Refreshing a Curriculum in Systems Thinking and Social Systems Designing for Learners in a Graduate Program

Abstract

Since 2009, the "Understanding Systems" course has been foundational in a master's program at OCAD University. Content incrementally progressed with the rise of Systemic Design as a field, benefiting through ongoing research by Peter H. Jones. The assignment of a new instructor for winter 2025 presented an opportunity to adjust direction. Recognizing the legacy of successes in prior years, the changing contexts for the university, students, and technologies in 2025 encouraged transitioning the style and content of the course. An approach of Contextural Appreciative Learning extends Contextural Action Learning with Inquiring Systems and Appreciative Systems.

Keywords: systemic design, systems thinking, design thinking, graduate program, artificial intelligence

1. Introduction

The Winter 2025 session of "Understanding Systems" (SFIN-6011) was the fifteenth time the course has been offered at OCAD University. Systems thinking has been core to the master's program in Strategic Foresight and Innovation (SFI) since it was launched 2009.

"Our strategic innovation model … illustrates the integration of design, business, and futures thinking through systems thinking. This integration allows our students to move through an iterative design thinking process, understand the business context to ensure viability and develop deeper insights into the challenges a sector or organization might be facing through futures thinking. Systems thinking and mapping locates these complex challenges in a larger system and makes clear the patterns and interconnectedness of the issues; and visual thinking ensures more effective communication of complex data" (Richards, 2015).

In the earliest days, there were two courses listed: (i) "Understanding Systems" in Year One, Winter semester, and (ii) "Social Systems" in Year Two, Fall semester.

"SFIN 6B02 Social Systems"

"In this introduction to complex systems, students will examine the dynamic arrangement of three interconnected and adaptive human systems; social, market and political. Developing the essentials of a systems approach, students will study structure, evolution, patterns of behaviour, and the impacts of change in these systems through case study review and systems model analysis. …."

"SFIN 6B04 Understanding Systems"

"In this second course on systems thinking, students will study non-human systems, specifically the ecosphere, biosphere and technosphere. Applying systems thinking approaches, students will compare these natural and man-made systems and discuss methods for understanding and respecting their interdependencies and interactions. The nature of adaptive life systems will be studied as well as examples of the unintended and often negative impacts of human action. Significant technological inventions and their impact on human and societal development and on the environment will be discussed. …." (Ontario College of Art and Design, 2011).

In 2011, the two courses became one. Jeremy Bowes originally led "Understanding Systems" with Peter Jones. The content incremented gradually, through to Lorraine Randell in 2021-2024, after which she moved on. Stephen Davies, having previously taught at OCAD U until 2019, was offered the assignment to lead this course. In fall 2024, a course design was collaboratively considered.

2. Approach: Contextural Appreciative Learning extends Action Research

As a research approach, Contextual Appreciative Learning has its roots in Action Research.

Action Research developed at the Tavistock Institute for Human Relations from WWII. This approach brought together: (i) the integrating medical and social science disciplines; (ii) operational research; (iii) group dynamics; and (iv) applied anthropology.

"Action research aims to contribute both to the practical concerns of people in an immediate problematic situation and to the goals of social science by joint collaboration within a mutually acceptable ethical framework" (Rapoport, 1970, p. 499).

The approach evolved from psychoanalytic ideas and methods transferred to the social context, to "social consultancy" with research and therapeutic aspects.

"… action research can also be viewed as a cyclical process with five phases: diagnosing, action planning, action taking, evaluating, and specifying learning. The infrastructure within the client system and the action researcher maintain and regulate some or all of these five phases jointly" (Susman & Evered, 1978, p. 588).

Variants of action research include diagnostic action research, empirical action research, and participatory action research.

Following the trail of Eric Trist into Socio-Ecological Systems theory (Ing & Metcalf, 2023), Action Research advanced along two threads: (i) Action Learning associated with Causal Texture Theory into Strategic Reframing in the Oxford Scenario Approach (Ramirez, 1983; Ramirez et al., 2008; Ramirez & Wilkinson, 2016); and (ii) Contextural Action Learning incorporating Future Search (Franklin, 1998).

Paving an alternate path from Eric Trist, Contextural Appreciative Learning incorporates theories of (i) Inquiring Systems from C. West Churchman, and (ii) Appreciative Systems from Sir Geoffrey Vickers. Scenario planning and Future Search techniques are decoupled. For this scope, the redefinition of Contextural Appreciative Learning has five phases.

2.1. Recontextualizing

While Trist was a proponent of Open Systems Thinking, Churchman concurrently developed multiple perspectives inquiring systems that would sweep in additional knowledge (Churchman, 1971; Mitroff & Linstone, 1993). Organizations in turbulent fields may lag in their responsiveness or coupling to their environments. A recontextualizing phase aims to revisit the framing of the system of interest, given shifts in other influences, both anticipated and unanticipated.

2.2. Discerning

Vickers defined a human dynamic system where individuals continuously interpret, evaluate, and respond to their experiences. Three judgments are made in an appreciative field of settings in which individuals observe and communicate socially (Checkland & Cesar, 1986; Vickers, 1965).

"The exercise of appreciative judgment … has three components. The first is the making of reality judgments: those judgments concerning what is or is not the case -- ranging from basic cause-and-effect beliefs to more subtle and complex 'facts.' The second facet is the making of value judgments: those concerning what ought or ought not be the case -- including imperatives, wants and desires, prudential or self-interested considerations, and individual and collective goals and norms. The third is the making of instrumental judgments: those concerning the best means available to reduce the mismatch between is and ought -- including the personal resources of time, attention, intellect, passion, money, and power, along with those social resources that can be marshaled and applied (by influence or command) through communication, coalition, and access to social institutions". (Adams et al., 1995, p. xix).

The first of three settings comes through reality judgments. Discerning is a phase where the "state of the system" is judged on "facts" both through internal consistency and external validity.

2.3. Optioning

The second of three settings comes through value judgments. The decision to prioritize one option higher than another reflects human values in preferences, and faith that one combination of satisfactions can be enacted and governed.

"Reality judgments and value judgments are inseparable constituents of appreciation; they correspond with those observations of fact and comparison with norm that form the first segment of any regulative cycle, except that the definition of the relevant norm or complex of norms, like the identification of the relevant facts is itself a product of the appreciation. The relation between judgments of fact and of value is close and mutual; for facts are relevant only in relation to some judgment of value, and judgments of value are operative only in relation to some configuration of fact" (Vickers, 1965, p. 54).

Policy making and execution may choose from a variety of features, solutions and/or time frames non-exclusively. Optioning is a phase where considerations of priorities are weighed, resulting in selection or deselection.

2.4. Adapting

The third of three settings comes through instrumental judgments. The feasibility of "getting things done" involves balancing the variety of interests across multiple value systems. Know-how and know-when are expressed through expertise in gaining

realistic appraisals of risks and limitations, integrating as solutions, and prioritizing to respond to needs in the present not self-defeating in a longer term. Adapting is a phase where willful action and/or patience for natural unfolding processes are exhibited.

2.5. Retrospecting

Reflecting on outcomes observed through Contextual Appreciative Learning incorporates the last two phases of the Action Research cycle: (i) evaluating collects the results of consequences of adaptive action; and (ii) specifying learning identifies findings that can become inputs to the next cycle.

A 2025 refresh of "Understanding Systems" can be discussed in the phases of recontextualizing, discerning, optioning, adapting and retrospecting.

3. Recontextualizing: Which influences might we attend to?

Systems thinking has been core in the SFI program since 2009. As a required foundational course, students have reported the experience as transformative and/or challenging. Without altering the course description for winter 2025, a dilemma of incrementing or revising the course was faced.

3.1. The nature of the course incrementally adapted with program growth

In 2011, the systems courses represented 3 of 45 credits required for program completion. In 2015, the count became 0.5 of 9 credits (Ing, 2025c).

The SFI program "is the largest graduate program at OCAD University with an ongoing enrolment of over 100 students" (Richards & Harfoush, 2016, p. 188). The program started in 2009 primarily for part-time students, with classes clustered on Thursdays and Fridays that might accommodate full-time interest. In 2013, a full-time cohort was added to parallel the part-time stream, each with a target enrollment of 22. The full-time courses split over semesters were rationalized in 2016, to match part-time (Ing, 2025c). Across all graduate programs at OCAD U, the proportion of international students has increased, from 2019-2020 at 22% (62 international to 215 domestic), to 2023-204 at 48% (135 international to 135 domestic) (OCAD University, 2024).

In the Appendix, Table A lists week-by-week topics for the course in 2010, 2015, 2018, and 2020.

For SFIN-6011 in winter 2025, there were 24 registrants for part-time Monday evening sessions, and 17 registrants for full-time Wednesday morning sessions. The part-time cohort included students across all Canadian time zones. The full-time cohort, in-person in Toronto, included more international students.

3.2. A post-pandemic return to normalcy coincided with a new course leader

From 2011 through 2019, the course was taught collaboratively by Jeremy Bowes and Peter Jones. In 2020, with Bowes taking a sabbatical year, David Ing and Lorraine Randell backfilled his role. Ing had prior experience in designing and delivering systems courses at Aalto University (Ing, 2011, 2016) and at University of Toronto (Ing, 2018). This 2020 opportunity encouraged including current systems research (Ing, 2020a, 2020b, 2020c, 2020d). Ten of 13 weeks of instruction were delivered, with pandemic closures by the university seeing final assignments completed online. For 2021 to 2024, the course was led by Randell, who returned to the 2019 weekly format. Jones became loosely associated with the course, with a new focus on the Design for Health program.

The 2021 and 2022 sessions were conducted online. While Randell felt that the course deserved revising, workload for even continuing the prior design was high. Gaining new employment in mid-2024 with a full-time professional role, she declined to continue teaching.

In fall 2023, Jones became a full-time distinguished professor at Tecnológico de Monterrey in Mexico. Prioritizing continuity in Design for Health, he could only informally advise SFI.

Between 2014 and 2019, Stephen Davies had previously taught Strategy Development and Business Model Innovation in the SFI program. He was offered the opportunity to take over the Understanding Systems course.

3.3. Resources for the university remain tight

From 2010 to 2019, the course was staffed by two professors, each in half-time assignment. With one on sabbatical leave in 2020, the course was divided up across three instructors. From 2021 to 2024, the course was handled by a single instructor who followed the 2019 syllabus. While incremental improvements occurred through evolution, resources for a major restructuring have not been a priority for the program.

Of 22 publicly funded universities in the province of Ontario, OCAD U was one of 10 operating in a budget deficit in 2024-2025 (Chiem & Orsini, 2024). At 57% of the national average, the Ontario government provides the lowest per-student provincial funding. In 2019, the government imposed a 10% cut to domestic tuition fees, and that level continues as frozen. OCAD U receives a Province of Ontario grant of $7,200 per

student FTE (Full Time Equivalent) from the province of Ontario (Audit, Finance and Risk Committee, 2024). This compares to the BC funding of Emily Carr University of Art and Design of $14,900 per FTE (Ministry of Post-Secondary Education and Future Skills, 2024), and the Nova Scotia grant of $9,200 (Minister of Advanced Education, 2025).

These conditions encourage kinetic inertia, deprioritizing effort beyond the historical trajectory.

4. Discerning: Why is a factor now drawing attention?

Davies was previously an SFI instructor, but on courses parallel to the Understanding Systems course. Having received direct mentorship from Stafford Beer, his knowledge of management cybernetics is strong. However, SFIN-6011 additionally involves other systems approaches, and guiding Synthesis Maps that have become a renowned output from the course.

Based on prior experience from teaching the course in 2020, Ing volunteered to help shape the course. In fall 2024, the two met on a few occasions to discuss the feasibility of a major revision.

4.1. Contemporary Systems Research encourages multimethodology

Informal polling of SFI alumni on their memories of systems education recalled only (i) causal loop diagrams, and (ii) the leverage points of Donella Meadows. The domain has much greater breadth and history. A general criticism of 21st systems thinking practice is that they're stuck in the 1980s, while systems research had continued to advance (Ing, 2013).

Authentic approaches to systems recognize variety in perspectives and pluralistic methods. Defining a system of interest typically involves boundary critique (Midgley, 2001; Ulrich, 2005). Recognizing the uniqueness of a situation and/or intervention in the wealth of systems approaches may call for a multimethodological approach (Jackson, 2019). An introductory course should lead to an appreciation of the systems sciences with explicit plurality, framed across multiple systems and multiple sciences.

4.2. Systemic Design has evolved with RSD

In 2009, design thinking was posed as shifting along a complexity scale, from content towards process (VanPatter, 2009). Graduate design education had not yet adopted a post-discipline collaborative design skill for visual sensemaking. In 2019, 90% of methods were still being framed as design thinking were described as Design 1.0 (small scale challenges, e.g. logos, posters, packaging) or Design 2.0 (medium scale challenges (e.g. products, services, experiences) (VanPatter, 2020). Emerging practices are still needed for Design 3.0 (larger scale challenges of organizations, systems, and industries) and Design 4.0 (giant-scale challenges of communities, countries, and/or planet).

The first Relating Systems Thinking and Design (RSD) symposium was convened in Oslo in 2012 (Sevaldson, 2012). Proceedings of the RSD4 conference in Banff were formalized into a *Systemic Design* book (Jones, 2018). OCAD U hosted RSD5 in 2016, with plans again for RSD14 in fall 2025. The community became formally incorporated in 2018 in Norway as the Systemic Design Association. Multiple streams and styles at the intersection of systems and design have emerged since SFI was started in 2009.

Core to the development of systemic design has been visualization. Gigamaps are methods for Systems Oriented Design, encompassing multiple layers and scales to reveal relationships and interconnections more deeply (Sevaldson, 2011, 2018). Synthesis maps represent and analyze complex systems by integrating diverse perspectives and evidence into a cohesive narrative (Jones & Bowes, 2017). Each of these mapping approaches has developed from unique heritages, applying different research techniques.

The SFI program at OCAD U was an early adopter of the Systemic Design Toolkit, as it evolved its methods for practice. Pilot testing was conducted at RSD5 in 2016, leading to an official release at RSD7 in 2018. A step-by-step guide followed in a short book (Jones & van Ael, 2022).

On a separate track in the UK, the Design Council published the Double Diamond in 2003, expressing common practices often applied in service design. Acknowledging the work of the Systemic Design Association and the practice of Transition Design, conversations were convened about transformational changes (Drew et al., 2021). This led to a Framework for Innovation to tackle more complex social, economic, and environmental problems (Design Council (UK), 2023a). Their Systemic Design Framework expands the Double Diamond for a methodology for Design for Planet (Design Council (UK), 2023b). This framework includes an alternative Systemic Design Toolkit.

The SFI program has been immersed in the progress of a major strand of systemic design. Alongside OCAD U, a large community of educators have alternative and complementary approaches with design courses strongly advancing systems thinking (Dubberly & Pangaro, 2023).

4.3. Interest in systems thinking continues to be locally strong

In addition to formal OCAD U activities, Toronto has a legacy of researchers and practitioners in the arts and sciences of systems. Systems Thinking Ontario, founded in 2012, continues to convene monthly meetings that connect both experts and novices in a welcoming atmosphere. Hosted primarily at OCAD U, the group was initiated with cooperation from faculty at York University and University of Toronto. Meetings moved online in 2020 due to distancing restrictions, reconvened in-person in 2024.

SFI students have historically shared their learnings on synthesis maps in the summer months. Alumni, consultants, and curious learners are regular attendees. These events complement the formal university program with opportunities to explore methods and ideas more deeply.

5. Optioning: Which priorities are to be weighed?

Having decided to redesign the course for 2025 in a break from its longer history, many constraints returned to the foreground. This course on systems is introductory, driving students towards a mindset shift within 13 weeks. In a similar program in Finland, systems thinking was covered in three courses over two years (Laurila, 2011, 2015). Reading week scheduled midway through the term gives students an opportunity to catch a breath and refocus. While the capstone synthesis map is the primary deliverable by the end of the course, students require interim grading to ensure they're on track. Parallel programming of courses across SFI draws attention on assignment due dates so that students are not overloaded. Threading through these constraints led to juggling options and sequencing of topics as sticky notes on a wall.

5.1. Systems foundations emphasizing articles were sequenced earlier, with toolkit later

To complete synthesis maps by the end of 13 weeks, students have to acquire skills both on systems techniques and visual designing. One approach would be to entangle learning systems and learning visual designing simultaneously. The other approach would be to learn systems first, and learn visual designing.

In 2015, OCAD U Graduate Studies declared "Five reasons a Master's in Strategic Foresight and Innovation is the new MBA" (OCAD University, 2015). In 2009, less than half of the students in 2009 would have had undergraduate training in design. In 2025, the probability of a student team having a designer is probably less than 20%. Designers do not necessarily have an advantage in the class, though, as they don't have the experience of reading journal articles and writing briefs that humanities graduates have gained. Assigning students to work in teams encourages a potential mixture of skills for successful completion of a synthesis map and the accompanying design brief.

Systems thinking involves systems theory, systems methods, and systems practice. A work product approach puts deliverables on frontstage, with techniques backstage (Cameron, 2002). For a master's program in design, systems learning can be sequenced as: (i) artifacts firstly; (ii) methods secondly; and (iii) theory and history as supplemental. With a variety of systems approaches to be critically considered, the first half of the course was weighted towards learning systems. An assignment with lighter weighting at midterm would provide interim grading. In the second half of the course, toolkits from the systemic design community could be reviewed. This sequence appears in Table 1.

Table 1. Winter 2025 Systemic Design

Week	*Topic*
1	Introduction to Complex Problems and Systems Thinking
2	History and Evolution of Systems Thinking
3	Systems Approaches: System Dynamics
4	Systems Approaches: Soft Systems Methodology
5	Systems Approaches: Viable System Model & Team Syntegrity
6	Reading Week
7	Project 1 Presentations
8	Systemic Design – Introduction to Synthesis Mapping
9	Systems Approaches: Critical Systems Practice (Explore)
10	Systems Changes Learning
11	Cybernetics & Action: Conversations for Design
12	Synthesis Map Studio Workshop
13	Synthesis Map Presentations & Critiques

Week 1 introduced the variety of approaches to systems thinking, wicked problems, and the polycrisis.

The following four weeks covered four different approaches to systems thinking. As a thread through 20th century histories, the *Systems Thinkers* reader from instructors at the Open University (Ramage & Shipp, 2020) profiles key figures in about 5 to 6 pages. Week 2 introduced the Idealized Design approach of Russell

Ackoff and Socio-Technical Systems studies of Eric Trist and Fred Emery. Week 3 covered System Dynamics of Jay Forrester, Donella Meadows, and Peter Senge. Week 4 outlined the Soft Systems Methodology of Peter Checkland. Week 5 detailed the Viable Systems Model and Team Syntegrity of Stafford Beer.

Completeness would have included more systems approaches. Weeks 2 to 5 were sufficient to give awareness of the breadth of systems content familiar to most audiences. Non-essential to the production of synthesis maps were two topics later in the course. Week 9 explicitly surfaced Critical Systems Practice, with the Explore stage of the EPIC framework by Michael C. Jackson. While a deductive course style might have sequenced Critical Systems Practice first, positioning later in the course inductively appreciates the history that led to multimethodology. Week 10 introduced the Systems Changes Learning approach that has been in development since 2019 with a spin-off group from Systems Thinking Ontario. Week 11 surfaced the Language Action Perspective of Fernando Flores.

Regrettably omitted from the course was Panarchy by C.S. Holling, and the subsequent Social Ecological Systems. In the priority of content to be covered, this would have required another week.

Concurrent with the learning systems methods in weeks 2 to 5, student groups were encouraged to select a system of interest (i.e. case study) on which their learning could be exercised. At Week 7, the groups did 20-minute presentations for grading.

Week 12 dedicated classroom time for collaborative studio work, with instructors roaming across teams for coaching. Week 13 reviewed presentations of group work-in-progress. The final synthesis map and brief were due a week later, so that grading could be completed to close out the term. In addition, the assignment of a short reflection paper on course experience encouraged individuals to look back on highlights (and stumbles) of the 13 weeks.

This sequencing of topics for 2025 is compared to four other previous years in Table A in the Appendix.

5.2. Graduate students can learn as peers in groups from leading methods talks

In a graduate program at a design school, hands-on learning by students is preferred over professors lecturing. An "inverted classroom" approach has students studying readings and watching videos in preparation for intensive discussion in class. "If there were no questions, the instructors would not lecture" (Lage et al., 2000, p. 33). Peer learning enables students to become co-constructors of their learning process, developing metacognitive skills in critical thinking (Carvalho & Santos, 2022). Consistent with Seneca the Younger (4 BCE – 65 CE), *homines dum docent discunt* translates as "people learn while teaching" (Schafer, 2011, p. 41).

For method talks facilitating learning for the entire class, students were asked to self-organized into teams of 3 to 5 individuals. This would lead to 4 groups in the full-time class, and 6 groups in the part-time class. An ideal method talk would include a concrete example of a system of interest, typical artifacts created, and methods applied. Some exercise time for other class members would deepen their appreciation. Theoretical foundations of systems luminaries can be deprioritized, as readings are available outside of class time.

A skill to be developed in critical thinking is selective reading. If members of a student group approach a list of references as divide-and-conquer, conversations can enrich the union set of their learning. With open access to online journal articles in the university library and streaming media on the Internet, each student can sample content to find styles with which he or she resonates. The domain of systems thinking is so broad that no individual can become a master in a timespan of weeks. In addition, not all system techniques are useful to a profession, or the systems immediately at hand.

5.3. Generative AI might augment literature reviews

The popularization of Generative AI (Gen AI) in 2023 presents both opportunities and challenges for educators. Redesigning the course in late 2024 came with a choice between (i) updating content with a laisser-faire tolerance of students adopting Gen AI, or (ii) anticipating Gen AI use, towards establishing some baseline capabilities across students. With an implicit belief that the 2025 course revisions would persist in future years, class time was allocated in review some Gen AI engines free-of-charge on the Internet.

An online Systems Thinking Ontario session in January 2025 foreshadowed class preparation, with reviews of OpenAI ChatGPT, Microsoft Copilot, Mistral LeChat, Anthropic Claude, Google NotebookLM, and Perplexity.ai (Ing, 2025a). Building on that, the Week 2 lecture was derived (Ing, 2025b).

Students were advised to try out Gen AI as a learning activity. Using Gen AI was not a requirement, but instead an experimental use. For written assignments, appropriate acknowledgements following the OCAD U code of conduct were expected.

6. Adapting: When and where can changes be introduced?

Each student cohort takes the Understanding Systems course once. Thus, learning on the course design is gained more by the instructors who can observe improvements and disappointments as plans become outcomes.

6.1. Expectations were set for a course in transition

In the syllabus, and in the first class, instructors were open with students about the 2025 course as discontinuous from the prior trajectory. The instructors would serve more as facilitators and guides, and fallback subject matter experts. Although an official reading list was published, students were advised to not read too far ahead, in the case additional resources would be helpful.

If students found the language in research articles too difficult, an option for summarizations via Gen AI was suggested. The likelihood of hallucinations from a Retrieval Augmented Generation (RAG) is lower than for a Large Language Model (LLM). Advanced Gen AI use could discern differences and commonalities across related researchers writing on the same systems topic.

Since each systems approach has its own internal consistency, an introductory survey the overviews many schools of thought discourages seeking the "one best way" solution.

6.2. Method talks would vary on emphases

Preparation of a student group method talk was set with an expectation of 3 to 6 hours preparation. Although groups from the full-time and part-time sections might be leading discussions on the same subject, the points assessed as most pertinent would naturally vary. If the dialogue did not fully cover the ideas, an instructor could guide or redirect the flow.

6.3. Example cases could be ephemeral or provisional

Systems concepts can be made more accessible through examples, metaphors and studies. For groups who were already looking ahead to a system of interest for their synthesis map, starting early with that case could reduce workload. With parallel classes in progress, some synergy might be achieved by reusing preliminary primary research, or collected secondary data sources. Early methods talks who had not established a system of interest were free to reuse examples for their readings, or to make up their own stories.

7. Retrospecting: What experiences contribute to learning?

In the last class meeting, students were given class time to complete an online survey. Of the 24 full-time students, 54% responded. Of the 17 part-time students, 65% responded. With small sample size, responses are pooled across both sections.

Course pace was: About Right 37.5%; Fast 50%; Too Fast 12.5%.

Course difficulty, relative to other courses was: Average 33.3%; Difficult 58.3%; Very Difficult 8.3%.

Course workload, relative to other classes was: Average 54.2%; Heavy 37.5%; Very Heavy 8.3%.

As instructors, these results are compatible with our expectations. The course pace as "about right" to "fast" shows the struggle between covering more content, and ensuring sufficient time to gain some depth and intuition on the material. The course difficulty assessed as "average" to "difficult", and not "very difficult" is fair for curriculum that can portrayed as frame-breaking and critical. The course workload as "average" to "heavy" confirms that students did not have the steal away time from other concurrent courses.

7.1. Students appreciated learning about systems

Responses to open-ended questions on "what did you learn" reflect that understanding accumulates over time. Comments included: "new way of viewing the world through a systems lens"; "how I could be thinking more critically about the interconnectivity of things"; "at first, I found it quite complex to study and understand systems, but as the course progressed, my interest and understanding increased significantly"; "it's equally important to develop a disciplined approach to continuous learning"; "it feels a bit like having the cheat code for life".

Responses on suggestions to "improve on structure or content" varied. Responses included "I really loved the method talk concept … it was engaging and pushed us to read, learn and think critically"; and "I appreciate the interest to have students do some instruction"; to "do not have students present the material". More consistent was the emphasis on methods-first and theory second. Comments included: "I really liked the methodological approach. It feels more practical compared to just learning theory"; "methodology … helped ground the material"; and "I found the focus on methodology to be incredibly helpful for my development as a designer".

7.2. Learning with AI was mostly welcomed

Responses to the invitation to use Gen AI reflect that instructors and students are still early in their adoption. Comments included: "I love how this course is keeping up with the times by embracing AI rather than negating it"; "getting acquainted with generative is important"; and "using AI to summarize readings is a really good thing to do before trying to read the whole text as it can make the readings more accessible and second I would suggest trying to use AI conversationally to ask the questions that are perhaps a little embarrassing to ask in front of the class".

Some unanticipated responses came from students for whom English is not native: "Gen AI is a great tool to summarize and organize materials especially for non English speaking students"; and "It's a good tool for international students who aren't used to reading long papers. The summary generated by AI helps me get an overview of the paper and saves me from struggling while reading it. However, since it's just an overview, students still need to read the paper when seeking detailed content".

Some were uncomfortable with the newness of the technology. Comments included: "I use genAI reluctantly and did not find that this class changed my attitudes or biases about the technology"; "Don't rely on it to do work for you. It's not as smart as everyone wants it to be"; and "instructors need to be clearer with students what is and isn't acceptable use of AI".

7.3. Content sequencing and focus could be improved

With the benefit of experience with the 2025 course design in practice, we instructors see immediate opportunities for improvement.

The Week 11 "Conversations for Design" content would be productive as a Week 1 topic. Some student teams ran into conflicts – particularly on expectations about scheduled time together, and responsibility definitions – that can be ironed out through a Language Action Perspective. Making commitments with an appreciation of theory can immediately be applied practically in team operations.

With Week 11 freed up, Systems Changes Learning could become the advanced last topic, as the probable impact on Synthesis Maps is small. Week 10 could be filled with Panarchy and Social Ecological Systems approaches to reinstate the "non-human" systems originally envisioned in 2009.

The Week 2 instructor lecture did not sufficiently demonstrate the way that Method Talks could be most effective. The sequencing should have clarified as: (i) selecting a relevant example system of interest; (ii) artifacts to be produced; (iii) techniques to employ; (iv) a brief class exercise; (v) theoretical foundation; and (vi) history of luminaries. In the 2025 classes, students were misled by the Ramage & Shipp readings to emphasize history first.

Ways to recognize individual performance might be reconsidered. The SFI program generally orients towards team efforts, but any irreconcilable breakdown leaves earnest contributors unsatisfied.

8. Next: Recontextualizations?

This report summarizes the experiences of instructors preparing a major course revision in fall 2024, and delivery in winter 2025. For the next year, we can watch for shifts in the contexture beyond the course, and improve from deficiencies encountered in the year prior.

9. References

Adams, G. B., Catron, B. L., & Cook, S. D. N. (1995). Foreword to the Centenary Edition of The Art of Judgment. In G. Vickers, *The Art of Judgment: A Study of Policy Making* (Centenary Edition, pp. xii–xxiv). Sage Publications.

Audit, Finance and Risk Committee. (2024). *FY 2024-25 Operating Budget* [Board of Governors]. OCAD University. https://www.ocadu.ca/sites/default/files/documents/AFRC%20for%20BoG%20Operating%20Budget%202425%20Final.pdf

Cameron, J. (2002). Configurable development processes. *Communications of the ACM*, *45*(3), 72–77. https://doi.org/10.1145/504729.504731

Carvalho, A. R., & Santos, C. (2022). Developing peer mentors' collaborative and metacognitive skills with a technology-enhanced peer learning program. *Computers and Education Open*, *3*, 100070. https://doi.org/10.1016/j.caeo.2021.100070

Checkland, P. B., & Cesar, A. (1986). Vickers' concept of an appreciative system: A systemic account. *Journal of Applied Systems Analysis*, *13*(3), 3–17.

Chiem, V., & Orsini, S. (2024, January 15). Joint statement from OUSA and COU: It's time for the Ontario government to step up and invest in universities and students. *Ontario's Universities*. https://ontariosuniversities.ca/news/joint-statement-from-ousa-and-cou-invest-in-universities-and-students/

Churchman, C. W. (1971). *The Design of Inquiring Systems: Basic concepts of systems and organization*. Basic Books.

Design Council (UK). (2023a). *Framework for Innovation*. Resources. https://www.designcouncil.org.uk/our-resources/framework-for-innovation/

Design Council (UK). (2023b). *Systemic Design Framework*. Resources. https://www.designcouncil.org.uk/our-resources/systemic-design-framework/

Drew, C., Robinson, C., & Winhall, J. (2021). *Systems-shifting design: An emerging practice explored*. Design Council (UK). https://www.designcouncil.org.uk/our-resources/archive/reports-resources/download-our-systems-shifting-design-report-1/

Dubberly, H., & Pangaro, P. (2023). How Might We Help Designers Understand Systems? *She Ji: The Journal of Design, Economics, and Innovation*, *9*(2), 135–156. https://doi.org/10.1016/j.sheji.2023.05.003

Franklin, B. A. (1998). *Contextural Action Research: Extending Praxis Methodology* [Dissertation, The Fielding Institute]. https://www.proquest.com/docview/304468371

Ing, D. (2011). Systems Thinking Courses in the Master's Programme on Creative Sustainability at Aalto University: Reflections on Design and Delivery of the 2010-2011 Session. *Proceedings of the 55th Annual Meeting of the International Society for the Systems Sciences*. 55th Annual Meeting of the International Society for the Systems Sciences, University of Hull Business School, UK. http://coevolving.com/commons/201107-systems-thinking-creative-sustainability

Ing, D. (2013). Rethinking Systems Thinking: Learning and Coevolving with the World. *Systems Research and Behavioral Science*, *30*(5), 527–547. https://doi.org/10.1002/sres.2229

Ing, D. (2016, January 18). Systems Thinking 2 course, Aalto University, February 2016 – Coevolving Innovations [Blog]. *Coevolving Innovations*. https://coevolving.com/blogs/index.php/archive/systems-thinking-2-course-aalto-university-february-2016/

Ing, D. (2018, May 21). Eight infographics on Systems Methods (UToronto iSchool 2018) – Coevolving Innovations [Blog]. *Coevolving Innovations*. https://coevolving.com/blogs/index.php/archive/eight-infographics-on-systems-methods-utoronto-ischool-2018/

Ing, D. (2020a, January 15). *Are Systems Changes Different from System + Change?* [Lecture]. Systemic Design (Understanding Systems) course, OCADU, Toronto, Canada. https://coevolving.com/blogs/index.php/archive/are-systems-changes-different-from-system-change/

Ing, D. (2020b, January 29). *Why (Intervene in) Systems Changes?* [Lecture]. Systemic Design (Understanding Systems) course, OCADU, Toronto, Canada. https://coevolving.com/blogs/index.php/archive/why-intervene-in-systems-changes/

Ing, D. (2020c, February 7). *Whom, when + where do Systems Changes situate?* [Lecture]. Systemic Design (Understanding Systems) course, OCADU, Toronto, Canada. https://coevolving.com/blogs/index.php/archive/whom-when-where-do-systems-changes-situate/

Ing, D. (2020d, March 6). *How do Systems Changes become natural practice?* [Lecture]. Systemic Design (Understanding Systems) course, OCADU, Toronto, Canada. https://coevolving.com/blogs/index.php/archive/how-do-systems-changes-become-natural-practice/

Ing, D. (2025a, January 10). Generative AI and Inquiring Systems: Ways of Patterning and Ways of Knowing | Systems Thinking Ontario | 2025-01-08 [Blog]. *Coevolving Innovations*. https://coevolving.com/blogs/index.php/archive/gen-ai-inquiring-systems/

Ing, D. (2025b, January 26). Systems Approaches (Project Language + Literature Reviews with Generative AI) | OCADU | 2025-01-20. *Blog*. https://coevolving.com/blogs/index.php/archive/systems-approaches-project-language-lit-reviews-gen-ai/

Ing, D. (2025c, June 10). History of Program Requirements for Strategic Foresight and Innovation [Blog]. *Coevolving Innovations*. https://coevolving.com/blogs/index.php/archive/history-of-program-requirements-for-sfi/

Ing, D., & Metcalf, G. (2023). Reframing Systems Thinking for Systems Changes: Sciencing and Philosophizing from Pragmatism towards Processes as Rhythms. *Journal of the International Society for the Systems Sciences*, *67*. https://journals.isss.org/index.php/jisss/article/view/4154

Jackson, M. C. (2019). Critical Systems Practice. In *Critical Systems Thinking and the Management of Complexity* (pp. 577–639). John Wiley & Sons. https://www.wiley.com/en-ca/Critical+Systems+Thinking+and+the+Management+of+Complexity-p-9781119118398

Jones, P. (2018). Preface: Taking Stock and Flow of Systemic Design. In P. Jones & K. Kijima (Eds.), *Systemic Design: Theory, Methods, and Practice* (pp. vi–xvi). Springer Japan. https://doi.org/10.1007/978-4-431-55639-8

Jones, P., & Bowes, J. (2016). Synthesis Maps: Systemic Design Pedagogy, Narrative, and Intervention. *Proceedings of RSD5 Symposium*. Relating Systems Thinking and Design, Toronto, Ontario. https://systemic-design.net/rsd-symposia/rsd5-2016/rsd5-theory-method/

Jones, P., & Bowes, J. (2017). Rendering Systems Visible for Design: Synthesis Maps as Constructivist Design Narratives. *She Ji: The Journal of Design, Economics, and Innovation*, *3*(3), 229–248. https://doi.org/10.1016/j.sheji.2017.12.001

Jones, P., & van Ael, K. (2022). *Design Journeys through Complex Systems*. BIS Publishers. https://www.systemicdesigntoolkit.org/book

Lage, M. J., Platt, G. J., & Treglia, M. (2000). Inverting the Classroom: A Gateway to Creating an Inclusive Learning Environment. *The Journal of Economic Education*, *31*(1), 30–43. https://doi.org/10.1080/00220480009596759

Laurila, T. (2011, May 12). *Multidisciplinary Master's Degree Programme in Creative Sustainability since Autumn 2010*. LeNS Learning Lab + LeNS Open Seminar, Helsinki. http://designresearch.fi/dcds/events/lens-learning-lab-moa-may-2011/

Laurila, T. (2015). Creative Sustainability – monialaisuutta hyödyntävä lähestymistapa kestävän kehityksen

opetukseen. *UAS Journal*, *5*(1). https://arkisto.uasjournal.fi/uasjournal_2015-1/laurila.html
Midgley, G. (2001). *Systemic intervention*. Springer.
Minister of Advanced Education. (2025). *Grant Agreement with Nova Scotia College of Art and Design*. Province of Nova Scotia. https://novascotia.ca/lae/HigherEducation/documents/agreement-nscad-2025.pdf
Ministry of Post-Secondary Education and Future Skills. (2024). *Emily Carr University of Art and Design, Budget Letter-2024-25* (66200–01). https://www2.gov.bc.ca/assets/gov/education/post-secondary-education/institution-resources-administration/budget-letters/budget-letter-emily-carr-university-of-art-and-design.pdf
Mitroff, I. I., & Linstone, H. A. (1993). *The unbounded mind: Breaking the chains of traditional business thinking*. Oxford University Press. http://doi.org/10.1093/acprof:oso/9780195102888.001.0001
OCAD University. (2015, June 25). Five reasons a Master's in Strategic Foresight and Innovation is the new MBA. *Features*. https://web.archive.org/web/20150910093808/http://www2.ocadu.ca/feature/9313/five-reasons-a-masters-in-strategic-foresight-and-innovation-is-the-new-mba
OCAD University. (2024, November). *Annual Reports (2019/20—2023/24)*. About OCAD U. https://www.ocadu.ca/about-ocad-u/our-story/annual-report
Ontario College of Art and Design. (2011, January 3). *MDes in Strategic Foresight and Innovation—Program Requirements*. Graduate Studies. https://web.archive.org/web/20110103155200/http://www.ocad.ca/programs/graduate_studies/mdes_strategic_foresight_innovation/program_requirements.htm
Ramage, M., & Shipp, K. (Eds.). (2020). *Systems Thinkers*. Springer London. https://doi.org/10.1007/978-1-4471-7475-2
Ramirez, R. (1983). Action Learning: A Strategic Approach for Organizations Facing Turbulent Conditions. *Human Relations*, *36*(8), 725–742. https://doi.org/10.1177/001872678303600804
Ramirez, R., van der Heijden, K., & Selsky, J. W. (2008). Introduction: Why Write This Book and for Whom? In R. Ramírez, J. W. Selsky, & K. van der Heijden (Eds.), *Business Planning for Turbulent Times: New Methods for Applying Scenarios*. Earthscan. http://doi.org/10.4324/9781849774703
Ramirez, R., & Wilkinson, A. (2016). *Strategic Reframing: The Oxford Scenario Planning Approach*. Oxford University Press. https://doi.org/10.1093/acprof:oso/9780198745693.003.0001
Rapoport, R. N. (1970). Three Dilemmas in Action Research: With Special Reference to the Tavistock Experience. *Human Relations*, *23*(6), 499–513. https://doi.org/10.1177/001872677002300601
Richards, L. (2015). Understanding of Change, Leading Innovation: OCAD University's Master of Design in Strategic Foresight and Innovation. *Stream 4: Enterprising University*, 358–368. https://arrow.tudublin.ie/st4/5
Richards, L., & Harfoush, N. (2016). The Master of Design in Strategic Foresight and Innovation (SFI) at OCAD University. In B. Banerjee & S. Ceri (Eds.), *Creating Innovation Leaders: A Global Perspective* (pp. 187–200). Springer International Publishing. https://doi.org/10.1007/978-3-319-20520-5_11
Schafer, J. (2011). Seneca's Epistulae Morales as Dramatized Education. *Classical Philology*, *106*(1), 32–52. https://doi.org/10.1086/659109
Sevaldson, B. (2011). GIGA-Mapping: Visualisation for complexity and systems thinking in design. *Nordic Design Research Conference: Making Design Matter*, *4*. https://archive.nordes.org/index.php/n13/article/view/104
Sevaldson, B. (2012, September 13). Relating Systems Thinking and Design 1 Oslo 2012 [Blog]. *Systems Oriented Design*. https://systemsorienteddesign.net/relating-systems-thinking-and-design/
Sevaldson, B. (2018). Visualizing Complex Design: The Evolution of Gigamaps. In P. Jones & K. Kijima (Eds.), *Systemic Design: Theory, Methods, and Practice* (pp. 243–269). Springer Japan. https://doi.org/10.1007/978-4-431-55639-8_8
Susman, G. I., & Evered, R. D. (1978). An assessment of the scientific merits of action research. *Administrative Science Quarterly*, *23*(4), 582–603. https://doi.org/10.2307/2392581
Ulrich, W. (2005, October 17). *A mini-primer of boundary critique*. Werner Ulrich's Home Page. https://wulrich.com/boundary_critique.html
VanPatter, G. K. (2009, March). *Design 1.0, 2.0, 3.0, 4,0: The Rise of Visual Sensemaking* (P. H. Jones, Interviewer) [Text for Special Issue]. http://www.humantific.com/design-40-rocks-the-house/
VanPatter, G. K. (2020). *Rethinking Design Thinking: Making Sense of the Future that has already arrived*. Humantific Publishing. https://www.rethinkingdesignthinking.org/
Vickers, G. (1965). *The Art of Judgment: A Study of Policy Making*. Chapman & Hall.

Appendix

Table A. "Understanding Systems" Comparison of Topics by Year is cached at https://coevolving.com/pubs/2026_HICSS-59_RefreshingCurriculumSystemsThinkingDesigning_Appendix.html