	1
Nvt.	2	1	3	3	2	3	14
Ont.	13	5	3	2	4	1	28
P.E.I.	0	0	0	1	1	0	2
N.L.	0	0	1	0	0	0	1
Total	20	12	19	25	30	15	121



(b) A process flow chart the provides general guidelines to evaluating alternative solutions.

	1	2	3	4	5	No response	Total
Alta.	5	3	6	10	2	6	32
Sask.	5	5	7	4	3	5	29
Man.	2	2	1	6	3	0	14
N.W.T.	0	0	0	0	1	0	1
Nvt.	1	1	3	5	1	3	14
Ont.	9	7	4	3	4	1	28
P.E.I.	1	0	0	1	0	0	2
N.L.	0	0	1	0	0	0	1
Total	23	18	22	29	14	15	121

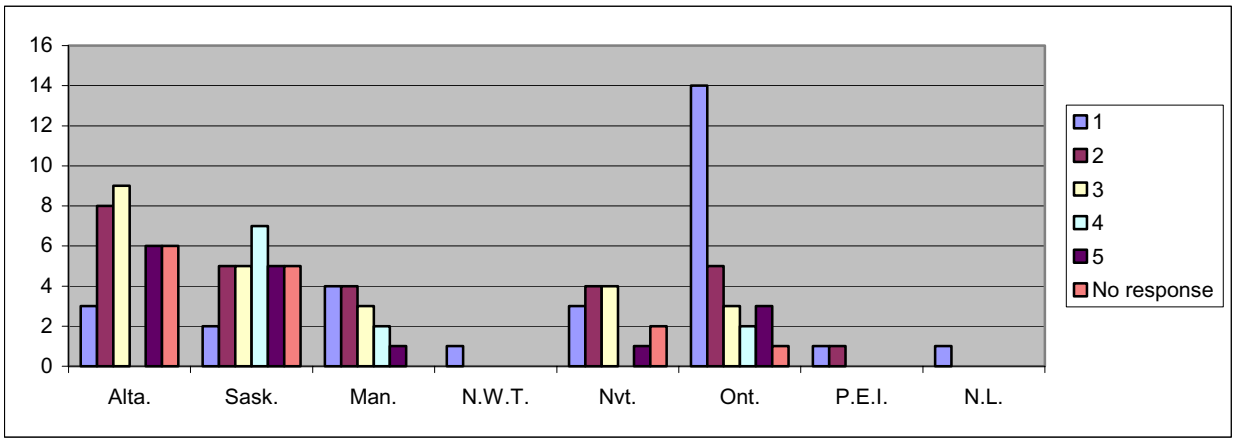


GROUP TWO RESPONDENTS BY PROVINCE

11. Preferences of tools/support materials for application of code ranked from 1 (most) to 5 (least)

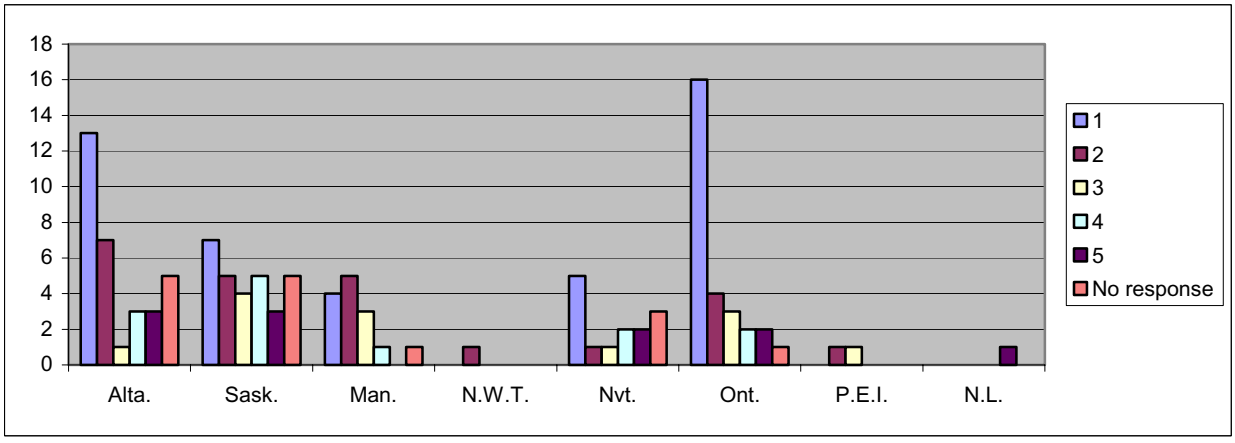
(c) Guidelines for proposing / submitting alternative solutions.

	1	2	3	4	5	No response	Total
Alta.	3	8	9	0	6	6	32
Sask.	2	5	5	7	5	5	29
Man.	4	4	3	2	1	0	14
N.W.T.	1	0	0	0	0	0	1
Nvt.	3	4	4	0	1	2	14
Ont.	14	5	3	2	3	1	28
P.E.I.	1	1	0	0	0	0	2
N.L.	1	0	0	0	0	0	1



(d) A web-based shared repository of alternative solutions accepted by various jurisdictions.

	1	2	3	4	5	No response	Total
Alta.	13	7	1	3	3	5	32
Sask.	7	5	4	5	3	5	29
Man.	4	5	3	1	0	1	14
N.W.T.	0	1	0	0	0	0	1
Nvt.	5	1	1	2	2	3	14
Ont.	16	4	3	2	2	1	28
P.E.I.	0	1	1	0	0	0	2
N.L.	0	0	0	0	1	0	1
Total	45	24	13	13	11	15	121

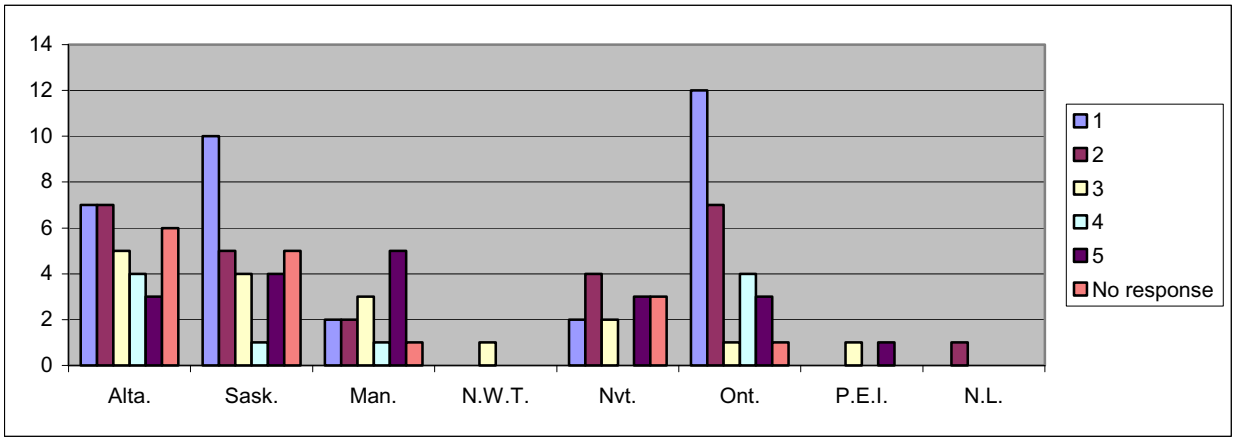


GROUP TWO RESPONDENTS BY PROVINCE

11. Preferences of tools/support materials for application of code ranked from 1 (most) to 5 (least)

(e) "Best Practices" of approaches for evaluating equivalent / alternative solutions.

	1	2	3	4	5	No response	Total
Alta.	7	7	5	4	3	6	32
Sask.	10	5	4	1	4	5	29
Man.	2	2	3	1	5	1	14
N.W.T.	0	0	1	0	0	0	1
Nvt.	2	4	2	0	3	3	14
Ont.	12	7	1	4	3	1	28
P.E.I.	0	0	1	0	1	0	2
N.L.	0	1	0	0	0	0	1
Total	33	26	17	10	19	16	121

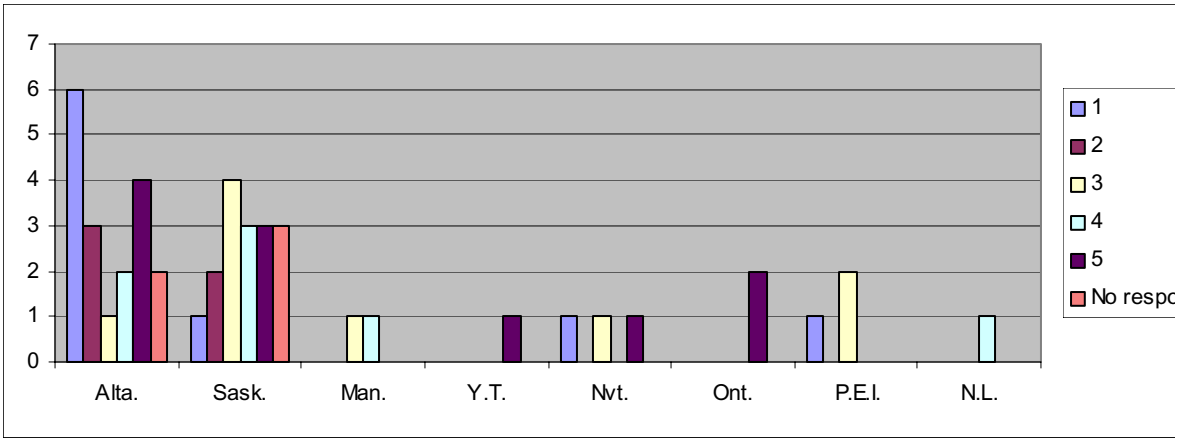


GROUP THREE RESPONDENTS BY PROVINCE

11. Preferences of tools/support materials for application of code ranked from 1 (most) to 5 (least)

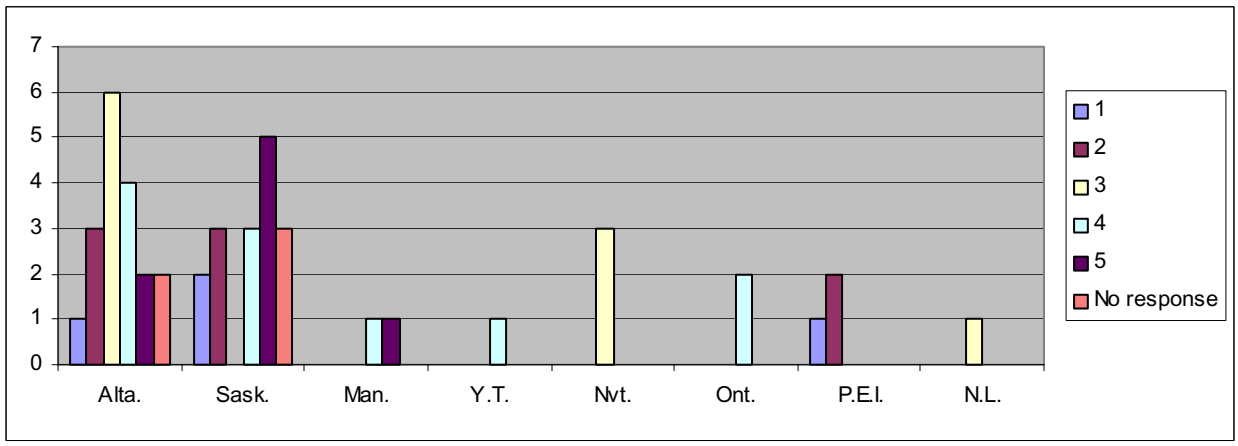
(a) A flow chart that outlines the application process for submitting / proposing alternatives.

	1	2	3	4	5	No response	Total
Alta.	6	3	1	2	4	2	18
Sask.	1	2	4	3	3	3	16
Man.	0	0	1	1	0	0	2
Y.T.	0	0	0	0	1	0	1
Nvt.	1	0	1	0	1	0	3
Ont.	0	0	0	0	2	0	2
P.E.I.	1	0	2	0	0	0	3
N.L.	0	0	0	1	0	0	1
Total	9	5	9	7	11	5	46



(b) A process flow chart the provides general guidelines to evaluating alternative solutions.

	1	2	3	4	5	No response	Total
Alta.	1	3	6	4	2	2	18
Sask.	2	3	0	3	5	3	16
Man.	0	0	0	1	1	0	2
Y.T.	0	0	0	1	0	0	1
Nvt.	0	0	3	0	0	0	3
Ont.	0	0	0	2	0	0	2
P.E.I.	1	2	0	0	0	0	3
N.L.	0	0	1	0	0	0	1
Total	4	8	10	11	8	5	46

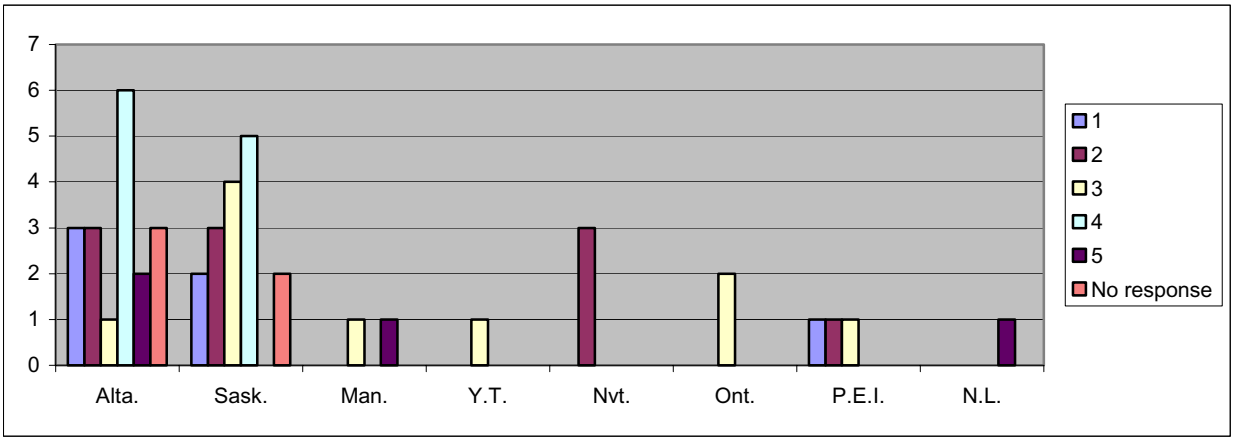


GROUP THREE RESPONDENTS BY PROVINCE

11. Preferences of tools/support materials for application of code ranked from 1 (most) to 5 (least)

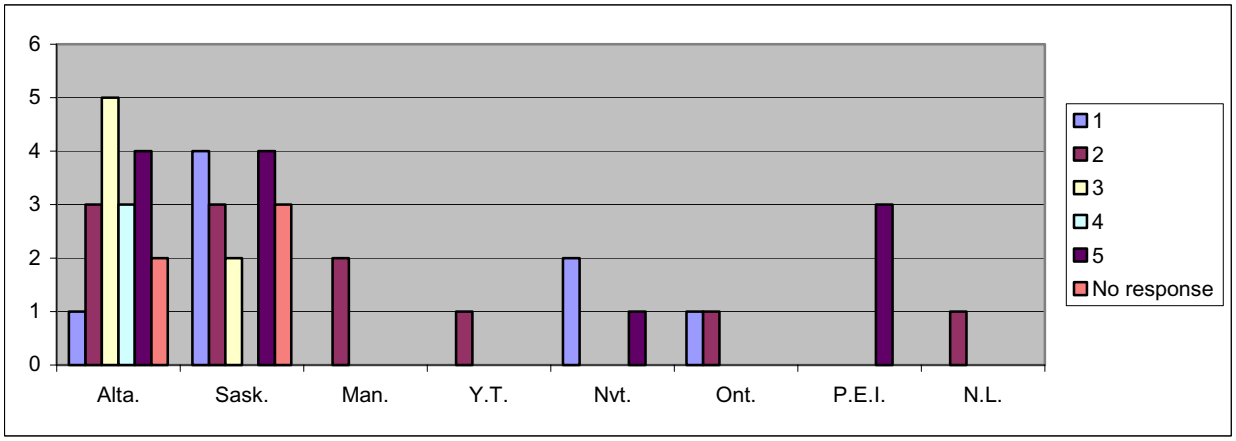
(c) Guidelines for proposing / submitting alternative solutions.

	1	2	3	4	5	No response	Total
Alta.	3	3	1	6	2	3	18
Sask.	2	3	4	5	0	2	16
Man.	0	0	1	0	1	0	2
Y.T.	0	0	1	0	0	0	1
Nvt.	0	3	0	0	0	0	3
Ont.	0	0	2	0	0	0	2
P.E.I.	1	1	1	0	0	0	3
N.L.	0	0	0	0	1	0	1
Total	6	10	10	11	4	5	46



(d) A web-based shared repository of alternative solutions accepted by various jurisdictions.

	1	2	3	4	5	No response	Total
Alta.	1	3	5	3	4	2	18
Sask.	4	3	2	0	4	3	16
Man.	0	2	0	0	0	0	2
Y.T.	0	1	0	0	0	0	1
Nvt.	2	0	0	0	1	0	3
Ont.	1	1	0	0	0	0	2
P.E.I.	0	0	0	0	3	0	3
N.L.	0	1	0	0	0	0	1
Total	8	11	7	3	12	5	46

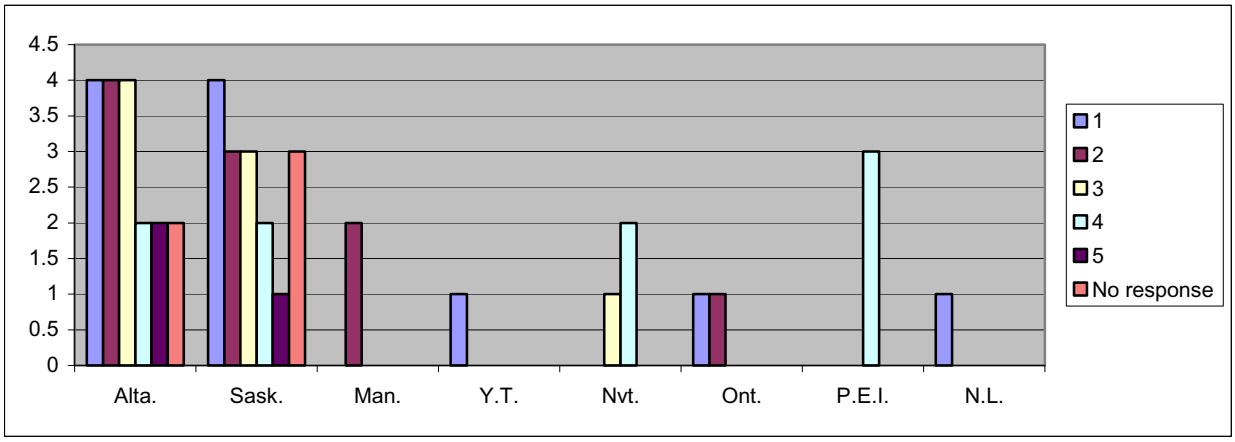


GROUP THREE RESPONDENTS BY PROVINCE

11. Preferences of tools/support materials for application of code ranked from 1 (most) to 5 (least)

(e) "Best Practices" of approaches for evaluating equivalent / alternative solutions.

	1	2	3	4	5	No response	Total
Alta.	4	4	4	2	2	2	18
Sask.	4	3	3	2	1	3	16
Man.	0	2	0	0	0	0	2
Y.T.	1	0	0	0	0	0	1
Nvt.	0	0	1	2	0	0	3
Ont.	1	1	0	0	0	0	2
P.E.I.	0	0	0	3	0	0	3
N.L.	1	0	0	0	0	0	1
Total	11	10	8	9	3	5	46

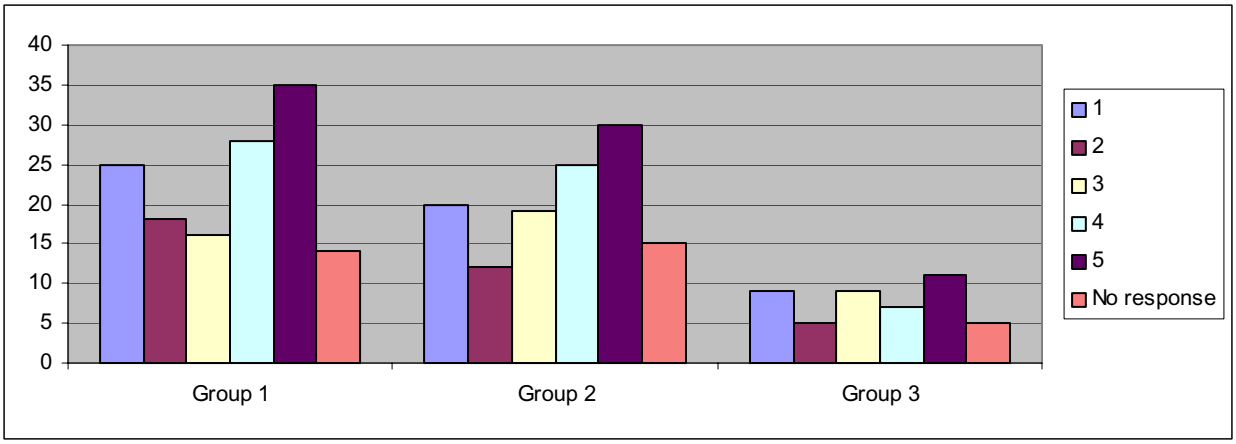


NATIONAL RESPONSES

11. Preferences of tools/support materials for application of code ranked from 1 (most) to 5 (least)

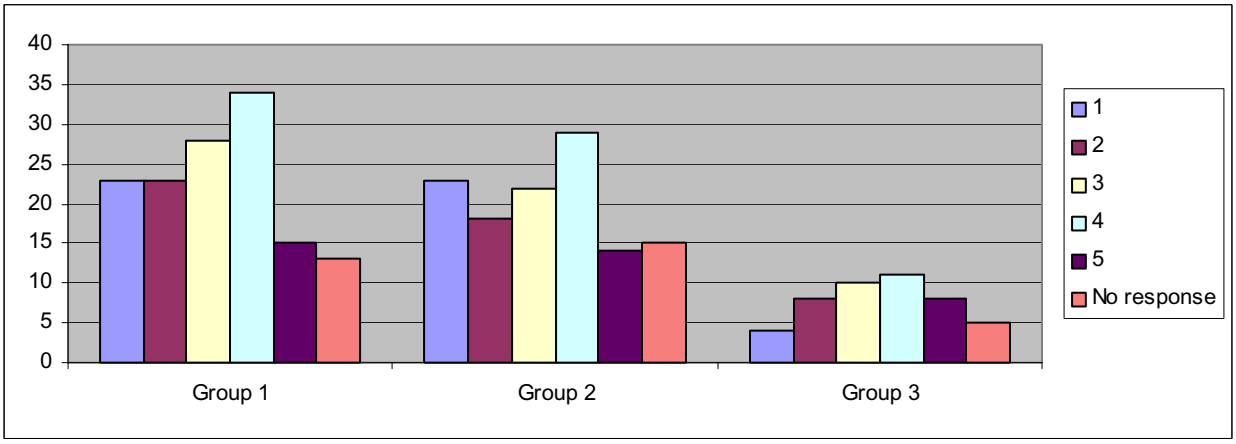
(a) A flow chart that outlines the application process for submitting / proposing alternatives.

	1	2	3	4	5	No response	Total
Group 1	25	18	16	28	35	14	136
Group 2	20	12	19	25	30	15	121
Group 3	9	5	9	7	11	5	46
Total	54	35	44	60	76	34	303



(b) A process flow chart the provides general guidelines to evaluating alternative solutions.

	1	2	3	4	5	No response	Total
Group 1	23	23	28	34	15	13	136
Group 2	23	18	22	29	14	15	121
Group 3	4	8	10	11	8	5	46
Total	50	49	60	74	37	33	303

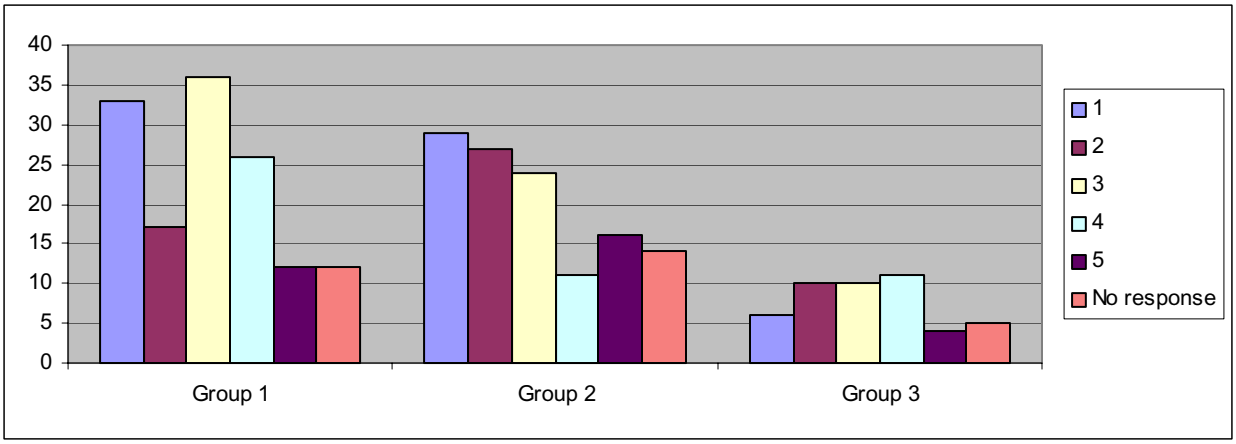


NATIONAL RESPONSES

11. Preferences of tools/support materials for application of code ranked from 1 (most) to 5 (least)

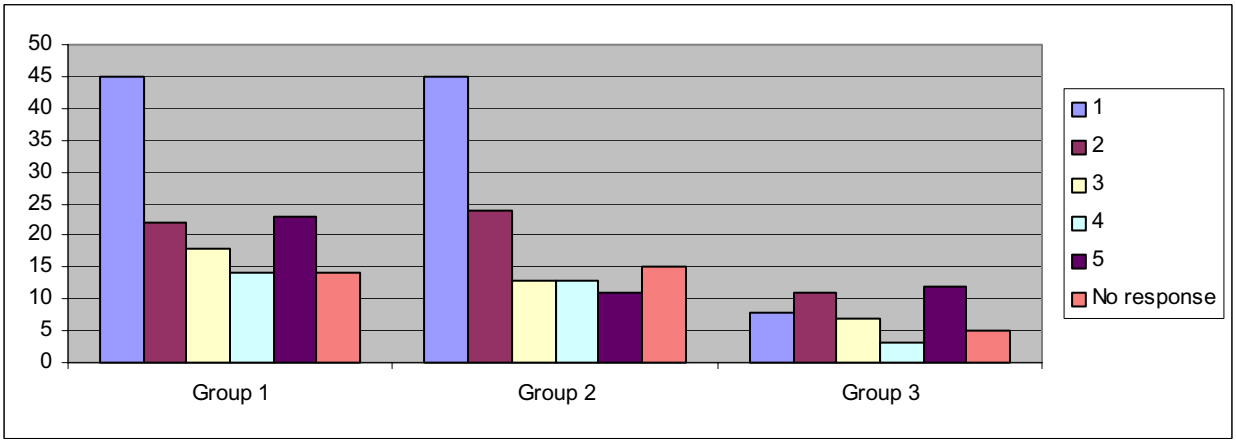
(c) Guidelines for proposing / submitting alternative solutions.

	1	2	3	4	5	No response	Total
Group 1	33	17	36	26	12	12	136
Group 2	29	27	24	11	16	14	121
Group 3	6	10	10	11	4	5	46
Total	68	54	70	48	32	31	303



(d) A web-based shared repository of alternative solutions accepted by various jurisdictions.

	1	2	3	4	5	No response	Total
Group 1	45	22	18	14	23	14	136
Group 2	45	24	13	13	11	15	121
Group 3	8	11	7	3	12	5	46
Total	98	57	38	30	46	34	303

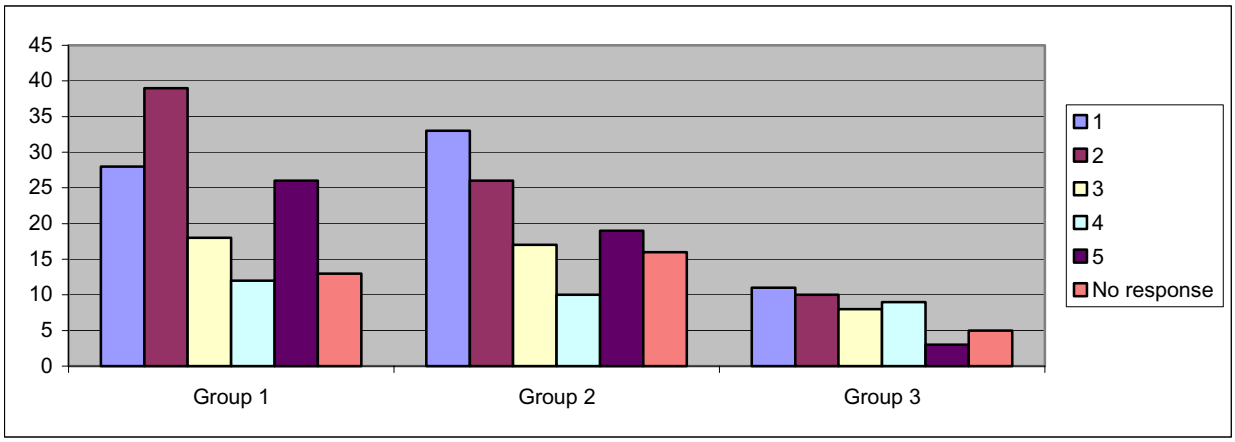


NATIONAL RESPONSES

11. Preferences of tools/support materials for application of code ranked from 1 (most) to 5 (least)

(e) "Best Practices" of approaches for evaluating equivalent / alternative solutions.

	1	2	3	4	5	No response	Total
Group 1	28	39	18	12	26	13	136
Group 2	33	26	17	10	19	16	121
Group 3	11	10	8	9	3	5	46
Total	72	75	43	31	48	34	303



APPENDIX H

NEEDS ASSESSMENT

The following is a series of questions, designed to investigate the needs of code users and other stakeholders related to the implementation of *Objective-Based Codes.* From January 15 to April 30, 2003, the Canadian Commission on Building and Fire Codes (CCBFC), in conjunction with the Provinces and Territories, will be seeking input to determine non-technical training and support material needs from individuals who:

a) evaluate equivalent/alternative solutions ***or*** anticipate they will be required to do so; **and**

b) have attended a presentation on *Objective-Based Codes* ***or*** have reviewed consultation material online at **http://www.nationalcodes.ca** (Go to the **"IN THE NEWS"** box, click on **"Objective-Based Codes"**, and follow directions to the consultation material).

PLEASE NOTE:
(1) This survey relates only to non-technical training for Objective-Based Codes.
(2) Please answer the survey questions only as they relate to your workplace duties and responsibilities.

RESPONDENT INFORMATION

A) Select one group only from the following three groups.
Indicate within that **one group only** all categories that most closely represent your occupation and area of responsibility.

☐ **GROUP ONE:**
Responsible for administering the code regulations

- ☐ Building Regulatory Official
- ☐ Fire Regulatory Official
- ☐ Plumbing Regulatory Official
- ☐ Home or Property Inspector with enforcement responsibilities (Alberta)
- ☐ Other (please specify) _____

☐ **GROUP TWO:**
Responsible for ensuring designs/buildings comply with the codes

- ☐ Consulting Engineer
- ☐ Architect
- ☐ Technologist
- ☐ Technician
- ☐ Code Consultant
- ☐ Interior Designer
- ☐ Home or Property Inspector
- ☐ Other (please specify) _____

☐ **GROUP THREE:**
Occupation that requires applied knowledge of the codes only

- ☐ Contractor
- ☐ Home Builder
- ☐ Tradesperson or Apprentice
- ☐ Educator
- ☐ Other (please specify) _____

B) I work in a community with a population of:

- ☐ less than 1,000
- ☐ 1,000 to 5,000
- ☐ 5,001 to 10,000
- ☐ 10,001 to 30,000
- ☐ 30,001 to 60,000
- ☐ 60,001 to 100,000
- ☐ larger than 100,000

C) I work in the following Province/Territory: _____

TRAINING AND DEVELOPMENT NEEDS

Please indicate your requirement for non-technical training to assist you to apply Objective-Based Codes. Please *select only* ***one*** *response* – your most preferred answer - for each of the sections (a) and (b) for every topic.

1. Topic:
STRUCTURE, FORMAT AND ORGANIZATION OF THE CODE CONTENT

(a) Indicate if this information is required.

- ☐ to have a basic understanding
- ☐ to outline to others
- ☐ to discuss with others
- ☐ to explain to others
- ☐ no requirement

(b) Estimate the time you require for non-technical training to achieve the level of knowledge you indicated in (a)

- ☐ 1 hour or less
- ☐ 2 hours
- ☐ 3 hours
- ☐ 4 hours
- ☐ 5 hours
- ☐ 6 hours
- ☐ more than 6 hours

2. Topic:
NEW KEY CONCEPTS:
(Objectives, Functional Statements, Acceptable Solutions, Intent Statements, Application Statements, Alternative Solutions and Attributions)

(a) Indicate if this information is required:

- ☐ to have a basic understanding
- ☐ to outline to others
- ☐ to discuss with others
- ☐ to explain to others
- ☐ no requirement

(b) Estimate the time you require for non-technical training to achieve the level of knowledge you indicated in (a)

- ☐ 1 hour or less
- ☐ 2 hours
- ☐ 3 hours
- ☐ 4 hours
- ☐ 5 hours
- ☐ 6 hours
- ☐ more than 6 hours

3. Topic:
SUBMITTING EQUIVALENT/ ALTERNATIVE SOLUTIONS:
(types of submissions, process and technical difficulties, and documentation)

(a) Indicate if this information is required:

- ☐ to have a basic understanding
- ☐ to outline to others
- ☐ to discuss with others
- ☐ to explain to others
- ☐ no requirement

(b) Estimate the time you require for non-technical training to achieve the level of knowledge you indicated in (a)

- ☐ 1 hour or less
- ☐ 2 hours
- ☐ 3 hours
- ☐ 4 hours
- ☐ 5 hours
- ☐ 6 hours
- ☐ more than 6 hours

4. Topic:
EVALUATING EQUIVALENT/ ALTERNATIVE SOLUTIONS:
(process and technical difficulties, and documentation)

(a) Indicate if this information is required:

- ☐ to have a basic understanding
- ☐ to outline to others
- ☐ to discuss with others
- ☐ to explain to others
- ☐ no requirement

(b) Estimate the time you require for non-technical training to achieve the level of knowledge you indicated in (a)

- ☐ 1 hour or less
- ☐ 2 hours
- ☐ 3 hours
- ☐ 4 hours
- ☐ 5 hours
- ☐ 6 hours
- ☐ more than 6 hours

5. Topic:
APPROVING EQUIVALENT/ ALTERNATIVE SOLUTIONS
(process and technical difficulties, and documentation)

(a) Indicate if this information is required:

- ☐ to have a basic understanding
- ☐ to outline to others
- ☐ to discuss with others
- ☐ to explain to others
- ☐ no requirement

(b) Estimate the time you require for non-technical training to achieve the level of knowledge you indicated in (a)

- ☐ 1 hour or less
- ☐ 2 hours
- ☐ 3 hours
- ☐ 4 hours
- ☐ 5 hours
- ☐ 6 hours
- ☐ more than 6 hours

6. **From the 5 topics listed above, circle the *one* topic number** that you consider is of the greatest need for your training and development.

1 2 3 4 5

7. Please identify any other topics directly related to *Objective- Based Codes* you consider may require formal non-technical training or development:

_____

_____

8. From the choices given below, rank your personal preferences for non-technical training delivery from 1 to 4 - one (1) being the most preferred and four (4) your least preferred:

(a) _____ classroom-based, instructor/facilitator-led
(b) _____ web-based, instructor/facilitator assisted
(c) _____ web-based, independent learning
(d) _____ non web-based, independent learning
(non web-based may including print, CD Rom, video training materials)

9. Do you require recognition for the non-technical training, such as continuing education credits, for professional certification or professional development?

   ☐ Yes ☐ No ☐ Unsure

10. From the choices given below, rank your personal preferences for training delivery from 1 to 4 - one (1) being the most preferred and four (4) your least preferred:

(a)	_____	Community College / University
(b)	_____	Professional / Industry Association
(c)	_____	Regulatory Authority (e.g. provincial or Territorial government)
(d)	_____	Trade School

TOOLS AND SUPPORT MATERIAL NEEDS

11. From your experience with existing codes and your interpretation of the implications of the Proposed Objective-Based Codes, review the following list of potential tools and support materials that might be of benefit to you in the application of the codes. Please rank your order of preference from 1 to 5 – one (1) being the most preferred and five (5) your least preferred.

(a)	_____	A **flow chart** that **outlines the application process** for submitting/proposing alternative solutions
(b)	_____	A **process flow chart** that provides **general guidelines to evaluating alternative solutions.**
(c)	_____	**Guidelines** for proposing/submitting alternative solutions.
(d)	_____	A **web-based shared repository** of alternative solutions accepted by various jurisdictions to facilitate information exchange.
(e)	_____	***"Best Practices"*** of approaches for evaluating equivalent/alternative solutions.

12. Please identify any other tools and/or support materials that might be of benefit to you in the application of Objective- Based Codes:

_____

_____

_____

13. Do you have any additional concerns or comments:

_____

_____

_____

Optional Information

Contact: Telephone _____ e-mail _____

THANK YOU FOR YOUR PARTICIPATION!

Questionnaires should be returned to:
Shanta Vogel, Corporate Education Services,
Humber College, 205 Humber College Boulevard, Toronto, Ontario M9W 5L7

Questions regarding this survey should be addressed to:
John Archer, Canadian Codes Centre, National Research Council Canada
Tel: 613 993-5569

PLEASE NOTE:
Only responses received on or before April 30, 2003 will be processed.

APPENDIX I

TOPICS FOR EXPANDED DISCUSSION

- FOCUS GROUPS -

The following is a series of questions, designed to further investigate training and support material needs, related to the introduction of *Objective-Based Codes*. The accompanying Facilitator's Guide will provide assistance and direction for this expanded discussion.

DISCUSSION QUESTIONS

1. What are your concerns that require clarification or further elaboration related to the **STRUCTURE, FORMAT AND ORGANIZATION** of the codes?
   (Remind participants that the functional statement number(s) attributed to each requirement is listed with each requirement in Division B)

   Prompts: -
   - Are the instructions clear with regards to what's in Division A, B and C?
   - Are the instructions clear as to where to find objectives attributed to the requirement? (end of each Part in Division B)
   - Are the instructions clear as to where to find descriptions of functional statements and objectives? (Division A)
   - Are the instructions clear as to where to find application statements and intents? (CD-Rom only).

2. What are your concerns that require clarification or further elaboration related to **NEW KEY CONCEPTS**?
   Prompts: -
   Are the definitions clear for:
   - Objectives
   - Functional Statements
   - Acceptable Solutions
   - Intent Statements
   - Application Statements
   - Alternative Solutions
   - Attributions

3. What are your concerns that require clarification or further elaboration related to **SUBMITTING EQUIVALENT / ALTERNATIVE SOLUTIONS**?
   Prompts: -
   Are you experiencing difficulties with:
   - Types of submissions
   - Process issues
   - Technical issues
   - Documentation

4. What are your concerns that require clarification or further elaboration related to **EVALUATING EQUIVALENT / ALTERNATIVE SOLUTIONS**?
   Prompts: -
   Are you experiencing difficulties with:
   - Process issues
   - Technical issues
   - Documentation

5. What are your concerns that require clarification or further elaboration related to **APPROVING EQUIVALENT / ALTERNATIVE SOLUTIONS**?
   Prompts: -
   Are you experiencing difficulties with:
   - Process issues
   - Technical issues
   - Documentation

6. Describe other topics for training that you require due to the introduction of objective-based codes.

7. Describe other tools/support materials (review list in questionnaire) that would help with evaluation of equivalents / alternative solutions.
   Prompts:
   Which do you prefer?
   Why?

8. Describe any other concerns you have with the introduction of objective-based codes.

Note: The completed survey questionnaires for participants in the focus group should be attached to the notes recorded for the focus group session.
Thank you.

APPENDIX J

GUIDELINES FOR CONDUCTING
A FOCUS GROUP

Expanded Question Topics to further investigate training and support material needs related to the introduction of Objective-Based Codes.

Prepared for:
Canadian Codes Centre
National Research Council Canada

Prepared by:
Corporate Education Services
Humber College

Date: February 14, 2003

GUIDELINES FOR CONDUCTING
A FOCUS GROUP

CONTENTS:

	Page
Getting Ready – Seating, Set Up, Recorder, Supplies	**3**
Welcome the Group	**4**
Guidelines for the Session	**5**
Introductions (Optional)	**5**
Keeping it Focused:	**6 - 7**
○ **Timing**	
○ **Going Back**	
○ **Going Ahead**	
Recording the Input	**7 - 8**
Thanking the Group	**8**

Attachments:

1. **Self-Check list for facilitator**
2. **Copy of list of topic questions for focus group**
3. **Copy of initial survey questionnaire**

GETTING READY

Be sure to check the seating arrangements before the participants are scheduled to arrive at the session. When possible seat the participants so that they can see each other's faces and talk directly to one another – a 'v' shaped arrangement is often best rather than a circle. A circle formation presents a problem of where you stand as facilitator and the normal classroom arrangement has participants looking at the backs of others. Some participants prefer to have a table on which to write and place personal items. You may wish to provide paper and pencil to help with creativity, as some people like to jot down their thoughts before presenting them.

The participants should be able to see you and be able to hear you. If you need amplifying equipment make sure to arrange for it ahead. Test it.

Pick a point in the room where you can be seen when you are facilitating the group. Find a place for your supplies. A podium to hide behind is not recommended.

Wear comfortable shoes, you will be standing the entire session. This is not a chat session but a focus group and you need to control the flow of information.

You should arrange for at least two (2) flip charts with ample paper. (two full pads). It is recommended that you use the flip charts to display the questions for the group and to record their answers. Prepare this ahead of time.

Arrange for a "Recorder" to record answers on the flip charts or take written notes from the meeting.

Arrange for a "Recorder" and meet with them ahead of time to plan the session. You may wish to co-facilitate and share the duties of recording. If roles are shared they must be clear and planned ahead. Some facilitators prefer to lead the session and have the Recorder do exactly that – record. Others like to capture the data on a flip chart as they go along and have the Recorder assist by removing sheets and posting them on the 'walls'. Some facilitators will then switch with the co-facilitator to give a different voice and a change. Having the Recorder as a 'gopher' only, is not recommended. Transitions must be made smoothly or not at all. It is better to maintain a single role than confuse the audience. Work out your roles ahead of time! The facilitator should take the lead in any blended roles.

Assemble your supplies and have them ready. You can't have too many (non- toxic) working markers. Name tags/ cards for you and the participants are helpful.
If you plan to post your 'product' on the walls of the room make sure you have something that is compatible with the wall coverings – push pins, tacks, tape or Hold-it (Brand name). Check the wall space and plan it out ahead. Pictures, windows and doors cause problems. Decide with your Recorder how much of the 'product' you wish to display at any one time. It is certainly helpful to the participants to display all the answers related to any one topic. If you can display it all, it helps avoid repetition and makes for a quick review at the end.

WELCOME THE GROUP

When all are assembled or the stated time for assembly arrives, you or a designated official should welcome the group. ***It is important to start on time.*** Don't punish those who were punctual.

WELCOME *(script to be edited by NRC)*

The *.. (insert province/territory here)..* ***welcomes you to a session designed to investigate your needs related to the introduction of Objective-Based Codes. This Training Needs Assessment study is sponsored jointly by all the provinces and territories and the Canadian Commission on Building and Fire Codes.***

Our purpose to day is to investigate the need for training and development and other support materials required by practitioners dealing with Objective-Based Codes for Fire, Building and Plumbing. We will provide you with a series of topics for comment and input. These topics are presented in an attempt to assist you in identifying your needs relating to the Codes.

The data collected today will be reported along with the information you have provided in the Survey Questionnaires to the consultant, Humber College, for analysis. Your information along with that provided by similar focus groups from all the other provinces and territories will be used to shape training and development initiatives to support the implementation of the Objective-Based Codes.

You may wish to paraphrase the above welcome but it is important that the purpose of the session is clear and also how the data will be used.
You may promise anonymity.

GUIDELINES FOR THE SESSION

Outline the process. It may be described as 'controlled brainstorming'.

Guidelines for the Session

- **Everyone participates.**
- **All responses will be considered and recorded.**
- **It is permissible to 'hitchhike' on other peoples' ideas.**
- **This is a 'green lighting' session, so the focus will be on collecting ideas and opinions, not negating or commenting on other people's statements or 'red lighting'.**
- **The session is for gathering data related to participants needs and is not for providing answers.**
- **Time is limited so the input will be regulated allowing approximately 5 minutes for each of the topics to be presented – the session will be an hour and a half.**

You may wish to thank the participants in advance for their participation and cooperation.

INTRODUCTIONS - Optional

It is suggested that the participants be invited to introduce themselves.

The following is a suggestion only.

So that each participant provides similar information it may help to 'pattern' the introductions.

You may wish to prepare a flip chart ahead of the session with the following headings:

Please Introduce Yourself

Name:
Job Title:
Organization:
From: (City/Town)
Years of Experience with 'Codes'

"If I were not at this session today, and not at work, I would probably be _____"

Model the information first, then have the Recorder provide an introduction. The Recorder may want to take some 'quick notes' as participants introduce themselves. For example, you may wish to add up all the years of experience in the room and make a general comment on the "wealth of experience in the room today"

You may wish to note 'who' is in the room, that is what groups are represented.
It is suggested that no comment or observation be made about a specific individual.

The last sentence, shown on the model 'Please Introduce Yourself', is designed to provide some non-threatening personal information and break the ice- a bit. It is optional.

You will provide the model. You might say for yourself "If I were not here today, and not at work I would probably be golfing" (or fishing, or at a movie, watching T.V. or spending time with my four children ….)

You may wish to use another technique to put people at ease. A formal 'ice breaker' is **not recommended,** as time is limited.

KEEPING IT FOCUSSED

Each topic will need to be:

a) Visible
b) Read aloud, and
c) Explained (see prompts on Topics for Expanded Discussion sheet)

It is suggested that the topics be introduced one at a time, displayed on a single flip chart sheet.

One topic per sheet - One sheet displayed at a time.

While a handout of the topics is an option it is **not recommended**, as it could reduce the focus, as people read ahead to topics of personal interest. Using the flip chart sheets, you are clearly indicating where you want the focus to be.
Preprint your flip chart sheets.

You (or the Recorder) should visibly record participant responses so that repetition may be avoided. You should clarify with the individual that what has been recorded is what was intended. Get agreement from respondent for any change in wording or paraphrasing that occurs in the recording. Work together with your Recorder to get it right, no matter who is doing the actual writing.
Seeing the responses can also help trigger responses from other participants.

TIMING

You will have to use your judgment about keeping on track. You will have a very tight agenda. Not all topics will warrant equal time. Ask your Recorder to help you keep on track. You may wish to develop a rough plan that tells you where you will need to be in the process at a particular time, to be 'on schedule'. When there is little input for one topic move on – allow the extra time for topics with more input – or review at the end.

It is recommended that you schedule some time to quickly review the results at the end. This may help to fill in some blanks for topics where there was initially little response.

GOING BACK

What do you do if you are on one topic and someone wants to talk about a previous topic?

Options:

a) Ask the participant to write down their idea and you will add it at the end.

or

b) Quickly add it to the appropriate topic sheet, and move on.

Both options could have consequences:
Option a) – You may not get the information.
Option b) – The group will have been given permission to go back to other topics – losing focus.

When in doubt go with Option b). You can allow this to happen a couple of times normally without serious disruption to the flow – better than missing information or stifling spontaneity.

GOING AHEAD

Having one topic per sheet and displaying them one at a time is designed to control the flow of information one topic at a time. Someone may want to deal with an issue that you know is 'coming up' later. Ask the participant to write it down so it won't be lost. Ask the Recorder to make a note so it won't be lost. Try to avoid giving in to requests to move in an unplanned order.

Your job is to keep the group focused.

RECORDING THE INPUT

Whether you use flip chart sheets or chalk/white board to display the data, it is important to have the topic and the responses visible.

You can abbreviate? (yes, but get permission from respondent).

Get help with any spelling issues from respondents.

Write as legibly as you can in characters that can be seen by the participants. Try to be neat but be accurate.

Don't stand in front of or block the view of the written material.
You and the Recorder should work out how you are going to accomplish this together.

If the wall permits (free of pictures, windows and doors) post as many flip chart sheets as practical, so the input is always visible for reference.

Two (2) flip charts are suggested. One person can be clearing and posting and the other keeps on facilitating and recording.

At completion of the session, the Recorder must consolidate all the notes and information into a Word document to be forwarded to Humber College for analysis. (Please see note below)

THANK THE GROUP

You may wish to apologize for having had to control the time and regulate the input but explain that you were working in their best interest –restricting the time so they would be free to pursue their other interests. You can now refer back to what some people told you they would be doing if they were not working with you today – at a movie, playing golf or cooking.

Thank them for their patience and particularly for the quantity and quality of their input.

You should not single out any one piece of information that was received, as that will be associated with the individual who provided it thus relegating the rest of the data and those who provided it to a different category.

THANK YOU

On behalf of the .. *insert province/territory here* .. **and the Canadian Commission on Building and Fire Codes, myself and _____(Recorder) please accept our thanks for a job well done. The input that you have given will now be reported along with the information you have provided in the Survey Questionnaires, to the consultant, Humber College, for analysis. Your information along with that provided by similar groups from all the provinces and territories will be used to guide development of training and development products to support the implementation of the Objective-Based Codes.**

NOTE TO RECORDER / FACILITATOR

PLEASE FORWARD:

- **A HARD COPY (PRINTED VERSION OF WORD DOCUMENT) OF CONSOLIDATED FOCUS GROUP SESSION RESPONSES, AND**

- **COMPLETED NEEDS ASSESSMENT QUESTIONNAIRES FROM FOCUS GROUP PARTICIPANTS**

TO: **Shanta Vogel, Corporate Education Services**
Humber College
205 Humber College Boulevard
Toronto, ON M9W 5L7

ATTACHMENT 1
SELF-CHECK LIST for Facilitation of the Focus Group

Introductory Outcomes

1. Room and materials are ready
2. "Recorder" is in place to take notes
3. I am ready to generate enthusiasm and interest in the session
4. Purpose of the session is clear
5. I have a plan to put the participants at ease
6. I will stress participation geared to a 'we' attitude and mutuality of purpose
7. I know the guidelines for the session
8. I have a positive attitude regarding the agenda and outcomes
9. I have a schedule to manage the timing

Procedural Outcomes

10. I have prepared the topics of discussion in visible form
11. I have sequenced the content of the session so it will be easy to follow
12. I have a plan for handling the visuals in a non-distracting transition manner
13. I have reviewed the topics and their explanation, with examples
14. I have techniques for encouraging discussion of personal opinions and views
15. I have techniques to politely discourage digression from the topic
16. I have techniques for recording input from the participants
17. I feel comfortable negotiating positive changes to the input from the participants without controlling the content
18. I can confirm accuracy of recorded data
19. I can remain neutral and objective
20. I can encourage ownership of input from the participants
21. I can perform gate keeping (regulating the flow of input among all participants)
22. I can encourage non-respondent members to participate
23. I can treat all participants equally and fairly

Process Outcomes

24. I can display sensitivity to group needs, goals, and feelings
25. I can avoid the 'expert role'
26. I can assist the group with problem solving
27. I can promote freedom of discussion
28. I can act as time keeper
29. I can react positively to the group's progress with the process

Summative Outcomes

30. I can review/summarize participant's input
31. I can respond positively to suggestions from the group for improvements in the process and content
32. I am prepared to share with the group the use of the data
33. I am prepared to thank the group for their participation and cooperation

APPENDIX K

SUMMARY OF FOCUS GROUP COMMENTS

The following are comments made by participants of all focus groups held in conjunction with the Training Needs Assessment for Non-Technical Training related to the introduction of Objective-Based Codes. See Appendix L for input from British Columbia outside the focus group process set out in Appendix H.

The comments are organized by province/city question-by-question for ease of comparison.

Focus Group Discussion Questions:

1. WHAT ARE YOUR CONCERNS THAT REQUIRE CLARIFICATION OR FURTHER ELABORATION RELATED TO THE STRUCTURE, FORMAT AND ORGANIZATION OF THE CODES?

Comments from Calgary:

- Concern by participants about lack of knowledge of the code and the divisions
- Concern about understanding the objective based aspect of the code – the steps to go through the code
- Reviews of the code – see the different reviews to see what the differences were
- Lack of base knowledge about the codes
- People had difficulty in understanding the codes
- This move to objective based codes is going to present a huge challenge in working with builders and getting Safety Codes Officers (inspectors) up to speed
- Competence is a worry – understanding the intent statement
- Training is an ongoing part of the job – training inspectors and training designers/ builders
- Training in the clarification of the intent statement so that people will be interpreting the code in a more or less consistent manner

Comments from Edmonton:

- Lack of knowledge about the new system of codes
- Need for CD-ROM for training of safety codes officers (inspectors)
- Need background information on the codes
- Need for take home information/handouts
- Information in written form, checklists
- Step by step info on changes to codes – three column document
- Standard operating functions that can be best practices
- Illustrations

Comments from Manitoba:

- Need to get used to the new format of the two parts and focus on objectives
- Will probably use Division B and in special instances, Division A
- Need to actually utilize before commenting
- Will likely continue using Division B and with 'special instances' Division A

- Current prescriptive is measurable whereas objective may not have a measurable standard; unsure whether we need to maintain current standard
- May lack consistency with everyone's different interpretations
- Relating prescriptive to alternatives – how to compare the two
- Need training to switch way of thinking and to learn how to navigate the codes
- OS2; OH – new numbers – what do they mean
- Need an answer to "what was wrong with the old code" because it will be asked during training
- Training will need to include practice working with the new code; case studies and examples; acronyms/navigation through codes should be included in training

Comments from Nova Scotia (Fire Marshalls):

- There should be a good overview and definitions offered of each and a good overview of how we arrived at establishing OBC format and why.
- The content and relationships between each of these concepts needs to be fully explained. Not only on the base of applications for alternatives but in the daily use of Part B without alternatives as well.

Comments from Nova Scotia (Building Officials):

Rational for moving to the Objective-Base Code ought to be presented and how the change will better meet the needs of Code Users

Division A
There is a need for materials to be presented on the relationship between Division A and Division B, the links and how they work from a legal and enforcement perspective.

Division B
There should be emphasis on the use of Division B a case study showing how it would be used (even though it is following the prescriptive requirements). This would show the relationship between Division A and B.

Division C
Objectives
Functional Statements
Intent Statements

There should be good explanation and concept building on the relationship between these four areas Objectives Functional Statements, Intent statements and Application Statements.

APPLICATION STATEMENTS

There should be time spent to explain the relationship between Division A and B and the concepts of Functional Statements and Intent Statements.

There was general agreement that there should be a good module developed on this section. Even though building officials and Code users are knowledgeable on the use of the current prescriptive requirements these new relationships between the Division A and B and the above should be carefully explained and a case study could be used to show the relationships. This has the advantage that when you use case studies for Alternative or Equivalencies there is an understanding of the basic

functional relationships already achieved on a straightforward application of the Code.

Pre Course Materials could be issued to outline the concepts and define the terms etc.

There should be emphasis on the fact that most code users follow the prescriptive Division B solutions.

In that context there should be concepts rationales and explanatory information on the advantages of the new code. One example is how would it help in applying the Code to the renovation of existing buildings.
The users need a solid understanding of the relationships established for administration and enforcement purposes.
Code users should understand that there is still a legal environment that is established for the use of alternate compliance methods and that decisions will not be subjective but based on good building science at the end of the day.

2. WHAT ARE YOUR CONCERNS THAT REQUIRE CLARIFICATION OF FURTHER ELABORATION RELATED TO NEW KEY CONCEPTS?

Comments from Calgary:

- Will we find out if the definitions are clear until we start using them?
- Definitions need to be clear so that we are all using them in the same way
- If the definitions are singular in their intent then they will be clear
- Training in the definitions so they are clear and universally interpreted
- Concern about confusion between intent statements, application statements, functional statement, appendices, etc. How do we snake our way through the code?
- Need to identify who the resource people are who we can turn to in determining how to interpret the code
- Who do we consult with in staying on track?
- Depository of equivalencies, acceptable solution.
- Variances – record keeping – what was approved elsewhere and why it was approved
- If building with objective based codes then you need a history for that building so that the record keeps with the building
- Objective based codes will challenge the consistency of buildings in Alberta, which is important for a level playing field.

Comments from Edmonton:

- Definitions are clear
- Who is responsible for decisions made in approving new designs/alternative solutions? Province? NRC? Architects? Professional organizations?

Comments from Manitoba:

- Key concepts are clear; starting to talk about the whole picture
- Provides the structure and framework for plans
- Less subjective
- Better understand why clauses are contained in code
- Seem to already match what already using
- Need a simple flow chart to describe hierarchy of functions to get an at-a-glance picture; i.e. can you mix and match part A and B?
- Need clarity so things don't get taken out of context

Comments from Nova Scotia (Fire Marshalls):

- Should do case studies for existing building.
- Alteration
- Change of occupancy classification
- How do key concepts impact on day-to-day use of the new form code.

Comments from Nova Scotia (Building Officials):

- New Key Concepts
- Definitions of

OBJECTIVES
Functional Statements
Intent Statements
Application Statements
Alternate Solutions
Attributions

- There should be good examples and information to learn how these work together to develop an accepted solution.

- This should not only dwell on potential for alternative solutions being offered but also in applying Div B requirements for new construction and for the renovation of existing buildings.

3. WHAT ARE YOUR CONCERNS THAT REQUIRE CLARIFICATION OR FURTHER ELABORATION RELATED TO SUBMITTING EQUIVALENT / ALTERNATIVE SOLUTIONS?

Comments from Calgary:

- Need to have a discussion with all key parties (i.e. building, fire, plumbing)
- Need for standard format for submitting equivalencies, alternative solutions – state the article they are trying to meet and how they are going to meet the requirement. Rational for this alternative. All would need training in how to interpret and use the format.
- Standard form for variance, alternative solution
- Central file for everything related to that building – record keeping
- Need something to fall back on – need to retain certain aspects that are safe

Comments from Edmonton:

- Concerns about having competent staff to evaluate the solution, to do the research to do the background work
- Staffing impacts
- Evaluations with point system in training materials – similar to Ontario codes
- Need for training to evaluate engineering report
- Helpful for clearinghouse of alternative solutions
- Standard from province to alert to new solutions
- Process for evaluating alternative solutions
- New SCO training

Comments from Manitoba:

- Nice to have guideline regarding what info you are to receive; e.g. site plans and drawings; need to receive "X info" on alternatives not just a statement from engineer / architect
- Sample submissions on alternative solutions – need some form of template
- Hit and miss on what type of equivalency you're getting
- Building Official (BO) having to do interpretation – "it's a nightmare now"; BO feels some intimidation now; a template and guidance for submissions would help
- Need a record of equivalencies and alternatives
- Need to be able to approve a concept so architect can continue on their planning
- Should there be one template for new construction and one for existing buildings?
    - Structure may be different/may sometimes not be able to meet code
    - Whether new or old, objectives should be the same, therefore templates should be the same
    - New would likely be more technical than existing building template
- Same training for BO or submitter?
    - Higher level of training for submitter/designer
    - Different jurisdictions can offer some expertise
    - Tech training and awareness of what's out there
- **Concern of changing occupancy of building**; building design may require a certain level of maintenance that is not continued with new owner
- Where is NRC in all this?
    - Proposed data banks for more common alternatives to meet objectives
- Who can submit? Architect or engineer? Contractors? Who else?
    - What will be the level of expertise needed
    - Should there be guidelines or something more concrete?
- Fast Tracking
    - Would like to maintain the ability to fast track with designer/architect taking responsibility
    - Need criteria for fast track submission; for e.g., if you have training and are certified on submissions (e.g., University of British Columbia program), you get on the Fast Track list
- Training should focus on how to make submissions and there should be some sort of certification provided
- Designers in different jurisdictions
    - Template should be consistent across Canada
    - Need tools to help strive for consistency

Comments from Nova Scotia (Fire Marshalls):

Mostly address existing buildings

- Address licensed premises under various provincial legislation for new construction
- Types of Submissions for existing buildings include
    - Exit requirements
    - Fire fighting requirements
    - Water supply
    - Separations

Hospitals, schools, nursing homes

What is acceptable to building and fire officials in the process of approval?
The proponent should identify objectives and alternatives in the submission process that are outside of the Division B acceptable solutions.

Comments from Nova Scotia (Building Officials):

Submissions should be presented by the proponent detailing the issues where they are seeking to use alternate compliance. So where plans and specifications are being submitted for a building permit the proponent needs to be responsible to assure that any alternate proposed is indicated clearly and identified.
One member suggested that course developers review NFPA Documents that exist on what is required to use performance based codes

Submission should

- Identify the issues
- Identify the objectives, sub objectives, functional statements, and intent statements are at issue
- How is the proposal meeting each of #2 (above)
- There should be a form developed for the use by the proponents to assist in this task, possible a check list and questions to be answered so complete information is provided.
- There should be expert opinion professional advise offered by the proponent on why the proposal meets #2 (above)

4. WHAT ARE YOUR CONCERNS THAT REQUIRE CLARIFICATION OR FURTHER ELABORATION RELATED TO EVALUATING EQUIVALENT / ALTERNATIVE SOLUTIONS?

Comments from Calgary:

- Liability will be an important aspect – who will be liable? Need to understand the rational.
- Mentoring of SCOs in evaluating – either in the form of advice or authority ruling
- NRC or SCC being the authority to
- SCOs worry about liability for decisions being made – in larger centers, there are others to turn to in making decisions, smaller centers may not have resources or people
- The players have to be educated in how this comes together
- What options are there for smaller communities?

- Consistency throughout the province in evaluating the projects
- What is our standard of care in inspecting, signing off on plans
- What level will you evaluate equivalencies at?
- Standardization of inspection/plans review
- Analytical thinking required
- The building code is built on certain assumptions and training
- Training on liability
- Record keeping of the building – is it the owner's responsibility or the municipality?
- Could multi-tasked inspectors be trained in inspecting only what they are trained in? Need to be competent in what they do.

Comments from Edmonton:

- Difference between American and Canadian ratings – training to compare the various formats ULC, CSA, UL, Europe, global. Reference point to do an evaluation. The basic standard for Canada.
- Is there some agency to evaluate the above? Or a universal process to evaluate materials/standards. Equivalencies for
- Evaluating maintenance of building once it is built. Long term solution needed. Life cycle of building.
- Training and certification for codes and its application in Canada. Do we recognize international standards?
- Guidelines for considerations in evaluating submissions.
- Networks and resource networks for discussions of issues. Timely. Access to NRC? Network for consultation system. Needs to be something that can be counted on. Consultation and research is time consuming but needed for evaluating alternative solutions.

Comments from Manitoba:

- Need criteria that could be used across the board
- Engineers/architect/inspectors all have different training requirements
- Need a set of criteria for any alternate solutions that can be used across the board
    - Creating a national registry
    - May not address problem of developing alternative solution
- Should staff evaluate or should the solutions be sent out to a third party who is qualified to evaluate
    - Staff – difficult to achieve competencies needed to evaluate
    - If have a template for submissions and solutions, staff should have sufficient information to evaluate; have quality of info that is testable – same result under same conditions
- National registry may not have background information on which the alternative is based; it must be updated and maintained with follow-ups – incorporate longer term impacts and effects of solution once the building has been operating
- Need a methodology for evaluating solutions; e.g., lower fire rating – use computer program to evaluate alternative
- Need training on acceptable methodology to support the solution; gives proof that objective is met or exceeded; gives evaluator confidence in the solution
- Methodology needs some science behind it, i.e.; needs criteria or recognized method that is generally accepted

- Adjust level of training to the different groups – should there be a NOC standard? (national occupational standards) for each profession?
- Professionals, trades, technologists need technical training on the codes
- Documentation is critical

  Currently, no formal process for submission of documentation; no formal process for submission of documents and passing of relevant info to others; e.g., specific maintenance requirements to maintain life of building – recognition that there are these requirements to go with the alternative solutions; need to make sure documentation goes to the right people; i.e., owner/building manager, etc.

Comments from Nova Scotia (Fire Marshalls):

- What resources will be available?
- Needs to be consultation between building and fire officials to agree.
- Should have a check list

Comments from Nova Scotia (Building Officials):

- Evaluating Equivalent / Alternate Solutions
- Review the application for completeness and that in fact all potential issues for alternatives proposed have been addressed. Did the proponent miss anything?
- Review third party evaluations prepared on behave of the proponent to determine if the BO will accept or wish to have sent to an independent third party review such the proposed CCMC Assessment Service.
- Assure that all documentation is complete.

5. WHAT ARE YOUR CONCERNS THAT REQUIRE CLARIFICATION OR FURTHER ELABORATION RELATED TO APPROVING EQUIVALENT / ALTERNATIVE SOLUTIONS?

Comments from Calgary:

- Depository of alternative solutions
- Training the steps in how to use the depository
- Training in how to use the authorities
- Depository of what has been submitted but have not been approved as well – why not?
- Retroactivity. What are the lines of demarcation? CP Railway using the NBC and not the ABC.

Comments from Edmonton:

- Training for architects/engineers designers in order for them to submit alternative solutions. Paperwork/schedules and responsibilities and training in how to fill out paperwork
- Document storage for paperwork – Record retention stated very clearly
- What are the responsibilities of the building owner in the submission of an alternative solution?
- Knowing where to look in the code – something may come from many different parts of the code
- Availability for other people to look at other solutions

- Looking at long term life cycle of building, and its impact on changes or renovations
- Where does the SCO go to find research on decisions that have been made in the past on a building.
- Storage of documents and research done to make decisions for other builders/SCOs so that they can see the entire building and its holistic nature
- Approving of testing agencies.

Comments from Manitoba:

- Creation of national registry – evaluation of registry – must be able to update and maintain; i.e., if something falls out, need a way to communicate its removal
- Pre construction and post construction approval
- On-site: did they actually build what was approved?
- Does the alternative solution perform as per the submission?
- Adequate commissioning and testing needed prior to occupancy
- National Approval System for product
- Different prescriptive codes for each province – can these be used?
- More structure and order to what we do – fix up how we accept solutions
- Appeal process for rejection of solution? Criteria and template for refusing and for appeal process
- Need training on solutions as well as rejections
- No level of comfort in using all solutions from different provinces – wet climate vs. dry climate – dependent on conditions – must be aware of conditions under which they were accepted
- National Registry of Rejections – what are the legal implications?
- In terms of training:
    - Need to build into training where solutions haven't worked
    - Case studies
    - Director's interpretation of the code
- National Registry – perhaps should contain information to assist in meeting objectives – responsibility still rests with the jurisdiction to evaluate in its application so that National Registry doesn't become a prescriptive tool
- Alternate solutions must be compared to prescriptive

Comments from Nova Scotia (Fire Marshalls):

- Must be signed off by both building and fire officials for technical issues
- checklist

Comments from Nova Scotia (Building Officials):

- Professional, independent third party review.
- Legal opinions
    - Concerns were expressed on how and by who the documentation of approved alternative will be retained in the municipal system and by the designers and the building owner
- This is critical for future alteration of the building, maintenance inspections, fire inspections, etc.
- Documentation on what was legally accepted versus what was found in place at a later date, legal or illegal alterations for example.

- Who is responsible to assure that documentation is retained and available and who has access to this information for the life of the building
- How can alternative solutions be flagged for access 10-50 years or life of the building. Should this information be noted on deeds?

6. DESCRIBE OTHER TOPICS FOR TRAINING THAT YOU REQUIRE DUE TO THE INTRODUCTION OF OBJECTIVE-BASED CODES.

Comments from Calgary:

- Web site to provide multi-level training objective based codes
- Building inspectors do not have a fundamental understanding of the AFC
- Interagency training is critical – cross disciplinary training
- Analytical thinking for SCOs – basic skills in evaluation techniques
- Training in the past that was effective was when the SCA was first implemented there was training on serving an order, mock review
- Regional training – Round table conferences
- What is going to be the standardization of Safety Codes Officers
- Designers, Architects, Engineers, Insurance industry – training for them (continuing education credit)

Comments from Edmonton:

- Contractors will survive by watching other designers and builders
- Journeyman need for training in the new codes. Codes change and journeyman do not always keep up to date in the changes. Code update for practitioners in the field. The clearer it is in the code the better
- Structure in place for SCOs. Does it meet the prescriptive aspects of the code?
- SCOs need code training
- Liability and responsibility – where does it all fall, how do you deal with it?
- Innovative designs and evaluation

Comments from Manitoba:

- Office of the Fire Commissioner (OFC) training (MFC) is not reviewed on an ongoing basis; e.g., fire inspectors; need education and programs for code users that is administered provincially
- Current programs of OFC will be necessary but must be re-evaluated
    - Must be continually updated/upgraded
- Need certification for the education program; doesn't exist now to the level that it should
- Professional renewal should be mandatory for all building practitioners; anyone involved in building design
- If concern is national, curriculum should be developed at National level for integration at Provincial level
- 95 code is basis for existing training – needs updating – National Certification should address issue – ultimately training should meet objectives
- There are 1300 changes in the code; training is needed for **all** building practitioners on these changes
- Workshops for 'design community' building practitioner
- Need for university/college on codes in general for "new entrants" including trades/technologists/professionals

- Need for a bridge from “school” to work; technical sophistication of codes requires there be an evaluated educational program – that it be a part of accreditation
- Helpful to have basic training in Fire Protection Design to be able to:
    - Recognize correct methodology
    - Recognize that template submissions are adequate
    - Inspection and commissioning activities are adequate
    - Basic knowledge of good qualities vs. bad
    - Introduction to what to expect and a process to use to address the submission and recognize quality
    - Building science
- Should be an effort to get fire protection engineering discipline
- Make information known to people about programs such as Carleton University; raise awareness that it’s there
- Development of communication skills needed as well as ‘people skills’
- Need effective communication with non technical people

Comments from Nova Scotia (Fire Marshalls):

Use and application of the codes

Comments from Nova Scotia (Building Officials):

Case scenarios should be used and make them hard.
Life safety issues
Fire safety issues
Travel distance reduced
Egress requirements
Exiting

One or more on code compliant case studies showing the use and interrelationship between the Division A and B and

OBJECTIVES

Functional Statements
Intent Statements
Application Statements
Alternate Solutions
Attributions

7. DESCRIBE OTHER TOOLS / SUPPORT MATERIALS (REVIEW LIST IN QUESTIONNAIRE) THAT WOULD HELP WITH EVALUATION OF EQUIVALENTS / ALTERNATIVE SOLUTIONS.

Comments from Calgary:

- Use computer based training
- Train-the-trainer
- Condition of maintaining certification
- Use regional training – use local expertise/trainers

- Training will be intensive as the code is introduced – could use classroom initially and then move to CBT
- Use a variety of means to reach all learners
- Phone number to talk to person when questions come up
- Networking resources – contact list of SCOs
- Resource tools on-line such as Palm based solutions, CD-ROM
- Variety of tools to evaluate the solutions – free spread models, software
- Concern about how the code will work with the Safety Codes Act, etc – cross-referencing. Current Act may be in conflict with the new code and how to evaluate equivalencies. Will the SCA have to be changed:
- People may need to have training in identifying the conflicts
- Training in how to go back to the SCA

Comments from Edmonton:

- Something like the Part 3 commentary (users guide) that is produced by NRC.
- Checklists – need to have explicit instructions, the checklist isn't the entire list
- NRC to come up with a complete set of training for objective based codes
- Training should not be too onerous
- Self learning or internet based – correspondence/printed, electronic based
- Training may be different for large and small organizations
- Networks required for discussion
- Basic course for everyone and an advanced course if you want extra. Advanced could be face to face, while the basic could be distance. Advanced would be optional
- Copyright permission for designing of training for SCOs, others
- Training of the structure of objectives based codes and training on technical

Comments from Manitoba:

- Inspection and commissions
- Pass on history from owner to owner
- Template
- Case studies (hypothetical) – along with answer – need to be able to identify needs and work through it
- Toll free call centre
    - Tech support for first couple of years (NRC rather that local authority)

Comments from Nova Scotia (Fire Marshalls):

Flow chart – outline application process

- Process flow chart – general guidelines to evaluate alternatives
- Guidelines-proposing/submitting alternatives
- Web base share repository
- "best practices"-approaches for evaluation of equivalent/alternate solutions submitted

There was support for all of the above to be made available.
Web based repository could be provincial as well as or in addition to national.
Any "national repository" should only include nationally acceptable solutions.

Comments from Nova Scotia (Building Officials):

Flow chart – outline application process

- Process flow chart – general guidelines to evaluate alternatives
- Guidelines – proposing/ submitting alternatives
- Web base share repository
- "best practices" – approaches for evaluation of equivalent/alternate solutions submitted

There was support for all of the above to be made available.
Web based repository could be provincial as well as or in addition to national.
This should not be limited to alternate solutions but also be available for the use of the new form codes

For jurisdictions that require the use of Letters of Certifications from design professionals such as BC and NS and others, what is the legal framework for these within the alternate solution path.

8. DESCRIBE ANY OTHER CONCERNS YOU HAVE WITH THE INTRODUCTION OF OBJECTIVE-BASED CODES.

Comments from Calgary:

- People don't know until we actually use
- Worry about the amount of time to evaluate the acceptable solutions
- Can we differentiate between the levels of complexity
- Concern about the amount of training that may required
- Training needs to be on the job – examples in depository for people to refer to in aiding in the evaluation
- Formal training may too onerous – time consuming, costly, intensive and theoretical. Need to have on-the-job aspect.
- The cost of evaluating the equivalencies, need to bring in outside expertise costs money
- Concern about the next generation coming in to the profession. Lack of people coming into the field. Continuity for new recruits as well.

Comments from Edmonton:

- Cost of training
- Timing – timed/available with introduction of the code
- Method that this gets disseminated to the SCOs – train the trainer option
- Amount of time required for training
- Accessibility of training – who goes where to get training – could be internet based – interactivity – classroom would be appropriate as well. Networking is an important aspect of learning.
- Continuing education credits for engineers and architects
- Objective based aspect needs to be available with introduction of code

Comments from Manitoba:

- Not enough happening provincially in terms of readiness; no one leading this massive change on the political level and provincial commissioner office
- Needs to come from **government** (OFC)
- Various association representing practitioner MBOA, MAA, APGM and Fire Chief should take leadership
- Public awareness – emphasis on code not a priority
- Mechanism for appeal if solution is not given favorable consideration
- Should be provincial sounding board that can offer advice
- Major practitioner group should get together to discuss
- Currently in Canada small number of people with experience in handling alternative solutions
- Need development of training and support in fire protection design
- Each jurisdiction should have administrative procedure on acceptance of alternate solutions
    - Who should pay for this? In the USA, designer pays
    - Proposal – hire designer – hire another designer to review or pay fee for authority to review (third party review)
    - Will slow down production because of number of changes in Part B and Part C; unless have quality control at intake to make sure design meets minimum requirements; will get quality submissions if have submission requirements
- Suggest **Division** B be introduced then **Division** A – staged training
- Essential they have objectives and that objectives are clear
- Standards referenced in the codes – will it be objective format also?
- Quality of submissions nothing to do with codes (sub-standard applications) maintain quality control of submissions very important
- National Registry idea – don't want designs posted nationally (responsibility) – ownership, legal; what if someone uses without meeting all of the conditions
    - Specific design approach – proprietary and legal considerations; Winnipeg Construction Association dealt with this through reciprocal agreements
- Most code users will continue to use **Division** B; the codes should be reorganized so that **Division** B becomes **Division** A; start with the familiar and move to the unfamiliar

Comments from Nova Scotia (Fire Marshalls):

- There needs to be a background piece including the origins and development of the Objective base codes.
- There needs to be advice on what documentation is retained, how and by whom. This is critical over the life of a building, considering future renovations may impact on alternate accepted solutions etc.

Comments from Nova Scotia (Building Officials):

- Designers need to understand what will be expected of them.
- Fear that already some professional designers seem to be under the impression that their say so will be sufficient for acceptance.
- There needs to be course manual that participants can take away with them and include lots of examples case studies, guidelines and "best practices".

- If a submission is made for an alternative and is refused is that decision able to be appealed to the NS Building Advisory Committee or similar bodies in other jurisdictions?
- There needs to be code users guide for use of the OBC that covers code compliant projects as well as users wishing to use alternatives.
- You should keep in mind that most projects actually follow the Division B requirements.
- Application of the code to alterations of existing buildings is a much higher use that alternate solutions on an ongoing bases so there should be emphasis on this issue …… which appears to be missing altogether.
- There should be an overview of the code in its new form and the relationship between the divisions from a legal and enforcement perspective as an introductory module.
- One should not assume that users will be familiar with any of the concepts to start so there needs be sufficient background offer up front so users will not get lost in subsequent discussions during the course.
- Some will be quite familiar but many will not at all.

9. WHAT IS THE BEST APPROACH TO TRAIN MEMBERS/EMPLOYEES OF YOUR ORGANIZATIONS?

[Manitoba added this question.]

- MAA (Architects) –would be covered under association
- City of Winnipeg – contract out training
- MBOA/Canadian Alliance of Building Officials should oversee the training
- Need provincial offering of courses face-to-face for building officials and inspectors
- Who will train the trainer/ How to ensure their competence?

FOCUS GROUP RESULTS FROM BRITISH COLUMBIA

British Columbia did not report their findings in the same format as other focus groups. Please see Appendix L.

APPENDIX L

COMMENTS MADE BY BRITISH COLUMBIA

Introduction

British Columbia building, plumbing and fire code users have a range of training needs associated with the introduction of the 2005 edition of the codes in an objective-based code format. The basic requirement is an understanding of the features and terminology of the objective-based code format, as well as familiarity with the changes to the technical provisions. A relatively small segment of the code user community requires training in alternative solutions.

Methodology

Training needs in British Columbia were assessed through a multi-sector focus group as well as through a multi-sector working group on code training and education.

Focus Group

Nine people, with the following characteristics (some double count, because they have more than one characteristic), attended the focus group:

- Four engineers (P. Eng)
- Two architects
- Four building officials
- One member of CCBFC
- One PhD
- Two chairs of the Building Code Committee of associations (engineers & architects)
- Two staff members of associations
- One chair of an education committee of an association

The focus group said the primary training requirement was an introductory presentation on the features and terminology of the objective-based code format, from the perspective of the code user.

One building official said that four of the people in his office of 60 have anything to do with alternative solutions (equivalencies). The majority deals with straightforward code issues.

The focus group said that existing materials prepared by Canadian Codes Centre staff was too advanced for their interest and needs.

Introductory presentation

The BC Building Policy Branch developed a one-hour presentation, based on the presentation drafted by Canadian Codes Centre staff that was delivered at forums across Canada during the consultation on proposals to change the technical provisions of the code, and to test-drive the Objective-Based Code format. The BC presentation walked code users through the features (objectives, sub-objectives, third-level objectives, functional statements, intent statements and application statements), and then repeated these features using the single example of 9.23.10.2 Bracing and Lateral

Resistance. The BC presentation ends with a short discussion on the value of these features in code interpretation and a précis of additional training modules.

The BC Building Policy Branch has tested this presentation to five audiences, totaling about 150 people. Each time, some audience members said they attended the session with apprehension about the objective-based code format, and left it with the sense that the new format will help them apply the codes more consistently. Some were content to leave their code training at that; others wanted more examples and more practice in using the features of the objective-based code format.

Education working group

The BC Building Policy Branch invited two representatives – the chair of the code committee or training committee, and the staff member most involved in training – from each of the following organizations to join an education working group:

- Applied Science Technologists and Technicians of British Columbia
- Architectural Institute of British Columbia
- Association of Professional Engineers of British Columbia
- Building Officials Association of British Columbia
- Canadian Home Builders Association of British Columbia
- Fire Prevention Officers Association of British Columbia
- Urban Development Institute of British Columbia

Working group members were asked to provide information on ways in which their members are accustomed to being trained, successful methods of training for their membership, the level of interest their membership has in code training, and support materials.

Comments from the Working Group and Focus Group are integrated into the remainder of this document.

Learning outcomes

This section identifies learning outcomes associated with the introduction of the 2005 Building, Plumbing and Fire Codes in an objective-based code format.

Learning outcomes for all building, plumbing and fire code users:

for knowledge:
- familiarity and ease with using features of the objective based code format, such as intent statements, application statements, objectives & functional statements amongst all sectors of building, plumbing and fire code users

for comprehension:
- understanding of new technical provisions of the 2005 edition of the building, plumbing and fire codes
- understanding of the scope of the Building, Plumbing or Fire Codes

for application:

- ability to choose and apply appropriate feature (intent statement, application statement, objective, functional statement) for various circumstances in consistently applying the building, plumbing and fire codes
- familiarity and understanding of changes in administrative requirements, especially how to demonstrate compliance (Division C, which will be specific to the province or territory)

Additional learning outcomes for code users who monitor compliance (predominantly building and fire officials), for analysis and evaluation:

- ability to determine whether appropriate code provisions have been applied, using applicable objective-based code features

Additional learning outcomes for specialized code users who deal with alternative solutions (approximately seven per cent of code users):

for knowledge:

- understanding of use of objectives, functional statements, intent statements and application statements in proposing or evaluating alternative solutions

for application:

- ability to explain the way in which an alternative solution satisfactorily meets the code in the specific circumstance

for analysis and evaluation:

- ability to distinguish between satisfactory adherence to the code and unsatisfactory proposal of an alternative solution

Sector training requirements

British Columbia code users have varying training requirements, depending on their sector.

Builders

Builders in British Columbia have varying levels of familiarity with the Building Code. Sophisticated code usage, such as proposals for alternative solutions, is generally contracted to code consultants.

Builders traditionally take training programs through the various associations, such as the Canadian Home Builders Association and the Urban Development Institute. Training needs identified include:

- familiarity with new code terminology and features, as well as application of appropriate provisions

Builders have identified an interest in taking a one-hour overview session. Some builders have expressed an interest in taking two half-day seminars; one on new provisions and the other on general features of the objective-based code format.

Building Officials

Building Officials rely on the code and code provisions as an important part of their every-day work. Within this sector, plan checkers interact with the code most often. Larger municipalities (population more than 40,000) have dedicated plan checkers. Building officials in small municipalities tend to be generalists.

The Building Officials Association of BC has a voluntary certification program, adapted from the Ontario Building Officials curriculum. Some local governments require this certification as a condition of employment.

Range of training requirements:

- ability to apply the changes to technical provisions of the code to appropriate circumstances
- familiarity with the features of the objective-based code format
  ability to use the features of the objective-based code to assess compliance with the code
- ability to evaluate alternative solutions

This sector has expressed an interest in full-day and half-day seminars.

Designers

In British Columbia, there is an administrative requirement for a professional to sign a letter of assurance to certify that code requirements have been met on large building projects. Building designers, therefore, need an advanced knowledge of the code provisions in Parts 3, 4 and 5.

The professional associations of both architects and engineers offer continuing education to their members. They also allow, and sometimes encourage, their members to take continuing education courses from sanctioned providers, such as universities, colleges and professional associations.

Training requirements for this sector include:

- familiarity with the building, plumbing or fire code structure and features
- familiarity with new provisions of the building, plumbing and fire codes
- ability to comply with Division C, the administrative provisions.

This sector estimates a willingness to commit to an introductory one-hour session followed by two specialized half-day sessions.

Code consultants

In British Columbia, specialized code consultants, who are professional architects and engineers, are often brought into a construction project to develop alternative solutions (equivalencies) to enable a designer to meet code provisions through innovative means.

There are relatively few code consultants working in British Columbia: fewer than 75 people overall.

Training requirements for code consultants are advanced: these people must be able to analyze code provisions and present alternative solutions in a way that allows building

officials to determine whether the alternative solution is acceptable to the jurisdiction having authority.

Code consultants have indicated that they are active in code development, and as such are 'up to speed' with changes in the codes. They identified no training requirements beyond those for traditional code users and in the area of Division C (Administrative Requirements).

Technicians

Technicians assist many design firms with detailed code work. Training needs identified by that sector are:

- a one day workshop re changes & interpretation with a take-away manual (Illustrated Guide to Code Changes)
- a manual for those who are unable to attend workshops
- how the codes will be administered (Division C)
- how to demonstrate compliance to the municipalities.

Training delivery preferences

The British Columbia government strongly supports e-business. Some sophisticated code users have indicated an interest in e-based training. The vast majority of building code users has expressed an interest in seminars led by trainers in the same room as the learners. Designers have indicated that they would like a users manual, or similar written material, for people unable to attend training seminars.

The Building Officials Associations of British Columbia and the Fire Prevention Officers Association of British Columbia have expressed an interest in facilitating the delivery of training throughout the province, ensuring that code users outside the highly settled areas have training opportunities.

APPENDIX M

PROPOSED LEARNING OBJECTIVES FOR GROUP ONE

The following are possible Learning Objectives and Learning Outcomes (sub-objectives) for designated Group One only, based on the findings of the Questionnaire Survey and the Focus Group feedback (Appendix "I"). The Questionnaire Survey (Appendix "H") provided opportunity for the respondents to select and rank training topics from a forced choice selection but also provided opportunity for the addition of topics.

Respondents were asked to indicate the use to be made of the training thereby providing researchers with insight as to the intensity of the training. This intensity rating provides the language required to write Learning Objectives. For example when there is a requirement for a 'basic understanding' then the objective would state that the training should result in 'awareness' for the participant. On the other hand if the requirement were that the individual needed to 'explain to others' the language of the Learning Objective would be verbs such as "explain, direct, or instruct". "Outlining and discussing" are subsumed under 'explain'. The duration is also used to determine the complexity of the Learning Objectives, as there is a direct co-relation. The duration affects the achievement of the Learning Objectives.

The Learning Objectives are displayed in the order that the majority of respondents indicated preference.

Learning Objectives – Group One

New Key Concepts (Topic Two)

Upon successful completion of the training module, participants will be able to:

a) Explain key concepts of Objective-Based Codes including:
   - Features of Objective-Based Codes and how they differ from existing codes
   - How Objective-Based Codes work –the affect on the process
   - Benefits of Objective-Based Codes

b) Explain Object-based Code Objectives including:
   - What are Objectives
   - How objectives are used
   - Sub Objectives
   - Levels of Sub Objectives
   - Examples of Objectives of the National Fire Code
   - Examples of Objectives of the National Plumbing Code

c) Explain Functional Statements including:
   - What is a Functional Statement
   - Relationship of Functional Statements to Objectives
   - Qualitative nature of Functional Statements
   - Use of Functional Statements

d) Explain Acceptable Solutions including:
   - Research Acceptable Solutions
   - Use of Acceptable Solutions

e) Explain Intent Statements including:
   - Features of an Intent Statement
   - Benefits of Intent Statements
   - Publication of Intent Statements
   - Examples of Intent Statements

f) Explain Application Statements including:
   - What is an Application Statement
   - Uses of Application Statements
   - Examples of Application Statements

g) Explain Alternative Solutions including:
   - Acceptance of Alternative Solutions
   - Local/Regional authorization
   - Generic Alternative Solutions
   - National Repository
   - Liability issues
   - Conflict resolution and appeals

h) Explain Attributions including:
   - Attributions and Functional Statements
   - Attributions to Acceptable Solutions
   - Master Tables of Attributions

Evaluating Equivalent/Alternative Solutions (Topic Four)

Upon successful completion of the training module, participants will be able to:

a) Explain the process for evaluating equivalent/alternative solutions including:
   - How Objective-Based Codes process is different from current approach
   - Implications for Objective –Based Codes process
   - Benefits of Objectives-Based Codes process
   - Examples of Alternative Solutions

b) Explain the technical difficulties in the process of evaluating alternative solutions

c) Explain the documentation process for evaluation of alternative solutions including:
   - Local/National Repository

Approving Equivalent/Alternative Solutions (Topic Five)

Upon successful completion of the training module, participants will be able to:

a) Explain the process for approving alternative solutions including:
   - Existing versus Objective-Based Codes
   - Benefits of Objective-Based approach

b) Explain the technical difficulties related to the approval process including:
   - Typical difficulties
   - Overcoming difficulties

c) Explain the process for documenting approval of Alternative Solutions including:
   - Documentation templates/guidelines
   - Local/National Repository

Structure, Format and Organization of the Code Content (Topic One)

Upon successful completion of the training module, participants will be able to:

a) Explain the Structure of Objective-Based Codes including
   - Division 'A' – Compliance, Objectives, and Functional Statements
   - Division 'B' – Acceptable Solutions
   - Division 'C' – Administrative Provisions

b) Explain Format of Objective-Based Codes including:
   - Examples from Divisions
   - What is new
   - What are the implications of Format to code users
   - Levels and Sub Objectives
   - Positioning and links
   - Using the information

c) Explain the Organization of the Code Content including:
   - Navigating through the Code
   - Benefits of the Objective-Based Code Organization

Submitting Equivalent/Alternative Solutions (Topic Three)

Upon successful completion of the training module, participants will be able to:

a) Explain types of submissions including:
   - Examples

b) Explain the submission process including:
   - Existing
   - Objective-Based Codes

c) Explain technical difficulties related to submissions including:
   - Relationship of type to difficulty
   - Overcoming difficulties

d) Explain the process for documenting submissions including:
   - Documentation templates/guidelines
   - Local/National

APPENDIX N

COST ESTIMATES FOR TRAINING PROGRAM OPTIONS

Classroom Delivery

Learning objectives have already been defined for several training topics.

The estimate of costs to develop program content material for a six-hour course is $5,000 to $7,000. Deliverables would include:

- Facilitators Guide
  including Powerpoint presentation and case studies
- Participant Manual
- Course evaluation form

Online Delivery

The estimate of costs to migrate the classroom material to an online environment is $8,000 to $12,000 per six-hour course. Deliverables would include:

- Online instructional design for modularized content
- Converting files
- Programming of two online quizzes, responses and electronic marking
- Design of two Flash animations to enhance learning and engage student

The online estimate excludes the cost of educational software licensing, hosting and delivery.