

**A State of the Field Review of E-learning in Canada:
A Rough Sketch of the Evidence, Gaps and Promising Directions¹**

Philip C. Abrami, Robert M. Bernard, C. Anne Wade, Richard F. Schmid, Eugene Borokhovski,
Rana Tamim, Michael Surkes, Gretchen Lowerison, Dai Zhang, Iolie Nicolaidou,
Sherry Newman, Lori Wozney & Anna Peretiatkowicz

*Centre for the Study of Learning and Performance
Concordia University
Montreal, Quebec*

November 2005

Argument Catalogue Codebook

¹ The Canadian Council on Learning funded this state-of-the-field review under a contract to Abrami, Bernard, Wade and Schmid. The opinions expressed herein are solely those of the authors. Inquiries about the review should be directed to Dr. Philip C. Abrami, Centre for the Study of Learning and Performance, Concordia University, 1455 DeMaisonneuve Blvd. W., Montreal, Quebec, H3G 1M8. Phone: 514-848-2424 x2102.

E-mail: abrami@education.concordia.ca. Website: <http://doe.concordia.ca/csdp/>

Document Identification Information (ProCite):

A Paper ID # *

B Author:

C Title:

D Exact Source:

E Year of Publication:

* Column A: Use "comment" option within "ProCite number" field to indicate a possibility of multiple papers subsumed under the same number: e.g., book chapters written by different authors or reports from several provinces on implementation of a particular program under the same cover with common Intro & Conclusion sections.

1. Paper Status:

Excluded by reason of:

- F** 1 = Not related to eLearning
2 = Belongs to the "Workplace" category
3 = Other: Specify*
4 = Primary research done not in Canada

*If you choose **3 = Other**, please specify using a short description. Include the reason "outdated". i.e., reviews published prior to 1999 and all other categories of documents published prior to 2000.

General statements like "we are interested in eLearning" or "libraries and learning" or broad statements addressing other issues in reference to eLearning but not about eLearning should be excluded.

For example, policy implications about libraries in general.

2. Suspected Duplicates:

- G** Simply mark (by placing the ID number of the already reviewed paper that is duplicated by the one that you are marking) those publications that appear to address the same issue using the same data and arguments even the same wording.
-

3. Category of the Source:

- H** 1 = General Public Opinion (GPO)
2 = Trade / Practitioner's Position (TPO)
3 = Policy Making Reports (PMR)
4 = Scholars / Academic Reviews (SAR)
5 = Primary Empirical Research (PER)

Best judgment of the coder as to what area it belongs to.

4. Areas / Themes of eLearning according to CCL:

Code “1” if it applies. Code “999”, or leave blank if it does not apply.

I 4.1 Adult Learning

Teachers’ training / Continuing Education / Non credit / ESL / outside of workplace

1 = Yes

J 4.2 Early Childhood Learning

1 = Yes

K 4.3 Elementary / Secondary School Learning

Includes K-12 / Middle School / High School

1 = Yes

L 4.4 Post secondary (A4) / for credit / degree / certificates / diploma

(whether or not Ss identifies themselves as seeking out certification).

1 = Yes

M 4.5 Health and Learning (discussion in reference to ...)

1 = Adult learning (i.e., continuing education / non-credit courses)

2 = Early childhood

3 = K – 12

4 = Postsecondary institutions

5 = Other or combination of the above.

5. Form of eLearning / Technology

N Emergent Code: Simply name all mentioned (categories to be numbered later).

What is used? Include hardware, software, methods or strategies.

6. Pedagogical Implementation – Global Category:

It is important here to keep in mind that the issues within this category address not procedures of and outcomes produced through eLearning, but creating/providing conditions **for** successful eLearning. Include teacher workshops and other kinds of training specifically for the future of eLearning implementation.

For example, the document can address issues related to “purpose, advocate, suggest” and/or “delivered, transmitted, mediated.” Does the paper address these issues as important ones? When addressing this category we are trying to get an answer whether people see pedagogical implementation and the necessary condition for success in eLearning.

Code “1” if it applies. Code “999”, or leave blank if it does not apply.

- O 6.1 Professional Training or Competence Development (Sub Category A)**
Creating conditions for successful eLearning. What people are doing to prepare for eLearning.
1 = Students (PTS)
2 = Teachers (PTT)
3 = Administrators and Staff (PTA)
4 = Other or Combination of above (O)
5 = Cannot be specified (U)
- P 6.2 Course Development (Sub Category B)**
Informs/raises issues about effective practices in developing course content, methodology and delivery. Special issues that are addressed specifically for eLearning.
1 = Applies
- Q 6.3 Logistics / Infrastructure / Support (Sub Category C)**
Whatever supports / compliments pedagogical process, including issues of technology compatibility, etc. Time issues for support, facilities or rooms. ALL kinds of support not only technological infrastructure.
1 = Applies
- R 6.4 Growing Field in e-Learning or the State of the Field (Sub Category D)**
Includes current trend or state in e-Learning, for example: “more and more universities are putting courses online.” Or, “last year extra *n* students enrolled in online courses.”
1 = Applies
-

7. Economic Issues – Global Category:

Code “1” if it applies. Code “999”, or leave blank if it does not apply.

- S 7.1 Cost Analysis**
Mostly just reports the cost of purchasing some particular hardware / software / adopting some particular technology / or implementing some particular courses or programs.
1 = Yes – Applies
- T 7.2 Financial Responsibility (Sub Category B)**
States questions about who should pay for / invest in software / hardware / access to technology / course or program implementation.
1 = Yes – Applies
-

8. Policy Jurisdiction:

*If paper does not mention policy do not apply this field. If policy is explicit apply this field. You should be able to identify who, what, where or when a policy is implemented or suggested. Can appear in policy reports or other document forms.

Code “1” if it applies. Code “999” or leave it blank if it does not apply.

Policy addressed at the ...

- U 8.1 Global / International Level**
1 = Yes – Applies
- V 8.2 National / USA Level**
1 = Yes – Applies
- W 8.3 National / Canadian Level**
1 = Yes – Applies
- X 8.4 Provincial Level**
1 = Yes – Applies
- Y 8.5 Institutional Level / Community**
1 = Yes – Applies
- Z 8.6 Board Level**
1 = Yes – Applies
-

9. Policy Orientation:

*If paper does not mention policy do not apply this field.

If policy is explicit apply this field. You should be able to identify who, what, where or when a policy is implemented or suggested. Can appear in policy reports (most likely), but also in other types of documents.

Code “1” if it applies. Code “999” or leave it blank if it does not apply.

AA 9.1 Development (Sub Category A)

Whatever is oriented towards future; what should be done in terms of policies / investments / standards to implement a program, introduce technology, meet expectations / demands (where to go). Future.

1 = Present – Applies

AB 9.2 Management / Administration (Sub Category B)

Whatever deals with the implementation of the current policies (how to stay on course). Includes support network. Current state, maintenance.

1 = Present – Applies

10. Policy Topics:

*If paper does not mention policy do not apply this field.

If policy is explicit apply this field. You should be able to identify who, what, where or when a policy is implemented or suggested. Can appear in policy reports or other document forms.

If the topic appears to be particularly important, place a note in the note / comment / emergent theme column.

Code “1” if it applies. Code “999” or leave it blank if it does not apply.

AC 10.1 Ethics (E)

1 = Present – Applies

Example: It is the policy of this institution that all students participate in an “acceptable use” workshop before being allowed to engage in eLearning courses.

Example: Set of rules is implemented by government organizations, etc., that impact on how eLearning is carried out or what content is suitable for what category of learning.

AD 10.2 Pedagogy (P)

1 = Present – Applies

This is a very broad category and includes all policy issues that are relevant to pedagogical issues, such course development, implementation strategies, curriculum selection, assessment and evaluation of effectiveness.

AE 10.3 Finance (F)

1 = Present – Applies

Example: All issues of funding and other financial concerns that are regulated by policy. Applies not only to hardware and software but to all areas such as training, development, workshops, etc.

AF 10.4 Standards & Certification (S/C)

1 = Present – Applies

Example: Policy decisions about licensing of institutions and/or new programs, the applicability, recognition and validity of diplomas and other official certification, etc.

AG 10.5 Technology Infrastructure / Equipment (TI)

1 = Present – Applies

It is also an extremely broad category. May cover everything from a decision to make Internet access mandatory to a decision to build new infrastructure for Internet access or new facilities in a particular geographic area. Includes regulation of use, as well as development and evaluation of infrastructure.

11. Value (added / subtracted) – Global Category

Describes benefits (gains) vs. negative consequences (concerns) of e-Learning implementation, in other words its outcomes, either measured or speculated (expected), can be positive, negative, neutral, or controversial.

Subsequently, we code them like follows: Each topic has two types of coding: valence and type of evidence. For example, coders should first select whether the outcome under consideration is positive, negative, neutral or controversial and then determine if the outcome was determined through a verifiable measure or is an estimate.

Examples:

If document states that distance education provides learners opportunities that they would not have otherwise code the document as 1 (positive). If the results are reported without documented evidence code the study as 2 (estimated).

If survey showed that technology helped some people to better communicate with either teacher or peers while others perceived technology as a barrier to communication then code 4 (mixed or controversial) and 1 (measured).

In general, non-significant findings in empirical research or concern statements like, "...more attention should be paid to..." or "...an important part of eLearning is...", etc., would be coded as 3 (neutral).

If it is not applicable code the item as 999 or leave blank.

AH 11.1 Flexibility / Accessibility (Valence)
1 = Positive
2 = Negative
3 = Neutral /Not Significant (in empirical research)
4 = Mixed result / Controversial

AI Reported in the form of
1 = Measured (M)
2 = Estimated / Speculative (E)

AJ 11.2 Achievement
1 = Positive
2 = Negative
3 = Neutral /Not Significant (in empirical research)
4 = Mixed result / Controversial

AK Reported in the form of
1 = Measured (M)
2 = Estimated / Speculative (E)

AL 11.3 Motivation / Satisfaction / Attitude
1 = Positive
2 = Negative
3 = Neutral /Not Significant (in empirical research)

AM Reported in the form of
1 = Measured (M)
2 = Estimated / Speculative (E)

AN 11.4 Interactivity / Communication
1 = Positive
2 = Negative
3 = Neutral /Not Significant (in empirical research)
4 = Mixed result / Controversial

AO Reported in the form of
1 = Measured (M)
2 = Estimated / Speculative (E)

AP 11.5 Meeting Social Demands
1 = Positive
2 = Negative
3 = Neutral /Not Significant (in empirical research)
4 = Mixed result / Controversial

AQ Reported in the form of
1 = Measured (M)
2 = Estimated / Speculative (E)

AR 11.6 Attrition / Retention
1 = Positive
2 = Negative
3 = Neutral /Not Significant (in empirical research)
4 = Mixed result / Controversial

AS Reported in the form of
1 = Measured (M)
2 = Estimated / Speculative (E)

AT 11.7 Cost
 1 = Positive
 2 = Negative
 3 = Neutral /Not Significant (in empirical research)
 4 = Mixed result / Controversial

AU Cost
 1 = Measured (M)
 2 = Estimated / Speculative (E)

12. Attitudes (Global Category): * A priori – Refers only to opinions

Code “1” if it applies. If not applicable code “999” or leave blank.

In order not to confuse this category with Motivation/Satisfaction within the Value category, please, keep in mind that here we are looking for opinions about / attitudes towards e-Learning existing a-priori in the following groups of people:

AV 12.1 Parents
 1 = Positive
 2 = Negative
 3 = Neutral /Not Significant
 4 = Mixed result / Controversial

AW 12.2 Teachers
 1 = Positive
 2 = Negative
 3 = Neutral /Not Significant
 4 = Mixed result / Controversial

AX 12.3 Students
 1 = Positive
 2 = Negative
 3 = Neutral /Not Significant
 4 = Mixed result / Controversial

AY 12.4 General Public
 1 = Positive
 2 = Negative
 3 = Neutral /Not Significant
 4 = Mixed result / Controversial

AZ 12.5 Administrators / Institutional
 1 = Positive
 2 = Negative
 3 = Neutral /Not Significant
 4 = Mixed result / Controversial

BA 12.6 Authors
 1 = Positive
 2 = Negative
 3 = Neutral /Not Significant
 4 = Mixed result / Controversial

13. Scope / Quality of Evidence (Source of Evidence)

Code “1” if it applies. Code “999” or leave it blank if it does not apply.

BB 13.1 Personal Opinion
 1 = Yes

BC 13.2 Editorial Opinion
 1 = Yes

BD 13.3 Anecdotal Opinion
 1 = Yes

- BE 13.4 Systematic Survey**
1 = Yes
- BF 13.5 Documented (Empirical) Measures** - Statement made on verifiable evidence. Covers all primary research (all measures used) if it is not a systematic survey.
1 = Yes
- BG 13.6 Qualitative Data including Reviews and Case Studies**
1 = Yes
- BH 13.7 Quantitative Systematic Review (Meta-Analysis)**
n = Total number of research articles the MA is based on.
- BI 13.8 Total number of participants *n***
Applies to primary research - just enter the reported number
-

14. Specified Area (Geographical) of Applicability

If the country is just implicated do not code.

Code “1” if it applies. Code “999” or leave it blank if it does not apply.

- BJ 14.1 Global / International**
1 = Applies
- BK 14.2 USA**
1 = Applies
- BL 14.3 Canada**
1 = Applies
- BM 14.4 Provincial** (if it is municipal, community, etc., include here. Add comments if necessary)
1 = Applies

15. Geographic Area of Research

BN Emergent Code: Just name the country / province where primary research was conducted / data for an opinion paper derives from.

16. Context of Research

BO Emergent Code: Specify if worthwhile particular circumstances surrounding the issue / research beyond those that are covered under the categories listed in 23 Attention / Focus. .

17. Subject Matter

BP Emergent Code: Name the subject matter addressed. Not restricted to primary research.

18. Type of Intervention

BQ Emergent Code: Describe what the intervention is. Not restricted to primary research.

19. Type of Learners / Learner Abilities

Code “1” if it applies. Code “999” or leave it blank if it does not apply.

BR 19.1 Special Needs (Should be mentioned specifically)
1 = Applies

Note: Special needs refers to all conditions where special attention is required.

BS 19.2 Average Student Population
1 = Applies (Use best judgment to determine if this field applies)

BT 19.3 Gifted Students (Should be mentioned specifically)
1 = Applies

20. Type of Research Design

BU 20.1 Special Needs
1 = Pre-experimental
2 = Correlational (including systematic surveys)
3 = Quasi-experimental
4 = Randomized Control Trials (RCT)

21. Emergent Category

BV Emergent Code:
For example, Anxiety, Workload, Evaluation of program, Time requirements, Digital divide, Equity issues, or some other repeatedly addressed issue

22. Comments / Major Message

BW Emergent Code:

Some particularly important messages that we think are worth reporting literally: Author's or research conclusions, further steps, questions to address, directions or suggestions, etc.

23. Attention / Focus

This category partly replaced category 16 "Context of Research" to distinguish in particular the following issues (whether the study to some extent focuses attention on one/some of them):

BX 23.1 Gender

1 = Yes – Addresses the issue

BY 23.2 Settings

1 = Rural
2 = Urban
3 = Inner city
4 = Suburban

BZ 23.3 Aboriginal / Racial / Ethnic / Religious Groups

1 = Yes – Addresses the issue

CA 23.4 School Type

1 = Public
2 = Private
3 = Home Schooling

CB 23.5 Instructional Design and Interventional Strategies

1 = Yes – Addresses the issue

CC 23.6 Learner / Personal Characteristics

Includes psychological traits, learning styles, motivation, etc.
1 = Yes – Addresses the issue

24. Type of Study

Applies to primary empirical research only.

CD 24 Type of Study

1 = **Comparison** – only if specific to eLearning conditions
2 = **Investigation** – still "investigation" if includes comparison by factors not related to eLearning conditions, like gender, digital divide, etc.

25. Technology Use

First dimension of the “Technology Use” general category: by context of engagement/proximity

CE 25.1 Technology Use: Context

- 1 = **DE** (distance education)
- 2 = **F2F** (face-to-face traditional delivery mode)
- 3 = **Blended/hybrid courses**
- 999 = Not specified

26. Technology Use

Second dimension of the “Technology use” general category: by broad types of tools/approaches used

CF 25.2 Technology Used: Type

- 1 = All types of **network-based** technology, including Inter & Intranet, CMC, etc.
- 2 = **Virtual reality** complex applications, computer simulations & learning objects (i.e., those combining a variety of technology-based components oriented to achieve particular learning objectives)
- 3 = **Technology integration** (i.e., technology use in classrooms for different less specific learning purposes)
- 999 = Not specified

27. Technology Use

Third dimension of the “Technology Use” general category: by functionality (for achieving what educational purposes particular technological tools were used)

CG 27 Technology Use: Function

- 1 = **Instructional/Presentational** (e.g., drill, practice, tutorials, remediation)
- 2 = **Communicative** (e.g., e-mail, ICQ, computer conferencing, LCD projector)
- 3 = **Organizational** (e.g., data base, spreadsheets, record keeping, lesson plans)
- 4 = **Analytical/Programming** (e.g., statistics, charting, graphing, drafting, robotics)
- 5 = **Recreational** (e.g., games)
- 6 = **Expansive** (e.g., simulations, experiments, exploratory environments, brainstorming)
- 7 = **Creative** (e.g., desktop publishing, digital video, digital camera, scanners, graphics)
- 8 = **Expressive** (e.g., word processing, on-line journal)
- 9 = **Evaluative** (e.g., assignments, portfolio, testing)
- 10 = **Informative** (e.g., Internet, CD-ROM)
- 999 = Not specified