

21st Century Curriculum Mapping: a background paper for the UKAN-SKILLS Project written by Janet A. Hale, M.Ed. of curriculummapping101.com, Tucson, Arizona, U.S.A.

*Times change,
and we change with them too.*
—Owen's Epigrammata

Curriculum mapping is not a new term to United Kingdom college and university campuses. Many programmes have curriculum maps in hard copies or via a Web site link. While these maps provide critical information pertinent to a programme and its courses, the maps are in a static form and therefore cannot be used for interactive engagement of data contained within one or more curriculum maps. 21st century curriculum maps, using Web-based mapping systems, are not static; rather they are living, breathing databases that represent a learning organisation's past, current, and future curricular history and serve as a catalyst for ongoing curriculum dialogue and decision making (Jacobs, 2004b).

When curriculum mapping first gained popularity in the mid-1980s the focus was primarily on creating academic year-based documentation of (a) the learning content; (b) the relationship between learning content and assessments; and (c) the length of time spent on particular learning (English, 1980). After approximately 25 years of field experience, the dynamics of curriculum mapping now includes (a) asking lecturers or academic staff to document students' learning by months or by units associated with months rather than by full year or grading period; (b) working with fellow lecturers or academic staff to agree upon students' planned learning regardless of lecturer or academic staff member for specific academic elements including content, skills, and assessments aligned to course standards, as well as practises that enhance or enable instruction; (c) conducting ongoing reviews via collegial collaborations based on map data; and most importantly, (d) using a Web-based mapping system that inter-relates the map data to aid in the conversations and collaborations (Hale, 2008; Jacobs, 2004a). These seven curriculum mapping distinctives must be present for a learning organization to be assured it is using 21st century curriculum maps and engaged in 21st century curriculum mapping.

Web-based Mapping

Technology capabilities have advanced exponentially in the last ten years and will only continue to do so (Friedman, 2006). Curriculum mapping advocates the use of an on-line mapping system as it expedites curricular design and alignment (Hale, 2008; Gough, 2003; Jacobs, 2003a; Jacobs, 2003b; Jacobs, 2004a; Kallick and Wilson, 2004; Udelhofen, 2005). Jacobs (2006b) states "the power of the model is its employment of *technology as a key communication device*" (p. 118). The communication device—a 21st century tool—is a mapping *system*; an interactive, integrated database of curriculum maps.

Curriculum mapping asks learning organisations to function as an open and participatory collegial community wherein collaborations and conversations are spearheaded by the initially generated and on-going curriculum map database within a mapping system. While in theory collegial conversations are taking place, in reality lecturers or academic staff are busy and find engaging in formal curriculum design, revision, and refinement forums regarding student learning and instructional practice proves difficult. A curriculum mapping system provides *instant access* to an entire learning organisation's curricula (one programme, or multiple programmes provided on a given campus or campuses) with the click of a mouse. Without

having to travel to a particular location or campus, or to meet in person, an individual or team can enter a mapping system and instantaneously view or generate comparative reports for curriculum maps associated with any programme or courses within programmes.

A curriculum mapping system's search and report features are vital to creating the interactive relationship between current and archived curriculum maps. In the past, individual and collaborative map reviews often entailed hours of visually scanning and search a series of paper-based maps. Using a mapping system reduces scanning and searching time to literally seconds. A mapping system's variety of comparison reports allow lecturers or academic staff to access map-data comparison of like or different courses and programme levels regarding curriculum design (learning expectations) and curriculum practises (instructional methods).

21st century mapping systems allow users to enter the system using a specific Uniform Resource Locator (URL). When prompted on the system's home page, a lecturer or academic staff member enters a personalized or collaborative user name and password.

Most learning organisations choose to purchase subscriptions to a commercial on-line mapping system. For example, the University of Teesside in Middlesbrough, England, is using *Rubicon Atlas* (Figure 1.1) wherein the College of Journalism, Chemical Technology, and other programmes are participating in a consortium project that allows each programme to not only generate intra-active curriculum maps within individual programmes, but also generates an interactive database between programmes that is assisting collegial regarding cross-curricular learning expectations such as *locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of Internet-based sources and media* (Figure 1.2).



Figure 1.1 Home Page for University of Teesside

Collaboration	Yr 1/ Level	University of Teesside	Course Title	units	notes	stds for Learning & Work Skills
Collaboration	Yr 1/ Level 4	University of Teesside	Chemical Technology	units	Industrial Studies*	notes
Collaboration	Yr 1/ Level 4	University of Teesside	Chemical Technology	units	Intro Engg and Technology*	notes
Collaboration	Yr 1/ Level 4	University of Teesside	Journalism	units	Intro Professional Practice*	notes <input checked="" type="checkbox"/> stds for Learning & Work Skills
Collaboration	Yr 1/ Level 4	University of Teesside	Early Years Durham SS	units	Learning to be literate*	notes
Collaboration	Yr 1/ Level 4	University of Teesside	Early Years Redcar & C	units	Learning to be literate*	notes
Collaboration	Yr 1/ Level 4	University of Teesside	Journalism	units	Media Structures/Practice *	notes
Collaboration	Yr 1/ Level 4	University of Teesside	Journalism	units	Multimedia Editing & Publishing*	notes

Figure 1.2 Browse Programme Courses Feature

Two Curriculum Perspectives

Every programme has its own history, culture, climate, and current issues. Curriculum mapping views curriculum maps from two perspectives. The first is the *planned learning* curriculum. Planned learning may or may not actually become reality. Therefore, a second view is necessary. The *operational* curriculum represents learning that truly happened in a specific classroom or learning environment.

A lecturer or academic staff member's operational curriculum documentation in a curriculum mapping system is referred to as a Diary Map (Jacobs, 1997). For a university or college learning environment, planned learning curriculum is documented within a mapping system via (a) an *individual lecturer or academic staff member's* Projected Map, or (b) a programme's collaboratively designed Consensus Map. Given that some of the 21st century

curriculum mapping's seven distinctives are new in the United Kingdom's collegiate community, participating universities and colleges are focusing first and foremost on generating interactive collaborative Consensus Maps.

Common Map Elements

When lecturers or academic staff members are introduced to the map elements commonly included in 21st century curriculum maps, designing the on-line maps begins by taking a programme's current curriculum document or documents and translating and recording the learning expectations and teaching strategies in the following elements within a programme's courses' units of study:

- **Content:** What students must *know*
- **Skills:** What students must *do* (cognitive action or ability) in relationship to the knowing within a particular unit or course
- **Learning and Work Skills:** What students must *do* (cognitive action or ability) in relationship to generalized learning not bound to a particular unit or course
- **Key Assessment Methods:** *Products* or *performances* that measure the knowing and doing
- **Evaluations:** *Single criterion* or *multiple criteria* that appraise students' actions or abilities for a given assessment or series of assessments. (In Figure 1.3, the evaluation criterion for C1-C6. skills [not visible in figure] is accessible by clicking on the paperclip icon's live link when viewing the curriculum map on-line.)
- **Resources:** *Textbooks, materials, Internet, and other references* that aid in the instruction of the knowing and the doing
- **Key Teaching Methods:** *Strategic criterion* or *criteria* that enables students to improve or enhance their learning
- **Standards:** *Learning outcomes* that serve as a framework for the specific knowing (content) and doing (skills) contained in a particular unit of study

	Content	Skills	Learning and Work	Key Assessment Methods	Resources
JOURNALISM INTRODUCTION 1 (Week 26, 1 Week)	A. News: Conceptual Definitions	A1. Verify in writing 5 news concepts (report of recent occurrences; information of something that has lately taken place, or of something before unknown; fresh findings; recent intelligence) using real-world supported examples	Report A1-A2. Assignment 1: What Make News News? Report Oral Presentation B1. Local Journalism Occupation Interviews Portfolio C1-C6. 28-Week Portfolio Contents/Presentation Requirements Checklist C1-C6. Module Portfolio Visual Criteria Checklist	Report A1-A2. Assignment 1: What Make News News? Report Oral Presentation B1. Local Journalism Occupation Interviews Portfolio C1-C6. 28-Week Portfolio Contents/Presentation Requirements Checklist	A2. --Broadening Our Definition of News Article
	B. Journalism: 50 Job Titles	A2. Justify in writing influence of news validity based on cultural or ethnic influences as reporter and audience			B1. --Journalism Jargon Web Site (Job Titles Descriptions)
	C. Portfolio Building: Criteria				C. --Contacts Book --Reference Sources -- Information

Figure 1.3 A Portion of an On-line Unit of Study

While not a literal map element (i.e., does not have a specific column or field within a mapping system's recording map template), the *intra-alignment coding* (alphabet letter/letter-number series coding) is a critical visual component for providing coherency *between* the included map elements in a given unit of study. Map readers not involved in a particular curriculum map's unit design can therefore correctly interpret the map data included information without the map designers present. For example, in Figure 1.3, the first content listing: *A. News: Conceptual Definitions* is intra-aligned to two skills labeled A1. and A2. and one formal assessment: *What Makes News News? Report*, labeled A1-A2., which signifies the assessment measures both skill A1 and A2.

For any student, whether a college or university undergraduate, lecturer, or academic staff member, there is a learning curve for understanding and embracing new information. Given the processes and procedures involved in translating current programme documentation into 21st century curriculum maps and using the search and report features included in an on-line mapping system, it is best accomplished on a college or university campus when a collegial consortium is involved in the learning process.

Working Interdependently

Curriculum maps are meant to be aid in ongoing curriculum conversations and decision making. Jacobs (1997) states that “a curriculum map is like a school’s manuscript....With a map in hand; staff members can play the role of manuscript editor, examining the curriculum for needed revision and validation” (p.17).

Oftentimes lecturers or academic staff members work *independently* in their instructional environments. Curriculum mapping asks them to work *interdependently* to collectively improve student learning. This requisite is customary in various collaborative educational models (DuFour, DuFour, and Eaker, 2005; Jacobs, 1997, 2004a, 2006; Lezotte and McKee, 2002; Schmoker, 1999, 2004; Wiggins and McTighe, 1998).

Examining a programme or multiple programmes’ curriculum is an ongoing endeavor. Any aspect of student learning may be investigated through the review of curriculum maps to verify current learning and practices are going well or in need of major or minor revision for future student learning. Therefore, 21st century curriculum maps are never considered *done*. Finality is not a concept found in today’s definition of curriculum mapping. Collegial curriculum design and curriculum practice reviews often focus on past, present, and future learning expectations to best prepare students for the real world regarding job placement, sustainment, and professional success. Many problems, issues, or concerns can be investigated using created curriculum maps. Jacobs (1997) mentions having teachers “identify curricular gaps, find repetitions, target potential areas for integration, match assessment with standards, and review for timeliness” (p.17).

On university or college campuses, a common review may be focused on particular learning concerns in one programme course or a series of relational programme courses. Many

campuses are now exploring cross-programme similarities and differences not involved in a course’s content, but rather generalized process skills not bound to a particular programme or course, as the University of Teesside is exploring.

A mapping system’s interactive reports support collegial reviews (Figure 1.4). By running comparison reports using the system’s features, colleagues can base their decision making on data-based rather than speculation or. Most mapping systems allow the reports to be archived and therefore be a part of a longitudinal study or database regarding a particular academic concern or issue.

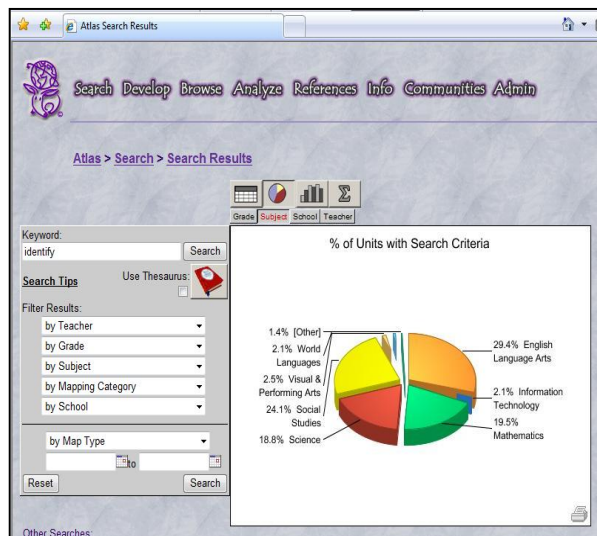


Figure 1.4 Comparative Search Report Results

Conclusion

Curriculum in Latin means *a path or course run in small steps*. Since a student's path involves experiencing numerous lecturers or academic staff members over a programme's series of courses, it is advantageous when all lecturers or academic staff have instant access to the interactive curriculum maps that represent each small step. 21st century curriculum mapping asks educators involved in this field of study to continue to expand their understanding and embrace the changes regarding the use of collaborative, interactive on-line curriculum maps. Fullan (2001) observes:

In the process of examining the individual and collective [learning] settings, it is necessary to contend with both the "what" of change and the "how" of change. Meaning must be accomplished in relation to both of these aspects. It is possible to be crystal clear about what one wants and be totally inept at achieving it... We are not only dealing with a moving and changing target; we are also playing this out in a social setting. Solutions must come through the development of *shared meaning*. (p. 8-9)

Jacobs (2004a) comments "as a genuine 21st-century shift in our practice, mapping requires knowledge and courage" (p. x). Curriculum mapping is a worthwhile endeavor. Studies have proven curriculum mapping positively impacts student performance based on lecturers or academic staffs' intimate involvement in designing and improving curriculum and personal instructional practice (Jacobs, 2004a; Kercheval and Newbill, 2001).

Collaborative curriculum reviews using interactive curriculum maps based on inquiry should continually be driven by two fundamental academic questions:

- *What learning expectations or instructional practises are in place that consistently prove to be in our students' best interest?*
- *What learning expectations or instructional practises need to be started, stopped, or changed to enable or enhance our students' success?*

As college or universities lecturers and academic staff members are being introduced to, or advancing their understanding of, the distinctives and concepts involved in 21st century curriculum mapping it is imperative that all those involved are willing to be risks takers and collegially explore that which is unfamiliar or unknown to make connections to what is known.

*One must learn by doing the thing;
though you think you know it,
you can't be certain until you try it.*
—Sophocles

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