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Cultivating critical information evaluation through motivational confidence: An exploratory crosswalk analysis

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Abstract

From checklists, to processes, to models, information literacy (IL) instructors have sought to better teach students how to evaluate the information they encounter, increasingly through critical information literacy (CIL) pedagogies. CIL engages high-impact pedagogical practices as students direct their learning through dialogue and problem-posing, but there are persistent barriers to implementing CIL pedagogies at scale. Drawing from motivational design can empower librarians to advance CIL and empower students to critically evaluate information. Although many evaluation pedagogies employ general motivational strategies, there is a gap in the literature exploring the application of one specific component of motivation: *confidence*. This conceptual and exploratory study aims to: 1) determine the connections between motivational design and IL pedagogy, specifically related to confidence-building strategies and critical approaches to evaluating information; and 2) map the integration of confidence-building design and CIL practices to provide suggestions for practical application. The researchers employ a crosswalk analysis to demonstrate how IL instructors can overcome barriers to implement CIL instructional practices through confidence-building design that illuminates students' abilities to learn and make a meaningful impact. In taking a confidence-building, critical focus to designing evaluation instruction, IL instructors reframe information evaluation as a participatory place for critical questioning, exploration, creative expression, and dialogue.

Keywords
critical information literacy; information literacy; instructional design; pedagogy; source evaluation

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1. Introduction

In his foundational work proposing a critical pedagogical approach to information literacy (IL) instruction, James Elmborg (2006) wrote that: "...we can see information literacy as either a dynamic form of education aimed at transforming lives or as a 'procrustean bed' of skills and standards generated by the library's need to hold onto the status quo." In our current information environment – fractured, black boxed, hyper-partisan, moving at lightning speed – there is a sense of urgency to equip students with ready-made tools to "plug-and-play" while writing papers and scrolling social media. It may seem counterintuitive to, instead, step back and focus IL instructors' limited teaching time on "big picture" ideas of motivation, meaning, and ethics, asking why we engage in research in the first place, what we hope to achieve in doing so, and how social structures and human bias impact the way we engage information. Ultimately, critical information literacy's (CIL) focus on knowledge-creation processes and our place within them will better serve students and instructors. A necessary shift toward CIL pedagogy invites learners to shape education and gives instructors space to be learners. Collective exploration of the *why* frees IL instructors from dictating the mechanics of *how*.

However, critical approaches are notoriously challenging to implement, particularly in the limited context of a one-shot – where IL instructors are invited to guest lecture in another instructor's class, usually for one class session, or sometimes even less (Downey, 2016; Tewell, 2016; Espinel & Tewell, 2023). IL instructors may benefit from educational research on motivation and instructional design to create a meaningful shift in information evaluation pedagogy. If IL instructors can't get more time with students, we can change how we use that time.

Specifically, Keller's (1983; 2010) motivation model, ARCS (attention, relevance, confidence, satisfaction) may be a useful tool in the IL instructor's toolkit. The confidence component of the ARCS motivation model presents a design structure for IL instruction that instils a sense of curiosity and agency. With confidence-building design, IL instructors can help students focus on what they can control in information evaluation – their process of learning. Confident learning motivation is also necessary for the vulnerability required to engage in critical evaluation. CIL requires both instructors and students to confront uncomfortable ideas about power and the status quo, and IL instructors who teach one-shots simply do not have time to develop trusting relationships with students. Rather, IL instructors can make high-impact pedagogical choices that demonstrate vulnerability by sharing decision-making. Involving students in this way may develop their confidence to trust themselves, their ability to direct a learning process, and to build on their experience in unfamiliar circumstances.

This conceptual research focuses on the confidence component of ARCS to identify how its subcomponents enable the implementation of CIL-informed evaluation pedagogies. The researchers employ an exploratory crosswalk analysis to map the components of confidence-building design to CIL practices. The crosswalk analysis findings provide suggestions for application, illustrated by examples of CIL pedagogies embedded within recently proposed evaluation methods that depart from traditional checklist evaluation. The researchers suggest an instructional approach that integrates a critical lens and accounts for the limitations of a typical IL instruction environment. Its flexibility allows instructors and students to collectively adapt various evaluation methods in their contexts.

2. Literature Review

A growing number of IL instructors advance reflective and dialogic approaches to evaluation that centre information's function within individual and communal contexts. Yet, IL instructors face a range of barriers to scalable implementation of CIL approaches (Alabi et al., 2020; Swanson, 2010; Tewell, 2016). As a result, IL instructors may continue to lean on the efficiency and familiar structure of evaluation checklists, though they seem to be ineffective as learning tools (Wineburg et al., 2020). In response to these frustrations, there have been numerous attempts to overhaul information evaluation pedagogy (ACRL, 2016; Elmborg, 2006; Mackey & Jacobson, 2011). By drawing from learning motivation theory, IL instructors may find approachable ways to teach evaluation reflective of the critical pedagogies that the profession has identified as valuable (ACRL, 2016).

2.1 Before Critical Evaluation: Investigating the CRAAP Test

IL instructors have long relied on checklist models for teaching information evaluation. The straightforward nature of checklists lends itself to the limitations of a one-shot teaching environment and provides a ready-made lesson-planning structure for IL instructors who may not have benefitted from formal pedagogical training. In and of themselves, checklists are not bad, but when presented to students with minimal time to understand or play a role in determining the reasoning behind evaluation criteria, checklists fall flat (Wineburg et al., 2020).

One of the first, and perhaps most infamous, evaluative teaching checklists is Blakeslee's (2004) *CRAAP test*. The memorable acronym recommends five core source evaluation criteria: currency, relevance, authority, accuracy, and purpose. CRAAP was considered a novel approach to teaching evaluation and was lauded for its compact checklist approach, which allowed librarians to present a simplified version of complex concepts in the little student-facing time afforded them. However, CRAAP's criteria were not intended for use by students learning evaluative strategies, having been adapted from criteria used by librarians with professional expertise to evaluate print materials for inclusion in a library's collection (Tardiff, 2022).

Recent scholarship demonstrates CRAAP's shortcomings as a learning tool in today's digital information environment (Caulfield, 2017; Tardiff, 2022). Removed from contextualising discussion about how and why the criteria are applied, checklists oversimplify the research process and encourage a mechanistic approach to evaluation (Chomintra, 2023). Checklists do not account for student backgrounds and prior knowledge, which may set them up for failure without subject-matter expertise needed to evaluate effectively (Russo et al., 2019; Tardiff, 2022). Checklists also direct students to expend great effort to analyse each source based on cues that are easily falsified or difficult to verify (Caulfield, 2022).

2.2 Moving Toward Critical Evaluation: Investigating SIFT

Caulfield (2017) developed the SIFT method to address CRAAP's pitfalls, particularly online. The method includes four evaluative *moves* or *actions* based on professional fact-checker strategies: S - stop; I - investigate the source; F - find better coverage; and T - trace claims, quotes, and media to the original source. SIFT represents an improvement in evaluation tools because its core concept of *lateral reading* equips students with the mindset that evaluating information requires understanding what other perspectives say about a particular source or

claim – not just diving into the information as one source presents it. Additionally, Caulfield encourages a habit of introspection, examining emotional responses to information. Though SIFT takes the familiar form of an acronym checklist, it is intended as a departure from long lists of criteria requiring extensive background knowledge of disciplinary practices and scholarly communication practices to apply them effectively.

SIFTs simplicity and action-based approach make it adaptable to many different information-seeking contexts. However, within the time-limited context of a one-shot, framing the evaluation process as a simplistic list of actions risks leading students to mechanically apply criteria without engaging the critical question-posing that underpins them. For example, as Fister (2021) points out, there is a major assumption made in the "find better coverage" step that students will all agree on what constitutes a *reliable* source of information. This recalls the same issue with CRAAP – attempting to provide students with quick, memorable steps to follow in evaluation, instructors may skip over the more meaningful and impactful questions of why information is created and how it impacts us.

2.3 Evolving into Critical Evaluation: Investigating CCOW

Continuing the evolution of evaluation pedagogy, Tardiff's (2022) CCOW (Credentials, Claims, Objectives and Worldview) method attempts to condense SIFTs positive aspects into a one-shot-friendly format, adapting its original design to be implemented over weeks of class time. CCOW also builds on CRAAP's criteria to add self-reflection. Rather than focusing on authority or accuracy, which are challenging for non-subject-experts to evaluate, CCOW's major contribution is awareness of *worldview* – explicit recognition of the impact personal ideologies and experiences have on evaluation. This includes bias to select or disregard information depending on its alignment with our existing worldview.

CCOW values students' experiences and, through self-reflection, explores personal bias and privilege – core CIL practices. CCOW attempts to integrate critical practices into checklist evaluation by accounting for students' prior experiences. However, like SIFT, the limitations of a checklist approach still apply here. To address the lack of instructional time, CCOW flips the classroom, asking students to engage in evaluation tasks before coming to the session. The goal of the pre-work is "active investigation...not merely questions to ask, but things to do in the investigative process" (Tardiff, 2022, p. 123), and while this guided inquiry is a step in the right direction, it may be unclear to students why it might be worth their time to evaluate instructor-curated sources. This approach does not involve students meaningfully in determining the *why* behind evaluative steps, or in investigating the broader societal implications of the assignment's required information practices.

2.4 Enacting Critical Evaluation in IL Instruction

CIL is an approach to IL instruction that "aims to understand how libraries participate in systems of oppression and find ways for IL instructors and students to intervene upon these systems" (Tewell, 2016). CIL builds on Paulo Freire's (2014) critical pedagogy, which emphasises validating student experiential knowledge, sharing responsibility for the teaching and learning process, and leveraging learning to create positive social change. Within the CIL pedagogical paradigm, everyone is simultaneously a learner and a teacher.

For several decades, IL instruction has shifted towards equipping students with more critical and reflective information practices that centre students' knowledge as they engage with information (Accardi, Drabinski & Kumbier, 2010; ACRL, 2016; Tewell, 2016; Chomintra, 2023). However, IL instructors face a range of barriers to scalable implementation of CIL pedagogies, which are largely time-intensive discussion and inquiry-based approaches (Downey, 2016; Tewell, 2016). Barriers include limited classroom instruction time, perceived lack of confidence in their own expertise as educators, disciplinary faculty's misconceptions of IL, and student resistance and discomfort towards CIL concepts (Tewell, 2016; Swanson, 2010). Often, disciplinary faculty ask IL instructors to oversimplify evaluation to fit neatly into one session, at odds with the reality of nonlinear, iterative knowledge-creation processes (Alabi et al., 2020).

CIL's complex and contextual nature makes one-shot implementation challenging, but it is also one of its greatest strengths. Any CIL pedagogy is necessarily defined by the needs of the relevant community. To provide some definition to fluid CIL pedagogy, Downey (2016) posits three CIL teaching strategies: 1) creating a student-centred environment; 2) dialogue; and 3) problem-posing. The Association of College & Research Libraries' (ACRL) (2016) foundational *Framework for Information Literacy for Higher Education* corroborates these CIL pedagogical approaches as best practices, drawing on well-established educational research on positive outcomes for student engagement and growth. Several novel information evaluation models operationalise self-aware and socially engaged examinations of motivations behind information engagement.

2.5 The Process: New Pedagogical Models Operationalising Critical Evaluation

2.5.1 Developmentalism - Information Evaluation as Learning

The developmentalist approach to information evaluation is informed by Richard Kraut's philosophical theory that what makes something *good* is if it "contributes to a living thing's well-being or flourishing" (Lenker, 2017, p. 724). Rather than evaluating information based on signifiers of trustworthiness or for its utility in defending an argument, Lenker reframes evaluation as a mindset and process to develop deeper understanding of a topic. Developmentalism adjusts expectations of success in evaluating information: rather than expecting information sources to provide black-and-white answers, we ask how they expand our learning.

The developmentalist approach to evaluation offers interesting possibilities for enacting CIL in a confidence-motivated learning environment. To frame evaluation as learning requires "a sophisticated awareness of the information's impact on one's thoughts and feelings" (Lenker, 2017, p. 722). Because growth is the goal, developmentalist evaluation makes space to examine affective responses to information. Students exercise agency in choosing how to engage (or not) based on information's contribution to one's self-determined goals.

2.5.2 Proactive Evaluation - Information Evaluation as Networked Agency

Proactive evaluation engages students in dialogue to identify the ways information acts with agency and to see authority as constantly negotiated, particularly algorithmically mediated content (Bull et al., 2021). This instructional approach is characterised by open-ended inquiry and participatory co-creation. Pedagogically, the goals are for students to contextualise their role within broader social information systems and to build evaluation strategies upon their unique experiences. Proactive evaluation exemplifies the growing movement in IL toward critical

instructional approaches, which frame evaluation as a social, networked act in which the individual and the collective are simultaneously shaping and being shaped by one another.

From a proactive evaluation perspective, information seeking and evaluation are never isolated, individual acts, but rather ways of understanding and impacting the world around us. Bull et al. (2021) eschews the consumerist approach to information seeking as simply online shopping for just the right source to fit our needs among many offerings. Rather, algorithms actively push targeted content, exercising agency that challenges our long-held conceptions of static information sources, like books and journal articles. This new algorithmic agency demands that students be prepared to exercise agency in knowledge creation. Echoing this call, Fister (2022) encourages teaching evaluation by inviting students to take part in meaning-making, believing their own thoughts and questions can converse with existing knowledge sources to make something new.

Proactive evaluation and other critically-inspired methods take the view that checklist-based evaluation perpetuates passive, hierarchical pedagogies that rely on the one-way transmission of information (Chomintra, 2023). These critical approaches build upon a new pedagogical foundation of critical and participatory practices. Unlike the more individualistic practices or mindsets of the previous approaches (self-reflection and personal learning), critical methods emphasise learning about the way information is created, shared, and the impact of those choices at a societal level. A critical approach to evaluating information “places greater emphasis on ‘discourse, interaction, activity, and participation’” and “...it highlights discourse as consequential” (Holliday & Rogers, 2013, p. 258).

2.6 The Importance of Learner Motivation in Critical Evaluation

2.6.1 Keller’s ARCS Model: Defining Confidence

Keller’s (2010) ARCS (Attention, Relevance, Confidence and Satisfaction) model suggests four categories emerge from the learning motivation literature, with the goal to facilitate instructional design that addresses each motivational need. However, Keller recognises that there are instances where motivation could play an integral role in learners' success, and the researchers contend that the IL one-shot may benefit specifically from the confidence component of ARCS. The model defines confidence as people’s expectancies for success in various parts of their lives, noting that “perceptions of control” play a particularly important role (p. 135–36). Increasing confidence requires clear communication about expectations, and encouraging learners to direct the learning process could further develop confidence. Keller states that instructors instil confidence in learners’ abilities to achieve learning goals by reinforcing the lived experiences and expertise students bring with them to the classroom.

ARCS includes three key sub-components necessary for increasing student confidence. First, learning requirements refer to the “extent to which learners feel that they are able or unable to learn” (Huett et al., 2008, p. 115). Second, exercising personal control over the learning process may increase confidence. And third, experiencing success opportunities at key points of the learning process reinforces confidence. Throughout this process, feedback clarifies or reframes their knowledge and experiences.

2.6.2 Applying ARCS Motivational Design in Information Literacy Pedagogy

Previous studies have demonstrated the power of IL instruction on student learning (Hsieh & Holden, 2010). Ucar and Kumptepe (2020) posit that perceptions of confidence could increase learning motivation and success. IL practitioners increasingly advocate for confidence-building evaluation methods, encouraging curiosity surrounding the evaluation process, rather than differentiating *good* or *bad* sources (Fister, 2022; Lenker, 2017; Holliday & Rogers, 2013). Although several studies examine the application of the entire ARCS design model to develop student motivation in IL instruction (Peacock et al., 2020; Reynolds et al., 2017; Small et al., 2004), there is little scholarship examining the application of a single ARCS component in teaching contexts. IL instructors may not have time to integrate all components of ARCS, but confidence may have a particularly high impact as a structure to implement what Douglas and Gadsby (2022) refer to as relational teaching, where even brief IL instruction encounters can result in growth through shared authenticity and vulnerability. Confidence sub-components align with CIL pedagogy, centring student experience and participation in relationally focused learning design. In Table 1, the authors identify defining characteristics of the confidence sub-components and provide examples of how these might be applied in an IL classroom scenario.

Table 1: Subcomponents of ARCS confidence and example applications in evaluation pedagogy

Confidence Subcomponents	**Characteristics** (Keller & Suzuki, 1988; Keller, 2010)	**Examples in Evaluation Pedagogy**
Learning Requirements	What should I learn? How will learning be measured? Learners: • understand exactly what is needed to be successful • realise their ability to achieve goals for success	Inviting students to ideate and co-create the outcome or goals for the session supports confidence as they share in the process of defining what success looks like in evaluation practices. For example, explore which contexts learners find it most important (or challenging) to identify trustworthy information or learn from multiple perspectives.
Success Opportunities	How will I be successful in completing this task? Learners: • feel comfortable making mistakes • expect to be appropriately challenged by material	Guiding students to articulate their successes, difficulties, and the value of understanding underlying information systems could support them to take greater ownership of learning (Hess, 2015). This could take an “ungrading” approach, where learners take part in determining what they will accomplish, how they will demonstrate it, and how to assess their performance. For example, discuss how misinformation harms different communities and ask how students might determine if their proposed solution to fight it was successful.
Personal Control	How can I direct my learning process? Is feedback clear and constructive, or	Provide multiple avenues for feedback as students engage with information evaluation processes. By engaging in self-

	confusing and ultimately distracting? Learners: • recognise individual choices that lead to (un)successful learning, rather than luck, chance, other external forces • have opportunities to identify, correct, and reflect on mistakes	directed inquiry within a structure of dialogue and feedback with the instructor and their peers, students discover individual and socially-conscious learning motivation. For example, lean into peer editing. With guidance on how to think and discuss metacognitively, students learn to ask questions of themselves, their peers, and the information they encounter. They move away from the comfort of reinforcing personal opinion and seeking clear-cut answers.

3. Methodology

3.1 Bringing Together Evaluation, Confidence, and Critical Information Literacy

This conceptual study aims to: 1) determine connections between motivational design and IL pedagogy, specifically related to confidence-building strategies and critical approaches to evaluating information; and 2) map the integration of confidence-building design and CIL practices. The purpose of this research is to make suggestions for application by highlighting how critical pedagogical approaches that depart from traditional checklist evaluation can be employed within the constraints of IL one-shots.

3.2 Selection of Evaluation Methods for Analysis

To address the first aim, the authors reviewed the instructional design and IL literature to identify aspects of the ARCS confidence component that address gaps in IL instructors' capacity to enact CIL pedagogy. Specifically, the authors analysed the relationships between confidence-building instruction and methods for critically engaging students with the complex processes behind information evaluation. In reviewing the IL literature, the researchers sought to identify evaluation pedagogies that represented the broad variety of approaches for teaching information evaluation. SIFT and CCOW represent modified checklist approaches that seek to address shortcomings in the CRAAP model while retaining the convenience of a checklist. The review also revealed recently proposed pedagogical approaches that move away from checklists entirely. The researchers selected two of these methods that both engaged and challenged CRAAP and SIFT. Both developmentalism (Lenker, 2017) and proactive evaluation (Bull et al., 2021) build motivation through confidence-building elements that align with CIL principles.

3.3 Exploratory Crosswalk Analysis

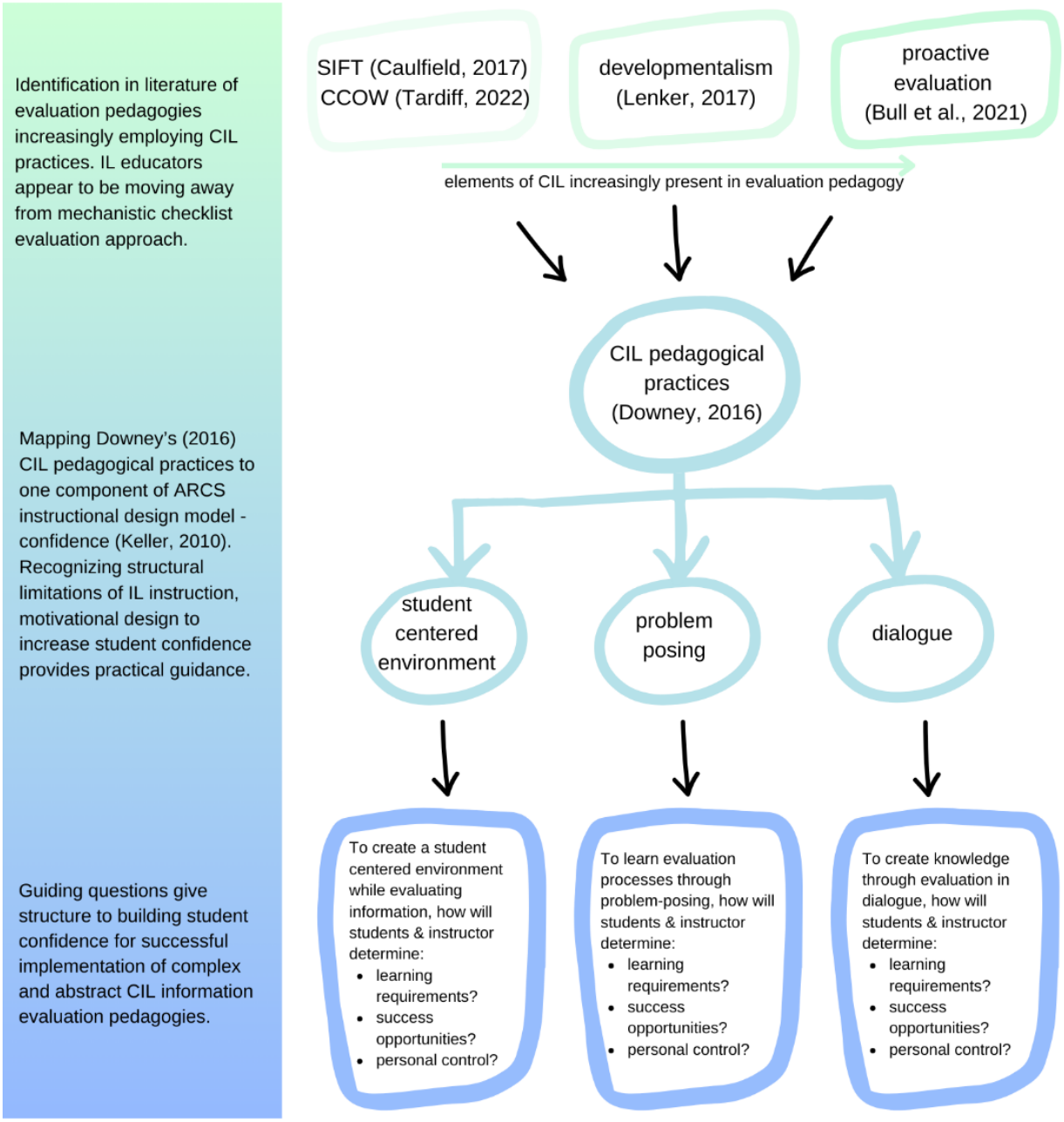
To address the study's second aim, the authors employed an exploratory crosswalk analysis (Hai-Jew, 2019) to map the components of ARCS confidence to core CIL instructional practices. Crosswalks are used to identify similarity or interoperability between conceptual or practical systems, such as standards or frameworks. To bridge two conceptual structures, each one must be thoroughly examined to understand its function on its own. Then, relational connections can be made between the two – for example: *The components of structure A*

support/comprise/extend the values of structure B. Hai-Jew (2019) describes the process of crosswalk analysis as akin to creating “a Venn diagram albeit not in visual format, and the overlap is where the crosswalk occurs.” Common in IL literature, crosswalk analysis has been used to examine connections between educational and library science practices (Burns & Dawkins, 2021).

Figure 1 (below) visualises the researchers’ analytic exploratory crosswalk process. An initial literature review revealed a trend of evaluation pedagogies increasingly employing CIL practices. IL educators appear to be moving away from mechanistic checklist evaluation approaches, but the literature also indicated that IL educators struggle to implement CIL pedagogy as an alternative. The researchers proposed motivational design as a solution to the common limitations of IL instruction and sought to identify areas of overlap between ARCS motivational design for confidence and CIL pedagogies. By explicitly mapping points of connection, IL instructors gain practical guidance to design learning experiences that build student confidence to practice CIL. The researchers used Downey’s (2016) CIL teaching approaches as a structural comparison to the ARCS confidence components. Utilising a confidence inspired model provides an opportunity to engage critical practices, designing instruction so students determine what to learn, how to learn it, and how to measure success. The crosswalk connects these pedagogical choices to Downey’s (2016) practical strategies for IL instructors to conceptualise and implement CIL in their teaching. Interviews with IL instructors uncovered three common approaches to teaching CIL: 1) creating a student-centred learning environment, 2) dialogue, and 3) problem-posing (see Figure 1).

This crosswalk analysis aims to overcome barriers to CIL evaluation pedagogies, especially limited instruction time in the one-shot format. If having more time is not an option, how can we best use the time we have to create meaningful learning opportunities? The researchers constructed guiding questions to structure IL instructors’ pedagogical design by aligning CIL teaching practices with confidence-building student-led strategies. Working through the questions in the bottom row of Figure 1 enables instructors and students to get "more bang” for the pedagogical “buck” and quickly build a foundation of trust to engage more complex or challenging CIL concepts.

Figure 1: Methods process flow for: 1) identifying new evaluation pedagogies that increasingly employ CIL pedagogies, 2) implementation of crosswalk analysis to map CIL pedagogies to Subcomponents of ARCS Confidence and 3) resulting model for implementation of complex CIL evaluation pedagogies within typical constraints of IL instruction.



4. Findings

While CIL pedagogies are increasingly present in emerging evaluation methods, scholars and practitioners acknowledge barriers to wide-scale implementation (Downey, 2016; Tewell, 2016). The *confidence* component of the ARCS motivational design model may be leveraged to overcome these challenges and increase critical evaluation methods in IL instruction. Of all the ARCS components, confidence aligns best with the formal instructional strategies for enacting CIL pedagogy. When applied with a CIL lens, the added value of Keller's (2010) confidence components is a pedagogical design structure that acknowledges the imbalance of power in the traditional instructor-student dynamic. Students are invited into greater classroom decision-making and leadership.

Through the crosswalk analysis, the researchers found that the subcomponents of ARCS confidence ultimately align with and support CIL practices. Confidence-building emphasises creating learning environments in which students: 1) participate in defining learning goals and setting expectations for success – a student-centred environment; 2) experience success through self-growth and feedback – learning through dialogue; and 3) exercise control by taking on an active and critical role in the knowledge-creation process – learning through problem-posing about information systems.

Through a CIL lens, libraries are understood to be participants in systems of oppression and require both students and IL instructors to disrupt these systems (Tewell, 2016). In taking a confidence-building, critical approach to evaluating information, together IL instructors and students explore why we are seeking information in the first place and who it impacts, rather than simply what must be done to *check the box* (Fister, 2022; Lenker, 2023). Each of the confidence-building instructional approaches below provides ideas for IL instructors to transform their approach from skills-based box-checking to personally meaningful knowledge construction.

4.1 Crosswalk Analysis: Implications for Confidence-Building Critical Evaluation Pedagogy Models

Based on findings from the evaluation pedagogy literature, shifting the traditional instructor-student dynamic is necessary to overcome barriers IL instructors face in implementing CIL pedagogies. When there is such limited time to build trust with students - which is necessary when asking them to engage in CIL practices that are, at times, uncomfortable - an IL instructor may find it impactful to focus class time on building students' trust in their own investigation and decision-making skills.

CIL approaches require committing significant time to personal reflection and preparing a possible structure for fruitful discussion, which, paradoxically, also requires opening oneself up to releasing some control over the learning experience. The complexity and, at times, sensitivity of the topics CIL addresses do not fit neatly in the one-shot format IL instructors are often asked to teach within. To address these challenges, the authors propose that IL instructors may enact CIL values guided by the confidence-building design structure (Keller 1983; 2010). The ARCS confidence component recommends pedagogical choices that, when implemented with a CIL lens, centre collective decision-making, prior knowledge, and student-led inquiry.

In mapping confidence-building design components to CIL pedagogical practices, the researchers defined guiding questions to build confidence through dialogue and problem-posing with students:

1. What are my goals? What would I consider to be a worthwhile achievement by the end of this session? Or perhaps a more specific prompt: what is a challenge I face when evaluating information that I'd like to improve my abilities in? (personal control)
2. What skills, knowledge, or resources do I already have to draw upon, and what else might I need to reach my goal(s)? (learning requirements)
3. How will I know and demonstrate when I've been successful? (success opportunities)

The researchers suggest that those three questions, either as pre-work or a quick reflection at the beginning, could set the tone for a meaningful evaluation instruction encounter. Students may then be primed to ask those same sorts of questions regarding the information they're evaluating. In this dynamic, students have a shared stake in using instructional time toward their interests and goals. This structure can be as open-ended or closely guided as required by the context, demonstrating to students that their "expressed needs" matter to the instructor (Douglas & Gadsby, 2022, p. 809).

The following crosswalk tables (see Tables 2-4) offer examples of ways IL instructors may leverage a confidence-building design process to incorporate evaluation models into an evolving critical evaluation pedagogy. Each example focuses on the way one existing evaluation model and one CIL principle might be integrated in teaching practice using the ARCS confidence components to guide instructional design. Each example includes potential learner applications and guiding questions IL instructors may pose during instructional sessions about information evaluation. These combinations are not prescriptive or exhaustive but are intended to serve as proof-of-concept and a launching point for further exploration by IL instructors and their students in the context of their learning environments.

4.2 Critical Confidence and Modified Checklists: SIFT and CCOW

Both CCOW and SIFT highlight the CIL pedagogical focus on creating a student-centred environment. Learners are encouraged to understand their own information seeking behaviours and examine the impact their personal experiences and emotions have upon their evaluations. In these models, self-reflection is encouraged through Caulfield's *stop* move and Tardiff's concept of *worldview*. These modified, updated checklist approaches provide a surface-level introduction to look beneath the surface of traditional heuristics of authority.

Table 2: Implementing CIL in evaluation pedagogy – creating knowledge while evaluating through dialogue – through an instructional design process guided by sub-components of ARCS Confidence.

Evaluation Method	SIFT (Caulfield, 2017) & CCOW (Tardiff, 2022)
CIL Pedagogy	Student-centered environment
Findings: Design Process for Confident Evaluation	To create a student-centered environment while evaluating information using the SIFT/CCOW method, students and instructor will determine_____ by: Learning requirements: _____ Success opportunities: _____ Personal control: _____
Example: Instructional application resulting from design process	To apply CIL evaluation using SIFT or CCOW, students and instructor collaboratively determine that an important learning requirement is to successfully visualise their own emotional reactions to different kinds of sources, as well as how those source types reference or dialogue with each other. Students exercise personal control by creatively visualising how information on a topic of personal significance is presented across source types. Students experience success opportunities as they choose a variety of familiar sources to engage with (social media; YouTube; Wikipedia; Reddit; art, music, or tv) while working collaboratively with other students to tackle more traditionally "authoritative" sources (journal articles or academic books).
Guiding questions emerging from priorities identified in design process	• Students might engage in inquiry guided by the following questions, and develop their own follow-up questions in response: • What are my intellectual and emotional responses to each kind of source? Why might that be? • How might my previous experiences influence the way I interact with different information sources? • How is "authority" defined in each case? Who defines it?

4.3 Critical Confidence and Developmentalism

Developmentalism is all about the confidence component *learning requirements*. With this instructional approach, the goal is to guide students to re-define success as progress in their own learning. This approach emphasises "disruptive information," which calls into question the researcher's previously held beliefs and thus leads to learning (Lenker, 2017, p. 725). The learning-focused approach of developmentalism embraces the idea that there are many ways of knowing. Making it the goal of information evaluation to expand one's understanding, rather than have all the answers, supports the participatory meaning-making goals of CIL pedagogy, as instructors and learners collectively challenge the understanding of *good* information as static and objective fact.

Table 3: Implementing CIL in evaluation pedagogy – evaluating information through problem posing – through an instructional design process guided by sub-components of ARCS Confidence.

Evaluation Method	Developmentalism (Lenker, 2017)
CIL Pedagogy	Problem posing
Findings: Design Process for Confident Evaluation	To engage in problem posing to evaluate information through the developmentalist approach, students and instructor will determine _____ by: Learning requirements: _____ Success opportunities: _____ Personal control: _____
Example: Instructional application resulting from design process	To apply CIL evaluation using developmentalism, students and instructor collaboratively determine that an important learning requirement is to successfully draft research questions that help identify hidden or silenced perspectives on a topic. Students exercise personal control by brainstorming as many questions from as many different perspectives as they can think of to learn more about a topic from their course content. Students then narrow in on the perspectives they find most critical to amplify and investigate. Students experience success opportunities by sharing a unique source they found with a small group or the whole class.
Guiding questions emerging from priorities identified in design process	• Students might engage in inquiry guided by the following questions, and develop their own follow-up questions in response: • For what purpose am I engaging in research or learning? • What more might I need to know to expand my understanding? • Which perspectives might be missing from the broader conversation around this topic and why? • What kinds of information or perspectives might be *disruptive* to my positionality?

4.4 Critical Confidence and Proactive Evaluation

Proactive evaluation showcases the CIL pedagogy dialogue. Students identify how prior knowledge shapes their unique perspective in evaluation and extend self-reflection outward to map power dynamics, privilege, bias, and difference across individual and collective information landscapes. This approach centres dialogue to better understand others' information experiences. Proactive evaluation challenges traditional argumentation and publication structures that lead to erasure, avoidance, or oppression of conflicting beliefs. Students engage in holistic examination of affective responses to information and the social structures shaping it. Locating students' responses within a broader social context brings their lived experience to the process of evaluation.

Table 4: Implementing CIL in evaluation pedagogy – creating a student-centred environment – through an instructional design process guided by sub-components of ARCS Confidence.

Evaluation Method	Proactive evaluation (Bull et al., 2020)
CIL Pedagogy	Dialogue
Findings: Design Process for Confident Evaluation	To engage in dialogue to evaluate information through the proactive evaluation approach, students and instructor will determine _____ by: Learning requirements: _____ Success opportunities: _____ Personal control: _____
Example: Instructional application resulting from design process	To apply CIL evaluation using proactive evaluation, students and instructor collaboratively determine that an important learning requirement is to successfully investigate the sociotechnical process a particular source of information goes through before one encounters it, including identifying the power dynamics at play behind its creation and dissemination. Students exercise personal control by determining how they will engage in dialogue with their classmates and instructor – through written comments via a shared document or by speaking in group discussion. Students experience success opportunities by learning how to submit edits to an existing Wikipedia article, where the results of their investigation into unheard perspectives can have a tangible positive impact upon expanding the conversation around a particular topic.
Guiding questions emerging from priorities identified in design process	• Students might engage in inquiry guided by the following questions, and develop their own follow-up questions in response: • Who benefits from my engagement with a particular kind of information, and in what ways do they benefit? • What information do I have access to that others don't, and vice versa? • How am I part of shaping others' information interactions?

5. Discussion

Leveraging confidence-building design may advance the adoption of CIL teaching approaches by removing the pressures of teaching content and skills and focusing on high-impact discussions and practices. The proposed confidence-building CIL crosswalk framework offers a flexible and contextual structure within which various information evaluation methods can be taught in a time-sensitive environment, while enabling IL instructors to develop robust, critical pedagogical approaches that can be applied regardless of their degree of autonomy over the timing or subject matter of teaching sessions.

The researchers' review of checklist evaluation literature reinforced a core finding that a tool cannot replace a pedagogical process. Handing learners a checklist (a tool) does not facilitate deeper engagement with the contexts and processes behind the checklist criteria (a pedagogical process). Conflating the two results in misconceived, ineffective attempts at

evaluation (Wineburg et al., 2020). The researchers' analysis of emerging critically-oriented evaluation methods and integration of confidence sub-components suggest confidence-building instructional design as an alternative to checklists as critical approaches increasingly define IL instruction. Encouraging student confidence may help learners trust themselves and their prior knowledge as tools in the learning process. This is especially important in challenging instructional situations, for example: when discussing difficult topics or when limited by time constraints.

The shift toward critical approaches in IL research and practice represents a major shift in the conception of IL and motivations for engaging with information. Newly proposed evaluation pedagogies can be considered critical in nature because they invite IL instructors and students to challenge traditional educational and informational hierarchy. With these new methods, learning goals are student-driven, no longer externally imposed or arbitrary measurements of learning; neither are the criteria by which students determine what constitutes *good* information. Rather, evaluation becomes a participatory process through which students investigate questions that matter to them - a method to create change or growth. Teaching evaluation with a critical lens invites instructional choices that directly involve students in developing their own purpose in learning, naturally increasing confidence in the process.

The confidence component of the ARCS motivation model presents a design structure for IL instruction that instils curiosity and agency. Confidence may inform timely pedagogical strategies for the current information landscape defined by algorithms, misinformation, and polarised rhetoric. With confidence-building design, IL instructors can help students focus on what they can control in information evaluation – their process of learning: continually asking questions, researching to increase their knowledge of a topic or improve problem-solving skills rather than seeking to provide the "correct" answer, and engaging in dialogue between perspectives, rather than stacking up a citation list of authorities whose opinions support their viewpoint. Such a perspective shift can support curiosity and agency when faced with the unknown or unfamiliar, rather than reacting with fear or disengagement when encountering information challenges beyond their control, such as human or algorithmic bias, misinformation, or disagreement between authorities (Fister, 2022).

Confidence is also necessary for the vulnerability required to engage in critical evaluation. CIL requires both instructors and students to confront uncomfortable ideas: our own biases and limitations; asking questions with no clear answers; dialoguing with people who disagree with us; and determining our own steps to take in the learning process. Asking students to take on this discomfort requires trust, and IL instructors who teach one-shots simply do not have the luxury of time to develop these relationships with students. However, IL instructors can demonstrate vulnerability by sharing classroom decision-making (Douglas & Gadsby, 2022). Empowering students in this way may develop their confidence to trust themselves – their ability to iterate a process, build on their knowledge, and ask questions in unfamiliar circumstances. Bringing more of themselves into their learning can build motivation to engage in critical evaluation.

In confidence-building, critical focus evaluation learning experiences, IL instructors highlight the unique knowledge they bring to the classroom: how to examine motivations behind information and reframe personal motivations to cultivate intellectually curious practices. IL instructors help students build a foundation of confidence by framing information evaluation as a participatory place for critical questioning, exploration, creative expression, and dialogue. As IL instructors

work with students to understand the evaluative process of seeking, questioning, creating, and acting upon knowledge, it is essential to frame those choices in a confidence-building design process that builds on students' experience.

5.1 Student Confidence in the IL Classroom

Considering both the need to incorporate student control and the constraints of a one-shot instruction session, confidence-building design may be a valuable tool for getting to the heart of learners' motivation to engage in critical information engagement. The researchers analysed unique characteristics of applying ARCS confidence to IL instruction, guided by questions of motivation: does the learner feel as though their educational success is determined externally by chance or another person's decisions? Or is the student's internal control the determining factor for success? Framing evaluation as a critical learning process of dialogue and problem-posing may provide meaningful agency.

As learners gain clarity on their ability and responsibility to critically engage with information systems and sources, they may also better appreciate the real-world implications of being engaged citizens capable of navigating the complexities of our information environment. At a foundational level, implement the CIL pedagogy of a student-centred classroom by encouraging students to investigate questions directly relevant to them or critique content that they encounter every day (such as disciplinary knowledge in classes, hobbies or interests on social media, or discussions within families or communities). Confidence may increase as students identify meaningful learning outcomes to apply in these personally and socially impactful contexts.

IL instructors can enact the CIL pedagogy of dialogue by breaking down and giving attention to assumptions and actions within the information creation process. Then, the goal of learning information evaluation is not absolute certainty. Rather, students can give themselves permission to spend time learning more to contextualise their experiences within a wider array of knowledge and perspectives (Fister, 2022; Lenker, 2017; Lenker, 2023; Holliday & Rogers, 2013).

This approach provides a safe space to practice the CIL pedagogy of problem-posing, looking beneath the surface of the perspectives and concepts taken for granted as fact. Because students examine what they know and determine what to learn, critical analysis skills may develop with greater confidence. Because it's clearer that the process directly impacts their lives and is applicable beyond one assignment, students may find greater motivation to practice critical evaluation strategies and mindsets modelled by the IL instructor.

Students, like instructors, are inundated with challenging information. Critical evaluation pedagogy aims to provide learners with growth-focused strategies to meet this information with curiosity and, importantly, act to shape the world they see through it. Identifying students' prior knowledge to motivate and activate the evaluation process could create success opportunities for this to happen. Additionally, modelling the learning process as iterative and empowering students to contribute to scholarly conversation creates opportunities for high-impact interactions through authenticity and vulnerability.

5.2 Limitations and Future Directions

This study is conceptual and exploratory, and the integration of a confidence-building design model for critical evaluation pedagogy requires further investigation and practical application within instructional contexts to reflect upon effectiveness. The researchers also recognise that while incorporating confidence-building pedagogical design may provide new ideas for implementing CIL instruction, it cannot fully address all the challenges of taking a critical approach, particularly embedded institutional challenges. There will always be some measure of risk involved for IL instructors who choose to call attention to issues of social justice and power dynamics in their teaching, and the researchers do not minimise that ongoing struggle.

As IL instructional practice draws from educational theory, opportunities also emerge for the growing body of library science theory, such as CIL, to contribute to the further development of educational theory. This cross-disciplinary dialogue could bring about a more unified implementation of critical pedagogical best practices, as IL instructors, faculty, and students increasingly share perspectives and collaborate.

As ARCS confidence becomes more familiar to IL instructors, they may consider how other facets of motivational design might support critical and participatory methods of teaching and learning. As this area of IL research expands, K-12 instructors and public library IL instructors could benefit from the application ARCS confidence and CIL in their instructional design. An important area for continued exploration will be the impact of trust and relationship between students, faculty, and librarians on the effectiveness of one-shot IL instruction.

6. Conclusion

An important distinction between checklist evaluation and confidence-building, critical evaluation pedagogy is the latter's intentional focus on student involvement in creating and critiquing knowledge, as well as the social systems behind those processes. Among other shortcomings, checklists without critical practices are simply more content that students are asked to reproduce *correctly*, not an intentional pedagogical approach to learning strategies to engage thoughtfully with information. When considering the barriers to implementing CIL evaluation pedagogy, IL instructors must reevaluate as citizens, and learners themselves how to spend our time - is the goal really for students to 'find five scholarly articles' for a paper and move on? Or is it of greater benefit for students to develop self-determined strategies and sociocultural awareness, knowing they can confidently engage in knowledge creation - in question-posing, dialogue, and creating change?

Approaches to information evaluation and pedagogy have evolved as IL practice moves away from the attempt to condense and simplify complex information processes into easily digestible acronyms and checklists. This paper aimed to examine changes in evaluation pedagogy and offer suggestions for teaching application. Though IL instructors' time with students may be short, when we spend that time collectively exploring the *why*, students can build confidence in learning through critical engagement with information. The more IL instruction situates evaluation within personal and societal impact, the more students' confidence grows, and they may perceive powerful evaluations they can make to impact the ways we know.

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