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FINAL REPORT

Presented to:

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Health Policy and
Communications Branch**

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***Evaluation of the
"Science, Tobacco and YOU"
Interactive CD-ROM.***

PO2-02-40

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SECTION 1: EXECUTIVE SUMMARY

1.1 CONTEXT, OBJECTIVES AND METHODOLOGY

The "Science, Tobacco and You" CD-ROM is a scientific resource that **integrates the principles of best practices in tobacco prevention education**, and was developed in consultation with science educators, scientists, health educators, physicians, teachers and students.

#1 The department of Health Canada wishes **to evaluate the relevancy of this CD-ROM with youths in grades 4 to 6 in terms of:**

- Appropriateness and clarity of the information;
- Comprehension of the information provided;
- Relevance of the content;
- Context of the CD-ROM format;
- Need for supplemental material.

In all **8 focus groups with youths, parents and teachers were held in Montreal and Toronto** on April 23rd and 24th, 2002, respectively. In each city, youths were given the opportunity to interact with the CD-ROM during the sessions, while the parents and teachers were given a demonstration of selected sections of the CD-ROM. All groups were encouraged to voice their opinion and provide suggestions for improvement.

	Boys	Girls	Parents	Teachers	<u>TOTAL # OF GROUPS</u>
Montreal	1 group	1 group	1 group	1 group	4 groups
Toronto	1 group	1 group	1 group	1 group	4 groups
TOTAL	2 groups	2 groups	2 groups	2 groups	8 groups

The reader of this report is reminded that the results discussed herein emanate from qualitative, as opposed to quantitative, methodology. As such, these qualitative results should not and cannot be construed as representative of the larger population in any statistically-significant manner. The high degree of consistency on some issues between groups and the general convergence of opinions encountered with respect to the various issues explored in this process does, however, provide us with a high level of confidence in the validity of the results reported herein.

1.2 MAIN FINDINGS

Overall, the CD is **appreciated by the youth, parents and teachers as an appealing educational tool for tobacco prevention**. Although some improvements are suggested, most of the **teachers** agree that the CD-ROM would be a **useful tool in the classroom and claim that they would use it**. The youths and their parents also provided insightful recommendations for the improvement of the usability and comprehension of the CD-ROM.

The following topline report is an overview of the various recommendations emitted throughout the focus groups.

1.2.1 Overall Recommendations

- Children, parents and adults alike agree that information **on the actual effects of tobacco** on the body **are not sufficiently put into evidence**. In fact, they are surprised to find information on the general functioning of the body system put forth first and foremost and having the effects of tobacco presented as a complement to the information on the body.
- **Short attention span of children:** children do not tend to pay much attention to the text (written or spoken) when an interactive image is present. Suggestions to improve the retention of information include:
 - important instructions should be **highlighted/emphasized**;
 - information should be presented in **point form as opposed to paragraphs**;
 - instructions for clicking on a certain button should be **placed on or close to** the area that needs to be clicked on.
- **Add a page that describes the various buttons and their function so as to make navigation easier:** a page indicating the existence of "Effect of tobacco", "Watch it work", "Did you know" and "Activities" buttons, as well as their purpose, to the site.
- **Make important buttons more eye-catching:** The "Effects of Tobacco" button is often overlooked. It is not in a bright colour and, as it is frequently placed over the text, it is often construed as a title, rather than as a clickable link. The "Activity" button also goes unnoticed, since its colour blends in with the background.
- **Maintain consistency in the placement and design of buttons:** This will help users learn how to navigate through the CD
- **Have a more expressive French voice-over:** Some children commented on the monotone quality of the narrator's voice.

SECTION 1: EXECUTIVE SUMMARY

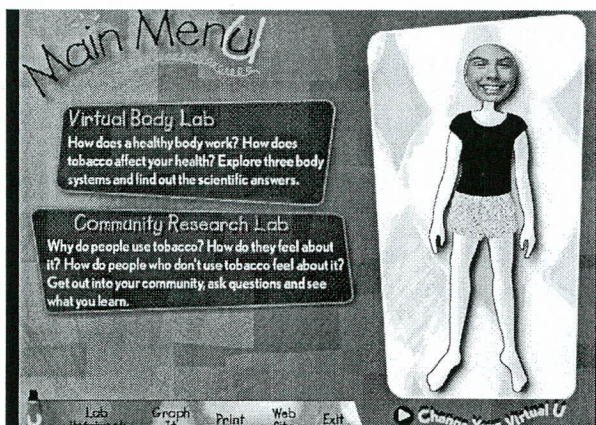
- **Have a male/female French voice-over:** although not suggested by the French groups, the English parents and teachers found the use of both male and female narrators to provide variety as well as be politically correct.
- **Ensure quality of French/English:** typos, spelling mistakes and grammatical mistakes must be non-existent. As an educational tool, used by teachers in a classroom, the quality of the French/English must be impeccable.

1.2.2 Specific Recommendations

The following recommendations relate to **specific pages** on the CD-Rom.

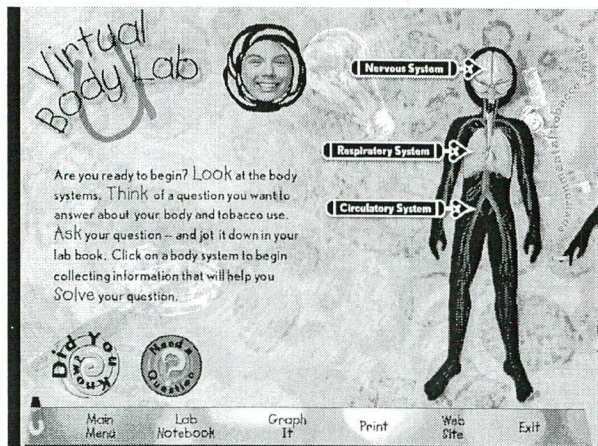


- **Replace Virtual "U" by Virtual "You":** some teachers underlined that an educational tool should have the correct spelling.
- **Offer more choices:** many children mention that they would like to have a more extensive list of choices to choose from.
- **Make the skin tone option more obvious:** this feature is often overlooked, as it is to the left of the screen and not in the same field as the rest of the choices available.



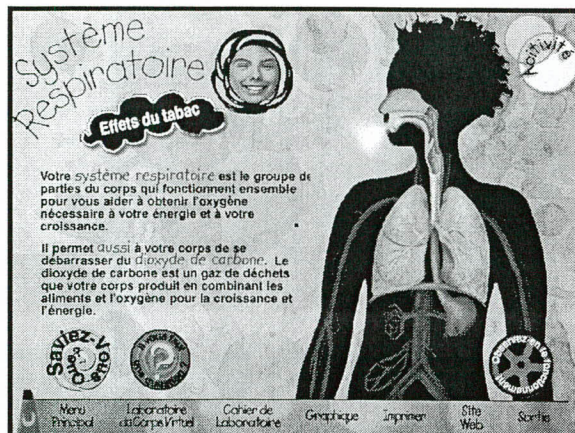
- **Add a "Click here" icon on each of the options:** although the vast majority of children figured out that they could click on one or the other, some mentioned that an icon would make navigating easier.

SECTION 1: EXECUTIVE SUMMARY



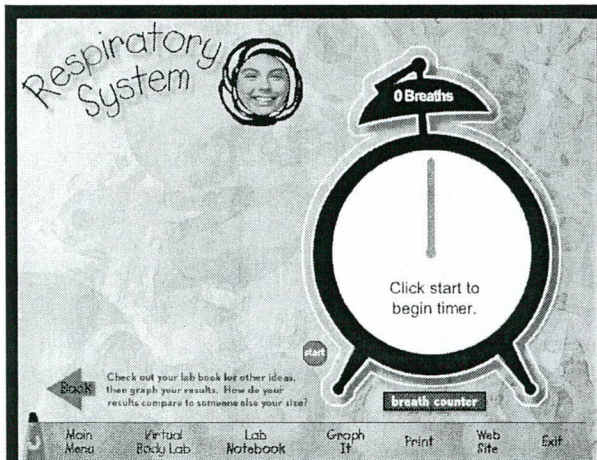
- **Contrast text on the "Need a question" button:** the blue text on the blue background is difficult to read.
- **Contrast the larger words (*look, think, ask, etc.*) in a different colour:** the tone on tone colour does not bring them out sufficiently.
- **Emphasize the fact that one must click on a body system to find an answer:** many children expect to find the answer to their question on this page and do not realize that they

must click on one of the systems. In fact, the majority of children have difficulty relating a specific question such as "*How does tobacco affect teeth?*" to one of the three body systems. In addition, some children thought that by clicking on "*Did you know?*", they would find the answer to their question. Although the instruction to click on body systems is on the left side of the page, children tend to ignore this section, focusing their attention on the more visual elements. The additional invitation to explore the CD should be more concise and placed close to these elements.



- **Increase the size of the fonts on the "Observez-en le fonctionnement" button:** Parents and teachers have difficulty reading the text.

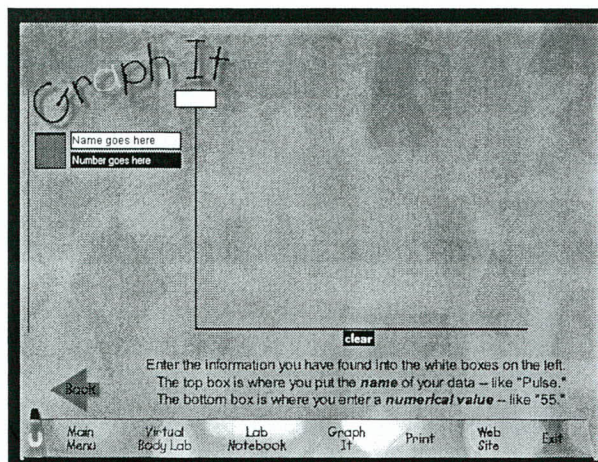
SECTION 1: EXECUTIVE SUMMARY



- **Add a written explanation of the activity:** once the spoken explanation has been played, there is no reference.
- **Provide complementary information to data collected during the exercises:** the vast majority expect to find information providing a frame of reference that explains whether their result is good or bad.
- **Provide a fixed amount of time for the breathing exercise :** by

giving a fixed amount of time (e.g.: 30 seconds) it is easier for children to compare their results with those of other children.

- **Provide clear instructions:** many feel that the instructions provided are confusing.
- **Change French narration:** the French oral instructions are "taper le comptoir" instead of "cliquer le compteur".

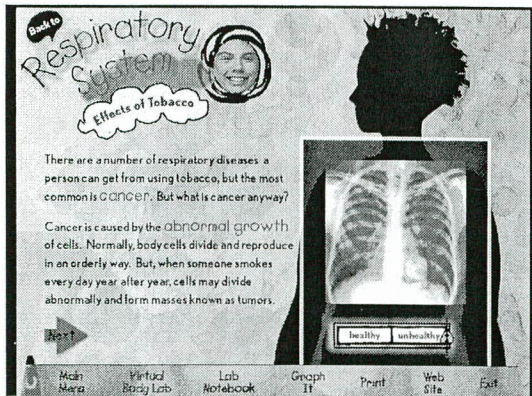


This section was viewed only by parents and teachers.

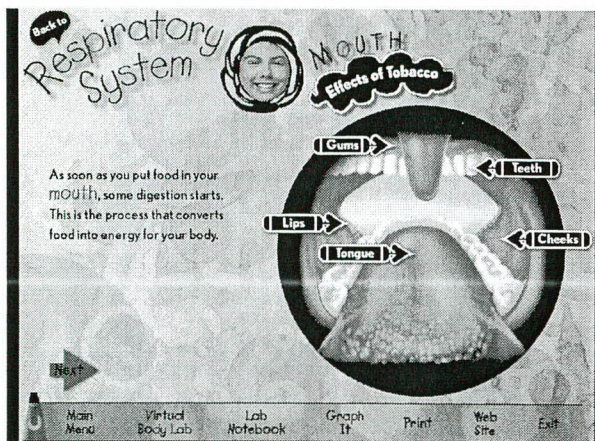
- Add an area to **write in a title to the graph**, to clarify the purpose of the exercise and to be consistent with the mathematics curriculum, which instructs student to title their graphs.
- **Provide further instructions on how to use this tool:** many teachers and parents who saw this tool were unsure how to use it effectively.

- **Provide a variety of graphics:** many teachers would have liked to have a choice of pie charts or bar graphs so as to integrate it into their mathematics curriculum.

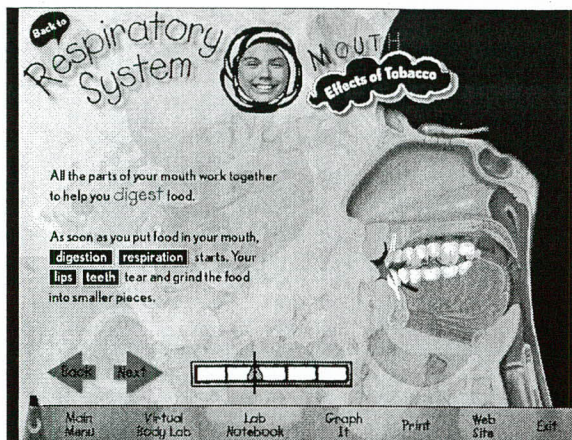
SECTION 1: EXECUTIVE SUMMARY



- **Provide an explanation of what occurs when users glide the cursor towards "unhealthy":** many children cannot identify the clouded object on the left lung (some think it is simply smoke). A label on top of the cancer growth indicating "tumour" could be helpful.
- **In the French version, change the "sain/malsain" terminology:** most of the children were unfamiliar with these words. A few thought it was referring to "sein" (breast) instead of "healthy."

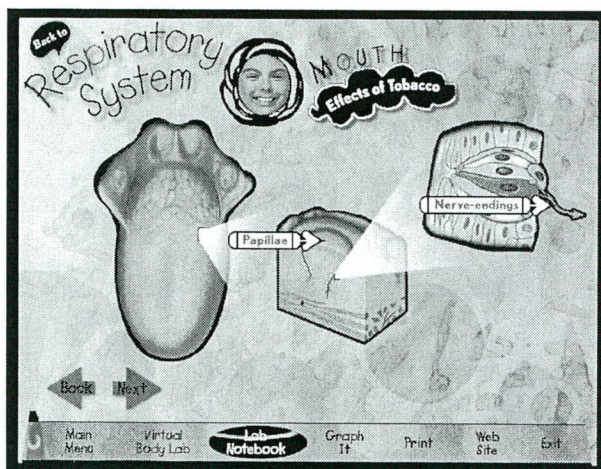


- **Provide additional text explaining how the information on this page relates to the effects of tobacco:** many are frustrated to arrive at this point in the CD and still not have found the information they were looking for on "the effects of tobacco on my teeth". They are confused by the fact that the text addresses digestion and makes no mention of the effects of tobacco.



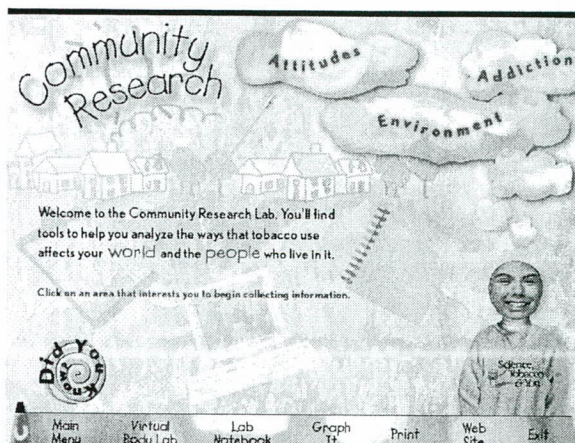
- **Provide instructions on how this exercise works:** most do not realize that they need to select the correct term.
- **Highlight the word once it has been clicked on and integrated into the text:** for example, when clicking on the word "digestion", the black box disappears and the word should now be in a contrasting colour, to further help users understand the principle of the exercise.

SECTION 1: EXECUTIVE SUMMARY

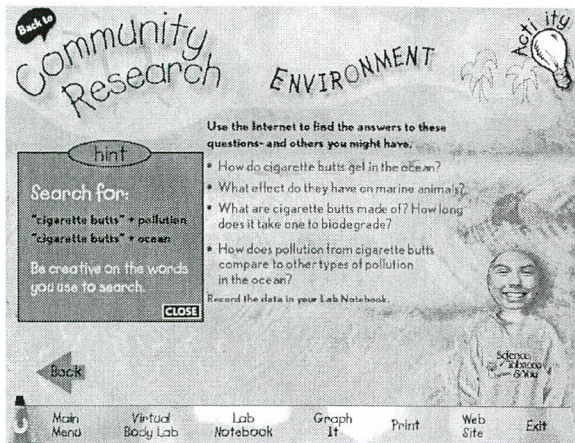


- **Change the dress of the "Virtual You" to correspond to what was chosen by the user:** participants wonder why the "Virtual You" is dressed in a sweatshirt.
- **Change the term "environment" in both French and English:** in fact, environment can refer to the people who surround you OR to pollution, and was thus confusing to children.

- **Change the arrow at the end of the nerve ending:** many thought that the arrow indicated that they should click there to continue.
- **Indicate how this information relates to the effects of tobacco:** Young people could not understand how this teaches them about the impact of smoking.



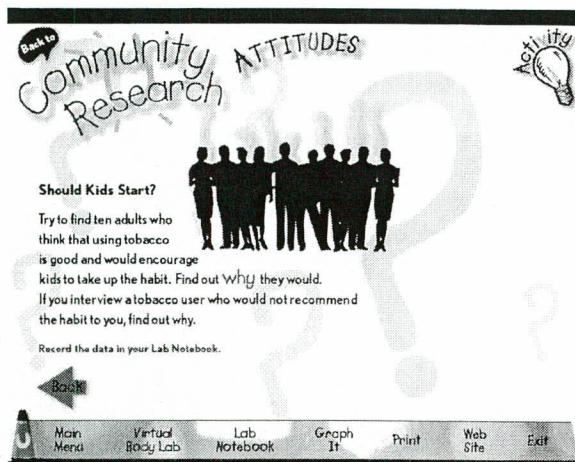
SECTION 1: EXECUTIVE SUMMARY



- Use the same "Activity" icon in the community section as in the body lab section: some participants wonder why the icon changes.
- Offer the answers to the questions directly on the CD ROM: many participants expect to find all the information here. In fact, some parents and teachers would avoid use of the Internet due to issues of "secure navigating" for the children (avoiding inappropriate sites). In addition, children point out that the computer in their classroom does not

necessarily provide Internet access. Some suggestions include providing complimentary information sheets or sending children to the library for research purposes.

- Use a more explicit title for "hint": most do not realize that the hint button is for Internet search hints. In fact, once opened, the text does not refer directly the internet and thus creates even more confusion.
- Clarify the "Web site" link: most are unclear as to the link at the bottom of the page. While some think it is a link to a **Web site sponsored by the "Science Tobacco and You" CD ROM**, others think it is **a list of possible web sites** that would be useful for searching for information, and still others wonder if it is **not simply a link to Internet access**.



This section was shown only to parents and teachers.

- Have children interview only one or two people they know: many parents and teachers voiced concerns over asking questions to complete strangers. In addition, 10 interviews were considered by most to be far too much.

Change the question asked: most agree that the question posed should be a direct question such as "Why did you start smoking?", "Did you ever try to quit, if so

what was it like?" etc. The round-about questioning of trying to find smokers who will tell them to smoke is frowned upon by many.

SECTION 2: INTRODUCTION

In 2001, Health Canada received **numerous requests for information on tobacco** from teachers and students across Canada. Since the majority of the available information is targeted to an adult audience, the Tobacco Control Programme has been working on the development and adaptation of **a bilingual, tobacco prevention, interactive CD-ROM** for youths in grades 4 to 6. The "*Science, Tobacco and You*" CD-ROM, is a scientific resource that integrates the principles of best practices in tobacco prevention education, which was developed in consultation with science educators, scientists, health educators, physicians, teachers and students.

- # Health Canada requires an evaluation of the CD-Rom, in terms of:
- Appropriateness and clarity of the information;
 - Comprehensibility of the information provided;
 - Relevance of the content;
 - Context of the CD-ROM format;
 - Need for supplemental material.

3.1 CHOSEN METHOD

Given the objectives of this study, discussion groups were selected as the most appropriate method.

3.2 NUMBER AND LOCATION OF GROUPS

In anticipation of the CD-ROM distribution to schools across Canada, 8 focus groups with youths, parents and teachers were held in Montreal and Toronto on April 23rd and 24th, 2002, respectively. In each city, youths were given the opportunity to interact with the CD-ROM during the sessions, while the parents and teachers were given a demonstration of selected sections of the CD-ROM. All groups were encouraged to voice their opinion and provide suggestions for improvement.

The following table details the distribution of the groups.

	Boys	Girls	Parents	Teachers	<u>Total # of groups</u>
Montreal	1 group	1 group	1 group	1 group	4 groups
Toronto	1 group	1 group	1 group	1 group	4 groups
TOTAL	2 groups	2 groups	2 groups	2 groups	8 groups

In Montreal, the groups took place in French, while the groups held in Toronto were in English. In each city, youth, parents and teachers were asked for their opinions concerning the relevancy, usability and usefulness of the *Science, Tobacco and You* and CD-ROM.

The reader of this report is reminded that the results discussed herein emanate from qualitative, as opposed to quantitative, methodology. As such, these qualitative results should not and cannot be construed as representative of the larger population in any statistically-significant manner. The high degree of consistency on some issues between groups and the general convergence of opinions encountered with respect to the various issues explored in this process does, however, provide us with a high level of confidence in the validity of the results reported herein.

3.3 PARTICIPANT PROFILE

Participants were recruited at random under the responsibility of *Ad Hoc Research*. The following criteria were heeded throughout the recruiting process:

Youth

- One group of boys with equal representation of 4th, 5th and 6th grades (must be aged between 9 and 12);
- One group of Girls with equal representation of 4th, 5th and 6th grades (must be aged between 9 and 12);

Parents

- One group of parents accompanying the child participating in the youth group.
- Minimum of two parents who are smokers.

Teachers

- One group of teachers who teach 4th, 5th or 6th grade.

3.4 PARTICIPANT INCENTIVE FEES

Youth:

- Participants were each given a \$25 gift certificate from HMV.

Parents:

- Parents **participating in a group** were each given an incentive of \$50.
- Parents **accompanying their child** to a group were each given an incentive of 25\$.

3.5 MODERATING AND ANALYSIS

Sylvie Croteau, Vice-President at *Ad Hoc Research*, moderated the youth groups and Kimberley Campbell, Project Director at *Ad Hoc Research*, moderated the parents and teachers groups. Both Sylvie Croteau and Kimberley Campbell contributed to the report.

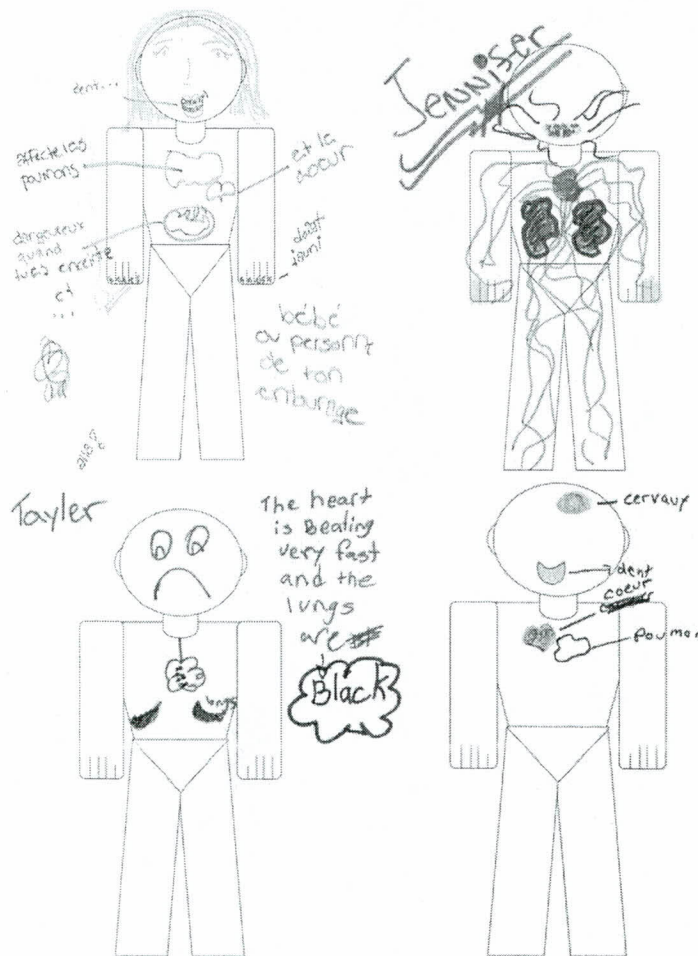
3.6 DISCUSSION GUIDE AND RECRUITING SCREENER

A screening questionnaire was developed prior to contacting potential participants, in order to facilitate the recruiting process and to ensure that all recruits met the stipulated criteria. This screener was submitted to *Health Canada* for approval. In addition, the moderator's guide, which serves as a tool for outlining the nature and sequence of topics addressed in the sessions, was also written prior to the process and underwent the same approval procedure. A copy of these documents is provided in Appendices I and II.

This section presents a summary of respondents' views on the issues discussed during the groups. Unless otherwise specified, the **findings are based on the comments of respondents in all cities and from both age groups**. When the opinion of one specific group differs significantly from that of respondents in other groups, the report includes an indication to that effect. In addition, quotations of comments made by participants are also included throughout the report.

SECTION 4: DETAILED RESULTS

4.1 WARM-UP EXERCISE (for children only)



In order to set the stage for the youngsters, each participant was asked to complete a body outline **to demonstrate the effects of smoking on the body.**

All the children were extremely knowledgeable about the harmful effects smoking has on the body. Most often mentioned were heart problems, lung cancer, negative effects on the foetus, yellowing of the fingers, and the effects of second-hand smoke.

"Le bonhomme est fatigué. Il a les dents jaunes, il peut avoir le cancer du poumon pis son cœur bat moins vite pis il a les mains jaunes."

(The man is tired. He has yellow teeth. He may have lung cancer and his heart beats slower and he has yellow hands.)

"When you have a baby in your stomach, you can kill it."

4.2 "SCIENCE, TOBACCO AND YOU" CD-ROM

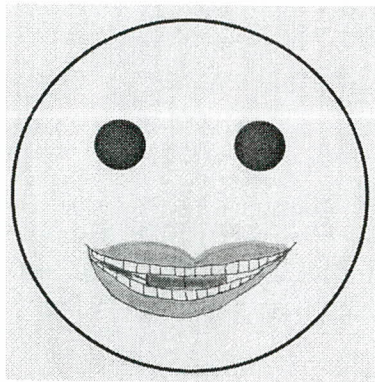
Because the CD-ROM contains a large volume of information, it would not have been possible to adequately test all of the contents. Therefore, it was pre-determined that all groups would see the Virtual Body Lab and, within this section, the Respiratory System, followed by the Community Research Lab.

In the adult groups, the moderator presented these various sections of the CD to participants. In the youth group, the children helped the moderator surf through the different pages.

This provided participants with a good overview of the CD-ROM and ensured a basis for comparison between the groups.

4.2.1 General Considerations

Overall, the CD is appreciated by the youths, parents and teachers as an appealing educational tool for tobacco prevention.



The youths were asked to fill-in a blank "happy face" to express their global feeling of the CD-ROM. In general, the kids feel that **it will be a fun and educational tool to use at school**. However, most say they would not use this of their own initiative, at home, unless for a specific school project.

The majority of parents and teachers gave an overall score to the CD-ROM of between 6 and 7, out of a possible 10. Participants indicated that **a few improvements need to be addressed, however, most of the teachers agree that the CD-ROM** is very appropriate for their students and they would definitely use it in the classroom, because it fits with the new curriculum of integrating reading/writing, math and science.

The present section summarizes comments that apply **to the CD in general**, rather than to a particular page.

SECTION 4: DETAILED RESULTS

- Children, parents and adults alike agree that the information **on the actual effects of tobacco** on the body **is not sufficiently emphasized**. In fact, they are surprised to find information on the general functioning of the body system put forth first and foremost and having the effects of tobacco presented as a complement to the information on the body.
- Children often **do not read the text presented on the various pages**, particularly when it is long or when an interactive image is present.

However, the combination of sound and text **helps young people focus** on the information. Even the most rambunctious children quieted down and listened when they heard the narrator's voice. A few teachers confirmed that it is a good idea to have both a text and a narrative, to accommodate kids at different levels.

*"Ils sont plus portés à écouter qu'à lire. " Parent
(They tend to listen more than they read.)*

*"Some kids, especially in grade 4, are still developing their reading skills.
The narrative will help them along." Teacher*

- A few children and teachers had **logistical concerns about sound**, however:
 - **Not all computers are equipped with a sound card.** If all the information is not provided in a text form, in addition to being spoken, students may miss out on some content.

*"Write the instructions on the side.
At our school, the computers do not have sound." Child*

- Teachers worry about the **commotion** that might result if several students are working on computers located next to one another, such as in a computer lab. They specify that earphones would be necessary.
- The English parents and teachers found the use of both male and female narrators to provide variety, as well as to be politically correct.
- The French CD uses only one narrator, who is a man. This did not generate any specific comments. However, some children commented on the monotone quality of the narrator's voice.

*"Ça manque d'expression" Child
(He isn't expressive enough.)*

SECTION 4: DETAILED RESULTS

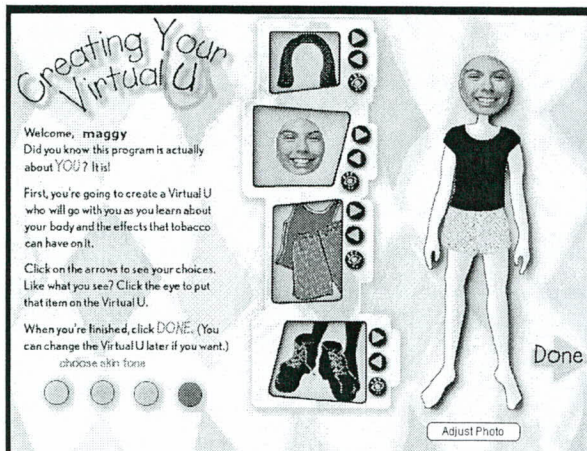
- Some links, such as the "Effects of Tobacco" or the "Activity" buttons are often overlooked, as they are **not of a bright colour** and, as such, blend in with the background.
- In addition, given that "Effects of Tobacco" is frequently placed **over the text**, it is often construed as a title, rather than as a clickable link.
- The fact that buttons found throughout the site (e.g. the "Back" button) are not consistently placed in the same area on each page, further complicates the navigation process. On occasion, the "Back" button is simply not available, which again makes surfing the CD more difficult.
- Finally, it should be noted that the French CD included many typos and grammatical errors. Participants had to be told to disregard these errors. English-speaking teachers' comments also indicated that the grammar should be reviewed. However, the problems were not as significant as on the French CD.

CHANGES WORTH CONSIDERING OVERALL CD

- Explain how the information presented **relates to the effects of tobacco**.
- Help children **focus on the text**:
 - Important instructions should be **highlighted/emphasized**.
 - Information should be presented in **point form as opposed to paragraphs**.
 - Instructions for clicking on a certain button should be **placed on or close to** the area that needs to be clicked upon.
- Ensure that all auditory information is **also in a text form**.
- Have **a more expressive French voice-over**.
- Have a **male/female** French narrator
- Help users navigate **from one page to another**:
 - Add a page that describes **the various buttons and their function**.
 - **Make important buttons more eye-catching**.
 - Maintain **consistency** in the placement and design of buttons:
 - Systematically include **a "back" button**.
- Ensure **quality of French/English**.

SECTION 4: DETAILED RESULTS

4.2.2 The *Virtual You* Section



Overall, the **concept** of this page was very well received. In particular, teachers like it because it personalizes the smoking issue and it is well adapted to the age group, in terms of the skills it requires.

"It's a nice way to introduce a serious subject."

"When it's something fun, they don't realize they are learning, there is eye-hand coordination, decision-making and individuality."

The youth groups **had fun with it** and the majority quickly understood how to use the buttons. A few children remarked that they would like to have more choice of clothes and faces.

*"Les gars feraient des niaiseries, mais ce serait drôle." Child
(The boys would do silly stuff, but it would be funny.)*

However, some teachers dislike **the spelling of the "U"** and underline the fact that an educational tool should use correct spelling.

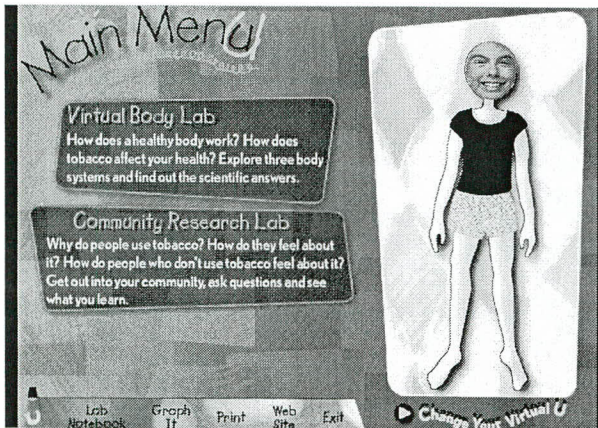
Furthermore, **the skin-tone buttons** are often overlooked, as they are to the left of the screen and not in the same field as the rest of the choices available.

CHANGES WORTH CONSIDERING ON THE "VIRTUAL YOU" SECTION

- **Replace Virtual "U" by Virtual "You";**
- **Offer more choices;**
- **Make the skin-tone option more obvious**

4.2.3 The Virtual Body Lab

4.2.3.1. Main Menu



In general, the Main Menu pages were found to be **clear** and **self-explanatory**.

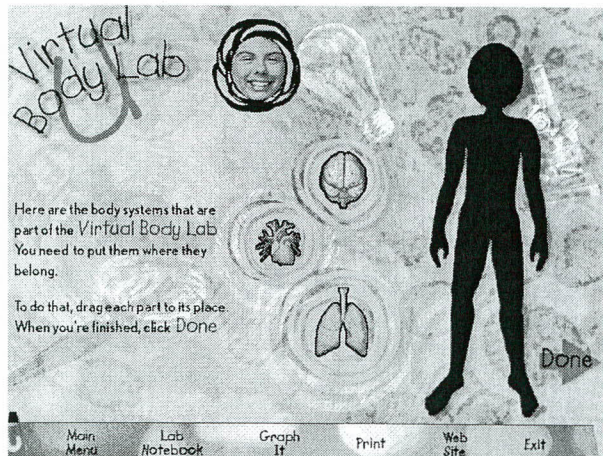
Although the vast majority of children figured out that they could click on one or the other, some mentioned that **an icon would make navigating easier**.

CHANGES WORTH CONSIDERING FOR THE "VIRTUAL YOU" SECTION

- Add a "**Click here**" icon on each of the options presented on the second menu page.

SECTION 4: DETAILED RESULTS

4.2.3.2. *Placing the Body Systems*



Overall, this page was well received. In particular, participants found the **music appealing and saw it as a good method for inciting attention.**

With respect to clicking and dragging the body parts (placing the brain, heart and lungs) to the appropriate place on the body sketch, almost all participants, adults and children alike, think it is **a good idea, fun to do and relatively easy to complete.**

"It is important to show the body parts that are affected by smoking" Teacher

That being said, some of the children had a **little difficulty in placing the heart and lungs** because they do not expect that one item can go underneath another (or on top, depending on which item was placed first), but they did, eventually, figure it out. Despite this, several youngsters mention that they would like to have even more body parts to place, as they find the exercise "too easy". They did not realize that these are the systems affected by smoking.

"It was fun. But it would have been more fun if we had more things to put in." Child

"On a besoin de plus d'affaires, pour le compliquer." Child
(We need more things, to make it more complicated.)

CHANGES WORTH CONSIDERING ON THE "PLACING THE BODY SYSTEMS" SECTION

- Explaining that these represent the body systems most affected by smoking.

SECTION 4: DETAILED RESULTS

4.2.3.3 Questions about Smoking

Participants believe that asking questions on how smoking affects the body and then looking for the answer in the CD-ROM is an interesting concept.

Some parents worry that children would have difficulty coming up with questions about tobacco, but, in fact, when the moderator asked the **children's** groups to come up with examples of questions, **they had no difficulty in thinking of some**. The following are just a few examples:

*"Est-ce que le tabac a un effet principalement sur le cerveau?"
(Does smoking affect primarily the brain?)*

"Why do people smoke?"

"What is in tobacco?"

It should be noted, however, that the children's questions often had to do more with tobacco itself and the substances contained in cigarettes, than with the effects on the body.

Participants feel that the introductory text **does not provide enough concrete explanations** on what is expected from the user or how to use the CD-ROM for this task. For example, many children expect to find the answer to their question on this page and do not realize that they must click on one of the systems to find it. Although the instructions for clicking on the body systems are on the left side of the page, children tend to ignore this section, focusing their attention on the more visual elements.

"I couldn't understand a word she said." Child

"We need more information to do that." Child

"This is vague, students will need some guidance at this point." Teacher

Furthermore, a few teachers felt that the 3-systems concept was geared more towards grades 5 and 6 than grade 4, since these systems are already a part of the curriculum for those grades.

LAB NOTEBOOK

Children generally do not have any difficulty understanding how to use the lab notebook. They like the idea of their notes being stored on the CD, as opposed to a paper notebook that they might not always keep with them.

*"On ne peut pas perdre l'ordinateur tandis qu'une feuille oui."
(You can't lose the computer, but you can lose a sheet of paper.) Child*

SECTION 4: DETAILED RESULTS

NEED A QUESTION? BUTTON

The majority of participants found this button very useful. Generally speaking, **the questions are thought to be appropriate.**

However, since it was not clear to participants how to use the "research question" approach of the CD-ROM, **most expect to see the answer to the question given**, particularly by clicking on the "?" in the question box. Even those who do see "Click on the body to answer your question" expect to see a precise answer.

In addition, a few participants feel that the blue text on the blue background is difficult to read, as is the format of the text on the "Need a question" button.

DID YOU KNOW? BUTTON

The majority of participants liked the concept of providing facts relating to tobacco use. However, several mentioned that **they would prefer**, and indeed would expect, a different fact each time the button is clicked on (similarly to the "Need a question ?" button).

"It is good information, tells kids what is bad for them." Parent
"Kids like stats." Teacher

Although the button is easily understood, many participants **do not see it at the bottom of the page**, and thus do not realize that it is there or that it is clickable.

SECTION 4: DETAILED RESULTS

ENVIRONMENTAL TOBACCO SMOKE

From the start of the focus group sessions, children often demonstrated a keen interest towards the effects of second-hand smoke. It therefore comes as no surprise that the "Environmental Tobacco Smoke" section **drew several children's attention.**

SEARCHING FOR AN ANSWER TO A SPECIFIC QUESTION

In order to demonstrate how the CD-ROM can be used, and to facilitate cross-group comparisons, the moderator put forth the following "Research question" to all groups:

"How does smoking affect your teeth?"

This particular question was chosen so that all groups would explore the respiratory system.

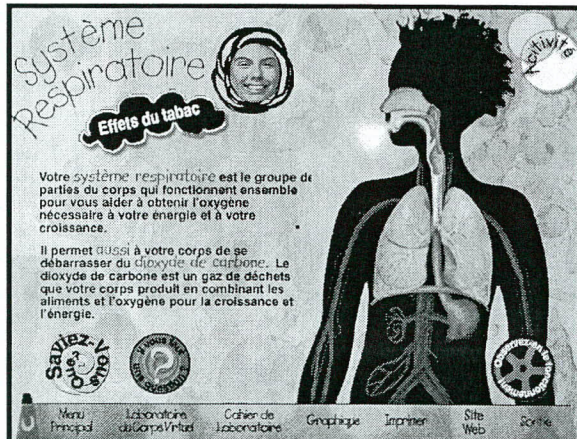
The moderator asked the youth groups what they should do next to find the answer. The majority of children **have difficulty relating the question to one of the three body systems.** Several participants think to click on the head (since that is where the teeth are). After a few tries, and with guidance from the moderator, **the children do figure out that the answer must be somewhere in the "Respiratory system",** given that smoke is inhaled through the mouth.

CHANGES WORTH CONSIDERING FOR THE BODY SYSTEMS

- Contrast the **larger words** (*look, think, ask, etc.*) in a different colour, to attract attention.
- Put the text in point form.
- **Emphasize the fact that one must click on a body system** to find an answer.
- This additional invitation to explore the CD should be **more concise and placed close to the body systems.**
- **Contrast the text** on the "Need a question" button.

SECTION 4: DETAILED RESULTS

4.2.3.4. The Respiratory System



The introductory page to the respiratory system is well received by participants. **The music intro is thought to be fun and attention-grabbing** and the animation showing "breathing lungs" is found to be a good idea.

"This is appropriate for our kids. It shows them exactly what's going on when you breathe." Parent

Some find a few of the terms, such as "carbon dioxide", too complex for children, but others argue that this would teach the children new vocabulary. However, they add that a glossary should be included, so that they can learn those words.

THE WATCH IT WORK BUTTON

The majority of participants either do not see the button (particularly among the French groups, where it is written in smaller letters), or do not think it is clickable.

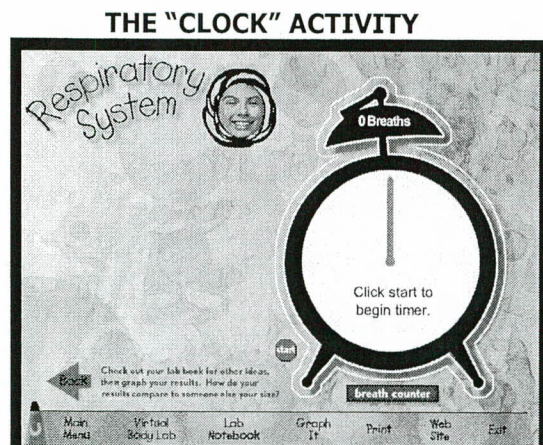
THE ACTIVITY BUTTON

The activity button **is not noticed by the majority of respondents** because of its location (in the top right-hand corner) and because it blends in too much into the background.

CHANGES WORTH CONSIDERING FOR THE RESPIRATORY SYSTEM

- Add a glossary.
- Increase the size of the fonts on the "Observez-en le fonctionnement" button

SECTION 4: DETAILED RESULTS



Participants find the "Clock activity" **confusing**.

First, **there is no reference** for the spoken explanation, as the text does not appear on the page.

Secondly, there is **no fixed time limit** (e.g.: 30 seconds). As a result, children are unsure of when to stop counting their breaths.

Finally, there is **no clear objective**. The vast majority expect to find information providing a frame of reference that explains whether their result is good or bad, or how it compares to the results of a smoker.

"Who cares how many breaths you have?" Parent

"Seems like a waste of time." Parent

*"Ça sert à quoi?" Child
(What is this for?)*

Participants also mention that, by becoming conscious of their breathing, **their respiration pattern changes**. They therefore question the validity of the exercise's results.

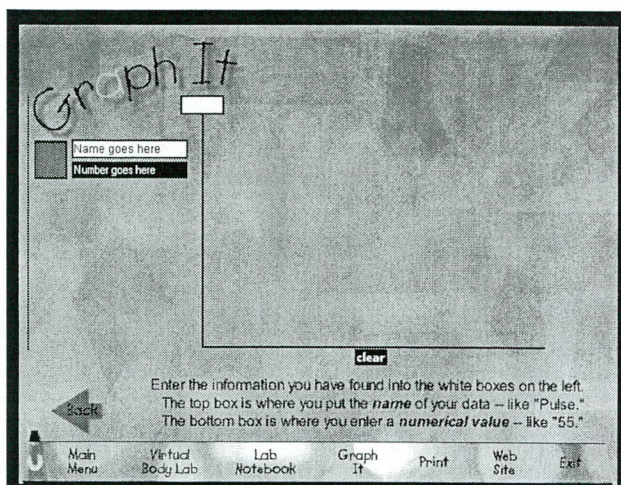
It should be noted that this activity was not fully functional in the French version, as the clock did not indicate how much time had elapsed. In addition, the French oral instructions are "taper le comptoir" (which means hit the counter top) instead of "cliquer le compteur".

CHANGES WORTH CONSIDERING FOR THE "CLOCK" ACTIVITY

- Add a **written explanation** of the activity.
- Provide **clear instructions**.
- Provide **complementary information** to data collected during the exercises.
- Define a **fixed amount of time** for the breathing exercise.
- Correct the **French narration**.

SECTION 4: DETAILED RESULTS

THE GRAPH



This section was viewed only by parents and teachers. All teachers think that asking their students to graph data **is an excellent idea which ties in perfectly with the curriculum.**

However, many teachers and parents who saw this tool were unsure how to use it effectively, as the page provides **very few instructions.**

"I am lost right now." Parent

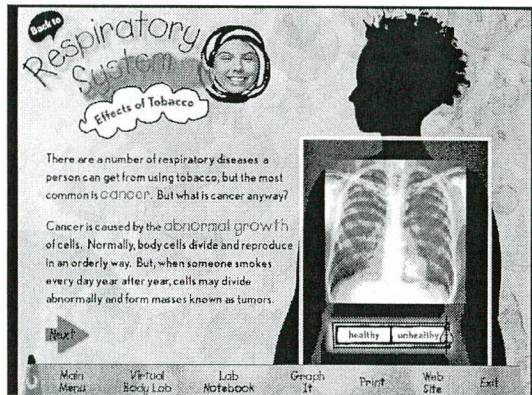
In addition, teachers agree that the graph should **be consistent with the mathematics curriculum.** For instance:

- Students are taught that every graph should bear a title, and that the x and y axes should be labelled. They should therefore be instructed to type in a title for their graph.
- Many teachers mention they would have liked to see a choice of pie charts or bar graphs.

CHANGES WORTH CONSIDERING FOR THE GRAPH

- Provide **further instructions** on how to use this tool.
- Allow students to **title** their graph and label the X and Y axes.
- Provide **a variety of graph types.**

THE X-RAY



Generally, the appreciation for this page is lukewarm for the following reasons:

- The **narrative** does not include the second paragraph.
- The x-ray is **vague** and in **black and white**, and thus is not particularly interesting (especially for youths).

"C'est moins intéressant quand il y a moins de couleur. C'est moins attirant." Child
(It's less interesting when there's less colour. It's less attractive)

- The function of the "slide button" is **not adequately explained** as many children cannot identify the clouded object on the left lung (some think it is simply smoke).
- **In the French version, the "sain/malsain" terminology** was unfamiliar to most of the children. A few thought it was referring to "sein" (breast) instead of "healthy".

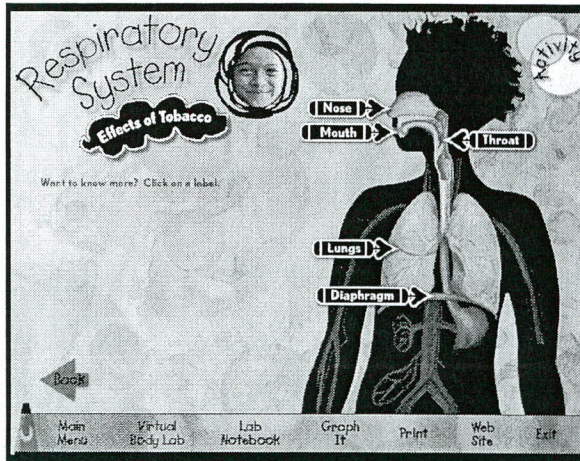
Despite the above statements, several teachers feel that, generally speaking, the information is appropriate for their students.

CHANGES TO BE CONSIDERED FOR THE LUNG X-RAY

- Provide an explanation of **what occurs** when users glide the cursor towards "unhealthy":
- A label on top of the cancer growth indicating "**tumour**" could be helpful.
- In the French version, change the "**sain/malsain**" terminology.

SECTION 4: DETAILED RESULTS

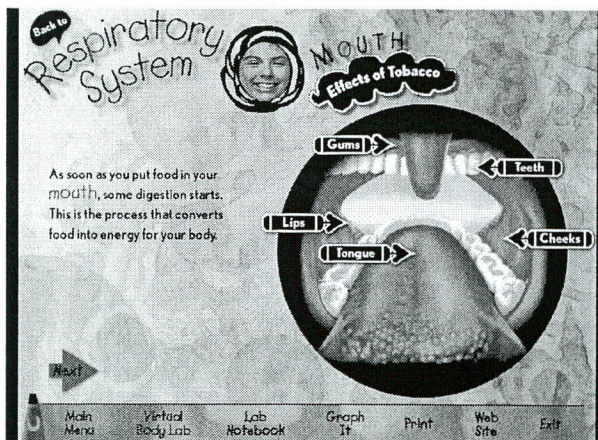
THE RESPIRATORY SYSTEM DIAGRAM



Once on this page, the moderator reminded participants of the “research” question (***How does smoking affect your teeth?***), and asked the group where they should look next to find the answer.

The majority easily locate the “Mouth” option.

THE MOUTH



Although the information contained on this page is easily understood, several participants fail to see how this information (on the body parts in general) is relevant to smoking. They are confused by the fact that the text addresses digestion and makes no mention of the effects of tobacco.

"Ça a pas rapport avec la cigarette." (It has nothing to do with cigarettes) Child
"This isn't really about tobacco" Child

SECTION 4: DETAILED RESULTS

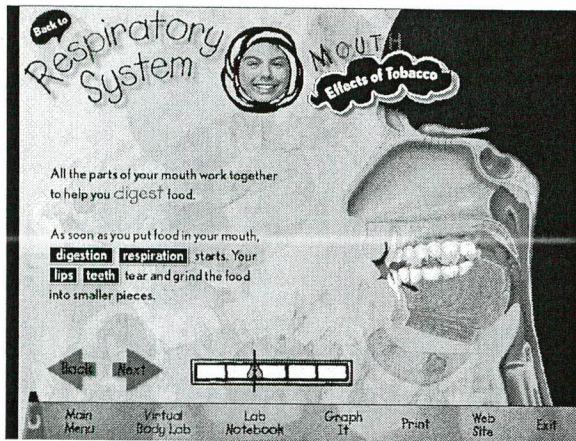
Furthermore, many are **frustrated** to arrive at this point in the CD and still not have found the information they were looking for on "the effects of tobacco on my teeth".

The confusion further increases when they click on **the "teeth" label**, only to be told about the number of teeth children and adults normally have.

CHANGES WORTH CONSIDERING FOR THE "MOUTH" SECTION

- Provide additional text explaining how the information on this page **relates to the effects of tobacco**.

"SELECT THE RIGHT TERM" TASK



At first glance, **it is not obvious to participants that the text on this page is part of an exercise**. In fact, a few teachers even remark that they like the way the text is bolded, not realizing that some of these words do not belong in that text.

Children, for their part, **focus on the image**, and how it changes as they move the cursor. Many fail to realise that the text is also modified. It is only once the moderator instructs them to click on the buttons that they start understanding the task.

That being said, once the exercise is explained to the them, **the majority of respondents find it fun and educational**. Participants express a particular enthusiasm for the sound effects accompanying the task (the "Aah" for wrong choice and the "yea" and applause for the right one).

The downside to this exercise, however, is the fact that **there is no explanation accompanying the choice of answers**, that is to say, if a wrong answer is given, there is no indication of why the answer is wrong.

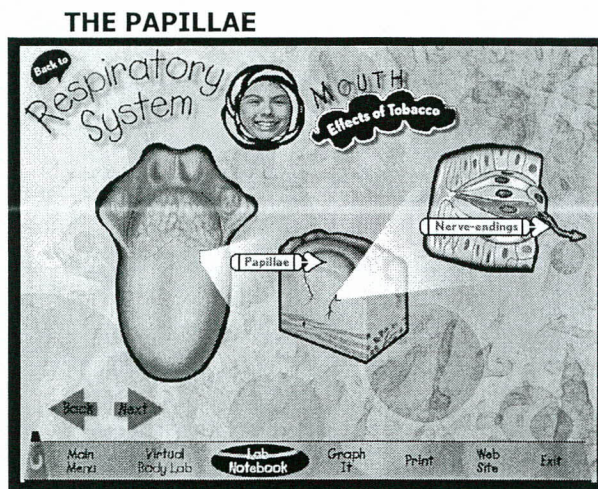
SECTION 4: DETAILED RESULTS

Furthermore, a few teachers remark that the terminology in the task could be difficult for kids in the 4th grade and that it would be beneficial to include an index for these words.

*"Comment je fais pour trouver les raisons pour la réponse?" Child
(How do I find the reasons why to the answer).*

CHANGES WORTH CONSIDERING FOR THE "SELECT THE RIGHT TERM" TASK

- Provide **instructions** on how this exercise works.
- **Highlight** the word once it has been clicked on.
- **Explain** why a certain selection is right or wrong.



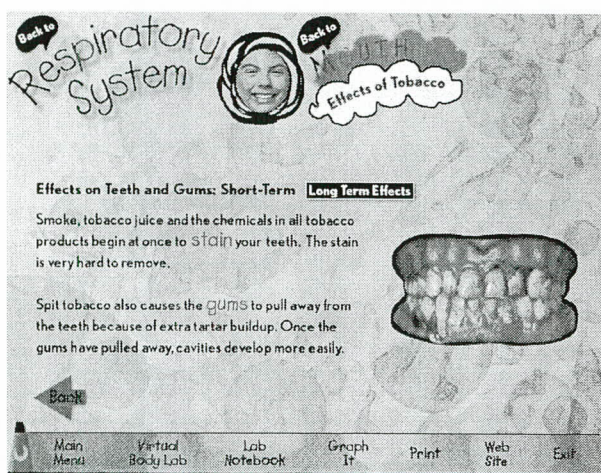
Participants again failed to understand **how this page relates to the effects of tobacco**.

Otherwise, **they generally understand** how the page works. They realise that they must click on the magnifying glass icon to obtain a close-up of the papillae. However, a few participants think that the arrow at the end of the nerve ending indicates they should click there to continue.

CHANGES WORTH CONSIDERING FOR THE "PAPILLAE"

- Indicate **how this information relates to the effects of tobacco**.
- Change the arrow **at the end of the nerve ending**.

HOW SMOKING AFFECTS YOUR TEETH

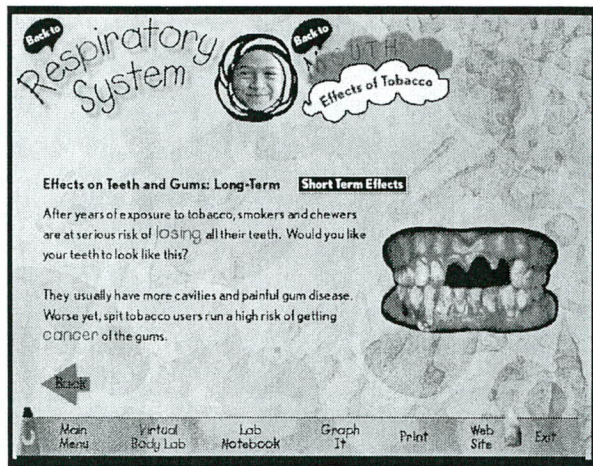


The gradually yellowing teeth make **a strong impact** on participants, children and adults alike. Children pay great attention to the visual elements on this page, sometimes even asking to see the animation again. Participants are generally satisfied at this point that they have indeed found an answer to the initial question: "*How does tobacco affect teeth?*" However, many comment that it took a great deal of time to finally arrive to this result.

At this point, the moderator asked the youth groups "*What happens to your teeth when you smoke for many years?*". Almost all participants immediately pointed to the "Long Term Effects" button.

SECTION 4: DETAILED RESULTS

LONG-TERM EFFECTS ON TEETH



The animation of rotting teeth falling out of the gums elicits many "oohs and ahs" from all children. This confirms parents' and teachers' belief that this page provides **the shock value that children need** in order to be convinced.

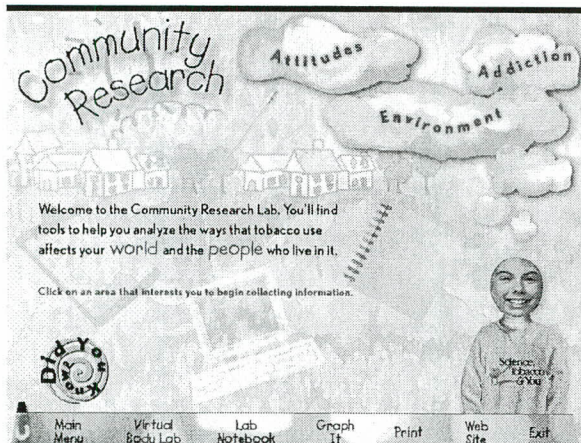
"That was nasty!" Child

"Gross!" Teachers

"It would 'freak out' my daughter." Parent

"Ma mère me l'avait dit. Je ne pensais pas que c'était vrai." Child
(My mother had told me. I didn't think it was true)

4.2.3.5. *The Community Research Lab*



All participants easily see they need to **click on the clouds** to choose a topic.

When participants were asked what information they expected to find in "Environment" the responses were mixed: in fact, environment can refer to **the people who surround the child** OR to **pollution**, and was thus particularly confusing to children. Some expected to find information here on second-hand smoke.

Furthermore, some participants were disappointed to see that the character on the bottom of the page is not wearing the outfit that they had created during the Virtual U, but rather a sweatshirt.

CHANGES WORTH CONSIDERING FOR THE COMMUNITY PAGE

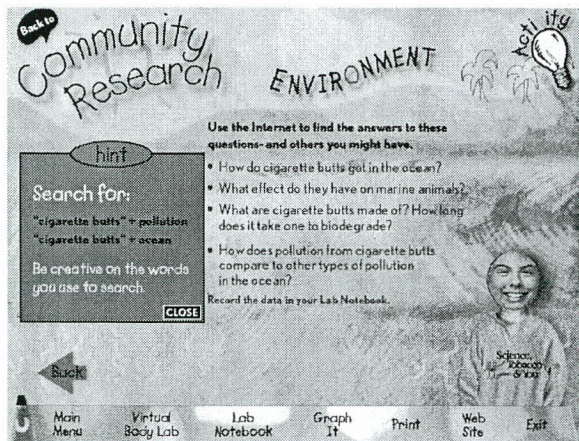
- Change the dress of the "Virtual You" to correspond to **the outfit chosen by the user**
- Change the term "**environment**" to "**pollution**", in both French and English:

SECTION 4: DETAILED RESULTS

THE COMMUNITY ACTIVITY

Although initially confused by the term “environment”, upon seeing this page, children realize that **the section deals with pollution**.

Not all children notice the “activity” button, as it does not stand out very much from the background. Adults wonder why this button is different from the other activity buttons on the rest of the CD. They feel it is a source of confusion.



Many participants expect to find **all the information here**. They cannot understand why it would not be included on the CD.

"Why can't they just tell you the answer?" Child

In fact, some parents and teachers would avoid use of the Internet due to issues of “secure navigating” for the children (avoiding inappropriate sites). In addition, children point out that the computer in their classroom does not necessarily provide Internet access.

"What if your school doesn't have the Internet?" Child

Some suggestions include providing complementary information sheets or sending children to the library for research purposes.

THE HINT BUTTON

Most do not realize that the “hint” button is for Internet search tips. In fact, once opened, the text does not refer directly **the internet** and thus creates even more confusion.

Participants are also unclear as to **where they should be typing the suggested keywords**: Is it in a special “Science, Tobacco and You” web site, or in any search engine?

THE “WEB SITE” LINK

SECTION 4: DETAILED RESULTS

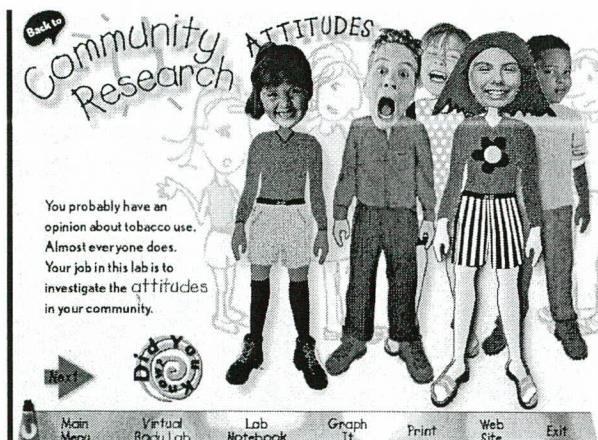
The majority of respondents are unclear as to the link at the bottom of the page. While some think it is a link to a **Web site sponsored by the "Science Tobacco and You" CD ROM**, others think it is a **list of possible web sites** that would be useful for searching for information, and still others wonder if it is **not simply a link to Internet access**.

CHANGES WORTH CONSIDERING FOR THE ENVIRONMENT

- Use **the same "Activity" icon** in the community section as in the body lab section.
- Offer the answers to the questions **directly on the CD ROM**.
- Use **a more explicit title** for "hint".
- Clarify **the "Web site" link**.

THE ATTITUDES SECTION

This section was shown only to parents and teachers.



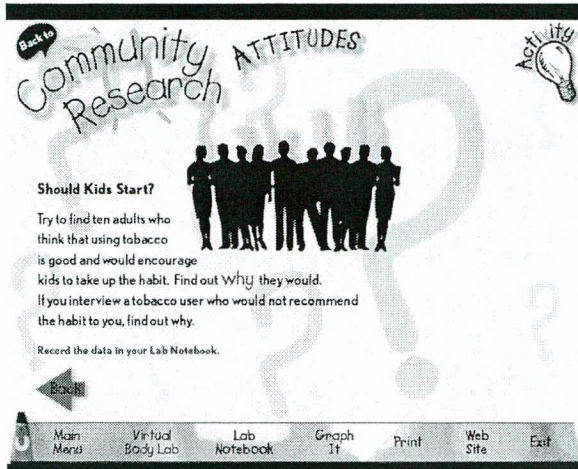
Participants **liked the above page very much**, because of the characters' very expressive faces. Some commented that it is one of the only areas of the CD where the "Virtual you" is shown from head to toe. Given the time taken to "dress" the character, they would have liked to see this elsewhere on the CD as well.

"Great-looking faces." Teacher

CHANGES WORTH CONSIDERING BASED ON THE ATTITUDES PAGE

- Include the image of the character, from head to toe, on other pages of the CD.

SECTION 4: DETAILED RESULTS



Many parents and teachers voiced concerns over asking questions to **complete strangers**. In addition, 10 interviews was **considered by most to be far too much**.

"We teach kids not to talk to strangers." Teacher

Several of these participants agree that the question posed should be a **direct question** such as "Why did you start smoking?", "Did you ever try to quit, if so what was it like?" etc. The round-about questioning of trying to find smokers who will tell them to smoke is frowned upon by many.

CHANGES WORTH CONSIDERING FOR THE ATTITUDE TASK

- Tell children to ask **someone they know**.
- **Decrease the number of adults** children should be talking to.
- Provide children with a **direct question**.

SECTION 5: CONCLUSION

Overall, the CD is appreciated by the youth, parents and teachers as **an appealing educational tool** for tobacco prevention. The kids feel that it will be a fun and educational to use at school. The teachers agree that the CD ROM is very appropriate for their students and they would definitely use it in the class room, because it fits with the new curriculum of integrating reading/writing, math and science.

However, in order to ensure that students and teachers will use this tool to its full potential, a few improvements are necessary. Throughout this report, we have provided very precise recommendations. These suggested improvements should help:

- improve navigability;
- clarify the information and show how it relates to the effects of smoking.
- focus children's attention.
- increase the CD's relevance in the classroom
- make it more fun!