

Pedagogy for the future: Equipping students for complex and climate-relevant practice

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Abstract:

What do students need to know and be able to do to work effectively in the unfolding world of polarization, climate breakdown, and challenges to governance? This central question of core curricula has been at the heart of our work at the University of Northern British Columbia in our recent curriculum transformation. In this paper, we present the theories that guide the work, the learning context, barriers and opportunities in curriculum planning, and our reinvented planning studio curriculum. We will also present the outline of a specific climate action studio within the new structure that combines expected learning outcomes with community partnership and opportunities for relevant climate innovations.

Keywords: climate pedagogy; student learning outcomes; competency frameworks; planning studios

Introduction

What do students need to know and be able to do to work effectively in the unfolding world of polarization, climate breakdown, and challenges to governance? This central question of core curricula has been at the heart of our work at the University of Northern British Columbia in our recent curriculum transformation. In this paper, we present the theories that guide the work, the learning context, barriers and opportunities in curriculum planning, and our reinvented planning studio curriculum progression. We will also describe how we plan to combine 'required competencies' and learning innovation in the first iteration of a new course, the Local Climate Action Studio.

Our first curricular principle is that the future is not like the past. Climate breakdown is affecting communities worldwide, in a litany of fires, floods, droughts and plagues. We are also dealing with a new intensity of divisiveness fueled by profitability – where the information industry accumulates through fear, hatred and distrust. Students will need to be equipped to develop new approaches to a new future.

Our second curricular principle is that the knowledges of the past are vital. The identity of the profession, while contested, also roots us in a set of practices and knowledges that equip us to engage the future, and to avoid reproducing the wrongs of colonialization, scientism and dehumanization.

We introduce this future/past contrast to highlight the contrast between the predictable and programmatic part of planning knowledge, from the unpredictable and developmental. In this contrast, 'the past' is roughly defined as the areas of knowledge defined in standards. In planning education in Canada, we are responsible to our accrediting body, the Planning Standards Board, for the demonstration of specific 'competencies' across subject areas.¹ This is not a 'perfect' contrast, as methods of foresight, future and uncertainty are part of these knowledges. We have found it useful to balance the 'programmatic' with the opportunity for students to learn in ways we did not predict.

In the studio progression along with course work, we have attempted to 'program' such that students learn and are mentored in the planning knowledges 'of the past,' while co-creating the abilities that we expect will allow them to thrive in an uncertain future. We are guided by pedagogical theories that speak to both these cases. For those competencies that are rooted in known practices, we have tried to make better use of 'student learning outcomes' theory. We can articulate these skills, set standards, and attend to student work to measure learning. As we are certain that our students will need to have the capacity to critically and resourcefully develop new practices, we are guided by the theories that emphasise 'development capacity' – transformative learning, and experiential learning.

1 Planning Standards Board, University Accreditation, Competencies, are at this website:

As we report our experience with an ongoing process of curriculum change, we will also present our context, including our opportunities and challenges. Our ongoing effort to manage an institutional change process in a theory-relevant way is a story worth telling.

We have implemented a core progression in studio learning, emphasising experiential and community engaged learning. Our studios have responsibility for 'accreditation competencies,' but it is also important that these studios feature the elements of uncertainty, mentorship, and 'learning-to-learn' that are key to their development as future professionals.

Finally, we will offer some examples of student work and learning that offer examples of both programmatic and/or competency-based learning, as well as what we are seeing as examples of student development in uncertainty.

The learning context: Climate, hegemony through clickbait, and 'best practices'

It is important to work in relationship to the world in which we find ourselves. While the curriculum review and change process is relatively slow, the world changes quickly.

Situated where we are in northern Canada, the future is clearly not like the past. Climate breakdown is affecting communities worldwide. Around us, climate breakdown is taking place in fires, floods, droughts, heat events and diseases both human and ecological. Ecological change renders itself visible in the changes in the availability of country food, in the increases in some wildlife conflicts, and in the extent of recent burns. Many First Nations along the Fraser River have their annual salmon 'catch' brought in from another watershed. This year the forest mosses crunch underfoot in the spring, the sound of impending danger.

Seeking a policy solution to fit the wildfire moment, communities adopt "FireSafe" rules that seek to protect buildings from fire, but at the same time rule out having trees for shade or delight in urban centres. Air conditioners for cooling are now required in buildings that were not designed with a 'hot season' in mind.

Our community context also includes a new intensity of divisiveness, as we harness ourselves to divided digital universes. Divisiveness is not unusual in the world, but it is of recent origin in our small, rural communities. We were not, admittedly, skipping through fields of flowers, but we were fighting over things like land, water and minerals that we all agreed we wanted. Now, community members see each other through the stereotypical and minimizing kaleidoscopes of memes – most of which are not even produced with northerners in mind.

We can see that the new media of cultural hegemony are also profitable, and that the product of this twin motive of profit and control through division is creating a culture that is unready and opposed to the promise of 'public deliberation' and 'give and take' that practical governance needs.

This is the scene that new planners will enter and within which we expect them to pursue justified and deliberated public actions and encourage comprehension and compliance with policies and plans.

Students will need to be equipped to develop new approaches to a new future.

It all seems new, but the knowledges of the past are vital. The identity of the profession, while contested, also roots us in a set of practices and knowledges that equip us to engage the future, and to avoid reproducing the wrongs of colonialization, scientism and dehumanization.

There is a contrast between the predictable and programmatic part of planning knowledge and the new, less predictable and developmental. For the purpose of this contrast, 'the past' is roughly defined as the areas of knowledge defined in standards. In planning education in Canada, we are responsible to our accrediting body

(Planning Standards Board) for the demonstration of specific 'competencies' across subject areas. This is not a 'perfect' contrast, as methods of foresight, future and uncertainty are part of these knowledges. We have found it useful to balance the 'programmatic' with the opportunity for students to learn in ways we did not predict.

Theories and frameworks of curriculum assessment and design in Planning:

There are various representations of the consensus on the set of skills and abilities that professional planners require. These change slowly over time (Anacker 2024). At the present time, the Planning Standards Board accredits Canadian Schools of Planning in part (how) they relate to a set of Planning competencies. These competencies include both 'functional' and 'enabling' competencies. Functional competencies are planning-specific knowledges and practices, while enabling competencies are communicative and relational. The Association of European Schools of Planning stewards a Core Curriculum (AESOP 2024). It is organised to specifically distinguish between knowledge and 'competency,' as the ability to bring knowledge and skill to bear on a situation. In Canada, these distinctions are not currently part of the accreditation vocabulary.

Different schools, different faculty members, and different accreditation teams may view these competencies differently; the 'standards of achievement' are set in this process.

Roughly, the identification of competencies that students are required to learn over the course of an accreditation program is broadly compatible with student learning outcomes theory.

In 'student learning outcomes theory,' a student-orientation in curriculum design and implementation uses 'what students learn' as the measure that should inform the design of assignments, curricular progression, and the assessment of program success. In this theory, the evidence of learning is demonstrated in student work, in what students know and are able to do.

Table 1: Teacher-Centred and Learner Centred Paradigms

Teaching Centred Paradigm	Learner Centred Paradigm
Knowledge is transmitted from professor to students	Students construct knowledge through gathering and synthesising information and integrating it with general skills of inquiry, communication, critical thinking, problem solving and so on.
Students passively receive information	Students are actively involved.
Knowledge can be demonstrated by performance on tests	Knowledge cannot be demonstrated outside its context of application – students must know how to use information in real life contexts
Assessment is used to monitor learning	Assessment is used to promote and diagnose learning
Desired learning is assessed indirectly through performance on objectively scored tests.	Desired learning is assessed directly through papers, projects, presentations and other products like those that they will be expected to produce in the future.
Culture is competitive and individualistic	Culture is cooperative, collaborative and supportive.
Not everyone can pass the test; faculty role is to distinguish between those that can and those that cannot pass.	Everyone ought to be able to learn to use knowledge effectively in a context; some may take more time to do so.

(Huba and Freed 2000)

In the context of a single course, student learning outcomes assessment is the measurement and evaluation of student learning against clearly articulated goals. To assess student learning, faculty must engage in a process of making desired learning outcomes explicit, assessing coursework and student experiences for learning opportunities, feedback and performance, and establishing measurements and assessments of learning outcomes within the course.

The emphasis on the articulation and measurement of learning outcomes is intended to support both faculty and students in identifying and building the knowledge and skills in an explicit and measurable way. In its emphasis on identifying 'differences that make a difference,' the emphasis is on ensuring that students have internalised new concepts into a new constructed framework sufficient to apply them in action.

Ideally, student learning outcomes assessment is linked to the social construction of knowledge through the participation of the students in internalising, conceptualising, and synthesising their new knowledge in work. Bloom's taxonomy of knowledge provides a framework for the sequencing of cognitive knowledge within a class, and across a curriculum. It is a practical and sequential interpretation of how learners construct and adopt and gain competency in new knowledges and practices across cognitive, affective and 'motor' domains (Wellington 2006).

The risk of fully implementing the measurement of student learning outcome theory is the tendency to reduce student learning to the more easily observed elements. It is easier to assess the structure of a paragraph than to assess how well the learner was able to listen and charitably interpret different stakeholder interests.

An increasing demand for measurability and predictability in the classroom leads to a reduced agency for the learner, shifts the content towards the mechanistic or programmatic, and changes the content – reduces – the concept of learning to reproduction of a prescribed action.

On its own, a focus on student learning outcomes assessment can lead to mechanism in teaching and learning – an industrial model of skills learning without reflection. That is, the more clearly an 'action' or 'work product' is defined by the instructor, the less room there is for an individual learner to create new solutions, and the less personal and individualized the 'learning' can be.

More than that - While student learning outcomes theory is a practical pedagogy for novice practice learning, the world demands creativity, resourcefulness, and learners that are capable of things that have not yet been demonstrated. So, while the 'right method' or 'right answer' culture is widespread and many learners require this for a feeling of safety, planners of the future will require the ability to develop, test, critique, and implement new solutions.

If we lived in a world where the solutions and right actions were known, then clearly defining and expressing the right action that each learner should 'do' might be sufficient if mechanistic. While 'demonstrates creativity' could be a student learning outcome, the demand for 'clarity in expectation' is in tension with the need for discovery, novelty and new solutions.

At the program level, conceptually the learning outcomes to be measured are the learnings from a whole set of experiences, demonstrated in capstone or senior level assignments. In fact, student work itself at this level is complex – typically comprising sets of values, skills, knowledges and limitations into products – presentations, reports, recommendations. From a 'whole curriculum' perspective, there is the risk that learning outcomes theory could be implemented in such a way as to amplify the 'reductionism and depersonalisation' problem. On the other hand, the ambition of this project renders it a low risk for us.

In our work, we conceptualize our learners as unique. To the extent that we are trying to assess competencies and qualities that will be expressed uniquely. We are building a smaller set of 'program learning outcomes' that can be mapped against a smaller set of senior-level work products. This measurement will continue to be rough.

For our external audiences of accreditation and program quality, we are developing evidence of learning including examples of student work, employer reports of students' readiness and competence, and student reports of their improved competence and/or confidence in specific skills.

In planning in Canada, we have never gone very far down the path of fully implementing the shift from faculty-oriented curriculum design and assessment (what topics do faculty cover) to student learning oriented curriculum design and assessment (what skills, abilities, knowledges and values do students incorporate in their work?). In the United States, planning schools and the Planning Accreditation Board have been active in this area since 2011 (Clapp and Johnson 2011). Planning schools have shared their work on program learning outcomes and their assessment on the Planning Accreditation Board website (PlanningAccreditationBoardWebsite).

Accordingly, for the most part, the practices of programs, individual faculty and accreditation teams continue to practically emphasise 'what faculty do' over 'what students learn.' The identification and assessment of competencies in the process of program assessment is not necessarily or even typically undertaken in conformance with student learning outcomes theory. For the most part, there has not practically been a shift from 'content' to 'coverage' when it comes to program design and assessment. On the whole, the theoretical push to move from a teacher-centred perspective to a learner-centred perspective has been met by the inertia of institutional practice and measurement capacity. In both of the planning programs where I have been involved in this effort, we adopted a dialogic solution

Curriculum assessment and change: opportunities and challenges

At the University of Northern British Columbia, we undertook – are still in the process of undertaking – an assessment, restructuring and implementation of the core curriculum in the planning program. We had inherited a curriculum and culture where community engaged and experiential learning were valued by faculty but were not well resourced. While efforts to gain appropriate investments in capacity had not borne fruit, we were able to bring about an investment in a 'studio classroom.'

We are situated in the north of British Columbia and of Canada, and our program(s) respond to the context of the economic resource periphery, small cities, vast rural areas, and a complex geography of unceded First Nations, diverse indigenous cultural and language relationships and traditional territories. Our programs are uniquely suited to that context: community planning with a northern emphasis, First Nations Planning, and environmental planning with an emphasis on the policy, resource and ecological relationships of places.

Our curriculum must respond to a framework of competencies that comprise the requirements for an accredited program in planning. As well, our program is undergraduate, so the basic components of a university education must also be present for student development – including critical thinking, communication and literacy, numeracy and the breadth of experience that allows for the development of personal and social perspectives. At the same time, given our location, we have a relatively high proportion of non-traditional students, first generation students, and we find that our new generations of students require the relevance of application.

In a strategic planning exercise at the School level, we decided to invest in an experiential and community engaged studio curriculum, where students would have at least one full studio experience in their last two years (Botchwey and Umemoto 2020; Long 2012). This choice is consistent with the regional context of the School, consistent with the aspirations of the students to be doing real work with real people, and is allowing us to more fully develop the community engagement that faculty and students were doing with more appropriate resources of space and time.

Through our competency mapping undertaken in 2021, we had identified some accreditation competencies that were important in our context and focus where student learning needed to be improved. At that time, we used student focus groups, discussions with employers, and competency mapping by faculty to identify some areas for improvement. In particular, we wanted to augment students learning of the financial and economic context of spatial planning, improve their basic design skills such as iteration and critique, and the incorporation of system factors at diverse scales. Incorporating feedback from earlier accreditation teams as well as our own thinking as relatively new faculty, we wanted to strengthen the program in the areas of decolonization and indigenous rights and title. As relatively new faculty, we also wanted to build our own understanding of the progress

and pacing of student skill-building and assessments through the program.

Involvement in this higher-level curriculum development is reliant on the willingness to collaborate. We are fortunate that so many of our faculty are committed to building their own courses and assessments in relation to those of other faculty members.

Desk-ready planners and the temptations of critical dialogical practice

In the studio progression along with course work, we have attempted to 'program' such that students learn and are mentored in the planning knowledges 'of the past,' while co-creating the abilities that we expect will allow them to thrive in an uncertain future. We are guided by pedagogical theories that speak to both these cases. For those competencies that are rooted in known practices, we have tried to make better use of 'student learning outcomes' theory. We can articulate these skills, set standards, and attend to student work to measure learning. As we are certain that our students will need to have the capacity to critically and resourcefully develop new practices, we are guided by the theories that emphasise 'development capacity' – transformative learning, and experiential learning.

We have implemented a core progression in studio learning, emphasising experiential and community engaged learning. Our studios have responsibility for 'accreditation competencies,' but it is also important that these studios feature the elements of uncertainty, mentorship, and 'learning-to-learn' that are key to their development as future professionals.

In the initial development of the 'studio core progression,' and choices about how we would create titles and conceptual programs for the new progression, we were influenced by:

- The programmatic and conceptual needs of the different majors in our program;
- Input from regional governments about their capacity to engage with studios; and
- Faculty capacity.

Studios that are ideally taken in the third year include:

- Community engagement and inclusion studio – from listening, to facilitation, to process design and engagement messaging;
- Land use and development studio – at the site-to-neighbourhood scale, analyzing need, supply, and policy, and developing feasible proposals (volume, density, floor area) within a neighbourhood context

Students may choose from three studios in their last year – depending on their interests, program area, and pace of study. One is a site scale studio in sustainable and inclusive design, one is a relational landscape studio in indigenous planning, and the other is a studio in local climate action.

Local Climate Action Studio 2026: An Example

The Local Climate Action Studio is intended to engage students in the application and synthesis of climate action planning competencies from across the curriculum as well as learning in the class. While others have developed 'climate competencies' intended to inform 'climate education,'² through the development of this studio, we will also explore and develop competencies for resilient communities taking climate action.

From an accreditation competencies perspective, we envision this studio as consistently including functional competencies in 'information gathering and analysis,' and 'planning regulatory tools such as the Official Community Plan,' with adaptation and resilience to climate change as a social and environmental issue. As in all of the studios, there are a range of 'enabling competencies' required; the focus in this studio is the development of

2 See Climate Action Competency Framework, for 'business and social purposes,' available at Royal Roads University.
<https://macal.royalroads.ca/introducing-the-climate-adaptation-competency-framework/>

policy fluency, from analysis to recommendation.

Part of the vision and structure for this studio was developed out of an experimental version of the course delivered in Winter 2024. A very strong partnership with a local government including staff and a local elected official created an enriching policy learning opportunity. Students hosted virtual and in-person community engagements in the rural area, completed a policy analysis, and prepared draft policy statements. Students presented their policy work to the local government, and elements of their engagement results and recommendations influenced the Official Community Plan adopted for that area.

The present project is uniquely focused on identifying and mobilizing competencies for climate action (Infield, Seasons, and Lyles 2025), but we also expect the work to produce policy actions, specifically in the Official Community Plan.

Resilience thinking has evolved dramatically - permeating the field of planning. As the unfolding response to devastating wildfires demonstrates, it is no longer tenable for communities to 'bounce back' to a previous state following a climate shock. Planners and other professionals must be able to collaborate from local to national scales to help communities 'bounce forward'. This need to promote system transformability - is widely accepted in theory and increasingly in practice. Less clear is what professional competencies are required to succeed in this work.

Across local governments in northern BC, financial and human capacity is typically scarce. As a result, planners and local government professionals in the north must find creative ways to harness existing local government and/or community functions (e.g., policy tools) to promote resilience building (refs). Promising pathways for this work include the mainstreaming of climate policy and the construction of policy that promotes climate co-benefits (ref).

Most recently, in the Robson Valley the Village of Valemount lobbied senior governments for financial assistance to offset tourism revenues lost to the Jasper wildfire (Labbe, 2025). Set within this context, the UNBC School of Planning and Sustainability and the Regional District of Fraser Fort George (RDFFG) are partnering to advance local climate action through a project that will achieve two objectives:

The project team members listed above will meet for two half day working sessions to co-design the local climate action course.

Dr. Groulx will host virtual conversations with northern professionals leading climate action work in the fields of planning, public health, and natural resource management. These conversations will identify the competencies that future climate action professionals need to promote effective system transformation.

This project focuses on land use policy and community engagement as interrelated leverage areas for identifying and mobilizing competencies that will be required by effective future climate professionals. As the NRESi mission states, it is "together with the community and partners [that we] have the ability through expertise and experience to address and look for solutions" (NRESi 2020, p. 3). Consistent with this mission, as part of this project students will partner with Regional District staff and take part as active participants in the Official Community Plan update for the rural area. Students will prepare a regional climate trend and impacts report, design and implement community climate engagements, run a vulnerability assessment workshop, and take part in a two-day intensive climate resilience policy writing workshop.

Activities in 2026 include climate trend and impacts research, community engagements, a climate vulnerability workshop, and a climate resilience policy writing workshop (hosted in McBride and Valemount). Activities in 2025 prepare for this work.

In developing analytical competency, students will work with PCIC's Plan2Adapt tool and academic and grey literature to produce a report on regional climate trends and impacts.

Building on engagement competencies from an earlier studio, students will design and deliver a series of engagements and workshops that support climate resilience policy development. Students will also host and report on a series of virtual climate engagements designed to document how communities are experience climate impacts across the region.

Students will run a full day vulnerability assessment workshop with local experts. The workshop will be designed based on protocols from ICLEI Canada's Building Adaptive and Resilient Communities (BARC) framework. The BARC framework is designed for use with local government and its tools and processes can be scaled for use in communities of different sizes.

Students will take part in a two-day intensive policy writing workshop designed and ran with input and guidance from local government staff and climate policy experts. Policy development will draw on findings from the vulnerability assessment, as well as knowledge gathered through other course milestones.

Conclusions:

We do our best to equip our students with the adaptability, resilience and system-thinking skills that they will need to be planners in an uncertain world of climate breakdown and political tensions. One of these skills is innovation, another is the creativity of drawing new connections in a new circumstance.

As we work at the program level and at the course level with both the Planning Standards Board competency framework and our overall program learning outcomes, we continue to see the tension between the standardised imagination where all students acquire the same skill set, and the surprise and delight of intense individual and peer development that we see the students experience in studio learning.

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