

A PROCESS FOR MAKING EVIDENCE-BASED UPDATES TO COURSE LEADER TRAINING CURRICULUM

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ABSTRACT: The American Institute for Avalanche Research & Education (AIARE) trains avalanche practitioners to effectively teach recreational students. In this model, avalanche professionals can enroll in an Instructor Training Course (ITC) and subsequent Course Leader Training (CLT), where subject matter experts are given tools and practice to deliver AIARE recreational curriculum in a productive learning environment.

In 2018, AIARE revised the methodology, curriculum, and sequence for training avalanche education instructors to correspond with two newly introduced levels of professional training, the PRO 1 and PRO 2, which are prerequisites for those courses, respectively. Since then, AIARE has trained 726 instructors and 250 course leaders to enter the avalanche education ecosystem.

AIARE's evaluation of its course leader training revealed performance and effectiveness trends relevant to the entire industry. This paper will review the education research and MEL frameworks utilized to evaluate course leader performance after training, the effectiveness of AIARE's training curriculum, and the training process from prerequisites to precourse work to in-person training to continuing education. AIARE's evaluation inspired a three-phase adaptation and update process, which this paper proposes as a model for similar training curriculum updates. We designed a new portrait of training proficiency and corresponding performance criteria based on the most obvious imperatives from research and program evaluation. We deployed three different versions of the CLT curriculum, based on three different design philosophies, and analyzed the performance of those programs. Lastly, we hybridized the successes and addressed the challenges of each curriculum, combining them into a single updated curriculum that will be uniformly instructed beginning in the 2026–27 season.

In order to instigate a process as painstaking as program evolution, we propose our research and design process as one pathway others might emulate or improve upon.

KEYWORDS: Avalanche education; Program evaluation; Educational best practices; pedagogy; operational leadership.

1. INTRODUCTION

The American Institute for Avalanche Research & Education (AIARE) deploys a network of avalanche educators across the United States. AIARE packages recreational avalanche education curricula commonly referred to as the AIARE Risk Management Framework, but we rely on approximately 600 instructors, course leaders, and providers to disseminate this

curriculum around the country. On a day-to-day basis, AIARE curriculum designers refine our recreational products, provide updates and continuing education as needed, attend to changes in technology and best practices, and respond to input and feedback from our educators. AIARE also trains its providers' avalanche educators directly in effective delivery of its programs.

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AIARE providers include guide services, outdoor programs at academic institutions, outdoor education programs, individual guides and instructors running their own businesses. Providers agree to work within the terms of a

licensing agreement, and one of those terms stipulates that a provider must employ instructors that have successfully completed an AIARE Instructor Training Course (AIARE ITC). Furthermore, providers agree that those instructors must be supervised, mentored, and led by a course leader that has completed an AIARE Course Leader Training (AIARE CLT).

Within this training model, AIARE curriculum designers are not only custodians of our recreational product from day to day, but each year we must also refine our ITC and CLT curricula.

1.1 Program history

Early in 2024, we made substantive changes to the AIARE ITC curriculum; those changes were accompanied by challenges with implementation and execution. This prompted a different approach to the research, design, implementation, refinement, and finalization of the AIARE CLT curriculum. We propose that process as a model for others to carry forward.

1.2 Problem statement

While AIARE works to audit and update its curricula on a regular basis, the impetus for this particular update was the accumulation over four seasons (beginning in 2020–21 with the “covid boom” in student numbers and subsequent course demand) of concerns from AIARE providers about a perceived “shortage” of qualified course leaders. This merited investigation because all AIARE 1 and 2 courses require the presence of a qualified course leader, and so a shortage of course leaders would be a limiting factor in the number of courses offered. Upon further investigation, we also heard concerns about the preparedness of course leaders to manage instructor teams in the field.

In January 2025, we began gathering data from a variety of stakeholder groups. Through surveys and interviews, we gathered feedback from current course leaders (i.e. those who had experienced the role of course leader for several

seasons, not brand-new trainees). We talked to providers facing the challenge of finding, recruiting, training, and staffing course leaders. We talked to AIARE Instructors who had not yet taken a CLT, to understand their motivations and/or obstacles to training. By May 2025, we had a strong sense of ground truth for what the CLT had been up to that point, what course leaders were actually doing in their jobs, the perspective of employers, and the hopes and frustrations of instructors.

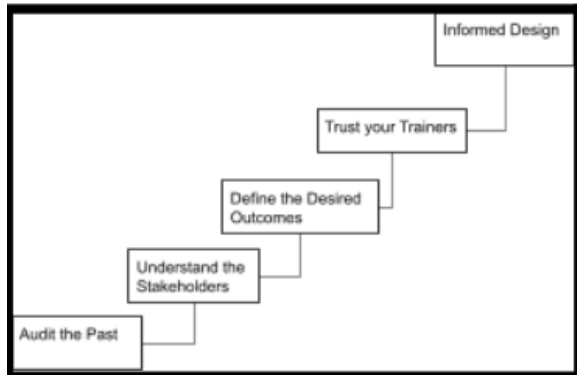
In short, it was clear that we needed to build a course that adequately prepared future course leaders to manage operational risk and act as educational leaders in an avalanche education context.

1.3 Program audience

In many ways, the CLT is the most advanced level of education AIARE offers. Since its previous redesign in 2018, it required the highest level of training and qualification as a prerequisite; AIARE CLT applicants are required to have completed an A3-approved PRO 2 course. It required the most years of experience as an avalanche instructor; applicants are required to have taught at least eight AIARE recreational courses, including at least one of each course type, over two or more seasons, at a minimum; this prerequisite is on top of many more years of personal experience managing risk in the winter backcountry. Course leaders must also be professional members of the American Avalanche Association (A3).

CLT candidates work for some of the most successful and industrious programs in the United States: enterprising climbing and backcountry skiing programs, university and college outdoor programs, academic outdoor leadership programs. Accordingly, the trainers we hire to teach AIARE CLTs are some of the most accomplished educators in the avalanche industry. Cumulatively, the knowledge and experience of all these stakeholders necessarily became the backbone of our revision process. It

is difficult to imagine a process that excludes them.



2. CURRICULUM REVISION PROCESS

2.1 Audit the past

AIARE has a record of every CLT since 2018, including performance criteria and learning outcomes, and agendas (content, activities, time plans, tour plans, lesson plans). Trainers documented their debriefs and summaries of their successes and challenges; our records also included performance evaluations of each trainee, as well as trainees' and trainers' candid appraisals of the training experience.

As any historian can attest, it is hard to understand the present, much less chart a course for the future, without a clear-eyed inventory of the past. Our CLT revision began with a complete audit of all the aforementioned CLT training materials, records, and archives since 2018. These records were crucial in our ability to understand our performance baselines.

Among many learnings and insights, our audit of the past made one lesson abundantly clear: regardless of curriculum design, trainers are the most influential factor in AIARE CLT delivery and execution. Skilled trainers adapt to adverse conditions and student needs, engender trust and commitment from trainees, and they inspire learning. To do this, they need flexibility to express their teaching preferences and skills. Inversely, overwhelmed or stressed trainers have difficulty adjusting to a challenging environment. Confused or unprepared trainers do not achieve

all the desired outcomes of training. Disgruntled and neglected trainers pass on their mistrust and resentment to their trainees.

2.2 Understand the stakeholders

We were especially eager to hear from providers, supervisors, and managers tasked with hiring, training, supervising, managing, and in some cases terminating AIARE Course Leaders. What trends had they observed over the years? In what ways did their course-leading employees excel? In what ways did they fall short? What suggestions and complaints did providers have, faced with the course leader workforce our CLT had created?

Current course leaders, with a range of work experiences, from a range of venues, climates, and working conditions, were another crucial set of stakeholders. Current course leaders could speak directly to how well their CLTs had prepared them to do their jobs, insight they might have lacked immediately after completing their initial training. Our most experienced course leaders would also be able to contrast their own competence with each year's newly trained course leaders. Which of their peers required the most mentorship and support? What kind of support did they require?

Finally, we needed to hear from Instructors that were qualified to take an AIARE CLT, but for unknown reasons had not done so. These individuals could help us understand the perception and the value proposition (or lack thereof) of completing an AIARE CLT. In all cases, these instructors work directly under the supervision of generations of course leaders, so they offer a unique perspective on the proficiency of their course leaders. But they also help us understand why the AIARE CLT might not be the most important training opportunity for so many stakeholders.

We conducted a series of one-on-one interviews with representatives from each stakeholder group, careful to select a demographic array in each category. We talked to large guide service

owners, college professors in outdoor programs that include avalanche training, and independent providers that do it all (owner/provider, course leader, and instructor). We talked to course leaders across the country, men and women, some trained since the very beginning of AIARE, some trained since the most recent CLT update in 2018, and some trained as recently as 2023. We talked to AIARE Instructors across the same kind of demographic array; they were all qualified to take an AIARE CLT but had not yet done so.

Each set of interviews revealed trends, themes, and impressions common to nearly everyone in the stakeholder group. We then created a survey that could be used to measure the prevalence of those trends, themes, and impressions across our entire network, every provider, every AIARE course leader, and every AIARE Instructor.

Among the many learnings and insights provided by those interviews and all those surveys, one lesson was abundantly clear: the perception of the AIARE CLT was variable. Some providers looked to their course leader employees as steadfast partners and indispensable leadership assets. Some course leaders regarded their AIARE CLT as a career-altering revelation. Some AIARE Instructors held the CLT in such high regard, they dared not enroll until vastly exceeded the minimum requirements. Oppositely, at least someone in all stakeholder categories characterized an AIARE CLT as pointless endeavor that should only be undertaken if absolutely necessary to maintain a provider agreement.

2.3 Define the desired outcomes

Understanding the past and understanding current stakeholders helped create a portrait of the course leaders that were most valued and successful across our network. It helped us create a list of proficiencies that successful and valued course leaders had in common. By extension, we could stipulate that a successful and valued training process would teach, implement, and test those proficiencies within the established parameters of time and cost. We

understood from many stakeholders that increasing the cost of training or the time needed to complete training would not be a welcomed option in design.

Three core proficiencies common to all valued and successful course leaders emerged:

- They are leaders within their operation.
- They are leaders and mentors of instructors.
- They are risk management leaders.

Within those topline proficiencies, a specific set of skills also emerged.

- Operational Leaders are able to adapt to the unique policies and procedures of their employers. They are able to help with operational duties like onboarding and orienting new AIARE instructors, designing a program, and serving customers/students.
- Instructional Leaders are able to develop and mentor new instructors through effective feedback, demonstrate and role-model excellence in their own teaching, and create positive learning environments for students and instructors alike.
- Risk Management Leaders lead effective pre-and post-trip meetings, they close terrain that intersects hazard and/or a lack of educational value, and they role-model and demonstrate a Pro2 level of risk management.

While it was perfectly clear that successful and valued course leaders possessed a variety of additional skills and attributes, it was also clear that these core proficiencies should be achieved by every AIARE CLT trainee that successfully completes training. When comparing this now much shorter and much more concentrated list of proficiencies and skills with the performance criteria revealed in the audit, it was abundantly clear that our trainers would be able to demonstrate, teach, provide practice opportunities, and test this new streamlined set of

proficiencies. We had a clear vision of what the CLT was supposed to achieve, at a minimum.

2.4 Trust your trainers

Our audit of the past, our understanding of stakeholders, and our defined desired outcome still did solve the mystery of how to achieve our streamlined proficiencies in a four day training model. Nor was it entirely clear how our desired outcomes would be scored and evaluated. At this moment in our revision process, it was tempting to simply rely on the hired expertise of our curriculum designers. Our team could have simply declared a standard agenda, scoring criteria, and mandatory content blocks; we would have completed the revision process a year early.

But such a unilateral design choice underestimates the expertise and influence of trainers. Instead, we stipulated that a selected group of trainers could provide invaluable design assets if permitted and paid to follow their own design instincts and preferences. We contracted our CLT trainers for the following season as designers, compensating them for design duties that far exceeded their typical regiment of training preparation and planning. They were given suggested scoring criteria, suggested agenda, suggested content, but otherwise tasked with curriculum design entirely of their own invention and preference.

We reasoned that deviations from one training to the next would be no more severe than the variability we had already documented in our audit and the general impression of stakeholders. Instead, this season's variability would be intended, it would be part of a designed experiment, and our most influential educators would take the lead.

In the 2025–26 season, we conducted three AIARE CLTs.

In the first, our course director designed an ambitious and burgeoning agenda that demanded precise time planning, constant adaptations of content blocks to shorten intended

lessons and activities, and pushed the length of each training day to the brink of what trainees and trainers could successfully achieve.

In the second, our course leader combined the training of ITC and CLT, providing CLT Trainees with a student-teaching model, wherein developing new instructors experienced the developing leadership of new course leaders. Much like its counterpart, trainers discovered the challenge of time planning and confusing layers of instruction. At some points, ITC trainees had to unravel the mystery of witnessing their trainers provide feedback on the feedback their CLT-trainee-mentor had just provided. While not entirely unmanageable, it was time consuming.

In the final training, perhaps chastened up the learnings of their counterparts, the course director opted for an agenda that closely resembled previous CLT they had delivered. While this tactic was not as radical as the others, it did provide a more comfortable and familiar teaching experience for trainers, who simply modified the wording and titles on the slides and activities from previous years.

By the end of the season, three CLTs were taught in dramatically different ways, but all achieved the desired outcomes of training. They all taught and tested the new core proficiencies and they revealed the central design challenges that would not have been obvious without the experiment. We learned that:

- Lecture and discussion activities reduce time available for demonstration, practice, and testing.
- Trainees valued time spent practicing and receiving feedback most.
- The simplified set of proficiencies and skills could credibly be tested in the four day format, even with vastly different agendas and content blocks.

2.5 Informed design

Finally, we could make some informed decisions about a revised AIARE CLT curriculum. The

changes that will be implemented in the 2026–27 season will create uniformity with flexibility, which was missing in the past. It will create course leaders that are more prepared to work for more providers immediately after training. It will be the product of our collective expertise and creativity, designers and trainers aligned.

The major changes to the curriculum include:

- A reformulation of all pre-training assignments to address constraints of classroom time in a four-day training model. Most of the content that preoccupied so much lecture and activity time have been relocated into an 8-hour asynchronous online course that is mandatory pre-training work.
- Mandatory content blocks center on demonstration-practice-test modules that prioritize skill and proficiency acquisition.
- Scoring criteria primarily follow a pass/no-pass rubric along strict objective criteria, like completing the online pre-training course and attending all four days of training.
- Scoring criteria that must be qualitatively evaluated (leadership of a pre-and post-trip meeting, quality of feedback, etc) are minimal and a clear rubric provides performance parameters.

3. CONCLUSION

There are a variety of reasons an organization might choose to update training curriculum. A curriculum that underperforms in the education marketplace demands revision as a matter of financial necessity. A curriculum that produces consistent negative outcomes, or outcomes that are inconsistent with design, demands a reformulation of its content, its delivery methods, or proficiencies it aims to achieve. A curriculum that has aged, its contents no longer accurate or relevant, demands modernization. In each case, an organization finds itself responding and reacting to a revealed or realized shortcoming.

AIARE has not yet managed to transcend this tendency. Our updates to our Instructor Training Course in 2024 and the updates to the Course Leader Training described in this paper were necessitated by critical mass of feedback from stakeholders, students, staff, and industry partners. However, in our careful work to revise the AIARE CLT curriculum, we discovered a process that optimized the quality of our update. More interestingly, we discovered mechanisms to monitor our training program that have always been available to us, and will continue to be available in the future. We discovered evaluation metrics that can be accessed at any time, and a collaborative design experiment that validates our most influential educators.

We offer this process to our industry for emulation or further improvement. We would also suggest that simply scheduling this process in advance, at planned intervals, preempts the reactionary necessity of curriculum updates. Moving forward, we plan to initiate this revision process at half the interval between this most recent update and its predecessor. In 2030, long before the next generation of trainees, trainers, providers, instructors, and course leaders begin to notice the need for an update, the process of update will have already begun.

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