Request for Quote:
Curriculum Mapping Project

August 2011

www.acara.edu.au
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PART 1 - REQUEST TO QUOTE (RFQ)

Quotes are requested by the Australian Curriculum, Assessment and Reporting Authority (ACARA) for a contract to provide a methodology and process for mapping the Australian Curriculum to both national and international curricula. Quotes are to be submitted on the basis that they conform with Part 2: Specifications and Part 4: Response forms.

**Agency**
Australian Curriculum, Assessment and Reporting Authority

**Closing Date**
5:00pm, Monday 29 August, 2011 (EST)

**Contact Officers**
For further information you can contact:
John Skehan on ph: (02) 8098 3133 or email john.skehan@acara.edu.au
Peter Matheson on ph: 02 8098 3116 or email peter.matheson@acara.edu.au

**Quote Validity Period**
Quotes must remain valid for a minimum period of 90 days after the Closing Date.

**Lodgement of Quote:**
Quotes submitted in response to this RFQ will be accepted by ACARA via Email:
You are required to email the full quote as a PDF to john.skehan@acara.edu.au with the following text in the message box ACARA RFQ – Curriculum Mapping Project

**Scope of Quote**
Quotes can be submitted for one or both of the learning areas specified in this document. Each learning area (Geography, Arts) has a different timeline.

**Proposed Timeframe:**
The anticipated timeframes for this quote are:

(i) RFQ Release Wednesday 3 August, 2011
(ii) RFQ Closes Monday 29 August, 2011
(iii) Awarding Contract Monday 5 September, 2011

Commencement of Project
Geography September, 2011
The Arts October, 2011
Methodology finalised
Geography October, 2011
The Arts November 2011
Interim Report
Geography February, 2012
The Arts April, 2012
Final Report
Geography July, 2012
The Arts January, 2013

ACARA reserves the right to alter the timeframe should the need arise.
PART 2 – SPECIFICATIONS

The Australian Curriculum, Assessment and Reporting Authority (ACARA) is responsible for the development of the Australian Curriculum. ACARA has released the Foundation to Year 10 Australian Curriculum for English, mathematics, science and history. Please visit www.australiancurriculum.edu.au to view the curriculum and for more information.

As a second phase of development, the Australian Curriculum will be developed for geography and the Arts.

More information about ACARA can be found on www.acara.edu.au.

2.1 BACKGROUND

The Australian Curriculum for each learning area comprises the following elements:

- Rationale
- Aims
- Description of the organisation of the learning area
- Content descriptions (supported by content elaborations in F-10)
- Achievement standards (supported by annotated student work samples)

The curriculum development process for the Foundation to Year 12 (F-12) Australian Curriculum has four significant milestones:

a. The online publication of a Shape paper that provides a conceptual and organisation framework for the proposed curriculum to be developed
b. The development of a draft F-12 curriculum for national and public online consultation
c. A revised draft curriculum based on the public consultation feedback
d. The online publication of a final curriculum approved by the Ministerial Council (MCEECDYA)

Development of the Australian Curriculum for Geography and the Arts has begun but is currently at a different stage in the process for each area.

1. With F-12 Geography, the Shape paper has been published and the writers are currently developing the draft curriculum. Please refer to the Shape of the Australian Curriculum: Geography for more information on the structure of the Geography curriculum. The draft Australian Curriculum for Geography (F-12) is scheduled for online nationwide consultation from October 2011.

2. With the F-12 Arts curriculum, consultation on the Shape paper is complete and publication of the Shape paper is scheduled for August 2011. Please refer to the Shape of the Australian Curriculum: The Arts for more information on the structure of the Arts curriculum. The draft Australian Curriculum for The Arts (F-12) is scheduled for online nationwide consultation in the first quarter of 2012.

Further information on ACARA’s Curriculum Development Process as well as the Curriculum Design Process can be found on our website: www.acara.edu.au.
2.2 PURPOSE

The purpose of the curriculum mapping process is to provide a comparison of:

- The extent of similarity and difference between the draft and final Australian Curriculum and the existing curriculum frameworks (the intended curriculum) of states and territories
- The extent of similarity and difference between the Australian Curriculum and the curriculum of up to four international jurisdictions

The mapping process aims to:

- provide ACARA with information that will assist in the development and implementation of the curriculum including advice on the extent to which the content and achievement standards in the Australian Curriculum match or exceed existing curriculum.
- assist states and territories in planning and support for implementation of the Australian Curriculum

The purpose of this quote is to:

- Adapt or define a methodology to deliver an analysis of similarity and difference between the Australian Curriculum and the state and territory (and international) curriculum being compared

It is anticipated that the methodology will include:

- Development of an appropriate survey or rating instrument for the mapping
- Provisions for ACARA staff and curriculum experts to conduct the mapping workshops with teachers
- Collection and analysis of data from the workshops and on-line surveys (some of this may be conducted with ACARA staff expertise).
- Development of the following reports that will inform the wider audience on both the qualitative and quantitative findings, and will inform ACARA in the implementation phase of the Australian Curriculum:
  
  1. An interim report containing two sections i) National ii) International comparing
     
     Part i)
     - Current state and territory intended curricula against the draft Australian Curriculum
     
     Part ii)
     - International curricula against the draft Australian Curriculum
  2. A final report comparing:
     - Current state and territory intended curriculum against the final Australian Curriculum
     - International curricula against the final Australian Curriculum
2.3 SCOPE

The successful organisation will be required to do the following:

a) Identify research based methodology and online survey

For the learning areas of English, mathematics, science and history ACARA adapted an existing methodology – Porter, Polikoff and Smithson, for the mapping work as these areas had previously been mapped.

Porter, Polikoff and Smithson established a uniform language for describing curriculum content, which was then used to analyse and compare curriculum frameworks (the intended curriculum), classroom practice (the enacted curriculum) and the assessment regimes (the assessed curriculum). (Appendix 5.2)

The uniform language developed by the researchers involved two components:

- A language for describing in detail the knowledge base in each of English, science, history and mathematics
- A language for describing the “cognitive demand” of each area, based on a hierarchy of performance expectations.

The first of these consist of lists of topics arranged in broad content categories in each subject domain. For example, in Science, topics might include Science and Technology, Reproduction and development, Meteorology and Measurement and calculation. The list of topics is intended to be complete and universal, so that they can be used to describe any curriculum in the relevant domain, regardless of year level, context or level of complexity.

The second category, ‘cognitive demand’, consists of descriptions of what students can do with particular knowledge. For example, in English this may include: memorise/recall, perform/procedures/explain, generate/create/demonstrate, analyse/investigate and evaluate. These descriptions are different for each learning area, though they are based on a similar hierarchy of demands consisting of five levels in categories.

Respondents (usually curriculum developers or teachers) are asked to respond on a matrix that requires them to indicate whether, for example, a curriculum framework being considered includes:

- a specific topic
- if so, to what extent; and
- at what level of cognitive demand students are expected to operate in relation to that topic.

It is, therefore, in the intersections between the topic lists and the cognitive demands that the curriculum is described. Any curriculum is likely to include some but not all of the content topics for the field, and some curricula will be more comprehensive in their inclusion of topics. Any curriculum is likely to include a range of cognitive demands, and some will include a greater or lesser proportion of higher or lower cognitive demands.

The methodology proposed through this quote may involve one of the following:

- Application of Porter, Polikoff and Smithson to the learning areas of geography and the Arts.
- Adaptation of an existing methodology that is seen to be more suitable than Porter et al
- Development of a completely new methodology.
b) Identify appropriate international peers

- ACARA will recommend up to four countries to approach to determine their interest in taking part in an international curriculum mapping project.
- The successful organisation will prepare a protocol for participating jurisdictions in an international curriculum mapping project outlining:
  - the process to be involved including required elements
  - expectations of participants
  - rules governing how data from the survey would be quality assured and how control of publication, dissemination and use would be managed.

c) Handover to ACARA

The successful organisation is to facilitate the handover of the curriculum mapping process and data analysis to ACARA personnel. This will involve:

- Documentation of the curriculum mapping process
- Conduct a briefing session for ACARA personnel on the curriculum mapping process and data analysis so that ACARA personnel could apply the methodology to the next phase of curriculum development.

The scope of this contract is limited to:

- Identification/development of a suitable methodology for the mapping of geography and the Arts.
- Facilitation of videoconference workshops to ensure that all participants involved in the rating of curricula understand the methodology.
- Collection and analysis of various sources of data. This work is to be carried out in conjunction with nominated ACARA staff.
- Submissions of reports
- Handover to ACARA

The ACARA project team includes:

- Senior Manager Curriculum, John Gougoulis
- Manager, Digital Media and Web Development, Mark Cheeseman
- Senior Project Officer, Joanna Mackie
- Project Officer, My-Le Kha
2.4 CONTRACT REQUIREMENTS

The contractor will be required to:

- Work closely with the ACARA project team to initially finalise the methodology and then on an ongoing basis during the consultation period. This will require regular phone, email, video and face to face contact (specific details to be negotiated).
- Develop appropriate survey instruments for each of the learning areas of geography and the Arts with the ACARA project team.
- Collect and analyse various sources of data workshops and online surveys or rating instruments.
- Submit two reports in the minimum reporting format described in 2.5. The first is an interim report; the second is a final report.
- Meet the following deadlines:

<table>
<thead>
<tr>
<th>Milestone</th>
<th>Geography</th>
<th>The Arts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commencement of Project</td>
<td>September, 2011</td>
<td>October, 2011</td>
</tr>
<tr>
<td>Methodology finalised</td>
<td>October, 2011</td>
<td>November, 2011</td>
</tr>
<tr>
<td>Interim Report</td>
<td>February 2012</td>
<td>April, 2012</td>
</tr>
</tbody>
</table>

ACARA must be notified of any delay in the project and any extension will be at ACARA’s discretion. If appropriate, a new timetable will be negotiated.

General Conditions

- Title and ownership of all material produced from the project including copyright will remain with ACARA and ACARA’s copyright must be acknowledged on the cover of all project products, print, audio, visual or other media, as well as in the introductions of all audio, visual and other media products.
- Information relating to the project will not be made public by the recipient or media activities undertaken, without prior approval of ACARA.
2.5 REPORTING REQUIREMENTS

The two reports will be as follows:

a. Interim Report – Mapping against the draft Australian Curriculum (F-12)

At the end of Phase 2 completion of surveys, an interim report (hard copy and digital) is submitted.

The structure of the interim report should present the following information:

- Methodology Description
- Nature of respondents and sources of data-number, type, state/territory etc
- Curriculum Mapping Calculations
- State and territory reports
- Existing state and territory curricula
- International report

b. Final Report – Mapping against the final Australian Curriculum (F-12)

At the end of phase 3 completion of surveys, a final report (hard copy and digital) is submitted.

The structure of the final report should present the following information:

- Executive Summary – The abstract gives a brief summary of the evaluation report.
- Purpose – This section outlines the assignment the evaluators accepted.
- Methodology – This section describes the methodology employed. Samples of instruments (or all instruments) used are included. It also delineates when each instrument (if there was more than one) was administered.
- Presentation of Results: Analysis – This section includes the presentation of all the information gathered in the study. This may be in tabular, graphical, audiovisual or written form. Results of questions may be summarised on a copy of the questionnaire. This section should include an analysis of the final Australian Curriculum compared with:
  - State and territory intended curricula
  - International curricula
- Conclusions.
- Appendices: Tabulated data; Respondent details

The structure will be finalised in conjunction with ACARA once the project is established.
2.6 ADDITIONAL INFORMATION

The following sources of information are available as references:

- Reports and analyses from ACARA’s previous mapping work
- Advice from the ACARA project team
- Information located on the ACARA website
- Advice from Education Services Australia’s technology team

The following support will be available to the successful contract:
Access to ACARA’s mailing, duplicating and printing facilities. If it is proposed to use similar facilities elsewhere, such costs should be included.
PART 3 – QUOTE EVALUATION PROCESS AND CRITERIA

3.1 EVALUATION PROCESS

The evaluation process will involve an assessment of quotes received against the criteria listed below. ACARA reserves the right to short-list during the evaluation process using the evaluation criteria contained below. The evaluation process may also involve discussions, reference, financial and corporate checks.

3.2 EVALUATION CRITERIA

Quotes received will be evaluated against the following criteria. The weightings ascribed to each criterion will be applied consistently.

a. A proposed methodology that is appropriate and practicable, is clear in its design and addresses the key considerations in 2.4;

b. Ability to meet the Scope outlined in the Specification; i.e. demonstrated experience and ability of the organisation to manage the project in relation to meeting specified deadlines, budgets, reporting arrangements, liaison with appropriate individuals and production of agreed outcomes

c. Evidence of the applicant’s expertise in consultation and research analysis and demonstrated understanding of the issues involved, including familiarity with the educational landscape

d. Evidence of the applicant’s capacity to research, write and prepare a high quality report for publication and dissemination to a wide audience;

e. Relevant qualifications and experience of key team members (academic, data collection, research methodology, evaluation)

f. Cost, including value for money.

It is essential that quotes contain all necessary information for the selection process.

3.3 BUDGETS

Budgets should also include preparation of final product to professional publishing standard and include costs for individual activities such as editing, proofreading, desk top publishing, development of PDF files etc. Budgets should not include costs for dissemination.

Budgets must not include the purchase of assets, for example laptops.

Payments will only be made in response to a Tax Invoice.

3.4 RESPONSE FORMS

The Response Forms as contained within Part 4 have been included to allow applicants to respond to this RFQ. It is a requirement of this RFQ that each Response Form be completed for each quote submitted. Applicants who fail to complete the Response Forms within Part 4 will be considered to have submitted a non-conforming offer.
**PART 4 – RESPONSE FORMS**

(The Applicant must complete all of the following Response Forms as part of its Quote)

**Response Form 4.1 – APPLICANT AUTHORISATION AND CERTIFICATION**

(a) Please provide the name of a person who can be contacted regarding this application

<table>
<thead>
<tr>
<th>Name:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Address:</td>
<td></td>
</tr>
<tr>
<td>Telephone:</td>
<td></td>
</tr>
<tr>
<td>Email:</td>
<td></td>
</tr>
</tbody>
</table>

(b) This application is for the consultation and research analysis of:

- [ ] Geography (F-12)
- [ ] The Arts (F-12)
- [ ] Both Geography and the Arts

(c) Please provide the official legal entity name and registered street address of your company or organisation (for contractual purposes if this application is successful).

<table>
<thead>
<tr>
<th>Legal Entity Name:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Registered Office Address:</td>
<td></td>
</tr>
<tr>
<td>Postal Address:</td>
<td></td>
</tr>
<tr>
<td>ABN (Australian Business Number):</td>
<td></td>
</tr>
<tr>
<td>ACN (Australian Corporation Number):</td>
<td></td>
</tr>
<tr>
<td>State or Territory in which Business / Corporation is registered:</td>
<td></td>
</tr>
<tr>
<td>Company Profile</td>
<td>As part of the quote process, each applicant must include a copy of their Company’s Profile. Does your quote include your Company’s Profile:</td>
</tr>
<tr>
<td>Is the applicant registered for GST?</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Is it proposed to sub-contract any part of the Goods and/or Services?</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Are Acceptances and Orders to be directed to the above Contact Name and details?</td>
<td>Yes [ ] No [ ]</td>
</tr>
</tbody>
</table>
Authorisation, Certification and Execution by an applicant (company)

The Director and Director/Secretary named below certify that in submitting this quote on behalf of the applicant:

(a) they have read, understood and complied with the requirements of this quote;
(b) the enclosed Response Forms are a true and accurate account of their quote.

Signed for and on behalf of

........................................................................................................................................
[insert applicant's name]

........................................................................................................................................
[insert applicant's ACN]

........................................................................................................................................
[insert applicant's ABN]

_in accordance with s.127 of the Corporations Act 2001 (Cth)_

this .................. day of ........................................ 2...... by

........................................................................................................................................
[insert full name of Director]

........................................................................................................................................
(signature of Director)

........................................................................................................................................
[insert full name of Director/Secretary]

........................................................................................................................................
(signature of Director/Secretary)

Where an attorney executes this Deed on behalf of an applicant, the form of execution must indicate the source of this authority and such authority must be in the form of a Deed and a certified copy thereof provided to the Agency.

OR
Authorisation, Certification and Execution by an applicant (individual or partnership)

I, the Offeror named below certify that in submitting this quote:

(a) I have read, understood and complied with the requirements of this Invitation;
(b) the enclosed Response Forms are a true and accurate account of my quote

Signed for and on behalf of

........................................................................................................................................
[insert applicant’s name]

........................................................................................................................................
[insert applicant’s ABN]

this .................. day of ............................................ 2…….

by

........................................................................................................................................
[insert full name of applicant]

........................................................................................................................................
(signature of applicant)

in the presence of

........................................................................................................................................
[insert full name of witness]

........................................................................................................................................
(signature of witness)
Response Form 4.2 – DETAILS OF PRINCIPAL MEMBERS OF THE PROJECT TEAM

<table>
<thead>
<tr>
<th>Name</th>
<th>Address</th>
<th>Telephone</th>
<th>Email</th>
<th>Present Position</th>
<th>Academic Qualifications</th>
<th>Other Relevant Experience</th>
<th>Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chief Investigator / Project Manager</td>
<td>Co-Researcher / Project worker</td>
<td>Co-Researcher / Project worker</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ACARA RFQ: Mapping Project
Please provide a detailed list of items proposed for quote

<table>
<thead>
<tr>
<th>BUDGET</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel costs (inc. project staff, research assistance support staff)</td>
<td></td>
</tr>
<tr>
<td>Wages (indicate number of weeks)</td>
<td></td>
</tr>
<tr>
<td>Other (specify)</td>
<td></td>
</tr>
<tr>
<td>Category Sub-Total</td>
<td>$</td>
</tr>
<tr>
<td>Travel costs (indicate proposed destinations, no. of people etc)</td>
<td></td>
</tr>
<tr>
<td>Fares</td>
<td></td>
</tr>
<tr>
<td>Other/Accommodation</td>
<td></td>
</tr>
<tr>
<td>Category Sub-Total</td>
<td>$</td>
</tr>
<tr>
<td>Administrative costs</td>
<td></td>
</tr>
<tr>
<td>Telephone / Fax</td>
<td>$</td>
</tr>
<tr>
<td>Stationery / Post / Photocopying/ Supplies</td>
<td>$</td>
</tr>
<tr>
<td>Production</td>
<td>$</td>
</tr>
<tr>
<td>Other (specify)</td>
<td></td>
</tr>
<tr>
<td>Category Sub-Total</td>
<td>$</td>
</tr>
<tr>
<td>Other costs (please specify)</td>
<td></td>
</tr>
<tr>
<td>Category Sub-Total</td>
<td>$</td>
</tr>
<tr>
<td>SUB-TOTAL (GST exclusive)</td>
<td>$</td>
</tr>
<tr>
<td>+GST (10% of SUB-TOTAL)</td>
<td>+$</td>
</tr>
<tr>
<td>=TOTAL QUOTE PRICE (GST inclusive)</td>
<td>=$</td>
</tr>
</tbody>
</table>
Other Pricing Issues:

Applicants must specify each and every condition that may affect the pricing offered in this Response Form.

All individual budget items must be GST exclusive. 10% GST is to be added to the overall total.

For each item, please specify:
- the nature of the item;
- the circumstances under which it will be incurred.
Response Form 4.4 – SIMILAR CONTRACTS AND REFEREES

(a) Please include details of up to three similar projects undertaken by you.

<table>
<thead>
<tr>
<th>Contracted with</th>
<th>Contract details (include work required, work undertaken and specifications of outputs and outcomes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

(b) Please provide details of three referees who can vouch for your work (Note: Referees will only be contacted if your application is shortlisted):

<table>
<thead>
<tr>
<th>Name/s</th>
<th>Contact details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>
## Appendix 5.1 List of ACARA Stakeholders

<table>
<thead>
<tr>
<th>Stakeholder group</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principals</td>
<td>• National primary and secondary principal associations (Government, Catholic, Independent sector)</td>
</tr>
<tr>
<td></td>
<td>• Cross-curriculum principal associations (e.g. Indigenous education and special education)</td>
</tr>
<tr>
<td></td>
<td>• It is anticipated that information flow on will come from this group to teachers, students and other school-based personnel</td>
</tr>
<tr>
<td>Groups of schools</td>
<td>• School groups with alternative curriculum frameworks (Rudolf Steiner Schools of Australia) and/or different religious sect (Adventist Schools Australia)</td>
</tr>
<tr>
<td>Business/employers</td>
<td>• Includes national business peak bodies such as Business Council of Australia</td>
</tr>
<tr>
<td>Unions</td>
<td>• National education union bodies and the Australian Council of Trade Unions</td>
</tr>
<tr>
<td>Professional associations</td>
<td>• Includes the national associations for educators for various learning areas</td>
</tr>
<tr>
<td></td>
<td>• Also includes national professional associations for cross curriculum issues (e.g. Middle Years of Schooling Association)</td>
</tr>
<tr>
<td></td>
<td>• It is anticipated that information flow on will come from this group to other educators and school based personnel</td>
</tr>
<tr>
<td>State/territory education</td>
<td>• All the state/territory education contacts across the ACACA, government, catholic and independent sectors</td>
</tr>
<tr>
<td>authorities</td>
<td>• It is anticipated that information flow on will come from this group to schools including principals, teachers, students and other school-based/education personnel</td>
</tr>
<tr>
<td>Curriculum Directors</td>
<td>• State/territory curriculum directors across the four sectors of education</td>
</tr>
<tr>
<td>Parents</td>
<td>• National parent bodies for government, catholic and independent schools</td>
</tr>
<tr>
<td>Community groups</td>
<td>• National community groups with an educational interest for the learning areas or for cross curriculum perspectives (e.g. Early Childhood Australia)</td>
</tr>
<tr>
<td>Universities/academics</td>
<td>• National professional associations comprising of tertiary educators (e.g. Australian Council of Deans of Education)</td>
</tr>
<tr>
<td>Industry training sector</td>
<td>• Vocational education training bodies (e.g. Skills Australia)</td>
</tr>
<tr>
<td>Education bodies</td>
<td>• National education institutions (e.g. Education Services Australia (ESA))</td>
</tr>
<tr>
<td>Government</td>
<td>• Other government departments on a state/territory or Federal level with a level of interest in national curriculum development (e.g. DEEWR)</td>
</tr>
<tr>
<td>Media</td>
<td>• Key national and state/territory education journalists</td>
</tr>
</tbody>
</table>
Appendix 5.2 Porter Source Methodology

The methodology selected to address this task is based on an approach developed by Porter, Polikoff and Smithson\(^1\), who established a ‘uniform language’ for describing curriculum content, which was then used to analyse and compare curriculum frameworks (the intended curriculum), classroom practice (the enacted curriculum) and assessment regimes (the assessed curriculum). The language can also be used to describe the content of assessment items, text-books and teaching materials.

The uniform language developed by the researchers involves two components:

- a language for describing in detail the knowledge base in each of English, Science, History and Mathematics; and
- a language for describing the ‘cognitive demand’ of each area, based on a hierarchy of performance expectations.

The first of these consists of lists of topics arranged in broad content categories in each subject domain. In English, for example, the topic group of ‘Language Study’ includes topics such as ‘spelling’ and ‘effects of race, gender or ethnicity on language and language use’. In Science, ‘ecosystems’ and ‘adaptation and variation’ appear as topics within ‘Ecology’. The lists of topics are intended to be complete and universal, so that they could be used to describe any curriculum in the relevant domain, regardless of year level, context or level of complexity.

The second category, ‘cognitive demand’, consists of descriptions of what students can do with particular knowledge. These descriptions are different for each learning area, though they are based on a similar hierarchy of demands consisting of five levels in categories like the following:

- memory and recall
- performing procedures
- communicating, demonstrating, explaining, creating
- analysis, argument and investigation
- evaluation and application in different contexts

Porter (2004: 3) argues that ‘the content language for an academic subject should be exhaustive in its inclusion of all possible types of content, and it should be common in the sense that the same language is used across studies and purposes’. He proposes that the terms used in the uniform language should have a common meaning to different people and over time.

The tool for analysis using these categories is a survey listing the knowledge base and cognitive demand applying to a subject area (eg English or Mathematics). The strength of the surveys arises from the interaction of these two categories: respondents (usually curriculum developers or teachers) are asked to respond on a matrix that requires them to indicate whether, for example, a curriculum framework being considered includes:

- a specific topic;
- if so, to what extent; and
- at what level of cognitive demand students are expected to operate in relation to that topic.

A Mathematics framework might, for example, include the expectation that a student will use a linear equation (the topic) to solve a novel problem (the cognitive demand). In English, a framework might require a student at one level to recall (cognitive demand) the difference between fact and opinion (the topic), while at a different level the requirement could be evaluate (cognitive demand) whether a writer has used facts and opinions (the topic) appropriately in a newspaper article. The topic in this example is the same in both cases (fact and opinion), but the cognitive demand is different.

It is, therefore, in the intersections between the topic lists and the cognitive demands that the curriculum is described. Any curriculum is likely to include some but not all of the content topics for the field, and some curricula will be more comprehensive in their inclusion of topics. Any curriculum is likely to include a range of cognitive demands, and some will include a greater or lesser proportion of higher or lower cognitive demands.

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\(^1\) Porter (2002); Porter (2004)
Bibliography
