

Using Phenomenography in Educational Research

Uso de la fenomenografía en investigación educativa

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“uplifting the whole people”

— HENRY MARSHALL TORY, FOUNDING PRESIDENT, 1908

What is phenomenography? ¿Qué es la fenomenografía?

- **Phenomenography** is “an empirically based approach that aims to identify the qualitatively different ways in which different people experience, perceive, conceptualize and understand various kinds of phenomena” (Marton, 1986, 1988).

La fenomenografía es "un enfoque de base empírica que pretende identificar las formas cualitativamente diferentes en que distintas personas experimentan, perciben, conceptualizan y comprenden diversos tipos de fenómenos" (Marton, 1986, 1988).

- The term is rooted in the Greek words “phainemenon” and “graphein” which mean, respectively, appearance and description (Pang, 2003).

El término tiene su origen en las palabras griegas "phainemenon" y "graphein", que significan respectivamente apariencia y descripción (Pang, 2003).

- It was first used to explore how students understand the concept of ‘learning’.

En primer lugar, se utilizó para explorar cómo entienden los estudiantes el concepto de "aprendizaje".

What is phenomenography? ¿Qué es la fenomenografía?

- **Ontological basis:** Conceptions (understandings) of phenomena in the world are constructed in the mind and this construction is influenced by the world (context) in which one lives.

Fundamentos ontológicos: Las concepciones (comprensiones) de los fenómenos del mundo se construyen en la mente y esta construcción está influida por el mundo (contexto) en el que se vive.

- **Epistemological basis:** The conception of knowledge that underpins phenomenographic research posits that *thinking* and *experience* cannot be separated.

Fundamentos epistemológicos: La concepción del conocimiento que sustenta la investigación fenomenográfica postula que el pensamiento y la experiencia no pueden separarse.

- **Key premise:** There are a limited number of ways people understand a given phenomenon.

Premisa clave: Hay un número limitado de formas en que las personas entienden un fenómeno determinado.

What is phenomenography? ¿Qué es la fenomenografía?

- It is based on the premise that prior knowledge influences all that we learn.

Se basa en la premisa de que los conocimientos previos influyen en todo lo que aprendemos.

- The aim of phenomenographic research is to map participants' conceptions of a specific phenomenon and to delineate the variation between and among conceptions.

El objetivo de la investigación fenomenográfica es trazar un mapa de las concepciones de los participantes sobre un fenómeno específico y delinear la variación entre concepciones.

- The focus is on collective understanding, rather than individual understanding (e.g., Grade 7 students' understandings of ethnic diversity; Grade 11 students' understandings of historical significance; Primary teachers' understandings of ethnic diversity)

La atención se centra en la comprensión colectiva, más que en la individual (p.e., comprensión de la diversidad étnica por parte de los alumnos de 7º curso; comprensión de la importancia histórica por parte de los alumnos de 11º curso; comprensión de la diversidad étnica por parte de los profesores de primaria).

Methods in Phenomenographic Research

Métodos de investigación fenomenográfica

- Primary data collection method: semi-structured interview.

Método de recogida de datos primarios: entrevista semiestructurada.

- Often, the phenomenographic interview is structured around a concept-specific stimulus or springboard.

A menudo, la entrevista fenomenográfica se estructura en torno a un estímulo conceptual específico.

- Sometimes participant-produced drawings, written responses to stimuli, or dramatizations (etc.) are used as a stimulus.

A veces se usan como estímulo dibujos creados por los participantes, respuestas escritas a estímulos o dramatizaciones (etc.).

Methods in Phenomenographic Research

Métodos de investigación fenomenográfica

- The reason for using a stimulus is to provide a situation that makes some connection to the participants' life world.

Se utiliza un estímulo para ofrecer una situación que conecte con el mundo vital de los participantes.

- A stimulus also helps make an abstract concept more concrete for participants – and therefore (potentially) easier to discuss.

Un estímulo también ayuda a hacer que un concepto abstracto sea más concreto y, así, más fácil de debatir.

- A semi-projective stimulus can enable the participant to “see themselves” in relation to the phenomenon being studied.

Un estímulo semiproyectivo puede hacer al participante "verse a sí mismo" en rel. con el fenómeno estudiado.

Some examples from my research...

***Algunos ejemplos de mis
investigaciones...***

Grade 7 Students' Understandings of Ethnic Diversity

Comprensión de la diversidad étnica por parte de los alumnos de 7º curso

These girls were told that they are not allowed to wear their headscarves in school.



Source: Three Hijab Ladies. Retrieved January 31, 2003 from <http://www.fateha.com/>

These boys want to be exempt from their school's "No Hats" rule.



Source: Retrieved February 1, 2003 from <http://www.clickwalla.com/article.php?cid=114&aid=1128>

Source: Retrieved February 1, 2003 from <http://www.clickwalla.com/article.php?cid=114&a>

Ethnic Groups Want School Holidays

May 2, 2002

FREDERICTON (CNB) – Ethnic groups in New Brunswick have asked Education Minister Dennis Furlong to change the holidays in the school calendar.

“Right now the only time there is a holiday is when there is a Christian holiday, like Christmas or Easter,” a spokesperson for the Multicultural Association said yesterday.

“There should also be days off for Ramadan, Hanukkah, Kwanzaa, or Chinese New Year.”

The District Education Council, contacted today for its view on the matter, said that it views school holidays as an issue of culture, not education.

Grade 11 Students' Understandings of Historical Significance

Comprensión de la importancia histórica por parte de los alumnos de 11º curso

**“Create a timeline of the 10 most significant events in Canadian history”
(Group activity)**

"Crear una línea del tiempo con los 10 acontecimientos más significativos de la historia de Canadá" (Actividad en grupo)



A poster with "yes," "yes" to separation added.



People at the "Unity Rally" in Montreal.

Date: October 30th, 1995
The Quebec Referendum

The 1995 Quebec referendum was the second referendum in Quebec (the first was in 1980) that asked people living in Quebec whether Quebec should become an independent country. By October 30, 1995, the final results of the referendum were very close: 49.4% of Quebecers voted 'yes' to separation from Canada and 50.6% of Quebecers voted 'no'.



Date: 1885
Imposition of the Chinese Head Tax

When the Canadian Pacific Railway was finished, the Federal Government decided to restrict the immigration of Chinese to Canada. The first federal anti-Chinese bill was passed in 1885. It took the form of a head tax of \$50 imposed, with only a few exceptions, upon every person of Chinese origin entering the country. No other group was targeted in this way.

Vincent, Teresa, Mark, Sam (Immigrants)

- Confederation (1867)
- Building of the Canadian Pacific Railway (CPR) (1881-1885)
- Record Immigration Numbers (1913)
- Winnipeg General Strike (1919)
- The Person's Case (1929)
- Canada Enters World War II (1939-1945)
- Pearson Wins Nobel Peace Prize (1957)
- Canada Enacts Multiculturalism Policy (1971) and Multiculturalism Act (1988)
- Canada Act Passed (1982)
- Quebec Referendum (1995)

Minha, Adélie, Dao-Ming (immigrant, Canadian-born, immigrant)

- Creation of Indian Residential Schools (mid 1800s)
- Recruitment of Chinese workers to build the CPR (1880s-1890s)
- Imposition of Chinese Head Tax (1885)
- Louis Riel and the North-West Rebellion (1885)
- Record Immigration Numbers (1913)
- The October Crisis and the War Measures Act (1970)
- Canada Enacts Multiculturalism Policy (1971) and Multiculturalism Act (1988)
- Collapse of the "Meech Lake Accord" (1990)
- Quebec Referendum (1995)
- The Marshall Decision (1999)

Primary Teachers' Understandings of Ethnic Diversity

(I also used this with Grade 6 and Grade 11 students)

Comprensión de la diversidad étnica por parte de los profesores de primaria (también lo utilicé con alumnos de 6º y 11º curso).

I would like you to think about your own ethnic identity. This identity may be the same as that of your parents, grandparents or ancestors, or it may be different. Your ethnic, cultural and/or national identity is the ethnic, cultural and/or national group or groups to which you feel you belong. Please write a paragraph describing your ethnic identity.

It is possible that you could describe yourself as having more than one type of (ethnic) identity. For instance, one person might describe his or her identity as "Greek," even though they were born in Canada. Another person might describe their identity as "Canadian," even though he or she was born in Greece. Someone else might decide that they are both of these: "Greek-Canadian."

There are no wrong answers – describe yourself the way that makes the most sense to you.

Interview Techniques **Técnicas de entrevista**

- If you have more than one stimulus, let the participant select a stimulus and take the interview where they want it to go while still staying on topic.
Si tienes más de un estímulo, deja que el participante elija uno y lleve la entrevista por donde él/ella quiera sin salirse del tema.
- The interviewer should try to lead the participant into a process of **active reflection (metacognition)** so that the participant is able to reflect upon and articulate their understandings about the concept or phenomenon under study.
*El entrevistador debe intentar llevar al participante a un proceso de **reflexión activa (metacognición)** para que pueda reflexionar y articular su comprensión sobre el concepto o fenómeno objeto de estudio.*
- Ask follow-up questions that prompt the participant to explain their thinking in different ways.
Haz preguntas de seguimiento que inciten al participante a explicar su pensamiento de diversas formas.
- Use open-ended questions (no “yes/no” answers).
Usa preguntas abiertas (que no sean de respuesta dicotómica: “sí/no”).

Interview Techniques **Técnicas de entrevista**

- Engage in “empathetic listening” – pick up on meanings, interpretations, and understandings within the participant’s responses (can lead to more questions, deeper thought).
Escucha con empatía: captar los significados, las interpretaciones y la comprensión de las respuestas de los participantes (puede dar lugar a más preguntas y a una reflexión más profunda).
- Prepare a list of guiding questions. Ideally questions emerge from what the participants have to say.
Prepara una lista de preguntas-guía. Lo ideal es que las preguntas surjan de lo que digan los participantes.
- Give student time to reflect, elaborate, clarify, discuss and provide examples.
Da tiempo a los alumnos para que reflexionen, elaboren, aclaren, discutan y aporten ejemplos.
- Other techniques: silence, use of non-technical language.
Otras técnicas: silencio, uso de un lenguaje no técnico.
- Create a relaxed, safe environment.
Crea un entorno relajado y seguro.

Interview Techniques **Técnicas de entrevista**

- The interviewer should be aware of personal value judgments that might:

El entrevistador debe ser consciente de los juicios de valor personales que pueda tener, ya que estos pueden:

- Influence the way the interviewer interprets the participant's responses

Influir en la forma en que el entrevistador interpreta las respuestas del participante.

- Affect the type of follow-up questions that the interviewer might ask (leading questions, judgmental, corrective...)

Afectar al tipo de preguntas de seguimiento que el entrevistador podría hacer (preguntas capciosas, críticas, correctivas...)

- Make the interviewer teach the participant the “right” answer (according to the interviewer's beliefs/knowledge)

Hacer que el entrevistador enseñe al participante la respuesta "correcta" (según las creencias/conocimientos del entrevistador)

Data Analysis in Phenomenography **Análisis de datos en fenomenografía**

- Read through all the transcripts to become very familiar with the data.
Lee todas las transcripciones para familiarizarse con los datos.
- Pick out all of the differences of meaning in relation to the concept, expressed in the transcripts.
Señala todas las diferencias de significado en relación con el concepto, expresadas en las transcripciones.
- Group the differences to form the smallest number that reflect the main differences in the transcripts, and describing their essence, form categories.
Agrupar las diferencias para formar el menor número que refleje las principales diferencias en las transcripciones y, describiendo su esencia, forma categorías.

Data Analysis in Phenomenography **Análisis de datos en fenomenografía**

- Arrange these categories hierarchically, where possible, in order to reflect the level of understanding of the concept and generate a category system.

Ordena estas categorías jerárquicamente, siempre que sea posible, para reflejar el nivel de comprensión del concepto y generar un sistema de categorías.

- Categorize each participant's answer according to the category system.

Clasifica la respuesta de cada participante según el sistema de categorías.

- Ask independent judges to categorize the data using your system to verify, confirm, and/or rethink your analysis.

Pide a jueces independientes que categoricen los datos usando tu sistema para verificar, confirmar y/o replantear tu análisis.

Data Analysis in Phenomenography **Análisis de datos en fenomenografía**

- There is an additional analytic step required of phenomenographic researchers.

Hay un paso analítico adicional que se exige a los investigadores fenomenográficos.

- Rather than making simple comparisons of the conceptualizations organized in the outcome space, researchers must also attempt to draw out any relationship between the conceptualizations.

En lugar de realizar simples comparaciones de las conceptualizaciones organizadas en el espacio de resultados, los investigadores también deben intentar extraer cualquier relación entre las conceptualizaciones.

Data Analysis in Phenomenography **Análisis de datos en fenomenografía**

- The relationships are explored in an effort to discern the levels of sophistication of the understandings collected from the participants.

Las relaciones se exploran en un esfuerzo por discernir los niveles de sofisticación de las comprensiones recogidas de los participantes.

- This may mean ranking one category of description above another

Esto puede significar dar prioridad a una categoría de descripción sobre otra.

- Equally possible is that the categories are placed side-by-side, denoting an equal level of sophistication.

Es igual de posible que las cat. se pongan una al lado de la otra, mostrando un mismo nivel de sofisticación.

Some examples from my research...

***Algunos ejemplos de mis
investigaciones...***

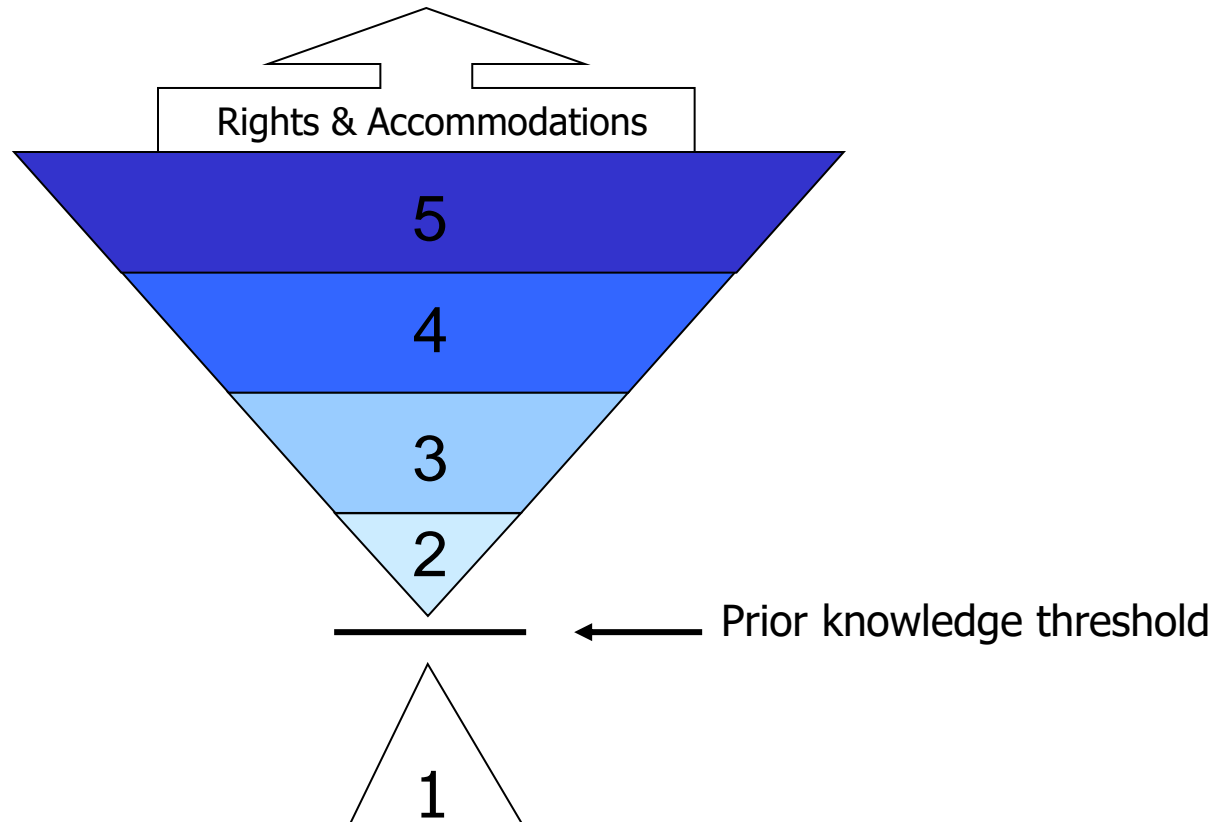
5 Qualitatively Different Ways of Understanding Ethnic Diversity (Gr 7 Students)

5 Formas cualitativamente diferentes de entender la diversidad étnica (alumnos de 7º curso)

5	Is likely determined by birth; expression is guided and bound by religious doctrine	Exists in Canada & recognizes FN and Francophones as indigenous to NB	Includes language (limited understanding)	Legal accommodations are deemed appropriate; safety is still a concern	Is protected by law (rights)
4	Acknowledges the historic, communal, and traditional nature of religion and religious practice & includes Native spirituality	FN and Francophones live in NB but other ethnic group members come from elsewhere	Language is only a communication tool	Accommodations are acceptable as long as safety is not a factor and the dominant group is not negatively affected	For FN only, involves certain rights because of their history
3	Is somehow connected to religion, religious practices, and culture	Is associated with specific groups of people and/or countries		Might accommodate in some situations, “depending on the numbers”	First Nations (FN) have rights but no explanation given
2	Might involve religion and/or culture	Exists somewhere else in the world			
1	No understanding of ethnic diversity.				

Rights, accommodations and levels of understanding of ethnic diversity.

Derechos, adaptaciones y niveles de comprensión de la diversidad étnica.



Students' Understandings of Historical Significance: *Deductive Coding*

Comprensión del significado histórico por parte de los alumnos: Codificación deductiva

Table 10: *A priori* data analysis codes. Adapted from Cercadillo (2001).

Code Name	Description of Code	Example of Coded Text from Student Data
CONTEMPORARY	<ul style="list-style-type: none"> Event is seen as important by people at the time, "in the context of their perceptions, beliefs and view of the world" (Cercadillo, 2001, p. 126) Key questions/indicators: <ul style="list-style-type: none"> Who were/have been affected by event? Why was it important at the time/to them? How were people's lives affected (in immediate circumstances, not future)? Can/do students see different viewpoints of contemporaries? What effect did it have at the time? 	<p><i>RE: The Great Depression</i> ES-B3: it affected us as well as other places... ES-B5: Maybe the fact that it really originated in the States and we felt maybe a really strong...aftershock of the Great Depression.</p> <p><i>RE: Fraser River Gold Rush</i> ES-A2: and they also took out jobs from First Nations – because then they - they could have been there to do gold searching too but they hired the Europeans and stuff more frequent and then once the gold was gone they all scattered I think and married Native women and stuff - yeah (last half of this quotation is also "causal significance")</p>
CAUSAL	<ul style="list-style-type: none"> Student situates an event in relation to its causal power – significance depends, in part, on later events/ consequences. Shows some awareness of historical context and how event shaped future. Key questions/indicators: <ul style="list-style-type: none"> Key verbs: help, make, benefit, enable, change, achieve, instigate, result, allow Expressions: have an influence, due to, contribute to Consequential links: therefore, so, that is why, in that way Use of counterfactuals: If "a" had not occurred, "b" wouldn't have happened. 	<p><i>RE: Repatriation of Constitution</i> ES-B6: It's ah, we brought Canadian Constitution to Canada so we can amend that without any consent from the, from Britain so we are more as an individual country...independence. (2 causal factors)</p> <p><i>RE: Person's Case</i> ES-B4: ...after they are declared persons then they are entitled to more rights... (Political/Cultural/Legal aspects of causal significance)</p>

Students' Understandings of Historical Significance: *Deductive Coding*

Comprensión del significado histórico por parte de los alumnos: Codificación deductiva

Code Name	Description of Code	Example of Coded Text from Student Data
	<ul style="list-style-type: none"> Nature of causal significance: <ul style="list-style-type: none"> Aspect: economical, social, political, religious, cultural, legal²⁶ Space: geographic locators Time-scale: immediate, short-term, long-term Scale: # of people affected Depth: Impact of event on people's lives (e.g., inconvenience vs. torture)²⁷ 	
PATTERN SIGNIFICANCE	<ul style="list-style-type: none"> Is a "pattern" in the sense that the event/development/ person provides a model for something, sets an example, or acts as a template for future actions/events/understandings. Historical phenomenon is always situated in its historical context, and is usually associated with other historical thinking concepts, such as progress and decline. Usually some reference made to a turning point or trend. Key questions/indicators: <ul style="list-style-type: none"> Use of term "milestone," "beginning," "first" Expressions: world might not be the same as it is now, he broadened the horizons, he achieved new things, he opened up the world, it was a first step, he was ahead of his time, it marked a beginning, from then on, it was the start of, since then, that way it started 	<p><i>RE: Person's Case</i></p> <p>ES-B6: ...that redefined the person</p> <p><i>RE: Granting of the Royal Charter for Fur Trade</i></p> <p>ES-B6: The Hudson Bay Company first discovered a lot of territories in the country, right. They are the pioneers, actually, and um...the whole reason why the British and the French came to Canada was for economic expansion and that is the most important aspect of that – economic expansion. (Last half of comment is "causal significance.")</p>

²⁶ I added "legal" to Cercadillo's list of possible aspects of causal significance.

²⁷ "Depth" was added to Cercadillo's original list and is similar to Hunt's (2000) and Phillips' (2002) "profundity" criterion.

Students' Understandings of Historical Significance: *Deductive Coding*

Comprensión del significado histórico por parte de los alumnos: Codificación *deductiva*

Code Name	Description of Code	Example of Coded Text from Student Data
SYMBOLIC	<ul style="list-style-type: none"> Significance is ascribed from the perspective of the past or “from the perspectives of subsequent presents” (Cercadillo, 2001, p. 127) “is attached specifically to notions of moral example (lessons from history) and mythical past” (p. 127) Is a particular use of history Key questions/indicators: <ul style="list-style-type: none"> Can be related to issues of national identity and partisanship, but also more general concepts or ahistorical concepts Uses the past to steer us away from “errors” of the past – event’s significance lies in the fact that it can help guide our actions in the present (or presents closer to the event) Expressions: it showed, gives an indication, it proved, it highlighted, it teaches us, set a good example for others, he was an inspiration for, was a role model, indication that something was/is good (or bad) Students may make analogies with the event/development/person. 	<p><i>RE: Granting of the Royal Charter for Fur Trade</i></p> <p>ES-B4: I agree, cause that [Granting of Royal Charter for Fur Trade] really traces back, like really far back into where Canadian roots became, and, like you know, how we came to be and that. (“shows us” our roots)</p> <p><i>RE: Louis Riel and the Métis Resistance/Rebellion</i></p> <p>ES-B5: ...He [Louis Riel] helped define the whole aspect of what it is to be a traitor to your government or not...”</p>
SIGNIFICANCE FOR THE PRESENT-FUTURE	<ul style="list-style-type: none"> Only operates in the long-term Tied to/emphasizes the future Key questions/indicators: <ul style="list-style-type: none"> Student uses contextual information to describe long-term effect of event. Information usually used as a form of evidence to support their claim. Student indicates the event’s importance today/in future: “We still think he’s quite a big figure today” (Cercadillo, 2001, p. 128) Enduring issues – does event still have implications for today/the future? 	<p><i>RE: Pearson wins Nobel Peace Prize</i></p> <p>ES-B4: And it’s still present today, even if you look at Afghanistan or the...situation right now, Canadians are always trying to, I mean, you don’t see us going to make friends and buddying up with George Bush or anything. We’re sticking to our grounds about being peacekeepers and like, internationally we are well known for being peacekeepers. (This is also Symbolic because the “Canadians are always trying to” statement – peacekeeping and Canadian identity are linked.)</p>

Students' Understandings of Historical Significance: *Deductive Coding*

Comprensión del significado histórico por parte de los alumnos: Codificación *inductiva*

Table 11: Inductive codes derived from research questions and student data

Code Name	Description of Code	Example of Coded Text from Student Data
IDENTITY	<ul style="list-style-type: none"> A definitive link is made between personal identity and why [X] is significant. For some students, a hybrid identity is explained (Bhabha, 2001). 	<p><i>RE: Asked which, if any, phenomena on timeline is most important in terms of his identity</i></p> <p>ES-B1: the Confederation and the multiculturalism one Interviewer: okay-can you talk about those two for me ES-B1: okay-the Confederation-that's really important to me because it's like my Canadian side Interviewer: yeah-great ES-B1: Canada becoming as a country – and the multiculturalism one is my Cambodian side and just yeah so basically those 2 are important because they really had like a-like a dramatic effect on-like everything for me</p>
IDENTITY – LOSS	<ul style="list-style-type: none"> Student describes a sense of loss directly related to his/her identity, in relation to an event (and/or in relation to the research task as a whole) 	<p>ES-C5: when I see no Vietnamese events here-I feel-I feel detached from it [Canadian history] – like I'm seeing it through a TV screen-like I don't really see it as part of me-like I feel like it's far away</p>
ORGANIZING FRAMEWORK	<ul style="list-style-type: none"> Student describes how they shaped timeline 	<p><i>Explanation of timeline organizing framework:</i> ES-C8: You'd have to explain to them that it was a timeline of multiculturalism instead of just a timeline of Canada.</p>
INTRINSIC	<ul style="list-style-type: none"> Significance of historical phenomenon is an inherent condition of phenomenon. No one determines whether or not [X] is historically significant; it just is. 	<p><i>RE: Confederation</i></p> <p>ES-C3: oh yes-I don't have to say anything-this is Confederation-it's-it's great</p>
FIXED/CONTEXTUAL	<ul style="list-style-type: none"> Significance is described as something fixed and unchanging or variable, that is, dependant on context (what was happening at the time, or changes in perceptions of significance over time). "Fixed" significance may be directly related to the "intrinsic" code. 	<p><i>RE: Louis Riel</i></p> <p>ES-C15: plus Louis Riel he went from the mad terrorist back then in the Civil War-to a now cultural figure who was a hero that defended rights of the Aboriginal people so it shows it's pretty important, and a symbol too Interviewer: okay ES-C: yeah ES-C: The change of Canadian government's attitude</p>

Students' Understandings of Historical Significance

Comprensión de la importancia histórica por parte de los alumnos

Narrating Canada's History

“Founding of the Nation”

This narrative recounts the history of the first inhabitants of Canada (before it was a nation) and the events that “built” the country.

Students rely on ***pattern and causal*** types of significance to explain the historical significance of events in Canadian history.

“Diverse and Harmonious Canada”

This narrative recounts the history of Canadians overcoming prejudice and discrimination in order to establish a harmonious, multicultural, multinational Canadian identity.

Students rely on ***symbolic*** significance and significance for the ***present-future*** to make their arguments about the historical significance of particular events.

“Diverse but Conflicted Canada”

This narrative recounts the history of multiculturalism in Canada, with an explicit focus on conflicts and tensions that have arisen as a result of society and government's responses to the nation's changing demography.

Students rely on ***symbolic significance*** and significance for the ***present-future*** to ascribe historical significance to events in Canada's past (especially the legacy of racism on contemporary society).

Primary Teachers' Understandings of Ethnic Diversity

Concepciones de los profesores de primaria sobre la diversidad étnica

