



*GET*

**ON THE AIR**

# **THE LICW METHOD GUIDE**

*WHY WE TEACH THE WAY WE DO*

VERSION 2.4



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## ***REVISION HIGHLIGHTS:***

**Version 2.4** expands the discussion of the transition from written copy to direct comprehension. It explains how repeated practice can establish a strong auditory-to-writing association and why apparent performance may temporarily decline when the pencil is removed.

The revision introduces imagined handwriting as an optional transitional scaffold for selected students who experience difficulty retaining recently recognized characters after physical transcription is removed. It also clarifies that head copy does not require visualization and that successful comprehension should be evaluated by what the student understands, not by a prescribed internal mental image.

Version 2.4 further distinguishes temporary motor imagery from covert transcription and reinforces the long-term objective of increasingly direct comprehension through word discovery, context, listening forward, and meaning.

The revision retains the Guediche and Fiez (2021) framework introduced in Version 2.3 and the Koch-related clarifications retained from Version 2.2.



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## ***A NOTE BEFORE THE METHOD***

Many students arrive at LICW carrying the same quiet fear.

They may have learned some characters. They may have practiced with software, listened to recordings, watched videos, read advice online, or tried to return to Morse code after many years away. They may recognize letters when they arrive slowly and separately. They may even copy reasonably well in short practice sessions.

And yet, when real code begins to flow, something changes.

A missed character becomes a distraction. A missed word becomes a loss of confidence. The student looks backward, tries to recover what has already passed, and suddenly loses what is arriving now. The sound keeps moving, but the mind stops. What began as practice becomes frustration.

Many students describe this moment as failure.

The LICW Method was developed to help students understand that it is not failure. It is part of the normal path from recognition to communication. Morse code proficiency does not develop in one step. Recognizing individual characters is important, but it is only the beginning. Real CW requires something more. It requires the ability to stay with the sound as it moves, tolerate imperfection, recover from missed information, hear patterns, understand meaning, and continue communicating in real time.

That is why LICW teaches the way it does.

The purpose of the LICW Method is not simply to help students memorize characters or achieve a number on a practice screen. The purpose is to help students become capable, confident CW operators. That means operators who can copy imperfect code, send with reasonable confidence, recover from mistakes, understand common operating patterns, participate in real exchanges, and ultimately use Morse code on the air.

This guide explains the reasoning behind that approach.

Some parts of the Method Guide are necessarily detailed. They discuss character speed, Farnsworth spacing, curriculum structure, class level overlap, flow-based learning, repetition, error recovery, decoders, sending



methods, and the evaluation of new tools and ideas. Those subjects matter because teaching decisions have consequences. A small change in method can either help a student move toward fluency or unintentionally reinforce habits that later become difficult to overcome.

But beneath the detail is a simple idea:

LICW teaches Morse code as a sound, a skill, and a form of communication.

It is first a sound. Students must learn to hear Morse characters as complete acoustic patterns, not as dots and dashes translated through a chart. The ear must lead. The mind must gradually learn to recognize the sound directly.

It is also a skill. Morse code is not a subject that can be mastered by understanding the explanation alone. It develops through practice, repetition, exposure, recovery, and time. Like music, flying, athletics, language, or any other real-time performance skill, progress is uneven. Plateaus are normal. Breakthroughs often come after long periods that feel unproductive. Much about Morse code can be taught and learned. A student can learn the identity of the characters, understand proper timing, study QSO structure, learn operating conventions, and understand the principles behind productive practice.

But knowing *about* Morse code is not the same as being able to use Morse code fluently.

**CW is not learned; it is practiced into automaticity.**

This distinction is fundamental to the LICW Method. Familiarity cannot simply be explained, memorized, or intellectually understood. It must be built through repeated exposure and use. A student may completely understand what automatic recognition is and still not yet possess it. With sufficient purposeful practice, something gradually changes. The student stops consciously analyzing each sound and begins recognizing it directly. The sound becomes the character. Familiar patterns begin to announce themselves without deliberate reconstruction. Recognition takes less effort, flow becomes easier to maintain, and attention becomes increasingly available for words, context, and meaning.



Familiarity is built through time and repetition, not learned as a fact.

This is why Morse code differs from a primarily academic subject. Explanation can show the student what to do and why. Instruction can establish good habits, prevent counterproductive ones, provide feedback, and direct practice. But instruction cannot substitute for the repeated experience through which the skill itself develops.

As with other real-time performance skills, Morse code must ultimately be performed enough that what once required conscious thought becomes increasingly natural and automatic.

Most importantly, Morse code is communication. The goal is not perfect classroom copy. The goal is the ability to exchange meaning with another operator. That may happen in a friendly QSO, a net, Field Day, POTA or SOTA, a contest, a special event, or a simple first contact made with trembling hands and great satisfaction.

LICW's motto is Get On The Air because the air is where Morse code becomes real.

The Method exists to serve that goal.

This is why LICW places so much emphasis on flow. Flow does not mean copying everything perfectly. It means staying engaged with the code as it continues to arrive. It means learning not to stop when something is missed. It means protecting the next character, the next word, and the next thought.

For many students, this is the turning point.

They begin by believing that success means never missing. Over time, they learn that successful operators miss and recover constantly. They do not copy by freezing every time the stream becomes imperfect. They copy by staying in motion.

That shift changes everything.

A missed character becomes less frightening. A missed word becomes survivable. A difficult class becomes useful instead of discouraging. A faster class becomes a stretch rather than a verdict. The student begins to



understand that discomfort is not proof of failure. It is often the place where growth begins.

This is also why LICW does not treat progress as a rigid staircase. Students do not always move neatly from one level to the next. Morse code development is rarely that orderly. A student may need comfort classes to stabilize confidence and stretch classes to build capability. A class that feels too fast today may become manageable after repeated exposure. Yesterday's stretch becomes tomorrow's comfort zone. The LICW Method is designed around that reality.

It gives students structure without turning the calendar into a judgment. It gives instructors principles without turning those principles into a script. It gives the club academic continuity without preventing thoughtful change. That balance matters.

LICW should continue to improve. New tools will appear. New instructors will bring new ideas. New students will arrive with different backgrounds, needs, and expectations. The Method Guide is not intended to stop that evolution. It is intended to help LICW evaluate change wisely.

The question should never be, "Is this new?" or "Is this impressive?" or "Is this how someone else does it?"

The better question is:

Will this help students become more capable, confident CW operators? If a new idea supports sound-first learning, flow, recovery, confidence, communication, and real operating, it deserves careful consideration. If it distracts from those goals, fragments the learning process, encourages dependence on visual decoding, or makes students feel that perfection is required before participation, it should be questioned.

The LICW Method is not academic theory for its own sake. It is the accumulated result of years of teaching, observing, adjusting, and listening to students. It reflects the struggles instructors have seen repeatedly: students who know characters but cannot stay in the stream, students who panic when they miss, students who believe speed is the only measure of worth, students who think they must be fully ready before entering a harder class, and students who quietly disappear because they mistake normal difficulty for personal failure.



This guide exists because those students matter.

It exists so that instructors understand not only what LICW teaches, but why. It exists so that future curriculum decisions are grounded in student development rather than convenience, fashion, or tradition alone. It exists so that LICW can grow without losing the teaching principles that have helped so many people continue when they might otherwise have given up.

The Culture Guide describes how LICW should feel. This Method Guide explains how LICW helps students move forward.

The two belong together. A kind and welcoming culture gives students the courage to stay. A thoughtful and disciplined method gives them a path that leads somewhere. Encouragement without method can become sentiment. Method without encouragement can become sterile. LICW needs both.

A student should feel welcome here. A student should also be helped here. That is the purpose of the LICW Method.

It is not to make Morse code easy. Morse code is not easy for many people. It is to make the path understandable, humane, disciplined, and effective. It is to help students see that struggle is not disqualification, that missed copy is not failure, that speed is not identity, and that progress remains possible.

The ultimate measure of the Method is not the elegance of this guide. The measure is the student who stays with it. The student who returns after years away. The student who finally stops apologizing for being slow. The student who misses a word and keeps going. The student who enters a stretch class before feeling fully ready. The student who makes a first contact. The student who becomes an operator. That is why this guide matters.





## ***INTRODUCTION***

This guide preserves the instructional philosophy, curriculum rationale, and academic principles that define the LICW teaching methods and philosophies – The LICW Method.

It explains why LICW teaches the way it does, how the curriculum is intended to support student development, and how future academic changes should be evaluated.

Other student-facing or curriculum-reference materials may describe class structure, schedules, levels, and practical student guidance. This guide serves a different purpose. It preserves the reasoning behind the LICW Method so that future instructors, curriculum developers, and leaders can improve the program without drifting away from the principles that make it effective.



## ***HOW TO USE THIS GUIDE***

This guide is the institutional record of LICW's teaching approach. It should be used when evaluating curriculum changes, instructional practices, new tools, class formats, instructor guidance, and academic policies.

This guide does not need to describe every class schedule, student-facing instruction, or administrative detail. Its purpose is to preserve the academic reasoning behind the LICW Method.

Many of the principles documented here may feel self-evident to current instructors because they have developed through years of classroom experience, observation, and refinement. Over time, however, those assumptions can be lost, diluted, or unintentionally reinterpreted.

For that reason, this guide should be read as guidance for preserving academic continuity. Its purpose is to preserve the reasoning behind the LICW Method so that the club can continue to evolve without drifting away from the principles that make the curriculum effective.

At the same time, this guide is not intended to restrict thoughtful change. LICW maintains a culture of continual improvement. Methods may evolve, tools may change, and new ideas should be explored. What must remain constant is the discipline of evaluating those changes against sound instructional principles and observed student outcomes.

In that sense, this guide is not a constraint. It exists to inform judgment, not replace it, and to ensure that change is purposeful, grounded, and aligned with the long-term development of our students.



# ***HUMAN PERFORMANCE IN MORSE CODE ACQUISITION***

## **INTRODUCTION**

Human performance in the acquisition of Morse code varies widely. Some learners progress rapidly to proficiency, while others advance more slowly or experience extended plateaus. These differences are normal and should be expected.

This section reviews what is known about variation in Morse code acquisition, why learners progress at different rates, and what instructional principles can reduce frustration while improving long-term success.

## **HISTORICAL FOUNDATIONS**

### **Koch (1936): Acoustic Patterns and Character Speed**

The most influential historical source for LICW teaching methods is Ludwig Koch's 1936 report. Koch demonstrated that Morse characters should be learned as complete acoustic patterns rather than by visual reference to printed charts. He also found that characters sent below approximately 10 WPM were less likely to be perceived as unified sounds and more likely to be counted analytically. These findings support the sound-first foundation of the LICW approach.

### **The 5 WPM Legacy**

For decades, U.S. amateur licensing required 5 WPM decoding. That requirement encouraged rote memorization and chart-based counting methods that ran counter to Koch's recommendations. Yet many operators still achieved fluency, suggesting that while teaching method matters greatly, aptitude and persistence also play important roles.

### **Thurstone (1919): Aptitude as a Special Ability**

L. L. Thurstone found no meaningful correlation between success in telegraphy and occupation, education, or general intelligence. He concluded that telegraphy depends on a distinct auditory ability rather than on general intellectual attainment.

### **Lipmann (1928): Early Learning as a Predictor**

Otto Lipmann proposed that early learning speed may predict later success. How quickly a student learns the first few characters can provide



an early indication of whether progress is likely to be rapid or whether more time and support will be required.

### **Koch (1936) and Taylor (1943): Validation of Early Performance**

Koch described the first 30-60 minutes of learning - specifically, the acquisition of four to five characters at 12 WPM - as a meaningful proficiency check. Donald Taylor's 1943 Harvard thesis supported this principle, concluding that early learning performance is one of the strongest predictors of long-term proficiency.

### **U.S. Army (1968): Time to Proficiency**

Army data showed that learners reached 12 WPM in an average of 55 hours, but with a spread of approximately 18 to 110 hours. The significance of the finding was not merely the average, but the wide range: all students reached proficiency, but the time required varied substantially.

## **WHY PERFORMANCE VARIES**

Taylor's work suggested that differences in Morse code acquisition are shaped primarily by three factors:

1. **Aptitude** – natural auditory abilities, including rhythm, pitch sensitivity, and tonal memory
2. **Distribution and Quality of Practice** – how practice is spaced, structured, and sustained matters more than long, unfocused effort
3. **Motivation** – persistence, mindset, and confidence that progress is possible influence long-term success

Modern teaching experience continues to support these findings. Aptitude may affect the rate of progress, but the quality of practice and the strength of motivation remain the factors most within the learner's control.

## **ADDITIONAL PREDICTORS: MUSICAL ABILITY, AGE, AND BILINGUALISM**

- **Musical ability:** Historically associated with faster progress because Morse depends heavily on rhythm and tonal pattern recognition
- **Younger learners:** Often acquire Morse more quickly, likely because of greater neural flexibility
- **Bilingualism:** Although not emphasized in early telegraphy research, modern cognitive science suggests that bilingual learners may benefit from stronger auditory discrimination, working memory, and



attention control. This should be viewed as a possible advantage, not a guarantee.

## **THE PATH TO MORSE CODE PROFICIENCY, FLUENCY, AND MASTERY AT LICW**

Within the LICW Method, Morse code proficiency, fluency, and mastery do not come from memorizing characters in isolation. They develop through a series of intentional learning steps, beginning with sound-first character recognition, progressing through flow and word discovery, and ultimately extending into more durable, lower-effort communication at higher levels of performance.

1. **Character Recognition (BC1/BC2)** – acquisition of the 44 Morse characters
2. **Short-Word Character Flow (BC2 + Guided Practice/INT Prep)** – movement from isolated characters to short sequences
3. **Flow Skills Development (INT1)** – continuity, rhythm, and error tolerance
4. **Increasing Effective Speed (INT2)** – reduced TTR, stronger IFR, and growing Character Flow Proficiency
5. **Word Building to Word Discovery (INT3)** – increasing ability to perceive words as meaningful units
6. **Fluency (ADV1)** – real-time CW communication under natural operating conditions
7. **Extension to Mastery (ADV2/ADV3)** – deeper fluency under higher speed, increased density, longer duration, and reduced cognitive effort

This progression is central to Project OverLearn and distinguishes the LICW Method from approaches that remain centered on isolated recognition accuracy alone. It also reflects a continuous developmental path from initial proficiency through real-time CW fluency and into mastery-level operation.

## **MANAGING EXPECTATIONS**

Progress in Morse code is not linear. Learners often experience extended plateaus followed by sudden breakthroughs. Without proper framing, students may interpret these plateaus as evidence of failure when they are in fact normal periods of consolidation.



Misaligned expectations increase frustration and contribute to dropout. Clear instructional framing - that progress varies widely and that plateaus are both normal and temporary - helps sustain persistence and reduces discouragement.

## STRATEGIES TO MINIMIZE ACQUISITION TIME

- Optimize practice through short, frequent sessions rather than long, fatiguing ones
- Integrate sending and receiving so that recognition and production reinforce one another
- Emphasize flow over perfection, especially through IFR and continuity
- Apply OverLearn principles to reduce TTR and strengthen flow
- Use Bootcamp, where appropriate, as an accelerator rather than as a requirement

## LICW POSITION

- Human performance in Morse acquisition varies widely, and that variation is expected
- Aptitude may influence both the rate and eventual level of performance, but it should not be used to predetermine a learner's potential. Consistent, high-quality practice can produce meaningful progress and useful operating skill across a wide range of learners.
- Curriculum should be designed for different rates of progress. Carousels, Guided Practice, class scheduling that encourages stable peer groups, and OverLearn Bootcamp provide flexible pathways that allow students to progress according to demonstrated proficiency rather than the calendar
- Instruction should normalize plateaus, emphasize recovery, and focus on process measures such as **TTR**, **IFR**, and **flow**, not speed alone
- Every student deserves a realistic path, appropriate support, and the opportunity to progress.

## CONCLUSION

Morse code is not mastered through rote memorization or brute force drilling alone. It is acquired through structured progression guided by sound principles of human learning. Differences in pace are natural and



predictable, and with appropriate support, students can continue progressing toward fluency.

Within the LICW Method, OverLearn principles - flow-first learning, process-based progress measures, recovery skills, and sustained guided practice - represent the club's best synthesis of historical research, classroom observation, and practical teaching experience. The purpose of the curriculum is not only to teach Morse code, but to sustain learners with confidence, patience, and purpose as they move toward fluent communication.



# **OBJECTIVE AND OPERATING FOCUS OF THE LICW CURRICULUM**

## **PURPOSE**

This section defines the primary objective of the LICW curriculum and clarifies the type of Morse code skill it is designed to develop. Its purpose is to ensure that curriculum development, instructional decisions, and future changes remain aligned with LICW's central goal: helping students become capable, confident CW operators.

## **PRIMARY OBJECTIVE**

The primary objective of the LICW curriculum is to develop operators who are proficient and fluent in Morse code communication.

This includes the ability to copy and understand Morse code in real time, maintain continuity during imperfect copy, recover from misses without disruption, and communicate effectively on the air.

LICW students may apply these skills in many operating environments, including conversational QSOs, nets, POTA and SOTA, Field Day, contesting, traffic handling, special events, and other forms of CW operation.

The emphasis is on communication, confidence, and real-world capability, not isolated numbers or scores.

## **RELATIONSHIP TO FLOW-BASED LEARNING**

Flow-based learning is specifically aligned with this objective.

It develops continuous engagement with the sound flow, tolerance for incomplete information, real-time processing and recovery, and intuitive recognition of words, callsigns, abbreviations, exchanges, and common operating patterns.

These skills are useful across many forms of CW operation. Whether a student is having a conversational QSO, completing a contest exchange, checking into a net, activating a park, or handling structured traffic, the operator must still hear the code, remain in motion, recover from missed information, and continue communicating.





## **DISTINCTION AMONG OPERATING STYLES**

Morse code supports a wide range of operating activities, each with different demands and priorities.

Conversational operating emphasizes comprehension, continuity, natural exchanges, and the ability to follow meaning over time.

Contesting and high-speed exchange emphasize callsign recognition, efficient exchange, speed, accuracy, and rapid recovery under crowded or noisy conditions.

Traffic handling and formal messaging emphasize accuracy, completeness, structure, and disciplined operating procedure.

Nets, POTA, SOTA, Field Day, and special events may combine elements of all of these, including structured exchange, variable sending styles, changing conditions, and real-time decision-making.

These are all valid and valuable uses of CW.

## **LICW POSITION**

LICW's curriculum provides a foundation for Morse code communication across many operating styles.

The LICW Method emphasizes sound-first learning, flow, continuity, recovery, rhythm, and real-time processing because these skills transfer broadly. They support conversational operating, but they also support contesting, traffic handling, nets, portable operating, Field Day, and other forms of CW activity.

LICW does not require students to pursue one operating path over another. Students may choose the type of CW operating that interests them most. The role of the curriculum is to give them the underlying skills needed to participate confidently and continue developing in the direction they choose.

Some operating activities may require additional practice, conventions, procedures, or specialized experience. That does not place them outside the LICW path. It simply means that the common foundation developed through LICW instruction may later be applied in different ways.



## **IMPLICATIONS FOR CURRICULUM DESIGN**

This objective influences several key LICW decisions.

These include an emphasis on flow and continuity rather than perfect accuracy alone, a focus on meaning and operating patterns rather than isolated characters, the use of continuous input rather than overly segmented drills, the avoidance of training methods that interrupt or fragment the flow of code, and a reduced emphasis on words per minute as the primary measure of progress.

These choices are intentional because they support real-world CW communication across a broad range of operating environments.

## **CONCLUSION**

The LICW curriculum is designed to produce capable, confident operators who can communicate in Morse code under real-world conditions.

Students may use those skills in conversational QSOs, nets, contesting, traffic handling, POTA, SOTA, Field Day, special events, or any other CW activity that interests them.

Future instructors and curriculum leaders should ensure that changes to the program continue to support broad Morse code communication while preserving the LICW Method's emphasis on sound-first learning, flow, recovery, rhythm, and real-time operating skill.



# ***CURRICULUM DESIGN IN MORSE CODE INSTRUCTION***

## **PURPOSE**

This section explains LICW's position on curriculum design in Morse code instruction. It addresses why fixed-length classes, when designed to produce a defined level of proficiency by the end of a course, are generally inconsistent with the way Morse code skill develops. It also explains the rationale for LICW's Beginner Carousel, the ongoing weekly class structure used at the Intermediate and Advanced levels, and the specific role of OverLearn Bootcamp.

## **BACKGROUND**

Morse code is not primarily a knowledge-based subject. It is a perceptual, cognitive, and performance skill. Students are not simply learning facts about code; they are developing sound recognition, rhythm, timing, flow, recovery, and automaticity. These abilities emerge gradually through repeated exposure and sustained practice over time.

Because of this, progress is often uneven. Students may remain at a plateau for a period of time and then experience sudden improvement. Others may need repeated exposure to the same material before it becomes comfortable. This is normal in skill acquisition and should be expected in Morse code learning.

## **LICW POSITION**

LICW's position is that classes intended to develop a higher level of Morse code proficiency should not normally be designed around the expectation that students will reach that level simply because a fixed course period has ended.

The reason is simple: the path to durable proficiency is often longer than the course itself. A fixed-length course can unintentionally create the impression that students should be ready to advance when the calendar says the course is over, rather than when the necessary skills have actually developed.

This can lead students to feel that they have failed, when in fact they are still in the normal process of acquiring a difficult real-time skill.



This does not mean that fixed-duration offerings have no value. They may be useful for orientation, special topics, focused practice, introductions to operating activities, or short-term reinforcement. The concern is using a fixed course calendar as the primary measure of proficiency or readiness.

## **INSTRUCTIONAL RATIONALE**

A defined course length assumes that students will move through the learning process at roughly the same pace. In Morse code instruction, that assumption is usually incorrect. Students differ in recognition speed, comfort with sound patterns, tolerance for missed copy, practice consistency, prior experience, and ability to maintain flow under pressure.

When a fixed course ends, some students may be ready to advance, while others may still need time, repetition, and reinforcement. Advancing students before they are ready can create unnecessary frustration at the next level. Holding all students to the same timetable can also discourage those who are making real progress but not yet at the expected endpoint.

For that reason, LICW's curriculum is designed to support progression without imposing artificial deadlines on proficiency.

## **APPLICATION IN THE LICW CURRICULUM**

The Beginners Carousel reflects this philosophy. It is intentionally repetitive and continuous. Students may enter, remain, repeat, and progress when ready. The structure provides consistency without penalty. Its purpose is not to force completion by a particular date, but to build the foundation needed for further development.

At the Intermediate and Advanced levels, LICW uses an ongoing weekly class model rather than fixed-duration proficiency courses. Students remain engaged with classes that support gradual development over time. This allows instruction to remain purposeful and structured while recognizing that fluency, flow, and confidence develop through continued exposure and practice, not through completion of a fixed course calendar.

This model also preserves continuity across the curriculum. Students can continue working at the appropriate level until the underlying skills are strong enough to support advancement.



## THE SPECIFIC ROLE OF BOOTCAMPS

Bootcamps are different from LICW's ongoing weekly class structure, but they serve a specific and important purpose.

Bootcamps are not designed to replace the regular curriculum or to move a student from one level to the next simply because a short course has been completed. Rather, they are designed to address a specific learning and mindset barrier: the student's response to missing.

Many students treat a missed character or word as a failure. That reaction causes hesitation, backward focus, loss of rhythm, and breakdown of flow. Bootcamps are designed to change that response. They teach students that missing is not failure, and that the essential skill is to remain in motion, recover instantly, and protect what comes next.

In that sense, Bootcamps are accelerators of mindset and learning behavior. Their value lies in helping students approach the ongoing curriculum with better habits, greater confidence, and a healthier relationship with imperfection.

## CONCLUSION

LICW's curriculum design reflects the reality that Morse code proficiency develops gradually, individually, and through sustained engagement. Fixed-length classes may be useful for presenting information, introducing focused topics, or reinforcing specific skills, but they are poorly suited to serving as the primary path to proficiency in a complex auditory skill.

The goal is not to complete a course. The goal is to develop durable skill.

LICW's Beginner Carousel, ongoing Intermediate and Advanced classes, and OverLearn Bootcamp are all designed around that principle.



# **CLASS LEVEL OVERLAP AND STUDENT PROGRESSION**

## **PURPOSE**

This section explains the intentional overlap between class levels within the LICW curriculum and defines the role of both comfort zone and stretch classes in student development.

Its purpose is to ensure that student progression is understood as a continuous process rather than a sequence of discrete steps, and to reduce the risk of future changes that impose rigid level boundaries or premature advancement expectations.

## **BACKGROUND**

In traditional instructional models, progression is often defined by clearly separated levels with specific entry and exit criteria. Students are expected to complete one level before advancing to the next.

LICW does not follow this model.

Morse code acquisition is not linear. Skill development occurs unevenly, with periods of rapid progress, plateau, and consolidation. For that reason, the LICW curriculum is designed with intentional overlap between levels to support continuous development rather than staged completion.

Without explicit guidance, instructors may unintentionally treat levels as gates rather than ranges, which can lead to unnecessary pressure on students and reduced effectiveness of the program.

## **LICW POSITION**

Class levels within LICW are intentionally overlapping. They represent ranges of development rather than fixed stages that must be completed before moving forward.

Students are not expected to be fully prepared before participating in a higher-level class. Exposure to material that is slightly beyond current ability is an essential part of the learning process.



Progression is therefore not defined by “graduation” from one level to another, but by increasing comfort, continuity, and capability across a range of operating conditions.

## **COMFORT ZONE AND STRETCH CLASSES**

Within this model, students benefit from participating in both comfort zone and stretch classes.

### **Comfort Zone Classes**

These classes operate at or slightly below a student’s current level of ability. They:

- Reinforce continuity and confidence
- Allow skills to stabilize
- Reduce cognitive load
- Support consistent flow

### **Stretch Classes**

These classes operate slightly above a student’s current level of ability. They:

- Introduce controlled difficulty
- Require recovery from misses
- Promote adaptation and growth
- Accelerate the development of flow skills

Both types of classes are necessary.

Excessive reliance on comfort zone classes may lead to stagnation. Excessive reliance on stretch classes may lead to frustration and disengagement. Balanced participation supports the most effective progression.

Over time, a stretch class often becomes the student’s new comfort zone. Material that once felt fast, difficult, or slightly beyond reach gradually becomes familiar through repeated exposure. As that happens, cognitive load decreases, recovery improves, and the student becomes more comfortable operating at that level.



This is one of the ways progression occurs within the LICW model. Students do not move forward simply because they have completed a level. They move forward because repeated exposure to appropriate challenge gradually changes what feels manageable. Yesterday's stretch becomes today's comfort zone, and a new stretch can then begin.

## **ROLE OF THE INSTRUCTOR**

Instructors play an important role in helping students navigate this model.

Instructors should:

- Encourage participation across adjacent levels when appropriate
- Normalize the experience of being “not quite ready”
- Reinforce that missing characters is expected and not a sign of failure
- Guide students toward a balance of comfort and challenge
- Help students recognize when a former stretch class has become a new comfort zone

Instructors should avoid framing progression as a requirement to “move up” only when fully prepared. Such framing can discourage beneficial exposure to higher-level material.

## **RELATIONSHIP TO FLOW-BASED LEARNING**

The overlap between levels directly supports flow-based learning.

Stretch classes create conditions that require:

- Reduced Time to Recognize, or TTR
- Improved Instant Flow Recovery, or IFR
- Increased tolerance for incomplete information

Comfort zone classes allow these skills to stabilize and become more automatic.

Together, they help students remain engaged with the sound flow while developing real-time processing ability. As students repeat this cycle, stretch becomes comfort, comfort becomes stability, and stability creates readiness for the next appropriate challenge.





## **CONCLUSION**

Intentional overlap between class levels is a defining feature of the LICW curriculum. It reflects the non-linear nature of Morse code acquisition and supports continuous development across all stages of learning.

Future instructors and curriculum leaders should preserve this structure and avoid introducing rigid boundaries that would limit exposure, reduce flexibility, or disrupt the balance between confidence and challenge that supports long-term progress.



# ***FLOW-BASED LEARNING AND THE LICW METHOD***

## **PURPOSE**

This section defines the LICW instructional model and explains the role of flow-based learning in Morse code acquisition.

## **BACKGROUND**

Morse code proficiency is often described in terms of character recognition. While recognition is necessary, it does not fully describe the skill required for real-world operation. Morse code is received as a continuous stream under real-time conditions. The operator must process that stream without interruption, maintaining continuity even when individual elements are not fully understood.

Traditional approaches to instruction can unintentionally treat Morse code as a sequence of discrete recognition events. This can lead students to focus on identifying each character individually, often with conscious effort, rather than developing the ability to process code as a continuous auditory pattern.

## **LICW POSITION**

LICW's instructional model is based on the development of **continuous auditory processing**, or flow.

Students are not trained to recognize characters in isolation. They are trained to remain engaged with the sound flow as it continues, reducing the time required to recognize characters (Time To Recognize, or TTR), maintaining forward motion, and recovering immediately from missed characters (Instant Flow Recovery, or IFR).

As students progress, this continuous engagement allows for the natural emergence of larger patterns, including words and phrases, without deliberate construction. This process is often described as word discovery.

The objective is not perfect, character-by-character copy. The objective is continuous comprehension under real-time conditions.



## **INSTRUCTIONAL RATIONALE**

Flow-based learning reflects the conditions under which Morse code is actually used. The incoming code does not pause to allow for analysis or correction. The operator must remain with what is being sent and continue forward, regardless of whether individual characters are missed.

Instruction that emphasizes perfect accuracy, isolated recognition, or conscious decoding can interfere with this process. It encourages a stop-and-go approach that is not sustainable as speeds increase.

By contrast, instruction that emphasizes continuity, rhythm, and immediate recovery supports the development of automaticity. Students become less dependent on conscious effort and more capable of processing code in real time.

## **RELATIONSHIP TO THE LICW CURRICULUM**

Flow-based learning is not a separate component of the LICW curriculum. It is the underlying principle that informs all levels of instruction.

At the Beginner level, it guides the emphasis on sound-first learning and early exposure to continuous input. At the Intermediate level, it supports sustained continuity, recovery, and the transition from characters to words. At the Advanced level, it enables confident CW communication under increasingly natural conditions. For those who continue further, it supports the extension of that fluency into mastery under higher speed, greater density, and longer-duration operating conditions.

In all cases, the goal is the same: to develop the ability to remain in motion, recover from misses, and stay engaged with the sound flow.

## **CONCLUSION**

Flow-based learning defines how Morse code is taught at LICW. It aligns instruction with the realities of real-time operation and provides the foundation for all subsequent skill development.

Students who develop the ability to maintain flow, reduce recognition delay, and recover immediately from missed information are equipped to progress toward fluency and mastery.

# ***COPYING BEHIND, LOOKING BACK, AND LISTENING FORWARD***

## **PURPOSE**

Morse code reception can require different forms of mental buffering. Copying behind and listening forward are both useful, but they serve different purposes and should not be confused. This section distinguishes those skills, explains the danger of looking back after a miss, and establishes the LICW position on how each should be taught.

## **BACKGROUND**

In *The Art and Skill of Radio-Telegraphy*, William G. Pierpont, NØHFF<sup>1</sup>, described copying behind as placing the mind between the incoming signal and the written copy. The operator hears and retains several characters, a syllable, a word, or a short group before writing it down, while continuing to listen to the code that is still arriving. This mental buffer helps reconcile the uneven rate at which Morse characters arrive with the more uniform pace of handwriting or typing.

Pierpont discussed copying behind broadly as a way to reduce strain and improve written copy. Within the LICW Method, we emphasize its clearest instructional value in tasks that require exact transcription.

Copying behind can make written copy smoother, more accurate, and less physically hurried. It is particularly useful when receiving material that carries little contextual meaning or when exact transcription is required.

- Random letters, numbers, callsigns, and code groups
- Formal message traffic in which exact wording, spelling, punctuation, and numbers matter
- Names, addresses, serial numbers, coordinates, and other information that must be preserved precisely
- Any receiving task whose objective is complete written copy rather than general understanding

In these situations, the operator creates a rearward-facing buffer. The material being written belongs to the immediate past. Because random

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<sup>1</sup> William G. Pierpont, NØHFF, *The Art and Skill of Radio-Telegraphy*, Third Revised Edition, Chapter 8, "Copying: Getting It Written Down," particularly pages 58–60.



groups and formal traffic may provide little linguistic context, the operator cannot rely heavily on prediction, word discovery, or meaning. Retention and accurate transcription must carry more of the burden. The buffer is rearward-facing in content, not in attention. The operator's attention remains on the signal that is arriving now.

Copying behind must also be distinguished from looking back. A proficient operator copying behind remains synchronized with the present signal while the hand records information that was successfully received moments earlier. Looking back occurs when the listener mentally returns to a missed character or word and attempts to reconstruct it. That backward shift interrupts reception and often causes the listener to lose the information arriving now.

Conversational Morse code places primary emphasis on a different orientation. Listening forward means remaining mentally positioned at the leading edge of the incoming stream. Rather than holding each character for later transcription, the listener allows characters to combine into patterns, words, phrases, and meaning. Context narrows the possibilities, partial words become discoverable, and familiar expressions may emerge before every character has been consciously identified.

## **LICW POSITION**

LICW recognizes copying behind as a legitimate and sometimes essential transcription skill. It should be taught and practiced when the receiving objective is exact written copy, particularly for code groups, callsigns, numbers, unfamiliar proper names, and formal traffic.

LICW does not, however, regard copying behind as the primary pathway to conversational fluency. The foundational and enabling skill for word discovery, conversational head copy, and reception at conversational speeds is listening forward.

The central distinction is purpose:

- Copy behind when exact transcription is required
- Listen forward when understanding, flow, and conversation are the goal
- Never return mentally to a missed sound while code continues to arrive



Copying behind and listening forward are therefore not competing doctrines. They are different tools for different receiving objectives. A capable operator should eventually be able to use both and move between them as circumstances require.

| Receiving Objective                             | Primary Mental Posture                                                         |
|-------------------------------------------------|--------------------------------------------------------------------------------|
| Random code groups                              | Copying behind                                                                 |
| Formal traffic and exact transcription          | Copying behind                                                                 |
| Callsigns, numbers, and unfamiliar proper names | Brief rearward buffering                                                       |
| Ordinary conversational QSO                     | Listening forward                                                              |
| Word discovery and phrase recognition           | Listening forward                                                              |
| Conversational head copy                        | Listening forward                                                              |
| Instant Flow Recovery after a miss              | Listening forward - protect the next sound rather than reconstructing the miss |

## INSTRUCTIONAL RATIONALE

If students approach all Morse code by building an ever-growing queue of characters behind the incoming signal, they may become accurate paper copiers while delaying the development of word discovery and conversational understanding. Their attention remains occupied by what has already arrived instead of leaning into what is forming now.

Listening forward creates the forward-leaning posture required for:

- Word discovery
- Phrase and language-pattern recognition
- Conversational head copy
- Understanding meaning in real time
- Immediate recovery after a miss
- Comfortable reception at conversational and higher speeds

Listening forward does not mean careless guessing. It means allowing context, syntax, vocabulary, operating conventions, and accumulated experience to participate in perception. The listener does not predict an exact answer and force the signal to match it. The listener remains open to



correction while using the developing message to understand what is most likely being communicated.

For instructional purposes, copying behind should be clearly identified as training for exact transcription. Random groups and formal traffic should not become the primary model for developing conversational fluency. Students should understand that retaining successfully received information is useful but attempting to reconstruct a miss is not.

## **RELATIONSHIP TO THE LICW CURRICULUM**

The LICW Intermediate curriculum is designed to help students move from character-by-character reception toward word discovery, phrase recognition, and conversational understanding. At this stage, reception must become less like recording a sequence of symbols and more like listening to another person speak.

Intermediate instruction should therefore emphasize listening forward, continuity, Instant Flow Recovery, word discovery, meaningful language, familiar operating patterns, and conversation. Students should learn to protect the next sound, remain with the developing thought, and allow meaning to form as the transmission unfolds.

Copying-behind exercises may remain appropriate where the lesson objective is accurate written copy. They should be identified as specialized exercises rather than presented as the default model of reception. The goal is not to eliminate the rearward buffer, but to prevent it from occupying the mental space required for forward listening.

Instructors should reinforce the difference between holding information that was successfully received and returning to information that was missed. The first can be a controlled skill. The second breaks flow.

## **CONCLUSION**

The mature operator is not locked into one receiving mode. When copying formal traffic, the operator can retain exact material and place it accurately on paper. When receiving conversational code, the same operator can release the need to preserve every character and instead follow words, ideas, and intent. When an unexpected number, name, or callsign appears, a brief rearward buffer can be engaged and then released.



Fluency includes knowing not only how to listen, but how the listening task changes with the purpose of the communication.

**Copying behind preserves what has already arrived. Listening forward discovers what is arriving now.**





# ***ANNOTATIVE COPY, NOTE TAKING, AND THE TRANSITION TO HEAD COPY***

## **PURPOSE**

This section distinguishes annotative copy, note taking, and head copy within the LICW Method. Its purpose is to clarify how each process is used, why they should not be treated as interchangeable, and why the transition from writing-based comprehension to direct comprehension requires the deliberate development of a different receiving skill. Writing is not inherently contrary to Morse code fluency. It remains valuable and, in many operating situations, essential. The important distinction is not simply whether the operator writes. The important distinction is how meaning is obtained.

In annotative copy, writing participates in the process through which meaning is discovered. In head copy, meaning is understood directly from the incoming sound. Note taking may then be used to preserve selected information that has already been understood.

## **BACKGROUND**

Many students learn to receive Morse code by writing down each character as it is recognized. The characters accumulate into words, the words become sentences, and the student then reads the written material to determine what was sent.

This process is natural, useful, and often necessary during early development. It reduces the demand placed on working memory, creates a visible record of the transmission, and develops exact written copy, which remains an important operating skill.

The difficulty arises when complete transcription becomes the student's only pathway to understanding. At slower speeds, dependence on the page may not be obvious. As speed and information density increase, however, the time and attention required for writing begin to compete with listening, recovery, context, and comprehension.

A student may then reach a plateau. Character recognition remains reasonably strong, but conversational understanding does not develop. The problem is not that the student learned to write. The problem is that writing has remained the intermediary between sound and meaning.



## DEFINITIONS

### Annotative Copy

Within the LICW Method, annotative copy refers to writing down nearly every character or word as it is received and then reading the written text to determine what was sent. The defining feature is not the writing instrument. It is that the written record remains the principal pathway to comprehension.

**Sound → Character Recognition → Writing → Reading → Meaning**

### Head Copy

Head copy is the direct understanding of Morse code as it arrives, without requiring written transcription as the route to meaning. The operator hears characters, words, phrases, and context as parts of a continuing communication, and meaning emerges from the sound stream itself.

**Sound → Meaning**

Head copy does not require every character to be consciously recognized or retained. As in spoken language, individual elements may be missed while the general message remains understandable. Context, rhythm, word discovery, anticipation, and recovery all contribute to comprehension.

### Note Taking

Note taking is the selective recording of information that has already been understood through head copy. The written note supports recollection, logging, verification, or preparation of a response. It is not the mechanism through which meaning is discovered.

**Sound → Meaning → Selective Note Taking**

An operator may follow an entire transmission directly while writing only a callsign, name, location, signal report, piece of equipment, antenna description, date, time, question, or other detail worth remembering.

## THE CENTRAL PROCESSING DISTINCTION

Annotative copy and note taking may look similar from the outside because both involve writing. Internally, however, they are different cognitive activities.

A student using annotative copy may hear a transmission such as:

**NAME IS JOHN QTH DENVER RUNNING 100 WATTS TO A DIPOLE  
JUST RETURNED FROM A TRIP TO ALASKA**



The student attempts to write every word and then reads the completed line to determine the content. An operator using head copy and note taking understands the message as it arrives and may write only:

### **JOHN — DENVER — 100 W — DIPOLE — ALASKA TRIP**

The notes preserve details needed for recollection and response. They do not create the meaning of the message.

Complete transcription directs substantial attention toward individual character recognition, motor production, spelling, spacing, maintaining the written line, correcting or reconstructing missed material, and reading the completed text. Head copy directs greater attention toward continuity, context, word discovery, sentence meaning, anticipation, working memory, recovery after misses, and preparation of a natural response. Both are real skills. They serve different purposes and should be developed intentionally.

### **RELATIONSHIP TO COPYING BEHIND**

Copying behind, annotative copy, and head copy should not be treated as synonyms. Copying behind is a buffering technique in which the operator temporarily retains a small amount of received material before writing or otherwise processing it. This delay can smooth transcription and help prevent attention from becoming fixed on the character currently being written.

Copying behind is especially valuable when exact written copy is required. A skilled operator may retain several characters or words while continuing to listen to the incoming signal. The written output remains slightly behind the sound, but attention remains synchronized with the transmission. This is a legitimate high-level skill, but it does not automatically produce head copy. An operator may copy behind effectively while still deriving meaning primarily from the completed written text.

### **Sound → Buffer → Writing → Reading → Meaning**

Head copy is different because meaning is obtained directly from the incoming sound. Copying behind preserves recent information while attention remains engaged with the stream. Harmful looking back occurs when attention leaves the stream to reconstruct what has already passed.



## **WHY WRITING A LITTLE LESS IS NOT ENOUGH**

A common assumption is that a student will move gradually from annotation to head copy simply by writing fewer characters over time. That may reduce the amount of writing, but it does not necessarily change the underlying processing strategy.

A student may omit common words, abbreviations, or predictable phrases while still depending on the written page to understand the message. As long as the student continues to ask, “What did I write?” before asking, “What did I hear and understand?” the essential pathway has not changed. At some point, the written intermediary must be deliberately removed so that direct comprehension can be practiced as a distinct task.

## **THE LEARNED WRITING RESPONSE AND THE DISCONTINUOUS TRANSITION**

Putting the pen down can be more disruptive than it first appears. During early Morse development, students repeatedly practice a highly consistent sequence:

**Sound → Character Recognition → Written Character**

This sequence serves important purposes. Writing gives the student and instructor an observable response, reduces working-memory demands by creating an external record, and develops exact-copy skill. Repetition may also make the auditory-to-writing response increasingly automatic.

Early Morse training research recognized this relationship explicitly. Keller described instruction in which an auditory Morse signal was followed by a pause for the student to write the corresponding character and then receive confirmation. He later described this first stage of learning in terms of establishing fundamental stimulus-response relationships.

Modern handwriting research provides an additional perspective. Written language involves coordinated interaction among internal letter representations, working memory, and learned hand movements. Through experience, the representation of a character and the motor program used to write it can become closely linked.

Consequently, a student who has copied thousands of Morse characters may have practiced not only Sound → Character, but also Sound →



Character → Writing. Removing the pencil therefore removes both an external memory aid and part of a familiar processing routine.

This helps explain why performance often appears to regress when the pen is first removed. Recognition that seemed dependable during written copy may feel uncertain. Words may disappear before they are understood. Meaning may emerge only in fragments. The student may know the subject of a transmission while remembering very few exact words. This apparent decline is expected. It does not mean that Morse ability has been lost. A practiced transcription skill has been set aside while the student develops abilities that writing may previously have concealed or reduced the need to use: retaining meaning, discovering words without writing every character, recognizing phrases, using context, tolerating incomplete information, recovering without reconstructing, listening forward, and maintaining continuity.

### **MOTOR IMAGERY AS AN OPTIONAL TRANSITIONAL SCAFFOLD**

Some students may benefit temporarily from mentally preserving part of the familiar writing process after physical transcription is removed. Motor imagery is the internal simulation of a movement without actually performing it. Research on handwriting shows substantial overlap between imagined and executed writing processes, and suggests that writing posture and learned movement patterns can influence the experience of imagined writing.

For a student who experiences a severe loss of retention after putting the pencil down, the instructor may experiment with asking the student to imagine holding a pencil and mentally writing recently recognized characters. The purpose is not to visualize a perfect written line and not to create a permanent method of head copy. The imagined movement may serve briefly as scaffolding while the external transcript is removed and word discovery begins to develop.

LICW regards this technique as plausible and experimental rather than as established Morse-specific practice. Research supports relationships among handwriting, motor imagery, letter representation, and working memory, but direct evidence that imagined handwriting improves Morse head-copy acquisition has not been established.

The scaffold must eventually disappear. If every character continues to be mentally written, physical transcription has simply become covert transcription. The objective remains increasingly direct processing:



## **Sound → Word / Phrase / Meaning**

Imagined writing should therefore be faded as words, context, anticipation, sentence meaning, and natural response become more prominent.

### **HEAD COPY DOES NOT REQUIRE VISUALIZATION**

Students frequently ask proficient operators what they “see” while head copying. There is no requirement that successful head copy produce a visual representation of letters or words.

Some operators report visual imagery. Some describe an internal spoken representation. Others report that words and meaning simply emerge, with no conscious intermediate representation they can describe. This variation should be expected. The subjective experience of the operator does not define successful comprehension.

Instructors should therefore avoid suggesting that students must learn to “see” words in their mind. A more useful question is: “What did you understand?”

### **LISTENING FORWARD DURING THE TRANSITION**

The development of head copy depends on listening forward. Missed information cannot become the center of attention. When a character, word, or phrase is missed, the receiving task is not to reconstruct what has passed. The task is to protect what is arriving now.

Complete annotation can encourage looking back because an unfinished word or blank remains visible on the page. When the pen is removed, the student has an opportunity to develop a different response. The miss is allowed to pass, attention remains forward, and context may later clarify the uncertainty or the missing information may simply remain unknown. This is the practical relationship among head copy, Instant Flow Recovery, and listening forward. Head copy does not require perfect recognition. It requires the ability to continue understanding despite imperfect recognition.

### **CONTEXT AND WORD DISCOVERY**

Direct comprehension becomes possible as the student begins to process Morse code as language rather than as a series of unrelated characters. Head copy permits greater use of familiar vocabulary, common abbreviations, predictable QSO structure, sentence grammar, topic continuity, rhythmic phrasing, partial-word clues, and conversational context.



For example, when a transmission begins GOOD FI..., the listener may anticipate FIST based on common operating language and context. This is not careless guessing. It is the normal use of linguistic probability. Spoken-language listeners do the same thing continuously.

Word discovery develops when characters begin to combine into recognizable language before the student consciously assembles them one by one. Head-copy practice creates the conditions in which that transition can occur.

### **THREE RELATED ASPECTS OF MORSE RECEPTION**

**Perceptual Fluency:** The ability to accurately recognize and transcribe incoming Morse as it arrives. Perceptual fluency answers the basic question: What did I hear? An operator may become highly proficient at this task without developing an equivalent ability to understand an unfolding message directly.

**Lexical-Semantic Integration:** The interaction between incoming Morse and the operator's existing language knowledge, including familiar words, vocabulary, meanings, and language patterns. Stronger integration allows incoming patterns to contribute more readily to words and meaning rather than being treated only as separate characters to be retained and assembled.

**Comprehension:** The ability to understand the meaning of an unfolding Morse communication. Comprehension answers a different question: What does the message mean? It does not require perfect recognition or verbatim recall of every character or word.

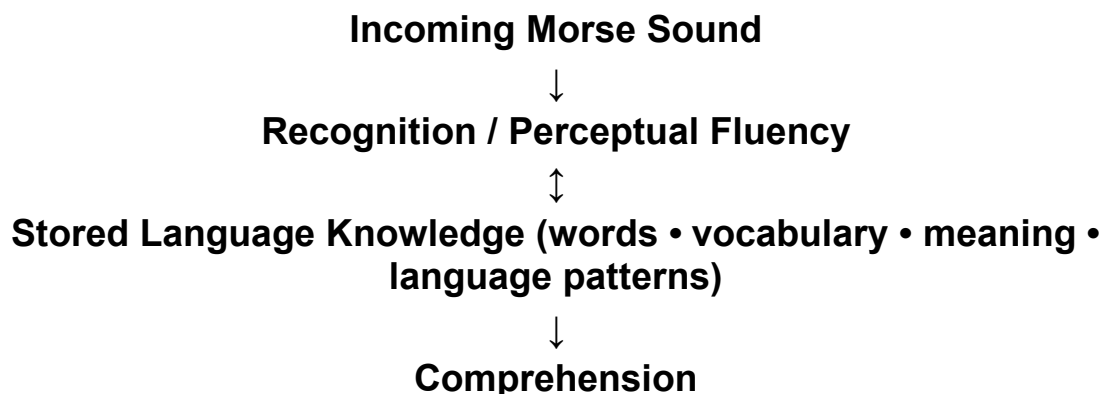
### **A SUPPORTING ROLE: SHORT-TERM MEMORY**

Short-term memory is the temporary retention of recently received information. Guediche and Fiez examined it as a predictor of comprehension rather than as a stage of Morse reception. They found that short-term-memory performance predicted Morse comprehension even after differences in perceptual fluency were taken into account, providing evidence that accurate recognition alone does not fully explain comprehension.





## **A SIMPLE CONCEPTUAL MODEL OF MORSE RECEPTION**



Supporting the process: short-term memory helps retain recently received information, while attention and continuity help the operator remain engaged with the unfolding sound stream. This is LICW's simplified conceptual model, informed by Guediche and Fiez; it is not a processing sequence proposed by the authors.

LICW training seeks to make this processing increasingly rapid, integrated, and less dependent on conscious assembly.

### **RESEARCH FOUNDATION: MORSE AS LANGUAGE COMPREHENSION**

Research by Guediche and Fiez provides an important scientific perspective on the distinction between Morse recognition and Morse comprehension. Their study of experienced operators separately measured perceptual fluency - the ability to recognize and transcribe incoming Morse - and the ability to comprehend complete Morse sentences. Strong perceptual fluency alone did not fully account for differences in comprehension. Short-term-memory performance predicted comprehension even after differences in perceptual fluency were taken into account.

The distinction is significant to the LICW Method. Character recognition is necessary, but it is not the endpoint of fluent Morse reception. The instructional emphasis must progressively shift from serial character recognition toward integrated language comprehension, supported by flow, Instant Flow Recovery, Character Flow Proficiency, word discovery, listening forward, and conversational head copy.

Guediche and Fiez described proficient Morse as something akin to "reading for the ears." Their results suggest that comprehension depends





in part on how effectively incoming Morse is integrated with phonological and lexical-semantic language knowledge.

The study should not be interpreted as demonstrating that short-term-memory exercises themselves will improve Morse comprehension, nor does it prescribe a particular method for teaching head copy. Its importance to the LICW Method is explanatory rather than prescriptive: it provides evidence that character recognition and language comprehension are distinguishable capabilities and helps explain why the transition from one to the other requires more than simply increasing character speed.

*Research reference: Guediche, S., & Fiez, J. A. (2021). Comprehension of Morse code predicted by item recall from short-term memory. Journal of Speech, Language, and Hearing Research, 64(9), 3465-3475.*

## **RETENTION AND MEANING**

Students often assume that successful head copy means being able to repeat every word after the transmission ends. That is not the standard used in ordinary spoken communication. A person may understand a minute of conversation fully and still be unable to repeat it verbatim. Conversational head copy should be understood similarly. A student may remember where the other operator lives, the antenna being used, a recent trip, and a question that was asked without remembering the exact wording or sequence of every sentence. That is meaningful comprehension. The Method therefore distinguishes among verbatim retention, which supports exact transcription; detail retention, which supports logging and recollection; and meaning retention, which supports conversation and response. Head copy emphasizes meaning retention. Note taking may support detail retention when necessary.

## **THE REINTRODUCTION OF WRITING**

Putting the pen down is a developmental exercise, not a permanent prohibition against writing. Once the student begins to understand incoming Morse directly, writing may be reintroduced selectively as note taking.

At that point, the function of writing has changed. The operator is no longer writing to determine what the other station said. The communication is already understood, and only information worth preserving is recorded. The ability to choose what should be written is itself a sign of developing fluency.



## **DIFFERENT OPERATING REQUIREMENTS**

LICW does not teach that head copy should replace exact transcription in every circumstance. The correct receiving method depends on the task.

Situations favoring exact or extensive written copy include:

- Formal message traffic.
- Addresses and telephone numbers.
- Serial numbers.
- Complex technical information.
- Legal, emergency, or medical information.
- Unfamiliar callsigns.
- Weak-signal or adverse-copy conditions.
- Contest exchanges requiring exact accuracy.
- Information that must be relayed verbatim.

Situations favoring head copy with selective notes include:

- Conversational QSOs.
- Familiar operating exchanges.
- Nets involving routine discussion.
- POTA and SOTA contacts.
- Club or social nets.
- Common abbreviations and procedural language.
- Longer transmissions where meaning and response matter more than verbatim transcription.

Experienced operators move between these approaches according to the demands of the communication. The goal is not to elevate one method universally above the other. The goal is to develop both exact-copy capability and direct conversational comprehension.

## **INSTRUCTIONAL GUIDANCE**

Instructors should treat the transition from annotation to head copy as a planned developmental intervention rather than as a simple instruction to stop writing.

### **Prepare the Student**

Before asking the student to put the pen down, explain that performance will probably feel worse before it improves. Incomplete comprehension is expected, missed characters are not failures, verbatim recall is not the



objective, looking back must be resisted, and progress may be difficult to perceive at first.

### **Use Appropriate Material**

Early head-copy exercises should provide enough context to allow meaning to emerge. Useful material includes common words, short phrases, familiar QSO language, predictable exchanges, simple sentences, personal information, short stories, conversational questions, and content with a clear topic.

Random groups remain useful for character recognition and exact-copy practice, but they provide little lexical or contextual support for developing conversational comprehension.

### **Establish a No-Writing Period**

During designated head-copy exercises, students should put down pens and remove keyboards or other transcription tools from immediate use. The no-writing period may initially be brief and may increase as tolerance and comprehension develop. The important feature is fidelity to the task, not duration.

### **Ask Meaning-Based Questions**

After a transmission, instructors should not ask only, “How much did you copy?”

More useful questions include:

- What was the subject?
- What details did you understand?
- What words or phrases emerged?
- What would you say in response?
- Did the speaker ask a question?
- What happened in the story?
- Were you able to remain with the stream after a miss?

These questions reinforce comprehension rather than transcription.

### **Normalize Fragmented Understanding**

A student may initially report only, “I heard something about an antenna and Florida.” That is not zero. It is emerging meaning. The instructor should help the student identify what was understood rather than apologize for what was missed.



## **Distinguish Transitional Motor Imagery From Covert Transcription**

Some students stop writing but continue attempting to spell every word mentally, replay missed characters, trace letters, or maintain an internal written line. When these behaviors become the continuing route to meaning, they preserve the old transcription strategy without producing visible annotation.

This should be distinguished from the deliberate, temporary use of imagined handwriting described earlier. Motor imagery may be tried as a transitional scaffold when removing the pencil produces a severe loss of retention, but it should be intentionally faded as word discovery and direct comprehension develop.

## **Reintroduce Notes Carefully**

Selective note taking should be reintroduced only after the student demonstrates some ability to follow meaning directly. The instructor may initially limit the student to one callsign, one name, one location, one question, or a few keywords. The notes should remain sparse enough that they cannot become a substitute transcript.

## **PROGRESS MEASURES**

The transition to head copy requires different progress measures from those used for exact written copy.

Useful measures include:

- Ability to remain attentive for longer periods.
- Reduced emotional reaction to misses.
- Faster recovery.
- Increased recognition of complete words.
- Greater use of context.
- Improved retention of meaning.
- Ability to summarize a transmission.
- Ability to answer a question or form a reasonable response.
- Ability to continue after uncertainty.
- Increased comfort without writing.
- Ability to take selective notes without reverting to transcription.

These measures may improve before recognition percentages improve. Limited verbatim recall should not be interpreted as lack of progress when continuity, meaning, and recovery are strengthening.



## **RISKS OF A PREMATURE OR POORLY FRAMED TRANSITION**

The pen should be removed deliberately, but the transition should not be imposed without explanation or support. If the student is simply told to stop writing, head copy may appear to be a mysterious ability possessed by others rather than a skill that can be developed.

Poor framing may lead to panic when words are missed, self-judgment, premature return to full annotation, avoidance of stretch material, belief that the student lacks aptitude, reduced class participation, or withdrawal from the learning process.

The instructor's role is to make the transition understandable. The student should know what skill is being developed, why the familiar method is being set aside, what difficulty to expect, and how success will be measured.

## **LICW POSITION**

LICW recognizes complete transcription as a legitimate and sometimes essential Morse code skill. Annotative copy should be taught, practiced, and used when exact written copy is required.

Annotative copy should not, however, remain the student's only pathway to understanding. Conversational head copy requires structured opportunities to set transcription aside and practice understanding Morse without the written page as an intermediary.

The resulting decline in apparent performance is expected. It reflects the suspension of a familiar transcription routine while continuity, working memory, context, word discovery, recovery, and meaning are being developed.

For selected students, imagined handwriting may be tried as a temporary bridge when removal of the pencil causes a severe loss of retention. It should not become a permanent intermediary. The long-term objective is less dependence on individual-character transcription and increasingly direct comprehension of Morse as meaningful language.

Head copy does not require visualization. Instructors should not prescribe a particular subjective experience. The relevant outcome is whether the student can remain with the stream and understand enough meaning to follow and respond.



Once direct comprehension begins to develop, writing may be reintroduced selectively for recollection, logging, and response preparation. Mature Morse performance includes both exact-copy capability and direct comprehension, with the operator choosing the appropriate tool for the communication task.

## **RELATIONSHIP TO THE CURRICULUM**

The Beginners curriculum appropriately permits and often relies on writing while students establish character recognition, short-word flow, and early operating competence. The objective at that stage is not to eliminate writing, but to establish sound-first recognition and a reliable operating foundation.

The Intermediate curriculum begins the deliberate development of direct comprehension. Students should receive structured opportunities to put the pen down, remain with the stream, tolerate incomplete understanding, discover words, use context, recover quickly, and follow meaning.

This transition is especially important as students develop flow skills, Instant Flow Recovery, Character Flow Proficiency, increasing effective speed, word building, word discovery, and conversational head copy. The Advanced curriculum increasingly expects students to understand longer and denser communications directly, using selective note taking only when operationally useful. Bootcamp may accelerate this transition by creating an immersive environment in which students repeatedly practice listening forward, letting misses go, remaining with the stream, and following meaning without relying on complete transcription.

## **CONCLUSION**

Annotative copy, head copy, and note taking are not competing philosophies. They are distinct receiving tools with different purposes. Annotative copy converts sound into written language so that meaning can be read and is valuable whenever exact transcription is required. Head copy allows meaning to emerge directly from the incoming sound and is essential for conversational fluency. Note taking preserves selected details after they have been understood.

The transition from annotation to head copy is not ordinarily accomplished by writing progressively less. It requires a deliberate change in task. The student must put the pen down, accept an initial period of reduced apparent performance, and develop the ability to stay with the stream,



discover words, use context, retain meaning, and recover without looking back.

For some students, the learned auditory-to-writing response may help explain why that transition feels abrupt. A temporary motor-imagery scaffold may be useful in selected cases, but it must fade as direct comprehension develops. The objective is not to teach students what to see. The objective is to help them understand Morse as meaningful communication.

## **RESEARCH REFERENCES**

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# **INSTRUCTIONAL GUIDANCE FOR LICW INSTRUCTORS**

## **INTRODUCTION**

LICW does not seek to create a highly structured or rigid teaching environment. LICW's goal is to provide enough consistency that students experience a clear path across class levels, while still allowing each instructor room to tailor instruction to the needs, pace, and personality of the class.

This section addresses the academic and instructional expectations for LICW classes. Broader cultural expectations for tone, member experience, public-channel behavior, founder voice, and club ambience are addressed in **The LICW Culture Guide**. Formal authority, conduct policies, youth protection requirements, platform administration, and enforcement procedures belong in **The LICW Governance Guide**.

This section provides broad instructional guidance across the training path, with emphasis on class conduct, planning, pacing, feedback, class tone, and the appropriate use of instructional tools.

The purpose is not to make every class identical. The purpose is to ensure that students experience LICW instruction as thoughtful, welcoming, purposeful, and aligned with the LICW Method.

## **INSTRUCTOR JUDGMENT AND DISCRETION**

The guidance in this section describes LICW's recommended instructional practices and the reasoning behind them. It is not intended to prescribe a fixed classroom script.

LICW instructors remain responsible for the conduct of their classes and should use professional judgment in adapting activities, pacing, feedback, and discussion to the class level, instructional objective, available time, and needs of the students present.

Consistency in academic purpose remains important, but consistency does not require identical execution. Instructors may vary the form of an exercise when doing so better serves the students, preserves class flow, or addresses a specific instructional need, provided the approach remains aligned with the principles of the LICW Method.





## **THE INSTRUCTOR'S ROLE**

The role of an LICW instructor is to provide students with three essential things: tools, tasks, and motivation.

Tools give students a means to practice. Tasks give them a structure for progress. Motivation helps sustain effort through the frustrations and plateaus that naturally accompany skill development.

Morse code is a skill, not a fact-based subject. Skill development requires repeated, purposeful practice over time. For that reason, effective instruction at LICW is not merely explanatory. It is practical, encouraging, and developmental.

An LICW instructor is responsible for more than presenting material. The instructor creates the conditions under which students can progress: a welcoming atmosphere, a sensible structure, purposeful exercises, and clear feedback that reinforces confidence, continuity, recovery, and forward movement.

Students should leave class feeling that the work was meaningful, that their effort had direction, and that the next step is manageable.

## **TEACHING ENVIRONMENT AND CLASS TONE**

The most effective instructors establish a calm, welcoming, and supportive tone from the beginning of class.

Students should feel that class is a safe place to learn through imperfection. They should not feel pressure to perform for the group, and individual students should not be singled out to repeat or report what they copied in a way that shifts attention from listening and flow toward memorization, self-consciousness, or performance anxiety. Group-based receiver feedback, conducted without placing individual students on the spot, is consistent with this principle.

A productive class atmosphere is one in which students can remain engaged, curious, and relaxed enough to continue working even when copy is imperfect.

Instructors should model calm energy, patience, and steady confidence. Errors should be normalized as part of the learning process rather than treated as failures. Praise should be directed more toward recovery, rhythm, participation, and continuity than toward perfect copy.



Over-coaching should be avoided. Silence, repetition, and well-chosen exercises often teach more than constant commentary.

## **CLASSROOM CIVILITY AND CONTROVERSIAL TOPICS**

LICW has members from around the world and across a wide range of political, religious, cultural, and social backgrounds. One of the reasons LICW works is that the club places a high value on acceptance, kindness, patience, respect, and welcome.

LICW academic classes should remain welcoming, respectful, and focused on learning. Students come to class to learn Morse code, build confidence, and enjoy fellowship with others who share an interest in CW. They should not have to navigate political argument, religious debate, divisive social commentary, personal attacks, or conversations that make the class feel uncomfortable or unwelcoming.

This guidance is not intended to police ordinary conversation or remove warmth and friendship from LICW classes. LICW is an adult learning community, with the exception of the Youth Program, and friendly conversation is part of what makes the club enjoyable.

At the same time, instructors and club representatives have a responsibility to protect the learning environment when conversation moves into areas that may divide, pressure, exclude, or make members feel unwelcome.

Instructors should steer class discussion away from topics that are likely to create discomfort, division, or conflict. This includes partisan politics, religious debate, controversial social issues, disparaging comments about groups of people, personal attacks, or any discussion that could reasonably make students feel unwelcome or reluctant to participate.

This is not a judgment on any member's personal beliefs. LICW members hold many different views, and that diversity should be respected. The purpose of this guidance is simply to keep academic classes centered on Morse code learning, fellowship, and mutual respect.

Instructors are empowered to act when conversation moves in a direction that is inconsistent with the LICW learning environment. In many cases, a simple redirection is enough.

Useful instructor language includes:



- “Let’s bring this back to Morse code”
- “That is probably a topic best left outside class”
- “We have members from many backgrounds and points of view, so we avoid political and religious discussion in class”
- “I’m going to stop that conversation here so we can keep the class comfortable for everyone”
- “Let’s move on”

Instructors do not need to debate the issue, explain all sides, or persuade the person who raised the topic. The goal is not to win an argument. The goal is to protect the class.

If a participant continues after clear redirection, the instructor may respond more firmly. The instructor may end the topic, mute the participant if necessary, move forward with the class, or remove the participant from the Zoom session if the behavior continues or is disruptive.

Instructors should not hesitate to remove an uncooperative participant when necessary to protect the class. If removal is required, the instructor should report the incident to appropriate LICW leadership after class.

Instructors who host classes should know how to claim host or co-host authority and use basic Zoom controls when needed.

This guidance applies to spoken comments, Zoom chat, shared screens, class materials, and any other form of class participation. A comment does not have to be intentionally hostile to be inappropriate for class. If it is likely to make others uncomfortable, create division, or distract from the learning environment, the instructor may redirect or stop it.

LICW trusts its instructors to use good judgment. Not every awkward comment requires formal action, and not every off-topic remark is a problem. Instructors should consider tone, context, intent, and the effect on the class.

At the same time, instructors should not allow a desire to be polite to prevent them from acting when action is needed. A calm, clear redirection is often the kindest response because it protects everyone in the room, including the person who may have unintentionally crossed a line.

This guidance should be read together with **The LICW Culture Guide**, which preserves LICW’s broader expectations for kindness, respect, psychological safety, and member trust. If a classroom issue becomes a



repeated conduct concern, access issue, youth-protection concern, or formal disciplinary matter, it should be handled under the authority and policies described in **The LICW Governance Guide**.

## **GENERAL CONDUCT OF CLASS**

Across levels, class structure should support rhythm, focus, and active practice.

A session should begin with a clear sense of purpose and a short opening that establishes tone and direction. Instructors should make clear what kind of skill or progression the class is intended to strengthen, but should avoid lengthy explanation at the expense of practice.

Students develop through guided experience more than through lecture. A short warm-up or review is often useful to reestablish comfort and recall before progressing into more realistic or challenging work.

Throughout class, brief reflective check-ins may be helpful. Asking students what is working, what is difficult, or how they respond when flow breaks can build self-awareness and normalize the learning process.

These check-ins should remain short and practical. Class should remain centered on active participation, not discussion for its own sake.

Class should ordinarily close on a constructive note, with a short takeaway, a brief closing exercise, or both.

## **PLANNING INSTRUCTIONAL ACTIVITIES**

Lesson planning at LICW follows a deliberate progression from structure toward flexibility.

Early levels require more uniformity so that new students receive a consistent foundation in rhythm, timing, and character familiarity. As students advance, the amount of prescribed structure decreases and instructor judgment becomes increasingly important.

The intent is not uniformity for its own sake, but purposeful design. Each class should have a clear reason for what it is doing, while still allowing instructors to adapt to the needs of the group in front of them.

BC1 and BC2 are largely pre-set and should remain consistent. BC Guided Practice / Intermediate Prep introduces more flexibility while still



serving a clear bridging function. INT1 continues that bridge, adding instructor discretion within a recognizable structure.

INT2, INT3, and ADV1 follow standard outlines rather than fixed scripts, allowing instructors to adapt drills, speeds, and emphasis while preserving continuity in purpose.

At the upper end, ADV2 and ADV3 are intentionally open-ended. These levels give instructors broad room to design sessions that develop CW fluency, head copy, rhythm-driven comprehension, and advanced natural operating skills.

At those levels, instructor creativity and personality are assets, not problems, provided the work remains aligned with the LICW Method.

## **LEVEL-SPECIFIC INSTRUCTIONAL GUIDANCE**

In BC1, the instructional emphasis is on helping students hear and associate CW acoustic patterns with their corresponding characters.

In BC2, the emphasis remains foundational but expands toward productive practice habits and the beginnings of short-word character flow. These levels rely on structure and consistency, and instructors should avoid unnecessary variation that could confuse early learners.

In BC3, the instructional emphasis shifts from foundational character and short-word development toward early real-world application and on-air readiness. While BC3 still relies on structure and consistency, it should begin to feel more outward-facing, helping students connect the skills developed in BC1 and BC2 to practical operating situations.

Instruction should reinforce productive receiving habits, continued short-word flow, and growing comfort with common QSO elements, while introducing students to the rhythm, expectations, and vocabulary of basic on-air communication.

BC3 should build confidence, reduce apprehension, and help students see that real operating is a natural next step in their development, while leaving each student free to decide when they are ready to make that first contact.

BC Guided Practice / Intermediate Prep serves as a bridge from BC2 into Intermediate. It is held immediately after BC2, and both BC1 and BC2 students are encouraged to attend.



The first half of class should reinforce the day's Beginner Carousel lesson through structured repetition that strengthens sound familiarity and character recognition. The second half should move toward Intermediate Preparation through multi-character flow work, typically in the 2- to 4-letter range, with emphasis on sustaining rhythm, expanding comfort, and preparing students for the structure and pace of INT1.

During the final six lessons of BC2, attendance at BC Guided Practice / Intermediate Prep shifts from a recommendation to an expectation, with at least one session per week expected during that phase.

INT1 remains transitional in character. It should strengthen rhythm retention, early flow, and confidence with short words and sequences while moving students away from predictable Beginner Carousel patterns and toward a more dynamic learning environment.

Class should typically begin with multi-character flow work in the 4- to 8-letter range, as a more challenging continuation of Intermediate Prep, and then move into more realistic code practice that encourages spontaneous listening and mental recovery.

Instruction at this level should remain focused on active practice, early on-air communication exposure, developing well-paced head sending, and helping students move beyond scripted QSO patterns.

In INT2, INT3, and ADV1, instruction should become progressively less scripted and more adaptive. INT2 focuses on increasing effective speed and strengthening word-building ability. INT3 focuses on continued gains in effective speed and on developing a high degree of continuity through longer sequences. ADV1 focuses on comprehension and CW fluency at natural operating speeds.

Across all three levels, instruction should emphasize purposeful guided practice, concise setup, and flexibility in drills and pacing. These levels benefit from standard outlines, but not rigid scripts.

In ADV2 and ADV3, the instructional environment should be more open-ended. Students at these levels are refining CW fluency under increasingly natural conditions.

Instructors may design sessions around head copy, natural comprehension, rhythm-driven copy, higher-speed operating practice, or



other advanced practice formats that are appropriate to the students present.

The essential requirement is that sessions remain purposeful and coherent, even when they are less formally structured.

## **COMMUNICATION AND FEEDBACK**

Feedback is most effective when it is brief, specific, and directed toward process rather than error-counting.

After practice segments, instructors should help students notice what is changing in their experience: smoother recognition, better continuity, quicker recovery, less tension, greater confidence, or stronger rhythm.

Feedback should reinforce the idea that genuine progress is often subtle and is not measured only by what was or was not copied perfectly.

Students may be encouraged to keep brief practice notes between classes so they can become more aware of their own development over time.

Consistency in communication among instructors also matters. Lead Instructors and adjacent-level instructors should remain in regular contact so that students experience continuity in philosophy, terminology, and expectations as they move through the curriculum.

Even where instructors differ in style, the student experience should still feel recognizably LICW.

## **RECEIVER-BASED FEEDBACK IN SENDING EXERCISES**

Sending practice should be treated as communication, not merely as the physical production of Morse characters. Effective sending should be judged not only by character formation, rhythm, and spacing, but also by whether the transmission was reasonably copyable and whether meaning reached another operator.

Receiver-based feedback is a recommended instructional practice rather than a required classroom script. Instructors retain discretion to determine when and how it should be used based on the purpose of the exercise, the experience of the students, the size and character of the class, available time, and the instructor's assessment of what will be most productive. The





central objective is to preserve authentic feedback whenever practical and to keep sending instruction focused on successful communication.

This distinction becomes especially important during round-robin sending exercises. After a student sends, an instructor may be tempted to ask:

“Would you tell us what you sent?”

This may appear to be a low-pressure way to synchronize the class. No receiving student is asked to reveal what was missed, and the sender can quickly provide the intended message.

As a general practice, this approach should be avoided when meaningful receiver feedback can reasonably be obtained.

When the sender states the message aloud before the class has reported what it received, the opportunity to gather authentic receiver feedback is lost. The class learns what the sender intended, but neither the sender nor the instructor learns what the listeners actually received.

The preferred approach is for the instructor to ask the group:

**“What did [student’s name] send?”**

This question is directed to the class rather than to an individual student. No one is placed on the spot, and students may contribute whatever they received. One student may have copied the entire transmission. Several students may each have copied different portions. The class may be able to reconstruct the message collectively. In some cases, no one may have copied enough to identify what was sent.

Each result provides meaningful feedback.

## **WHY RECEIVER FEEDBACK IS UNIQUE**

The sender’s own impression of the transmission is useful, but it is necessarily incomplete. Because the sender already knows the intended message, the mind may supply the expected character, spacing, or word even when the transmitted result was less clear. The sender hears the code with the benefit of intention. The receivers encounter the transmission without knowing what was intended and can report only what they actually received. The sender can report what was intended. Only the receivers can report what they received.





## MOVE ON, RESEND, OR CLARIFY

When the class receives only part of a transmission, or cannot reconstruct it at all, the instructor should first consider whether anything further is needed.

In many cases, the best response is simply to acknowledge what was understood and move on. Perfect copy is not the objective of most LICW sending exercises, nor does it reflect the reality of CW communication. Operators routinely miss characters, words, and portions of transmissions while still understanding enough to continue the exchange. Requiring every message to be recovered completely can unintentionally reinforce perfectionism, interrupt class flow, and suggest that communication has failed whenever copy is incomplete.

The instructor may therefore consider:

- Was enough meaning received to continue?
- Would repeating the message serve a useful instructional purpose?
- Is there a clear sending issue that can be addressed briefly?
- Would further attention help the student, or merely prolong an unimportant miss?

When the class understood the general meaning, moving on reinforces continuity, recovery, and comfort with incomplete information.

When a repeated difficulty reveals a useful teaching opportunity, the instructor may offer one brief, specific suggestion and ask the student to resend all or part of the message.

For example:

“Most of us understood the first part. Let’s try the final sentence once more with slightly clearer word spacing.”

The class may then be asked what it received on the second attempt.

This creates a focused communication loop:

**Compose → Send → Receive → Report What Was Understood → Adjust When Useful → Continue**



The purpose of resending is not to achieve 100 percent copy or to recover every missed word. It is to give the sender an opportunity to make a meaningful adjustment when doing so supports the instructional objective.

At other times, the instructor may decide that a brief verbal clarification is the most efficient way to preserve the pace of the class. The important principle is that the sender should not automatically be asked to announce what was intended before the class has had an opportunity to report what it received.

When exact text is needed for diagnostic purposes, the instructor may provide the sending material in advance, obtain it privately, or ask for clarification after receiver feedback has been gathered.

The instructor retains discretion to move on, request a resend, or clarify verbally. The appropriate choice depends on the purpose of the exercise, what the class understood, the needs of the sender, and the value of further attention. The goal is effective communication and productive learning, not perfect reconstruction of every transmission.

## **THE SENDER'S RESPONSIBILITY FOR EFFECTIVE COMMUNICATION**

Students sometimes approach sending with an incomplete mental model:

"My responsibility is to send. It is the other operator's responsibility to copy."

Within the LICW Method, effective communication requires a broader understanding. A sender is responsible not only for operating the key, but also for making the message reasonably copyable and understandable to the receiving operator.

This does not mean that every missed character is the sender's fault. Reception is affected by skill level, propagation, interference, fatigue, unfamiliar content, and many other factors. It does mean that the sender should care about what reached the other end.

A communication-centered sending mindset asks:

- Was my character formation clear?
- Was my rhythm consistent?
- Were the spaces within and between characters appropriate?
- Were word spaces distinct?



- Was the speed suitable for the receiving operator?
- Did I maintain a steady and predictable flow?
- Was the message composed in a way that was reasonably easy to follow?
- Did my word choice and sentence structure provide useful context?
- Did the listener understand the intended meaning?

This shifts sending instruction beyond mechanical correctness.

Good sending certainly depends on character formation, timing, spacing, and rhythm. As students progress, however, effective sending also depends on composition. Shorter sentences, familiar vocabulary, natural phrasing, predictable structure, and useful context can make a message much easier to receive.

For example, a long, densely composed transmission with unusual words and little context may be difficult to understand even when every character is formed correctly. A clearly structured message using natural language may be easier to follow at the same speed.

The sender should therefore learn to think not only about the code being produced, but about the experience of the person receiving it.

## **CLASSROOM APPLICATION**

During student-sending exercises, instructors are encouraged to ask the class what was received when doing so supports the instructional objective. When receiver-based feedback is used, helpful prompts include:

- “What did Sarah send?”
- “Who copied the opening phrase?”
- “What subject did you hear?”
- “Did anyone get the name or location?”
- “I heard someone mention an antenna. Who copied more?”
- “What parts were clear?”
- “Where did the transmission become difficult to follow?”

Students should be encouraged to contribute partial copy without apology. Unless exact transcription is the stated objective of the exercise, students should not be required to reproduce the transmission word for word. A summary of the meaning, identification of the subject, or recollection of several important details may demonstrate successful reception more appropriately than verbatim repetition. The form of receiver feedback



should match the instructional objective. The instructor may briefly summarize the group's reception:

"Most of us copied the first sentence, but the word spacing became difficult in the second half."

That observation gives the sender specific, useful feedback without embarrassment or excessive criticism.

When the message was generally understood, the instructor may also acknowledge that:

"The class received that clearly. Your pace was steady, the word spaces were distinct, and the message was easy to follow."

Receiver-based feedback should remain brief enough to preserve the rhythm of the class. The instructor should normally identify one useful pattern or one actionable adjustment, allow the student to resend when appropriate, and then continue the exercise. The purpose is to create a concise communication loop, not a detailed critique after every transmission.

## **INTERPRETING GROUP FEEDBACK**

Receiver feedback should be treated as evidence, not as a verdict on the sender.

A single student's difficulty may reflect normal variation in receiving ability, attention, fatigue, or familiarity with the content. Patterns across several receivers are more informative.

If most of the class understands the transmission and one student does not, the result may say more about individual receiving variation than about the sending. If several students lose the same character, word, or portion of the message, the pattern may indicate a problem with formation, spacing, rhythm, or phrasing. If no one understands the transmission, the instructor should consider the entire communication chain, including the sender's technique, Zoom audio, tone quality, speed, message length, vocabulary, and the difficulty of the exercise.

The instructor should interpret these patterns calmly and avoid turning the class response into a public grade. The purpose is diagnosis and improvement, not embarrassment.



Receiver-based feedback also keeps every student actively engaged. When students know that the class may be asked what was sent, each sending turn remains a receiving exercise for everyone rather than becoming a period in which only the sender is participating.

## LICW INSTRUCTIONAL POSITION

In most student-sending exercises, instructors are encouraged to ask the class what it received rather than immediately asking the sender to state aloud what was intended. This preserves the opportunity to gather authentic evidence of communication rather than replacing that evidence with a report of intention.

This is a recommended instructional practice, not an inflexible rule. The instructor retains discretion to adapt the approach when the objective of the exercise, the needs of the students, classroom dynamics, or available time make another method more appropriate.

This approach:

- protects individual students from being placed on the spot;
- provides authentic feedback to the sender;
- helps reveal what the class received and understood;
- strengthens attentive listening among all students;
- reinforces the relationship between sending and receiving;
- encourages clear rhythm, spacing, and character formation;
- extends sending instruction into composition, word choice, phrasing, and context; and
- teaches students to take responsibility for making their communication reasonably copyable and understandable rather than merely for operating the key.

The essential principle is:

**The sender knows what was intended. The class reveals what was received.**

Effective sending does not end when the final character leaves the key. Its purpose is fulfilled when meaning reaches another operator.



## **INSTRUCTOR SELF-CHECK**

After each class, instructors should take a moment to reflect on whether the session accomplished its purpose.

Useful questions include:

- Did the activities have a clear instructional aim?
- Did I protect the atmosphere of calm focus and curiosity?
- Did I avoid over-explaining?
- Did students have enough time for active practice?
- Did I keep the class welcoming and respectful?
- Did students leave with a sense of progress and a manageable next step?

Reflection of this kind helps maintain instructional quality without turning class into a formula.

The strongest instructors are not necessarily those who cover the most content, but those who create the best conditions for continued growth.

## **CONDUCT OF BRIEFINGS**

Where briefings are used, they should be truly brief.

Their purpose is not to lecture, but to orient students: to connect the exercise they are about to do with a broader instructional purpose and to establish direction and tone.

Briefings should use clear, conversational language and should last only a few minutes. Once the point has been set, class should move promptly into active practice.

When students are already well oriented and would benefit more from practice time, instructors may appropriately omit the briefing altogether. This is a matter of instructional judgment.

## **USE OF THE MORSE PRACTICE PAGE AND WORD LIST TRAINER**

The Morse Practice Page (MPP) and Word List Trainer (WLT) are valuable tools when used deliberately and in the right context.



In the Beginner Carousel, MPP is especially useful because it provides precise, standardized code generation and helps ensure that new students hear consistent sound patterns during the earliest stage of learning. Its accuracy and uniform pacing reduce distractions and support the formation of correct sound associations.

Beginning in BC Guided Practice / Intermediate Prep and continuing through Intermediate and Advanced instruction, however, routine use of MPP in class should generally be avoided unless it serves a specific instructional purpose.

At those stages, students need increasing exposure to natural, variable human sending. Overreliance on idealized, machine-perfect code can reinforce rigid listening habits and slow adaptation to real-world rhythm and imperfection.

Instructors should therefore rely primarily on live sending and interactive drills that require students to stay engaged with non-uniform code.

Limited demonstrations of MPP or WLT may still be appropriate when a specific instructional goal is being served, especially when helping students learn how to use those tools effectively for independent practice.

## **CLOSING PERSPECTIVE**

This instructional guidance is meant to support consistency without rigidity. It is intended to preserve a coherent LICW experience across levels while respecting the reality that good instruction requires judgment, adaptation, and individual teaching style.

Instructors should use these principles as guidance, not as a script.

The aim is not to create identical classes. The aim is to ensure that, across the curriculum, students experience thoughtful structure, clear purpose, active practice, supportive feedback, respectful class leadership, and a natural progression from one stage of learning to the next.



# ***THE ROLE OF ERROR, MISSING, AND IMPERFECTION***

## **PURPOSE**

This section defines LICW's position on error, missing, and imperfection in Morse code learning and explains their role in the development of proficiency.

## **BACKGROUND**

Students commonly interpret missed characters or words as failure. This reaction is understandable, but it is inconsistent with the nature of Morse code as a real-time skill. Unlike written or recorded material that can be reviewed or corrected, Morse code is received as a continuous stream. The incoming code does not pause to allow the operator to resolve uncertainty.

As a result, the ability to continue through imperfect copy is not incidental. It is fundamental to effective operation.

## **LICW POSITION**

LICW's position is that missing is expected and unavoidable. It is not a sign of failure. It is part of the normal learning process and remains present even at advanced levels of operation.

Students are not trained to achieve perfect copy. They are trained to maintain continuity, remain engaged with the incoming code, and prioritize what comes next over what was missed.

The critical skill is not avoiding error. The critical skill is continuing without disruption.

## **INSTRUCTIONAL RATIONALE**

When a student treats a missed character as a problem to be solved before proceeding, several things occur. Attention shifts backward, rhythm is lost, and subsequent characters are missed. This creates a cascade effect in which a single miss leads to multiple losses of continuity.

This pattern is not a reflection of inability. It is a reflection of how attention is being applied.





Effective operators adopt a different approach. When a character or word is missed, they allow it to pass and immediately re-engage with the next incoming information. Over time, this ability to recover quickly becomes automatic.

Instruction must reinforce this behavior. Students should be encouraged to remain relaxed, accept imperfection, and stay in motion. Accuracy will improve as recognition becomes more automatic, but continuity must be preserved from the beginning.

## **RELATIONSHIP TO FLOW-BASED LEARNING**

The acceptance of error is directly connected to flow-based learning. Flow depends on uninterrupted engagement with the incoming code. Attempts to achieve perfect copy disrupt that engagement and prevent the development of continuous processing.

By contrast, accepting occasional loss allows the student to maintain rhythm and continuity. This, in turn, supports the reduction of Time To Recognize (TTR), improves overall comprehension, and enables the emergence of larger patterns such as words and phrases.

In this sense, the ability to continue through imperfection is not separate from flow. It is one of the conditions that makes flow possible.

## **IMPLICATIONS FOR INSTRUCTION**

Instructors should avoid reinforcing the idea that correct copy of every character is the objective. Exercises should be structured in a way that encourages forward motion and immediate recovery rather than correction of past errors.

Students who struggle should not be encouraged to slow down indefinitely in pursuit of perfection. Instead, they should be guided toward maintaining continuity at a level that challenges them while still allowing them to remain engaged.

This may require reassurance, repetition, and consistent messaging that missing is expected and acceptable.



## CONCLUSION

Error, missing, and imperfection are inherent in Morse code learning and operation. The development of proficiency depends not on eliminating these elements, but on learning to operate effectively in their presence.

Students who learn to remain in motion, recover immediately, and prioritize continuity are better prepared to progress toward fluency and real-world competence.



# ***THE ROLE OF REPETITION AND TIME IN SKILL DEVELOPMENT***

## **PURPOSE**

This section explains the role of repetition and time in Morse code acquisition and clarifies their importance in the development of proficiency.

## **BACKGROUND**

Students often expect progress to occur in a steady and predictable manner. When improvement is not immediately visible, repetition may be interpreted as a lack of progress rather than as part of the learning process.

This expectation is inconsistent with the nature of Morse code as a perceptual and cognitive skill. Development occurs gradually through repeated exposure, and progress is often not apparent in the short term.

## **LICW POSITION**

LICW's position is that repetition is essential to skill development and that proficiency in Morse code requires sustained engagement over time.

Repetition is not redundancy. It is the process by which:

- Sound patterns become familiar
- Recognition becomes more automatic
- Processing speed increases
- Confidence develops

Sustained engagement, rather than completion of a defined sequence of material, is the primary driver of progress.

## **FROM UNDERSTANDING TO ABILITY**

One of the most common misunderstandings in Morse code learning is approaching it primarily as an academic problem.

Academic understanding is valuable. Students should understand why characters are learned as complete acoustic sounds, why analytical decoding is discouraged, why flow and recovery matter, and why productive practice is structured as it is.



But understanding the method is not the same as possessing the skill.

A student may be able to explain automaticity, Time To Recognize, Instant Flow Recovery, Character Flow Proficiency, and the principles of sound-first learning in great detail while still consciously struggling to recognize incoming code.

The missing ingredient is not necessarily more explanation. It is often more experience.

**CW is not learned; it is practiced into automaticity.**

Instruction provides direction. Practice creates familiarity. Repetition gradually transforms effortful recognition into increasingly automatic recognition. Time permits that development to consolidate.

This is why repetition is not simply review of something already learned. **Repetition is part of the mechanism by which the skill comes into existence.**

## **INSTRUCTIONAL RATIONALE**

Each exposure to Morse code reinforces sound patterns and strengthens the learning pathways involved in recognition and understanding. Even when a student notices little or no immediate improvement, learning is still taking place.

Progress often appears uneven. Students may experience periods in which performance seems to plateau, followed by noticeable improvement. This pattern reflects the underlying process of consolidation rather than a failure to progress.

Repetition also supports the transition from conscious effort to automatic processing. Skills that initially require attention and effort gradually become more fluid and require less conscious control. This transition cannot be accelerated beyond certain limits and depends on sufficient exposure over time.

## **RELATIONSHIP TO THE LICW CURRICULUM**

The structure of the LICW curriculum reflects the importance of repetition and time.



The Beginner Carousel allows students to encounter foundational material repeatedly without penalty, reinforcing sound familiarity and recognition. At the Intermediate and Advanced levels, ongoing weekly classes provide continued exposure and practice under increasingly natural conditions.

Students are expected to remain engaged with the material over extended periods, returning to similar patterns and exercises as their skills develop.

## **IMPLICATIONS FOR STUDENTS AND INSTRUCTORS**

Students should not interpret repetition as a sign that they are not progressing. Repetition is the process through which progress occurs.

Instructors should reinforce this understanding and avoid creating pressure to move forward before the underlying skills are stable. Advancement should reflect readiness, not completion of a sequence.

## **CONCLUSION**

Repetition and time are fundamental to Morse code acquisition. Proficiency develops through sustained exposure, gradual reinforcement, and continued engagement.

Students who remain consistent in their participation and allow the process to unfold over time are best positioned to achieve durable and reliable skill.



# ***MEASUREMENT AND PROGRESS IN MORSE CODE LEARNING***

## **PURPOSE**

This section defines how progress should be understood and evaluated in Morse code learning and clarifies the limitations of commonly used measures.

## **BACKGROUND**

Progress in Morse code is often described in terms of words per minute (WPM) and copy accuracy. While these measures are useful in a limited sense, they do not fully capture the development of real-world operating ability.

An exclusive focus on speed or accuracy can lead to misunderstandings about what constitutes meaningful progress and can encourage practices that are inconsistent with the development of continuous auditory processing.

## **LICW POSITION**

LICW's position is that progress in Morse code learning should be evaluated based on the development of **continuous comprehension under real-time conditions**, rather than on speed or accuracy alone.

Words per minute is a descriptive measure of operating conditions, not a complete measure of proficiency. Similarly, high accuracy in controlled conditions does not necessarily indicate the ability to operate effectively in real time.

Meaningful progress is reflected in the development of:

- Reduced Time To Recognize (TTR)
- Sustained continuity during copy
- Immediate recovery after missed characters
- Increasing comfort with natural timing and rhythm
- Emergence of word- and phrase-level recognition



## **INSTRUCTIONAL RATIONALE**

Speed and accuracy can be influenced by conditions that do not reflect real operation, such as extended spacing, short or predictable material, or repeated exposure to the same content. These conditions may produce the appearance of progress without corresponding gains in functional capability.

By contrast, the ability to remain engaged with a continuous stream, tolerate imperfection, and maintain forward motion under natural timing conditions reflects genuine skill development.

Progress in these areas is often gradual and may not be immediately visible. Students may experience periods in which their measured speed appears unchanged while underlying processing improves. Over time, these improvements support increased fluency and operating capability.

## **RELATIONSHIP TO THE LICW CURRICULUM**

The LICW curriculum is structured to support the development of the underlying skills that define real progress.

At the Beginner level, progress is reflected in increasing familiarity with sound patterns and the ability to remain engaged with short sequences. At the Intermediate level, progress is reflected in sustained continuity, improved recovery, and the emergence of word-level comprehension. At the Advanced level, progress is reflected in real-time CW fluency and the ability to operate comfortably under natural conditions.

At all levels, progress is tied to the development of flow rather than to the achievement of specific numerical targets.

## **IMPLICATIONS FOR STUDENTS AND INSTRUCTORS**

Students should avoid focusing exclusively on speed or accuracy as indicators of success. These measures can be useful for context, but they should not be treated as the primary objective.

Instructors should reinforce the broader definition of progress and avoid creating pressure to reach specific speeds within defined timeframes. Evaluation should be based on observable improvements in continuity, recognition, and recovery.



## CONCLUSION

Measurement in Morse code learning should reflect the development of real-world capability. Speed and accuracy alone do not define proficiency.

Students who develop the ability to maintain continuity, reduce recognition delay, and recover effectively from missed information are making meaningful progress, regardless of the specific speed at which they are operating.





# ***ON-AIR READINESS AND THE ROLE OF OPERATING***

## **PURPOSE**

This section defines LICW's position on on-air readiness and explains the role of operating in the development of Morse code proficiency and confidence.

## **BACKGROUND**

Many students view on-air operation as a milestone that occurs after training is complete. This perspective separates learning from operating and often leads students to delay their first contact until they believe they are sufficiently proficient.

This separation is inconsistent with the nature of Morse code as a real-time communication skill. Proficiency develops through exposure to actual operating conditions, not in isolation from them.

## **LICW POSITION**

LICW's position is that on-air operation is part of the learning process and should be approached as a natural extension of instruction rather than as a final objective.

Students are considered ready to begin on-air activity when they can:

- Maintain basic continuity
- Tolerate imperfect copy
- Recover from missed characters and words

Perfect accuracy is not a prerequisite for operating. The ability to remain engaged and continue through imperfect conditions is the relevant threshold.

Students may apply these skills in many forms of CW activity, including conversational QSOs, nets, POTA, SOTA, Field Day, contesting, traffic handling, special events, and other operating environments.

## **INSTRUCTIONAL RATIONALE**

On-air operation introduces elements that cannot be fully replicated in a controlled instructional setting. These include:



- Variability in sending style
- Differences in speed and rhythm
- Environmental conditions such as noise and fading
- The structure and pacing of real communication
- The pressure and satisfaction of communicating with another operator in real time

Exposure to these conditions reinforces the skills developed in instruction, particularly continuity, recovery, rhythm, confidence, and the ability to keep moving when copy is imperfect.

Delaying on-air experience can slow development by limiting exposure to these conditions. Conversely, forcing students onto the air before they are prepared to maintain basic continuity can increase anxiety and reduce confidence.

For this reason, on-air readiness is guided, but not prescribed. Students should be encouraged to begin operating when they feel capable of remaining engaged with the incoming code, even if their copy is incomplete.

## **RELATIONSHIP TO THE LICW CURRICULUM**

On-air activity is aligned with the LICW curriculum and is supported through recommended operating environments that reinforce instructional objectives.

At the Beginner and early Intermediate levels, activities that emphasize structured exchanges and supportive operators provide an appropriate entry point. At the Intermediate and Advanced levels, operating supports the development of real-time CW communication and the application of flow-based skills under natural conditions.

Different operating activities may emphasize different skills. A casual QSO, a net check-in, a POTA exchange, a Field Day contact, a contest exchange, and formal traffic handling do not all require the same operating habits. However, they all benefit from the same foundation: sound-first recognition, continuity, recovery, rhythm, and confidence under real conditions.

In all cases, the purpose of operating is not to demonstrate proficiency, but to develop it.



## IMPLICATIONS FOR STUDENTS AND INSTRUCTORS

Students should view on-air activity as part of their learning process rather than as a test of readiness. Early experiences should be approached with the expectation of imperfection and used to build familiarity and confidence.

Instructors should encourage on-air participation without imposing rigid requirements or timelines. Guidance should focus on helping students recognize when they are capable of maintaining continuity and managing the demands of real-time communication.

Instructors should also recognize that students may be drawn to different types of operating. The role of instruction is not to direct every student toward the same operating destination, but to help each student develop the underlying CW skills needed to participate confidently in the activities that interest them.

## RELATIONSHIP TO CULTURAL AND GOVERNANCE CONTINUITY

This section addresses the academic role of operating in Morse code development. The cultural standard for encouraging on-air activity without pressure, embarrassment, or artificial deadlines is addressed in **The LICW Culture Guide**.

Formal questions involving club callsigns, organized operating events, control-operator responsibility, liability, youth participation, or official station use belong in **The LICW Governance Guide**.

## CONCLUSION

On-air operation is an integral component of Morse code learning. It provides the conditions under which instructional skills are applied, reinforced, and refined.

Students who engage in operating as part of their learning process are better prepared to develop confidence, continuity, recovery, and real-world proficiency.

LICW's goal is to help students become capable CW operators who can use Morse code meaningfully on the air, whether through conversational QSOs, nets, portable operating, contesting, traffic handling, Field Day, special events, or any other CW activity that interests them.



# **CORE INSTRUCTIONAL PRINCIPLES AND METHOD GUARDRAILS**

## **PURPOSE**

This section defines the core instructional principles and method guardrails that help preserve consistency across LICW instruction. Its purpose is to provide clear guidance on practices that do not align with the LICW Method and to reduce the risk of instructional drift over time.

## **BACKGROUND**

In a large instructional environment with many instructors, variation in teaching style is both natural and appropriate. However, variation in method can lead to inconsistent student experiences and may undermine the effectiveness of the curriculum.

Instructional drift often occurs gradually and with good intentions. Instructors may reintroduce familiar techniques, respond to student frustration by modifying pacing or method, or emphasize practices that appear helpful in the short term but are inconsistent with long-term skill development.

For this reason, it is important to define not only what LICW does, but also what it does not do.

## **LICW POSITION**

LICW's instructional model is based on sound-first learning, flow-based development, and continuous auditory processing. Instruction must remain aligned with this model.

The following practices are inconsistent with LICW teaching methods and should be avoided:

- Teaching Morse code as dots and dashes rather than as complete sound patterns
- Encouraging visual charts, written dot/dash notation, code trees, visual associations, mnemonic phrases, or other memory devices as a pathway for learning Morse characters
- Using pictures, phrases, verbal tricks, or other mnemonics to associate characters with dot/dash patterns



- Overusing enhanced spacing or excessively slowed code in ways that alter natural rhythm, timing, and flow
- Emphasizing perfect accuracy at the expense of continuity, recovery, and forward motion
- Treating words per minute as the primary measure of progress rather than TTR, flow, recovery, and comprehension
- Using rigid, script-driven instruction at levels where adaptability, conversational practice, and student responsiveness are required
- Relying on decoders, transcripts, visible text, or real-time correction tools in ways that replace listening rather than develop auditory processing
- Pausing, replaying, or dissecting code so frequently that students learn to analyze missed material instead of staying with the stream

These practices shift the task away from real-time auditory processing and can interfere with the development of rhythm, continuity, recovery, and flow. Over time, they may delay progress toward true proficiency.

## **NO VISUAL OR MNEMONIC CHARACTER-LEARNING PATHWAY**

The LICW Method teaches Morse code as sound. Students are not taught to learn characters through visual dot/dash patterns, printed code charts, code trees, visual associations, or mnemonic devices.

No visual system is used as the method for learning, recognizing, or decoding Morse characters. While ordinary written letters may appear as labels, answers, prompts, or reference points in instructional materials, they are not used as the pathway by which Morse characters are learned. The written letter identifies the meaning of the sound; it does not replace the sound as the object of learning.

LICW does not use mnemonics, memory phrases, pictures, or verbal tricks to associate characters with dot/dash patterns. These approaches may appear helpful in the earliest stage of learning, but they add an extra translation step between the sound and the meaning. That translation step increases Time To Recognize, encourages analytical decoding, and interferes with the development of direct auditory recognition.

The intended learning path is sound to recognition to meaning.  
It is not sound to visual pattern to mnemonic to letter.

The goal is direct auditory recognition. Students should learn to hear the Morse character as a complete sound pattern and associate that sound



directly with meaning, without relying on an intermediate visual, verbal, or mnemonic conversion process.

## **INSTRUCTIONAL RATIONALE**

The LICW model depends on consistency. Students progress most effectively when instruction reinforces the same underlying principles across all classes and instructors.

When methods diverge, students may receive conflicting messages about how to approach the code. This can lead to confusion, reduced confidence, and the adoption of inefficient habits that must later be unlearned.

Visual and mnemonic methods are especially problematic because they may produce short-term recognition while slowing the development of true auditory processing. A student may appear to “know” a character, but if recognition depends on mentally recalling a chart, picture, phrase, or dot/dash sequence, the student has not yet developed the direct sound-to-meaning pathway required for flow.

These guardrails are not intended to limit instructor judgment. They are intended to ensure that instructor judgment is exercised within a set of principles that supports the long-term objectives of the program.

## **ROLE OF INSTRUCTOR JUDGMENT**

Within these guardrails, instructors are encouraged to apply their judgment, adapt to the needs of their students, and bring their own experience and style to their teaching.

Instruction should remain:

- Responsive to student needs
- Flexible in pacing and examples
- Consistent in underlying principles

The goal is not uniformity of delivery, but consistency of method.



## **RELATIONSHIP TO THE LICW CURRICULUM**

These guardrails apply across all levels of instruction. They ensure that students encounter a coherent approach as they move through the curriculum, from Beginner through Advanced levels.

They also support the integration of other instructional elements, including flow-based learning, repetition, and on-air activity, by maintaining alignment across all components of the program.

## **CONCLUSION**

Core instructional principles and method guardrails are essential to preserving the integrity of the LICW instructional model. They protect against unintended drift, support consistency across the curriculum, and ensure that students receive instruction aligned with the principles that lead to real-world proficiency.

Within these guardrails, instructors are encouraged to teach with clarity, flexibility, and confidence, while maintaining alignment with the LICW Method.



# **LUDWIG KOCH AND THE LICW METHOD: A CRITICAL REASSESSMENT**

## **PURPOSE**

This section explains how LICW interprets Ludwig Koch's 1936 report and why the club draws selectively from it rather than treating a modern "Koch Method" as a fixed instructional system. Koch's work contains important and enduring insights, but it must be read critically and in context.

The purpose is not to diminish Koch's contribution. It is to distinguish what his report actually supports from what has later been attributed to him, and to identify the principles that remain useful to LICW today.

## **BACKGROUND**

Few historical documents have influenced modern discussions of Morse code instruction as much as Koch's 1936 paper, *Occupational Psychology Study of the Activity of Recording Morse Code, at the Same Time a New Training Procedure for Radio Operators*. Modern training systems routinely refer to the "Koch Method," the "Koch sequence," and "Koch two-character training."

Those labels create an impression of a single, clearly defined system. The report itself is more complicated. It contains careful psychological observation, practical experimentation, development of an instructional procedure, and advocacy for the superiority of that procedure. Some findings are remarkably strong. Other claims are difficult to evaluate because important experimental details are incomplete or because plausible alternative explanations were not controlled.

LICW's position is therefore neither that Koch should be accepted uncritically nor that his work should be discarded. The challenge is to preserve what Koch discovered while separating it from later folklore and from conclusions that the available evidence does not convincingly establish.

## **THE HISTORICAL CONTEXT**

Koch's report was published in Germany in February 1936. That date is relevant to understanding the practical significance of his work. The Treaty





of Versailles had sharply restricted German military capacity after World War I. By 1935, those restrictions were being openly repudiated as Germany reintroduced conscription, expanded the Army, and publicly acknowledged the Luftwaffe.

By the time Koch's paper appeared, German rearmament was therefore underway. Koch's own report repeatedly discusses the training and proficiency of professional radio operators in aviation, maritime, and military applications and contrasts his civilian test subjects with the more organized training conditions available to the Navy, Air Force, and Army.

None of this proves Koch's personal motivation, and LICW does not claim that he wrote at the direction of the German military or deliberately manipulated his work in anticipation of war. It does provide important context. A method claimed to reduce substantially the time required to train competent radio operators would have had obvious practical value in Germany at that moment.

## **KOCH'S MOST ENDURING CONTRIBUTIONS**

### **Morse Characters as Acoustic Wholes**

Koch approached Morse perception through Gestalt psychology. His central insight was that a Morse character should be perceived as an acoustic whole rather than analytically assembled from individual elements. A proficient operator does not hear a sequence of dits and dahs, reconstruct it, and then translate it into a letter. The operator hears a familiar acoustic object and recognizes it directly.

This principle aligns closely with the LICW Method. The objective of initial instruction is to help the student hear the character as one sound pattern and progressively form a direct sound-to-meaning association.

### **Avoiding Visual Morse During Initial Learning**

Koch was explicit that visual dots and dashes should not be impressed on the learner before the acoustic relationship is established. He warned that knowledge of the optical symbol encourages the learner to break the sound into components and creates an unnecessary translation route from sound, to visual symbol, to letter.

This remains one of LICW's strongest guardrails: Morse code should initially be learned as sound, not sight. Charts, written dots and dashes,



visual trees, and similar devices can reinforce analytical processing at the very stage when the student should be learning direct acoustic recognition.

### **Sound Familiarity Before Identification**

One of Koch's most valuable procedures receives far less attention today than the famous two-character description. In his practical training, learners first heard unfamiliar sound patterns without immediately being told which letters they represented. They listened for and marked the recurrence of the unfamiliar sound until the acoustic pattern itself became familiar. Only then was the letter identity attached.

LICW preserves this principle directly in BC1. Before identifying each new character, the instructor first plays it without telling students which letter it represents. Students listen for the recurring acoustic pattern and indicate when they recognize it. Only after familiarity begins to form is the corresponding letter identified and practiced.

### **Character Speed and Automaticity**

Koch concluded that characters must be presented fast enough to retain their acoustic Gestalt. His work led him to use approximately 60 characters per minute, or about 12 WPM, as a practical initial training speed. More important than the exact number was his reasoning: if characters are sent too slowly, their acoustic form begins to fragment and the learner is invited to analyze individual elements.

Koch repeatedly described the desired result as an immediate relationship between the sound image and the letter without reflection. In modern terminology, this is the development of automatic recognition. LICW's emphasis on Time To Recognize, sound familiarity, and eventual automaticity is consistent with that insight.

### **Scope of Comprehension**

Koch also recognized that the learner's capacity can be exceeded. New material must be introduced gradually enough that previously established sound-to-meaning relationships remain stable. This insight becomes especially important when evaluating what Koch actually said about beginning with two characters.

## **WHAT KOCH ACTUALLY SAID ABOUT TWO CHARACTERS**

Koch did begin his procedure with two characters. His fixed-start training began with two well-differentiated sound patterns so the learner could hear



distinct acoustic Gestalts, discriminate between them, and adapt to the rhythm without managing a large unfamiliar set. The letter identities were initially withheld and attached only after the sounds had become familiar.

The crucial point is what happened after the initial pair. Once those first sound-to-letter relationships were established, Koch added only one new character at a time and integrated it with known material. The initial pair therefore had a practical role at the fixed starting point, but the broader concern was scope of comprehension and stable sound-to-meaning relationships.

This became especially clear in a later practical experience in which two additional new letters were introduced simultaneously after students already knew a larger set. Koch reported that the added load disrupted not only acquisition of the two new letters but also reception of characters that had previously been secure. Consolidation required substantially longer than when the new letters were introduced individually.

That later experience does not invalidate Koch's initial two-character start. It shows that the opening pair and later additions served different purposes: the pair established manageable acoustic discrimination and rhythm; thereafter, adding multiple unfamiliar characters at once could exceed capacity and destabilize recognition.

LICW takes the deeper principle to be controlled acquisition: establish the acoustic pattern first, form a secure sound-to-meaning relationship, and add unfamiliar material only as fast as the learner can absorb it without disturbing prior learning. Koch's fixed-start implementation need not be copied literally for those principles to remain useful.

## **THE “K M R S U KOCH SEQUENCE” MISATTRIBUTION**

The familiar sequence beginning K M R S U is routinely called the “Koch sequence.” That attribution is historically inaccurate. Koch used character progressions in his own training work, and the progressions reproduced in his report do not begin K M R S U.

LICW's historical research traces the K M R S U sequence to German psychologist Otto Lipmann, who developed it in 1919 and later published the work in 1928. Lipmann used an intentionally varied sequence as part of research into aptitude for learning telegraphy. It was not the instructional sequence Koch later developed.



That distinction matters. A sequence designed to reveal differences in learning aptitude is not necessarily a sequence one would choose to teach communication effectively. LICW therefore considers the expression “K M R S U Koch sequence” historically inaccurate and pedagogically misleading.

## **THE TWO-TONE EXPERIMENT AND EVIDENTIARY LIMITS**

Koch also experimented with presenting dits and dahs at slightly different pitches. His theory was that the resulting melodic effect would strengthen the acoustic Gestalt of the character and reduce the concentration required of the learner.

Koch reported two parallel courses, one using single-tone training and the other two-tone training. He stated that the two-tone group mastered the material in 24 half-hour sessions compared with 27 for the single-tone group and emphasized that the two-tone performance curve rose more rapidly, particularly early in training.

At first reading, the comparison appears persuasive. Closer examination raises important methodological questions. In the description of this comparison, Koch does not disclose the number of students in either group. He states only that the groups were approximately equal in aptitude, without supplying enough information to independently evaluate that equivalence.

More importantly, Koch had already established that some characters were more difficult than others and that their position in the sequence produced visible plateaus in learning. LICW’s reconstruction of the character progressions raises substantial concern that the sequences used in the relevant comparisons were not equivalent in difficulty during the early portion of training.

That matters because the effect Koch highlights is precisely the faster early rise of the two-tone group. If one group encounters easier characters earlier than another, a faster initial learning curve would be expected even if tonal treatment had no effect. This does not prove that two-tone training is ineffective. It means that the comparison does not convincingly isolate two-tone presentation as the cause of the reported advantage.



For LICW, the proper scientific description is that the comparison is confounded. The reported result may be real, but the experimental design and reporting do not permit confident attribution of the difference to the two-tone treatment alone.

## **RESEARCH, ADVOCACY, AND THE LICW READING**

The early portions of Koch's report contain careful observations about acoustic perception, timing, Gestalt, and the transition from analytical decoding toward automatic recognition. These sections establish substantial credibility.

Later portions increasingly argue for the superiority of Koch's newly developed procedure and emphasize the extraordinary reduction in training time he believed it produced. There is nothing inherently improper about a researcher advocating a method that appears successful. But advocacy increases the importance of controls, disclosure, and consideration of alternative explanations.

LICW therefore reads the report as a combination of serious psychological observation, practical experimentation, development of an instructional system, and advocacy for that system. The later performance claims should not automatically receive the same evidentiary weight as the stronger perceptual observations appearing earlier.

## **WHAT LICW TAKES FROM KOCH**

- Learn Morse as sound. Characters should be acquired acoustically rather than through visual dots and dashes.
- Perceive the entire character. The objective is recognition of a single acoustic Gestalt, not analysis of individual elements.
- Establish sound familiarity before demanding identification. The learner should first become familiar with the sound pattern itself.
- Use sufficient character speed. Character speed must preserve acoustic integrity without overwhelming the learner.
- Develop a direct sound-to-meaning relationship. The goal is recognition without visual translation or deliberate reconstruction.
- Build automaticity. Recognition should progressively require less conscious effort.
- Introduce new material within the learner's capacity. Previously learned material should remain secure as the character set expands.
- Integrate new characters with previously learned material. New



material should not be learned in isolated blocks and combined only later.

- Respect rhythm. Timing and rhythm influence perception, continuity, and eventual fluency.
- Use distributed rather than excessive massed practice. Concentrated practice can become fatiguing and counterproductive.

## **WHAT LICW DOES NOT ACCEPT**

- That K M R S U is a “Koch sequence.”
- That a historical character order should be adopted merely because Koch’s name has been attached to it.
- That Koch’s two-character starting condition is a universal requirement for effective Morse instruction.
- That Koch’s two-tone comparison demonstrated scientific superiority through a fully controlled experiment.
- That every instructional practice marketed today as “Koch” accurately represents Koch’s 1936 work.
- That historical authority should substitute for modern observation, classroom evidence, experimentation, or sound learning science.

## **CONCLUSION**

Ludwig Koch’s 1936 report remains an important historical document and an important influence on the LICW Method. It is not a set of instructions to be reproduced uncritically.

The proper way to honor Koch’s contribution is to do what he attempted to do: observe learners carefully, examine how people actually perceive Morse code, test instructional assumptions, and modify teaching practice when evidence warrants it.

Some of Koch’s observations have survived that scrutiny remarkably well. Others remain uncertain, and still others have been distorted by decades of repetition until modern descriptions of the “Koch Method” only partially resemble what Koch actually wrote.

For LICW, the useful question is therefore not “What is the Koch Method?” The better question is: What did Koch actually discover about how people learn Morse code, and which of those discoveries remain useful today?



# ***CHARACTER SPEED IN MORSE CODE INSTRUCTION***

## **PURPOSE**

This section explains the role of character speed in Morse code instruction and why LICW treats character speed as a foundational academic decision. It also explains the relationship between LICW's use of 12 WPM character speed in the Beginners Carousel and Ludwig Koch's findings on acoustic pattern formation.

## **BACKGROUND**

Students and instructors often assume that the most helpful response to difficulty is to adjust speed. Some students ask for slower character speeds because slower code feels easier and gives them more time to think. Others ask for faster character speeds because they have encountered training systems that begin at higher character speeds with extended Farnsworth spacing.

Both instincts are understandable, but neither should control instruction by itself.

Morse code learning is not simply a matter of making the code easier or harder. The central task is to help the student hear each character as a complete acoustic pattern. If characters are too slow, they break apart into dots and dashes. If characters are too fast, they may pass before the student can form a usable sound image. In either case, the instructional goal is missed.

Character speed is therefore not a matter of preference. It directly affects how the brain perceives and encodes Morse code.

## **HISTORICAL FOUNDATION: KOCH'S FINDINGS**

As discussed in the preceding reassessment, Ludwig Koch's 1936 study provides an important historical foundation for LICW's position on character speed. Koch examined how Morse code was perceived at different speeds and argued that the acoustic character of a Morse signal changes when it is sent too slowly.

In Koch's experiments, conventional character timing below approximately 50 characters per minute increasingly lost the Gestalt, or whole-pattern,





quality he considered essential to auditory reception. In practical terms, the sound was more likely to break apart into separate elements rather than present itself as a unified acoustic object.

Using the standard conversion of **5 characters per word (PARIS)**, Koch's speed references may be understood as follows:

- 30 characters per minute = 6 WPM
- 50 characters per minute = 10 WPM
- 60 characters per minute = 12 WPM
- 80 characters per minute = 16 WPM
- 100 characters per minute = 20 WPM
- 125 characters per minute = 25 WPM

Koch treated approximately 50 characters per minute, or 10 WPM, as an important transition region in his observations. LICW does not treat that number as a hard physiological boundary. It is better understood as a historical indicator of the point at which excessively slow character formation begins to encourage analytical rather than whole-pattern perception.

Koch therefore chose **60 characters per minute**, or approximately **12 WPM**, as the initial learning speed. This was not arbitrary. It was fast enough to preserve the sound image of the character, but not so fast that the average student would be overwhelmed.

Koch also considered higher speeds, including **100 characters per minute**, or approximately **20 WPM**. While that speed more closely approached practical operating goals, it imposed too much cognitive demand on many beginners. Students with a high degree of aptitude could keep up, but many could not. Koch therefore rejected 20 WPM as the general starting point for initial learning and selected 12 WPM as the better instructional compromise.

This reasoning - rather than an assumption that every learner has an identical perceptual threshold - is the historical basis for LICW's use of 12 WPM character speed in the Beginners Carousel.

## LICW POSITION

LICW teaches Morse code as sound. For that reason, character speed must remain high enough for students to hear characters as complete





acoustic patterns, but not so high that most beginners are prevented from forming those patterns in the first place.

LICW's position is that character speed should be selected to support sound-pattern formation, not simply in response to student preference, imitation of another training approach, or the appearance of difficulty.

In practical terms, LICW follows Koch's reasoning by beginning the Beginners Carousel at **12 WPM character speed**.

This speed is fast enough to prevent the character from falling apart into dots and dashes, while still being manageable for most beginners. It supports the formation of a direct relationship between the sound image and the character, which is the foundation of later flow, word discovery, and real-time CW communication.

Accordingly:

**Character speed should not be reduced merely to make recognition feel easier, nor increased merely to make element-counting impossible.**

The goal is not to make code artificially easy or artificially difficult. The goal is to create the best conditions for durable sound-first learning.

## **THE MISUNDERSTANDING OF "TOO FAST TO COUNT"**

A common argument for very high character speed is that students should be forced to stop counting dits and dahs. The intention is sound, but the formulation is incomplete.

The objective is not merely to prevent counting. The objective is to help the student perceive Morse characters as meaningful acoustic wholes.

If character speed is increased beyond the learner's ability to form a stable sound image, the student may indeed stop counting. But the student may also stop perceiving. The characters may become brief, indistinct events rather than recognizable sound patterns. That is not learning. It is overload.

The problem with counting is not that students perceive Morse elements. The problem is that they rely on conscious analytical reconstruction as the



primary path to meaning. Proper instruction should move students away from analysis and toward direct sound recognition, but it should not do so by making the sound inaccessible.

For this reason, LICW does not treat higher character speed as inherently superior. A higher character speed may be appropriate later, as recognition strengthens and the student's Time To Recognize decreases. But in initial learning, excessive speed can be counterproductive and self-defeating.

## **RELATIONSHIP OF CHARACTER SPEED TO FARNSWORTH SPACING**

Character speed and Farnsworth spacing are related but distinct.

Character speed determines the shape of the character itself. Farnsworth spacing changes the amount of time between characters or words.

Koch's concern was that, at very slow speeds, the character itself loses its acoustic unity. This is the danger LICW seeks to avoid by preserving adequate character speed.

Farnsworth spacing may be used cautiously to reduce cognitive load while maintaining proper character formation. However, excessive spacing introduces its own problems by altering rhythm and weakening flow. For that reason, LICW treats both character speed and spacing as academically important.

The guiding principle is this:

**Preserve the acoustic shape of the character while gradually developing the student's ability to remain in flow.**

Character speed protects the sound image. Spacing must be managed so that it does not become a substitute for flow. The next section addresses Farnsworth spacing in greater detail, including its instructional value, its risks when overused, and LICW's position on its limited use.

## **INSTRUCTIONAL RATIONALE**



The LICW Method depends on sound-first learning. Students must learn to hear each character as a complete acoustic unit rather than as a sequence of dots and dashes.

When character speed is too slow, students are encouraged, often unintentionally, to count elements, visualize charts, or reconstruct the character analytically. These habits may produce early success, but they become obstacles as the student attempts to increase speed.

When character speed is too fast, students may be unable to form a stable association between the sound image and the character. They may experience confusion, fatigue, frustration, and avoidance. In that case, the training may appear rigorous, but it is not necessarily productive.

The long-term consequences of inappropriate character speed include:

- Dot/dash counting
- Visual reconstruction
- Increased Time To Recognize
- Difficulty moving into flow
- Resistance to higher speeds
- Dependence on conscious decoding
- Fatigue and frustration
- Delayed development of word discovery and head copy

By contrast, appropriate character speed requires the student to begin forming the correct habit from the start: hearing the sound and associating it directly with meaning.

This is why the difficulty of 12 WPM character speed is not a defect in the method. It is part of the method. At the same time, LICW's use of 12 WPM character speed with limited Farnsworth spacing reflects restraint. It preserves sound-pattern formation while giving students enough room to begin recognizing what they hear without being overwhelmed.

## **INSTRUCTOR GUIDANCE**

Instructors should expect some students to ask for slower character speeds and others to ask for faster character speeds. Both requests should be handled kindly, but the academic principle should remain clear.



The goal is not to make every character immediately easy, nor is it to make recognition artificially difficult. The goal is to help the student develop the correct auditory habit.

Useful instructor language includes:

- “We keep the character speed here so your brain hears the whole sound.”
- “If we slow the character too much, it starts to become dots and dashes instead of a sound pattern.”
- “If we make the character too fast too soon, you may stop counting, but you may also stop hearing the character clearly.”
- “The goal is not just to prevent counting. The goal is to hear a stable sound pattern.”
- “You do not need perfect copy right now. You need repeated exposure to the correct sound.”
- “Missing is expected. Stay with the stream and let the sound become familiar.”

Instructors should not reduce character speed as a routine accommodation for recognition difficulty. Nor should they increase character speed simply because a student believes faster is always better.

Instead, instructors should adjust the learning environment in ways that preserve sound-pattern formation, such as reducing the number of characters being practiced, increasing repetition, using familiar material, managing spacing appropriately, or providing encouragement and recovery-focused coaching.

## **POTENTIAL FAILURE MODES**

If character speed is reduced too far, LICW instruction can drift away from sound-first learning even if the class appears to be helping in the short term.

The most common failure modes of excessively slow character speed are:

- Students begin counting dits and dahs
- Students visualize characters instead of hearing them
- Students rely on conscious reconstruction
- Recognition becomes slow and effortful



- Students resist normal operating speeds
- Flow does not develop naturally
- Later progress requires unlearning early habits

If character speed is increased too far, a different set of problems can emerge:

- Students fail to form stable sound images
- Recognition becomes guesswork rather than perception
- Fatigue and discouragement increase
- Students confuse difficulty with productive learning
- Only highly apt students can keep up
- Other students disengage or conclude they cannot learn CW

Both failure modes are inconsistent with LICW's academic model.

## RELATIONSHIP TO THE LICW CURRICULUM

The Beginners Carousel begins at **12 WPM character speed** because that speed reflects Koch's practical training conclusion: above the Gestalt threshold, but below the level that overwhelms most beginners.

As students progress, the Intermediate curriculum develops increasing effective speed, reduced Time To Recognize, Instant Flow Recovery, and Character Flow Proficiency. These later gains depend on the student having learned the characters as sound patterns from the beginning.

The Advanced curriculum then extends those gains into CW fluency and mastery under more natural and demanding operating conditions. That progression would be weakened if early learning were built on slow analytical reconstruction or on excessive speed that prevents stable sound-pattern formation.

Character speed is therefore not a narrow beginner issue. It is one of the foundations on which the entire LICW learning path rests.

## CONCLUSION

Character speed is a foundational academic decision in Morse code instruction.



Koch's work supports the principle that Morse characters should be presented fast enough to retain their identity as complete acoustic patterns. His observations placed the transition region near 50 characters per minute, or about 10 WPM, and he selected 60 characters per minute, or about 12 WPM, as a practical starting speed for initial learning.

LICW's use of 12 WPM character speed in the Beginners Carousel reflects that same principle. It preserves the sound image of the character while keeping the task within reach of most beginners.

For that reason, character speed should not be lowered simply to reduce short-term difficulty, nor raised simply to prevent element-counting. Students should instead be supported through appropriate speed selection, repetition, exposure, recovery, and time.

The goal is not to make Morse code easy in the moment or difficult for its own sake. The goal is to build the auditory foundation required for proficiency, fluency, and mastery.



# ***THE USE OF FARNSWORTH SPACING IN MORSE CODE INSTRUCTION***

## **PURPOSE**

This section provides guidance to LICW instructors and a caution to students regarding the use of Farnsworth spacing in Morse code learning. LICW's position is not that Farnsworth spacing has no value. Rather, LICW's position is that it should be used sparingly, cautiously, and only as a temporary instructional accommodation. Overuse can interfere with the development of rhythm, timing, flow, and the listening habits required for real-world Morse code proficiency.

## **BACKGROUND**

Farnsworth spacing generally refers to the practice of sending Morse characters at a higher character speed while increasing the spacing between characters and words. The intent is to expose the learner to the sound of characters at or near the desired target speed while slowing the overall effective speed enough to make early copying manageable.

Although this approach is commonly associated with Donald R. "Russ" Farnsworth, LICW's review found no books, reports, or papers written by Farnsworth on the subject. The technique of lengthening spacing between letters and words appears to have predated him. William G. Pierpont, N0HFF, attributed the idea to earlier teaching practice and noted that Thomas Edison had identified the real difficulty as "the rapid succession" of letters rather than the speed of the individual letters themselves. LICW's analysis also found that the available recording of Farnsworth's Epsilon Records Code Course was sent at approximately 12.6 WPM with no measurable Farnsworth spacing.

That history matters because it reminds us that "Farnsworth" is less a single authoritative method than a teaching convention that evolved over time. It should therefore be evaluated on instructional merit, not tradition.

## **THE INSTRUCTIONAL ARGUMENT FOR ENHANCED SPACING**

The strongest argument in favor of Farnsworth spacing is that it allows students to hear characters at the speed they will eventually need to recognize them. This is an important point. If students learn characters only at very slow character speeds, they may later have to relearn the



sound of those characters at conversational speeds. A character sent slowly can sound quite different from the same character sent at normal operating speed.

This concern is supported by early research. Biegel criticized the older slow-code method because reducing the entire sending process caused characters to lose their auditory identity as complete rhythmic patterns. At slow speeds, characters became atomized into countable sequences of long and short tones, forcing students into a method of perception that later had to be abandoned.

Biegel's proposed alternative was essentially an early form of enhanced-spacing instruction. Characters were presented from the beginning as complete, indivisible sound patterns, while the interval between characters was initially lengthened and then gradually reduced. The aim was to preserve the acoustic shape of the character while giving the learner additional time to make the association.

This is the legitimate instructional value of enhanced spacing. It can help preserve the character as a sound pattern rather than allowing it to be learned as a counted sequence of elements. Used carefully, it may reduce early overload and help some students remain engaged during the initial formation of sound-to-meaning associations.

## **THE INSTRUCTIONAL RISK OF OVERUSE**

The concern is that Farnsworth spacing solves one problem by creating another. Morse code is not merely a collection of isolated character sounds. It is a rhythmic, time-based language. The spacing between elements, characters, and words is part of the structure being learned.

Koch's 1936 study is especially important on this point. Koch emphasized that Morse code has specific proportional timing relationships and that, at a given speed, the ratio of short and long tones and their spacing should remain consistent. He also framed aural Morse reception as a Gestalt process, in which the listener perceives organized sound patterns rather than isolated pieces.

This has direct implications for instruction. When spacing is artificially expanded, the learner is not simply hearing "easier" Morse code. The learner is hearing Morse code under altered temporal conditions. The character may remain intact, but the continuity between characters is changed. That change affects rhythm, anticipation, recovery, and flow.





Biegel's work also supports this caution. Although her enhanced-spacing method was designed to preserve character integrity, it still required students to move through a sequence of progressively shorter intervals until normal spacing was reached. Even in this favorable account, the final transition toward normal timing remained a meaningful instructional hurdle.

Taylor's later experimental work adds a useful balancing note. In Taylor's 1943 study, students were instructed to recognize characters as organized auditory patterns and avoid analyzing them into dots and dashes; however, the broader experimental results caution against assuming that higher-speed character presentation alone will automatically produce superior learning outcomes. The implication for LICW is that Farnsworth spacing should not be treated as a universal solution. It may support one aspect of learning, but it does not by itself develop fluency.

## **LICW OPERATIONAL EXPERIENCE**

LICW's position is not based on research alone. It is also grounded in direct instructional experience.

When LICW began in 2019, the club used a method that was popular at the time: characters were commonly taught at approximately 20 WPM character speed with a much lower effective speed, often around 5 WPM. This reflected the prevailing belief that students should hear characters at a realistic acoustic speed from the beginning, while widened spacing would make early recognition manageable.

Initially, this seemed sensible. Many students could learn to identify characters under those conditions, and the method appeared to reduce early frustration. Over time, however, careful observation of student performance raised concerns.

Many students became stagnant and were unable to progress smoothly into the Intermediate level. The problem often appeared when effective speed was increased beyond approximately 20/6.5. Students who had been comfortable with wide spacing frequently struggled when the space between characters was reduced. They could recognize characters when there was ample time to reset between them, but they had difficulty maintaining continuity when characters began to arrive in closer succession.

This pattern suggested that some students had learned not only the characters, but also the extra space. The widened interval had become



part of the learning environment and, in some cases, part of the learned habit. When the spacing was reduced, the task felt substantially different even though the character speed itself had not changed.

In practical terms, students often reverted to conscious decoding, became anxious when the next character arrived too soon, and lost continuity after a miss. These are exactly the difficulties LICW's flow-based instruction is designed to address. The issue was not simply speed. It was the absence of developed flow under realistic timing.

This institutional experience closely aligns with the research concerns described above. Biegel supports the value of preserving character sound patterns, but only with a deliberate progression toward normal timing. Koch reinforces the importance of rhythm, proportion, and Gestalt perception in Morse code reception. LICW's experience indicates that when widened spacing is used too long, students may not develop the continuity, recovery, and rhythmic processing needed for successful advancement.

## **LICW INSTRUCTIONAL POSITION**

LICW's position is that characters should be taught as complete auditory patterns and at realistic character speeds, but spacing should move toward natural timing as soon as practicable. Enhanced spacing may be used when it serves a clear developmental purpose, but it should not become the primary long-term learning environment.

Instructors should treat Farnsworth spacing as a temporary scaffold. Its purpose is to support early recognition, not to define the student's listening habits. As soon as the student can tolerate reduced spacing, the instructor should begin moving the student toward normal rhythm and timing.

The instructional goal is not merely for students to identify characters. The goal is for students to copy continuous Morse code in a way that resembles real operation. That requires rhythm, continuity, recovery, and flow. Any use of enhanced spacing should therefore be judged by whether it helps the student move toward that goal or allows the student to avoid it.

## **GUIDANCE FOR INSTRUCTORS**

Instructors should be careful not to present Farnsworth spacing as a cure-all or as the default answer to difficulty. Some struggle is expected in learning a real-time skill. If a student is overwhelmed, a modest amount of



additional spacing may be appropriate for a limited period. But the instructor should explain that the spacing is temporary and that the student's eventual goal is to copy code in natural rhythm.

Instructors should watch for signs of dependency. A student who can copy comfortably with wide spacing but falls apart when spacing is reduced may not have developed the necessary flow skills. In that case, the answer is not to restore wide spacing indefinitely. The better approach may be to use shorter material, slower progression, more repetition, and carefully structured practice while continuing to protect natural timing as much as possible.

Instructors should also avoid confusing character speed with fluency. A student hearing characters at 25 WPM with large spaces is not yet copying 25 WPM code in an operational sense. The student is recognizing fast characters under delayed conditions. That may be useful at a particular stage, but it should not be mistaken for conversational copy.

## **GUIDANCE FOR STUDENTS**

Students should understand that Farnsworth spacing can make early practice feel more manageable, but it can also become a trap if relied upon too long. The extra space gives the mind time to think. Real Morse code requires the ability to keep moving without that extra time.

The student's long-term objective is not to decode isolated characters with long pauses between them. The objective is to hear Morse as a continuous stream of sound and meaning. That requires practice under conditions that increasingly resemble real code.

Students should therefore welcome the gradual reduction of extra spacing, even when it feels uncomfortable at first. Difficulty during that transition does not mean failure. It means the student is beginning to develop the next layer of skill. The goal is not perfect copy. The goal is to remain relaxed, stay with the rhythm, recover quickly, and allow recognition to become more automatic over time.

## **CONCLUSION**

Farnsworth spacing addresses a real instructional challenge: beginners often struggle less with the sound of individual characters than with the rapid succession in which those characters arrive. Used sparingly, it can



help students hear characters at realistic speeds while reducing early overload.

But Farnsworth spacing also has real costs. It alters rhythm, changes timing, and creates an artificial listening environment. If used too long or too broadly, it can delay the development of flow skills and make the later transition to natural code more difficult.

For that reason, LICW regards Farnsworth spacing as a limited, transitional tool. It should be used with purpose, reduced deliberately, and removed as soon as the student is ready. LICW's instructional priority remains the development of operators who can copy and send Morse code as it is actually used: rhythmically, continuously, and in real time.

## **SOURCES AND CONTEXT**

This section reflects both LICW instructional experience and a review of historical Morse code training literature, including work by Biegel, Koch, Taylor, and Pierpont, as well as LICW's analysis of Farnsworth/Epsilon Records materials.



# **CHARACTER INTRODUCTION SEQUENCE AND COMMUNICATION-DRIVEN LEARNING**

## **PURPOSE**

This section explains the rationale behind LICW's character introduction sequence in the Beginners Carousel and its alignment with early communication in Morse code. It also clarifies the historical misunderstanding surrounding the so-called "Koch sequence" and provides guidance for future curriculum development.

## **BACKGROUND**

Many Morse code training programs adopt a fixed character sequence commonly described as the "Koch sequence." This sequence begins with **K M R S U** and is frequently presented as though it originated with Ludwig Koch or formed a central part of his instructional method.

LICW's review of Koch's original report does not support that attribution.

Koch used more than one character progression in his training work. The exercise charts reproduced in his report allow those progressions to be reconstructed, and none begins K M R S U. The use of more than one progression is itself important because it shows that character order was an experimental and instructional variable rather than a single canonical sequence.

In at least one comparison, Koch used a progression that appears weighted with easier characters early in the course while arguing that his two-tone procedure produced faster initial learning. He also did not disclose the size of the comparison groups. Because Koch himself recognized that character difficulty affects the shape of a learning curve, the use of different progressions and incomplete group information make that comparison difficult to treat as a controlled finding.

LICW's research further found that the commonly cited sequence beginning **K M R S U** was not developed by Koch. It originated with **Otto Lipmann**, who developed the sequence in 1919 and published it in 1928.

Lipmann's work is important, but not because it established an ideal instructional sequence for communication. Lipmann theorized that future performance in Morse code acquisition could be predicted by how well a



student learned the first few Morse characters. To test that idea, he taught 71 students what he described as an obscure character sequence of varying difficulty, beginning **K M R S U**.

Lipmann's central insight was that early performance on a small number of characters could predict later performance in Morse code learning. Donald Taylor later validated Lipmann's findings in his 1943 doctoral thesis at Harvard. To this day, one of the strongest predictors of future performance in Morse code acquisition is how well a student learns the first few characters.

This matters because the so-called "Koch sequence" is better understood as an aptitude-testing sequence than as a communication-driven curriculum sequence. It may have historical and research value, but it should not be treated as authoritative guidance for how LICW should introduce characters to beginners.

## LICW POSITION

LICW does not adopt the so-called "Koch sequence" as its character introduction sequence.

Instead, LICW uses a **communication-driven character sequence** designed to support early exposure to QSO structure, common abbreviations, and meaningful on-air interaction.

The goal is not simply to teach students Morse characters. The goal is to help students begin learning how to **communicate in Morse code as they learn those characters**.

Character introduction is therefore aligned with:

- Frequency of use in typical QSOs
- Common procedural signals and abbreviations
- Early construction of meaningful exchanges
- Reinforcement of real-world operating patterns

## INSTRUCTIONAL RATIONALE

Morse code is not merely an abstract set of symbols. It is a communication medium.



If students learn characters in an order that does not support communication, they may become able to recognize isolated characters while remaining unable to form meaningful exchanges. This can delay on-air readiness and reinforce the mistaken idea that Morse code learning is separate from Morse code use.

LICW takes the opposite approach. The Beginners Carousel introduces characters in a way that allows students to begin encountering useful QSO patterns and abbreviations early in the learning process. Students are not merely collecting characters; they are beginning to hear and use the building blocks of real communication.

This approach supports motivation, context, and retention. It also helps students understand from the beginning that the purpose of learning Morse code is not simply recognition, but communication.

## **EARLY INTRODUCTION OF QSO PROTOCOL**

LICW's character sequence is designed to support early exposure to QSO protocol and common operating language.

This includes elements such as:

- Calling and answering
- Identification
- Common procedural signals
- Signal reports
- Names and locations
- Acknowledgments
- Common closing conventions

As students acquire more characters, they are increasingly able to recognize and use real QSO elements. This allows QSO protocol and QSO abbreviations to enter the Beginners curriculum naturally rather than appearing later as a separate subject.

This is an important distinction. LICW does not want students to finish learning characters and only then begin learning how Morse code is used. LICW wants students to begin learning communication while they are learning the characters.





## FREQUENCY-OF-USE CONSIDERATIONS

The LICW character sequence is guided by the frequency with which characters appear in typical QSO protocol, callsigns, abbreviations, and standard exchanges.

Characters that occur frequently in meaningful operating contexts are introduced early when practical. This allows students to encounter recurring patterns sooner and to begin forming useful sound associations in context.

This does not mean the sequence is a rigid frequency table. It is a practical curriculum design choice that balances character learning, pattern exposure, communication value, and instructional flow.

The important point is that character order serves the curriculum's communication goals.

## CONTRAST WITH APTITUDE-TESTING SEQUENCES

A sequence designed to test aptitude is not necessarily a sequence designed to teach communication.

Lipmann's **K M R S U** sequence has historical importance because it helped demonstrate that early learning performance predicts later Morse code acquisition. It was intentionally obscure and varied in difficulty. That made sense for aptitude testing, where the objective was to measure learning capacity without relying on familiar patterns.

That objective is different from LICW's objective.

LICW is not trying to obscure meaning from the beginner. LICW is trying to help the beginner form sound-first recognition while gradually entering the language, rhythm, and structure of CW communication.

For this reason, adopting an aptitude-testing sequence as a beginner curriculum sequence would be a category error. It would confuse a research tool for predicting performance with a teaching tool for developing communicative competence.





## **IMPLICATIONS FOR FUTURE CURRICULUM DEVELOPMENT**

Future curriculum developers should understand that LICW's character sequence is not arbitrary and should not be replaced casually.

It reflects a deliberate instructional choice:

- To prioritize communication over isolated recognition
- To align early learning with real-world QSO use
- To introduce QSO protocol and abbreviations as part of character learning
- To support sound-first, flow-based, communication-oriented development

Developers should be cautious about reverting to standardized, inherited, or historically misattributed sequences simply because they are common elsewhere.

Before changing the LICW sequence, future curriculum leaders should ask:

- Does the proposed sequence support early communication?
- Does it reinforce common QSO patterns and abbreviations?
- Does it align with frequency of use in practical operating?
- Does it support flow-based learning?
- Does it help students experience Morse code as communication from the beginning?

If the answer is no, the proposed change is likely inconsistent with the LICW Method.

## **RELATIONSHIP TO THE LICW CURRICULUM**

In the Beginners Carousel, character introduction is integrated with sound-first recognition, early flow development, guided practice, and preparation for on-air operating.

This creates a cohesive learning experience in which students are not only learning characters, but also beginning to understand how those characters function in real communication.

As students progress into Intermediate, this early exposure supports word discovery, conversational development, and greater confidence on the air. Students who have encountered QSO elements early are better prepared



to understand Morse code as a living communication system rather than as a set of disconnected sounds.

## CONCLUSION

LICW's character introduction sequence is designed to support communication from the earliest stages of learning.

The commonly cited "Koch sequence" beginning **K M R S U** was not Koch's instructional sequence. It originated with Otto Lipmann as part of aptitude-testing work and was later validated by Donald Taylor as a predictor of future performance in Morse code acquisition.

That finding is important, but it does not make the sequence the right basis for a communication-driven curriculum.

LICW's approach is different. Its character sequence is designed to introduce students to the sounds, patterns, abbreviations, and structure of real Morse communication as they learn the characters.

Future curriculum development should preserve this principle. Character sequence should serve communication, not historical misunderstanding, inherited convention, or the assumptions of aptitude testing.



# ON THE USE OF TWO-CHARACTER INTRODUCTION METHODS

## PURPOSE

This section explains the relationship between Koch's two-character starting condition and LICW's one-new-character practice. Koch taught fixed-start courses in which every learner could begin with the same initial pair. The Beginners Carousel is different: it has no fixed beginning or reset, and students may join at any point. LICW therefore cannot impose a universal two-character starting condition and instead applies Koch's underlying principles within a continuous-entry curriculum.

## BACKGROUND

The phrase "Koch two-character method" is often used as shorthand for Koch's procedure. It is historically accurate that Koch began with two characters, but incomplete if it implies that the number two was the defining feature of the entire method.

Koch's report shows two distinct stages: a two-character opening used to establish acoustic discrimination and rhythm, followed by incremental expansion in which subsequent new characters were added one at a time.

## WHAT KOCH ACTUALLY DID

Koch deliberately began his fixed-start training with two well-differentiated sound patterns at the training tempo. Their letter identities were initially withheld. The learner first listened for the recurring acoustic wholes and adjusted to the rhythm of the stream. Two distinct sounds provided an immediate basis for discrimination without requiring the beginner to manage a large unfamiliar character set.

Only after the two sound patterns had become distinct and familiar were the corresponding letters named. Once those first sound-to-letter relationships were firmly established, Koch added the next character and thereafter expanded the set one new character at a time, integrating each new sound with the characters already known.

The initial pair and the subsequent single-character additions therefore served different instructional purposes. Koch did not demonstrate that two



characters are universally optimal, but he did give the first pair a specific function: create manageable acoustic discrimination at a common starting point. His broader principle was to build stable recognition without exceeding the learner's scope of comprehension.

## **WHY LICW DOES NOT BEGIN WITH TWO CHARACTERS**

The Beginners Carousel is designed around continuous entry. There is no first lesson, reset, or cohort-wide starting point. A student may enter the rotation at any point, so there is no universal opening pair that every LICW beginner can encounter before the rest of the curriculum.

For that reason, LICW introduces new characters individually throughout the Carousel and limits new material to no more than three characters in a one-hour lesson. Each new character joins an existing stream of familiar material rather than depending on a special starting lesson that some students would inevitably miss.

This is an adaptation of Koch's principles, not a rejection of them. His fixed-start opening cannot be copied literally in a continuous-entry Carousel, but the underlying objectives remain applicable: preserve acoustic wholeness, control unfamiliar material, establish direct sound-to-meaning relationships, and expand the character set without destabilizing prior learning.

## **SOUND FAMILIARITY BEFORE IDENTIFICATION**

BC1 preserves one of Koch's most valuable procedures. Before the instructor tells students which letter a new character represents, the character is first played as an unfamiliar acoustic pattern. Students listen for its recurrence and indicate each time they recognize the sound. The immediate task is familiarity with the acoustic object, not naming it.

Only after sound familiarity begins to develop is the letter identity attached. The character is then practiced and integrated with material already in the curriculum stream. This preserves Koch's sound-first sequence - familiarity before identification - while fitting the structure of the Beginners Carousel.

## **THE LATER TWO-NEW-CHARACTER EXPERIMENT**

Koch later described practical experience in a training course in which two additional new letters were introduced at the same time after a larger



character set had already been learned. He reported that this exceeded the learner's scope of comprehension, disturbed reception of previously known characters, and required substantially longer consolidation than when new letters were introduced individually.

## **LICW POSITION**

- Introduce one new character at a time within the continuous-entry Beginners Carousel.
- Introduce no more than three new characters during a one-hour lesson.
- Establish sound familiarity before revealing the letter identity.
- Integrate each new character immediately with previously learned material and continue reinforcing the existing character set.
- Control the rate of new material so that unfamiliar sounds do not destabilize recognition that is already secure.

## **INSTRUCTIONAL RATIONALE**

The central challenge in Morse code learning is not merely to discriminate between a small number of characters. It is to build a stable and expanding repertoire of acoustic patterns that can eventually be recognized automatically in continuous flow.

In a continuous-entry Carousel, a one-new-character approach gives every student a clear perceptual target regardless of where that student enters the rotation. Limiting the lesson to no more than three new characters controls total unfamiliar material while still allowing meaningful progress during the hour.

Live instruction adds an important advantage. As each new sound is made familiar, identified, and integrated, the instructor can observe how the student sends or responds to it and can often detect whether the character is being perceived as a unified acoustic pattern or analytically reconstructed from individual elements.

## **RELATIONSHIP TO FLOW-BASED LEARNING**



LICW's instructional model ultimately depends on students remaining in the stream while sound patterns arrive in real time. Unnecessary cognitive load at the moment a new acoustic pattern is being formed works against that goal.

Introducing one unfamiliar character at a time allows the character set to expand within an already familiar stream. The student can build familiarity with the new sound while continuing to hear and use material that is already known, supporting continuity, recovery, and early communication rather than isolated character study.

## **INSTRUCTOR GUIDANCE**

Students may encounter external tools that describe themselves as using the “Koch Method” or “Koch two-character training.” Instructors should not tell students that Koch never began with two characters; that would be historically inaccurate. A better explanation is:

- “Koch taught fixed-start courses. He began with two well-differentiated sound patterns and then added subsequent characters one at a time.”
- “The LICW Beginners Carousel has no fixed starting lesson or reset, so there is no universal opening pair. Students may join at any point.”
- “LICW preserves the underlying process by establishing sound familiarity before identification, introducing one new character at a time, and limiting new material to no more than three characters in a one-hour lesson.”

This distinction explains the difference accurately without treating either Koch's historical implementation or LICW's present curriculum structure as a slogan. The instructional architecture is different; the controlling principles are closely aligned.

## **RELATIONSHIP TO THE LICW CURRICULUM**

In BC1, a student may enter the Carousel at any point. Each new character is introduced individually, first as an unidentified acoustic pattern,



then identified after sound familiarity begins to form, and finally integrated into multi-character practice and communication-oriented material. No more than three new characters are introduced during a one-hour lesson.

The student therefore works within an expanding and continuously reinforced character set rather than depending on a common starting pair. This supports sound-first learning, repetition, flow, and early communication while remaining consistent with Koch's broader practical principle: new material should be added gradually enough that previously established recognition remains secure.

## **CONCLUSION**

The modern phrase "Koch two-character method" is incomplete. Koch deliberately began his fixed-start training with two well-differentiated sound patterns and then expanded the character set one new character at a time. His later experience showed that adding multiple additional unfamiliar characters simultaneously could exceed the learner's scope of comprehension and disturb prior learning.

LICW does not reproduce Koch's opening pair because the Beginners Carousel has no fixed beginning. Instead, LICW adapts the principles his work supports to a continuous-entry environment: build sound familiarity before identification, introduce unfamiliar material incrementally, limit cognitive load, integrate new sounds with known material, and protect stable acoustic recognition as the student progresses.



# ***EARLY INTRODUCTION OF NUMBERS AND PROSIGNS***

## **PURPOSE**

This section explains why LICW introduces numbers and prosigns alongside letters in the Beginners Carousel, rather than delaying them until later stages of instruction. It also explains how this approach supports communication-driven learning and helps students encounter Morse code as practical language from the beginning.

## **BACKGROUND**

Many Morse code training programs introduce letters first and defer numbers and prosigns until a later stage. This approach is often justified on the basis of simplicity. By limiting the initial character set, early learning may feel more manageable and structured.

While this approach may reduce short-term difficulty, it introduces a separation between character learning and communication. Students may become comfortable recognizing letters in isolation, but remain unable to understand or participate in even the simplest real-world exchanges.

LICW has intentionally chosen a different approach.

## **LICW POSITION**

LICW introduces numbers and prosigns alongside letters as part of the initial learning process.

This is a deliberate curriculum design decision aligned with a central principle of the LICW Method:

Students should begin learning how to communicate in Morse code as they learn the characters. Numbers and prosigns are not treated as advanced or secondary material. They are fundamental components of real Morse code communication and are introduced accordingly.





## **INSTRUCTIONAL RATIONALE**

Morse code is not composed solely of letters. Real-world communication depends heavily on:

- Numbers (signal reports, frequencies, locations, dates, times)
- Prosigns (procedural signals such as AR, BT, SK, KN)
- Abbreviations that combine letters, numbers, and prosigns

If these elements are withheld during early instruction, students are learning an incomplete version of Morse code.

This creates a gap between:

- Learning Morse characters
- Using Morse code for communication

LICW's approach eliminates that gap by integrating all essential components from the beginning.

## **COMMUNICATION FROM THE START**

Introducing numbers and prosigns early allows students to encounter realistic QSO patterns sooner.

Even with a limited character set, students can begin to recognize elements such as:

- Signal reports (e.g., 5NN)
- Common procedural markers (BT, AR)
- Call structure and spacing
- The rhythm of a real exchange

This reinforces the idea that Morse code is not an abstract system to be mastered first and used later. It is a communication system that can be experienced and understood progressively.

Students are therefore not waiting to “finish learning the code” before using it. They are learning to use it as they go.



## **RHYTHM AND PATTERN DEVELOPMENT**

Numbers and prosigns also contribute to the development of rhythm and pattern recognition.

Many prosigns function as single acoustic units and reinforce the concept that Morse code is heard as patterns rather than assembled piece by piece. Numbers, while sometimes longer in structure, introduce variation and expand the student's exposure to different rhythmic forms.

By incorporating these elements early, LICW strengthens:

- Pattern diversity
- Auditory flexibility
- Recognition of non-letter structures
- Overall familiarity with Morse as a language

## **CONTRAST WITH LETTER-FIRST APPROACHES**

The letter-first approach simplifies early learning by reducing the number of elements the student must manage. However, it also delays exposure to key aspects of real communication.

This can lead to several issues:

- Students develop an incomplete mental model of Morse code
- Transition to real QSOs becomes more difficult
- Additional learning phases are required later
- Students may experience a second "learning curve" when numbers and prosigns are introduced

LICW's approach avoids this staged disruption by integrating all core elements from the beginning.

While this may feel slightly more complex at first, it produces a more continuous and cohesive learning experience over time.

## **INSTRUCTOR GUIDANCE**

Instructors should present numbers and prosigns as natural components of Morse code, not as advanced material.



Helpful language includes:

- “Numbers and prosigns are part of how Morse code is actually used.”
- “You don’t need to master them all at once - just become familiar with the sound.”
- “You will hear these in real QSOs, so it’s good to start recognizing them early.”

The goal is not immediate mastery, but early exposure and gradual familiarity.

Students should be encouraged to:

- Hear the sounds
- Recognize patterns when possible
- Remain in the stream without pressure to copy perfectly

## **RELATIONSHIP TO THE LICW CURRICULUM**

In the Beginners Carousel, the introduction of numbers and prosigns supports:

- Early exposure to QSO protocol
- Integration of communication patterns
- Reinforcement of sound-first learning
- Development of flow in realistic contexts

As students move into Intermediate levels, this early exposure reduces the need for separate instruction and allows for a smoother transition into conversational practice.

Students who have already encountered these elements are better prepared to:

- Understand real exchanges
- Recognize procedural structure
- Participate on the air with greater confidence

## **POTENTIAL FAILURE MODES**

If numbers and prosigns are delayed, the following issues may arise:



- Difficulty understanding real QSOs
- Disruption of flow when unfamiliar elements appear later
- Increased cognitive load during transition
- Hesitation that leads to missed characters and loss of continuity
- Perception that Morse code learning occurs in disconnected stages

These effects can slow progression toward on-air readiness and interfere with the forward-moving continuity that LICW seeks to develop from the beginning.

## **CONCLUSION**

LICW introduces numbers and prosigns alongside letters because Morse code is a communication system, not a staged sequence of isolated elements.

Early exposure to these components allows students to begin understanding and experiencing real communication as they learn the characters.

This approach may be slightly more demanding at the outset, but it produces a more coherent, continuous, and communication-focused learning experience.

Future curriculum development should preserve this principle. Students should not be asked to learn Morse code in isolation and only later learn how it is used. They should learn both together, from the very beginning.



# ***ENHANCING THE LEARNING OF MORSE CODE WITH RHYTHM***

## **INTRODUCTION**

LICW has a strong interest in the extent to which musical rhythm may support Morse code acquisition. In particular, the club is interested in whether rhythm-based approaches may help students perceive Morse code as patterned sound and thereby support more efficient learning.

Classroom observation has long suggested a relationship between musical ability and Morse code acquisition. Students with musical backgrounds often appear to progress more quickly and to develop stronger proficiency. Historical support for that observation can be found in early telegraphy research, including Thurstone's 1919 finding that rhythm was strongly associated with success in telegraphy.

This raises an important instructional question: if musical aptitude - particularly rhythm, timing, and tonal memory - contributes to success in Morse code learning, can rhythm-based approaches be used to strengthen acquisition for a broader range of students?

## **THE SYMMETRY AND TIMING OF MORSE CODE**

The Morse timing standard adopted by ARRL for training materials, code tests, and W1AW transmissions is as follows:

- A dot is one unit
- A dash is three units
- One unit separates each element within a character
- Three units separate each character within a word
- Seven units separate each word

For purposes of measuring speed, the standard **PARIS** 50-unit word is used. Words per minute are derived from the number of times the 50-unit word *PARIS* is sent in one minute. This standard provides the timing principles within which Morse rhythm is experienced and taught.

## **THE HARMONIC ORIGINS OF MORSE CODE**

Chris Rutkowski, NW6V, has argued that the familiar 3:1 timing relationship of International Morse did not originate in Samuel Morse's original American Morse, but emerged later through Friedrich Gerke's 1848



revision for the German Post Office. In this view, the now-familiar structure of one-unit dits and three-unit dahs reflects not only efficiency, but also a form of rhythmic regularity that may help explain why Morse is experienced as patterned sound rather than as arbitrary signal lengths.

Rutkowski also offers an explanation for the seven-unit separation between words, illustrating how the motion of the hand and the on/off state of the signal can be understood as rhythmically aligned. Whether or not one accepts the broader harmonic interpretation, the discussion is useful because it draws attention to the inherently rhythmic structure of Morse timing.

## ENHANCING THE LEARNING OF MORSE CODE WITH RHYTHM

Rhythm appears to play a particularly important role in Morse code learning because pitch and timbre, unlike in most music and spoken language, remain comparatively fixed. In that sense, the learner's ear is working primarily with timing, duration, grouping, and pattern.

Koch's discussion of Bucher's 1924 report, *Work and Rhythm*, suggests that rhythm can positively influence performance when learning conditions are structured to take advantage of it. More recently, Mohapp's 2015 thesis examined rhythm perception in music as a teaching and learning process for Morse code. Her review of wartime training techniques used by the Women's Royal Australian Naval Service suggests that musical rhythm may indeed have played a positive role in the rapid acquisition of code skill.

For additional perspective, LICW consulted orchestra conductor Johannes Stosch, KI6M. Stosch's view is that the ear is the primary teacher. As with language learning or musical training, repeated exposure to good sound patterns is central. He acknowledges the symmetry of Morse timing, but places greater emphasis on rhythm than on harmonic interpretation. In his view, individual letters are too variable in length to align with a fixed beat, but words and common operating units often develop recognizable rhythmic identities.

That observation is especially relevant to LICW because it aligns closely with the club's emphasis on flow, pattern recognition, and the transition from character assembly to word discovery. Common items such as **RST**, **FER**, **BK**, **AS**, **SK**, and callsigns may begin to stand out not because of pitch, but because of their recurring rhythmic signatures.



## THE DIFFERENCE BETWEEN RHYTHM AND BEAT

It is useful to distinguish **rhythm** from **beat**. Beat is the fixed underlying tempo of a piece, like a metronome. Rhythm is the pattern of variable durations and accents that unfolds against that tempo. Morse code resembles rhythm more than beat. Character and word lengths vary continuously and do not align to a uniform metrical pulse. In that sense, Morse is not metronomic; it is rhythmic.

This distinction matters because it suggests that rhythm-based support for Morse learning is unlikely to come from imposing a fixed beat. It is more likely to arise from helping learners perceive recurring temporal patterns at the level of words, phrases, and familiar operating forms.

## LICW EFFORTS TO PRODUCE MUSICAL CONTENT

LICW has experimented with adding CW to musical and rhythm-based video content. Results have been mixed. Some attempts appeared to support recognition, while others did not. These experiments suggest that the mere presence of music is not enough; if rhythm is to support learning, the relationship between music and Morse timing must be carefully designed.

That conclusion is important. It suggests that rhythm may have real instructional potential, but that effective implementation likely requires collaboration among musicians, educators, and experienced CW practitioners. At present, the evidence is promising but exploratory rather than definitive.

## THE MORSEBASS PROJECT

A current example of exploratory rhythm-based work is the **MorseBass** project, developed by Elfenworks Productions LLC in association with LICW. The project presents Morse in a music- and rhythm-informed format and is centered primarily on **words, chat words, and communication units** rather than on isolated character instruction.

That emphasis is instructionally significant. It suggests that rhythm-based enhancement may be more naturally suited to **common words, recurring operating forms, and phrase-level familiarity** than to the initial teaching of single Morse characters. Individual letters are often too brief and too variable in duration to benefit consistently from musical treatment, whereas



common words and familiar communication forms may be more capable of acquiring recognizable rhythmic identity.

In that sense, projects such as MorseBass appear most compatible with later stages of recognition, where learners are moving beyond isolated character assembly and toward larger meaningful units. This interpretation is also consistent with LICW's view that rhythm is best understood as a supporting process, not a replacement for sound-first character learning.

From an instructional perspective, rhythm-based projects such as MorseBass may prove useful in at least three ways:

1. They may help learners notice and remember the rhythmic character of common words and operating forms.
2. They may support engagement, repetition, and enjoyment, especially for younger learners or non-traditional audiences.
3. They may open additional pathways for communication-oriented applications and exploratory learning.

These possibilities are promising, but they remain exploratory. In the LICW model, they are best viewed as extensions of rhythm-based support, not as substitutes for the club's core instructional approach of learning Morse characters as unified acoustic patterns.

## **CONCLUSION**

The available evidence suggests that rhythm may play a meaningful role in Morse code acquisition. Historical research, classroom observation, and current exploratory work all point to the possibility that rhythmic perception may support recognition of Morse as patterned sound rather than as isolated elements.

At the same time, the precise instructional value of rhythm-enhanced training remains an open question. Within the LICW academic model, rhythm is best understood as a promising adjunct to sound-first learning - worthy of continued exploration, but not a replacement for the club's core pedagogical principles.





# **INITIAL SENDING METHOD - STRAIGHT KEY VS. PADDLES AND KEYERS**

## **PURPOSE**

This section explains LICW's position that beginner students should begin Morse code sending with a straight key rather than paddles, electronic keyers, or keyboards. It defines the instructional rationale for that position and its role in supporting sound-first learning, rhythm development, and long-term proficiency.

## **BACKGROUND**

Modern CW operators have access to a wide range of sending methods, including single and dual-lever paddles with electronic keyers and computer-based keyboard transmission. These tools are efficient, widely used, and entirely appropriate in many operating contexts.

However, the question for instruction is not what tools are available, but what best supports the development of foundational skill.

Beginning students are not yet sending fluently. They are learning to associate sound with character, to internalize rhythm, and to develop continuity between what they hear and what they produce. The initial sending method should reinforce those goals, not bypass them.

## **LICW POSITION**

LICW's position is that beginner students should start with a straight key.

Paddles, keyers, and keyboards may be introduced later as the student develops greater proficiency, but they should not be the primary sending method during initial learning.

This is not a position based on tradition or preference. It is based on how beginners acquire timing, rhythm, and sound association.

## **ACCESSIBILITY AND MEDICAL REALITIES**

This position should be applied with kindness and judgment. For some students, especially those dealing with arthritis, hand pain, tremor, fatigue, limited mobility, injury, or other medical realities, a straight key may be



uncomfortable or impractical. In those cases, the use of paddles, a keyer, or another appropriate sending method may allow the student to participate more fully.

LICW should acknowledge that reality with kindness and respect. The purpose of the straight-key recommendation is to support foundational rhythm, timing, and sound association. It is not intended to create a barrier for students whose physical circumstances make straight-key use difficult.

When an alternate sending method is used for medical or accessibility reasons, instructors should still encourage the same underlying goals: careful listening, correct rhythm, sound-first learning, and awareness of the relationship between what is heard and what is sent.

## **INSTRUCTIONAL RATIONALE**

Morse code is fundamentally rhythmic. Each character is not just a sequence of elements, but a patterned sound with internal timing and proportion.

A straight key requires the student to generate that rhythm manually. Each element - dit, dah, and space - is formed by the student's own action. This creates a direct physical and auditory connection between:

- The sound of the character
- The timing of the elements
- The motor action used to produce it

This coupling reinforces learning in a way that is difficult to replicate with automated sending methods.

When a student uses a paddle and electronic keyer, the timing of the elements is generated by the device. The student initiates the sequence, but does not form each element individually. This can be efficient, but it reduces the student's engagement with the internal structure of the character.

With keyboard sending, that connection is reduced further. The student types text and the device generates the Morse code entirely. In that case, the act of sending is no longer tied to the sound or structure of the code.



For a beginner, these methods risk turning sending into a triggering activity rather than a learning activity.

## **RHYTHM AND SOUND DEVELOPMENT**

Early sending is not primarily about communication speed. It is about learning to *feel* and *hear* correct rhythm.

A straight key encourages:

- Awareness of element length (dit vs. dah)
- Awareness of spacing within the character
- Awareness of overall character rhythm
- Synchronization between hearing and producing the code

These are foundational skills that support later receiving, not just sending.

When students develop a sense of rhythm through manual formation, they are better able to recognize that same rhythm when listening. This strengthens sound-first recognition and supports flow.

## **RELATIONSHIP TO RECEIVING SKILL**

Sending and receiving are closely linked in early learning.

When a student forms a character manually, they are reinforcing the auditory pattern associated with that character. This can support retention and recognition.

If sending is automated too early, that reinforcement is weakened. The student may be able to send characters using a paddle or keyboard without fully internalizing their sound.

LICW's approach seeks to align sending practice with receiving development, especially in the early stages.

## **WHEN TO INTRODUCE PADDLES AND KEYERS**

Paddles and keyers are valuable tools and should be introduced as the student progresses.



Once a student demonstrates:

- Stable character recognition
- Developing flow
- Basic rhythmic consistency

They may transition to paddles and a keyer.

At that stage, the student already has an internal model of correct timing. The keyer then becomes a tool for efficiency rather than a substitute for learning.

Keyboard sending may also have a place in specific operating contexts, but it should not replace the development of manual sending skill during early learning.

## **INSTRUCTOR GUIDANCE**

Instructors should recommend the straight key for beginners and explain the rationale clearly.

Helpful language includes:

- “The straight key helps you learn the rhythm of the code.”
- “You are building the sound as you send it.”
- “This is about learning the feel of the characters, not speed.”
- “You can move to paddles later once the sound is solid.”

Students who already own paddles or prefer them should not be discouraged from participating, but instructors should explain that the straight key provides specific learning benefits in the early stages.

The goal is guidance, not enforcement, but the recommendation should be clear and consistent.

## **POTENTIAL FAILURE MODES**

If beginners rely exclusively on paddles, keyers, or keyboards too early, several issues may arise:

- Weak sense of internal character rhythm



- Reduced connection between sending and sound
- Mechanical triggering without auditory awareness
- Inconsistent timing habits masked by the keyer
- Limited reinforcement of receiving skill

These effects may not be immediately visible, but they can influence later development.

## **RELATIONSHIP TO THE LICW CURRICULUM**

In the Beginners Carousel, the primary objective is sound-first recognition and early flow. Sending is introduced as a supporting activity, not as a separate performance skill.

The use of a straight key aligns with this objective by reinforcing rhythm, timing, and sound association.

As students move into Intermediate and Advanced levels, sending becomes more fluid and more integrated into conversational operation. At that point, the use of paddles and keyers is entirely appropriate and often preferred.

## **LONG-TERM SENDING ADAPTABILITY**

The straight-key recommendation is an instructional starting point, not a permanent limitation or a judgment about other sending methods.

This section addresses the academic rationale for LICW's beginning sending recommendations. The broader cultural meaning of sending, including the mind-hand connection, adaptability across keys, rhythm, and respect for traditional sending styles, is addressed in **The LICW Culture Guide**.

As students develop, LICW should encourage broader sending adaptability. A capable CW operator should understand that good sending does not come from the key alone. It comes from the operator's internal rhythm, timing, control, and ability to adjust mentally to different instruments and conditions.

For that reason, students who have developed a sound foundation should be encouraged, when appropriate, to explore paddles, keyers, bugs, and other sending methods. Each method teaches something useful. Paddles



and keyers can help develop speed flexibility and control. Bugs preserve an important part of CW tradition, including the expressive swing and rhythm associated with older operating styles.

The long-term goal is not loyalty to one device. The long-term goal is a strong mind-hand connection: the ability to send cleanly, rhythmically, and communicatively using the tool at hand.

## **CONCLUSION**

The choice of initial sending method is an instructional decision, not a technological one.

For beginner students, the straight key provides the most direct connection between action, sound, and rhythm. It supports timing, reinforces auditory learning, and aligns with LICW's sound-first teaching approach.

Paddles, keyers, bugs, and keyboards are valuable tools, but they should ordinarily be introduced after foundational auditory and rhythmic skills have been established. As students progress, LICW should encourage adaptability across sending methods, because good sending ultimately resides in the operator's rhythm, control, and mind-hand connection, not in the key alone.

When medical, physical, or accessibility needs make straight-key use difficult, an alternate sending method may be appropriate and should be supported with kindness and good judgment.

The goal is not to delay efficiency. The goal is to build the foundation that makes efficiency meaningful.



# **LIVE INSTRUCTION, CLASS PRIVACY, AND UNAUTHORIZED RECORDING OR TRANSCRIPTION**

## **PURPOSE**

This section explains why live, private, interactive instruction supports the LICW Method. The cultural trust principles behind privacy, recording, student comfort, and member confidence are addressed more fully in *The LICW Culture Guide*. Formal policy adoption, data governance, recording permissions, AI-transcription policy, platform settings, records retention, and enforcement authority belong in *The LICW Governance Guide*.

## **BACKGROUND**

Modern learning environments often rely on recorded content for convenience and scalability. It is therefore natural for students to request recordings of classes or for organizations to consider building libraries of recorded instruction.

LICW has intentionally chosen a different approach.

The LICW Method is based on live, interactive instruction, immediate feedback, guided practice, and the development of real-time auditory processing skills. That kind of learning is best supported in a live class where instructors can guide students in real time, respond to what is happening, and help students stay in flow.

A recorded, transcribed, or summarized class may preserve words or content, but it does not preserve the instructional environment that makes the class effective. It cannot reproduce the instructor's real-time judgment, the adjustment of difficulty, the correction of rhythm and timing, or the encouragement that helps students recover from mistakes and remain engaged.

## **LICW POSITION**

LICW academic classes, forums, and meetings are conducted live and private. They may not be recorded, transcribed, summarized, processed, captured, distributed, or retained without prior LICW authorization.

This policy applies to audio recording, video recording, screen recording, automated transcription, AI note-taking, AI meeting summaries, third-party



note-taking bots, transcription bots, browser extensions, Zoom-based tools, locally run applications, mobile devices, or similar technologies.

It also applies regardless of how the tool is used. A prohibited tool may be built into Zoom, added through a browser extension, launched as a separate application, connected as an automated meeting participant, run locally on a computer or mobile device, or operated through another device in the room.

LICW does not provide recorded academic classes for offline use as a substitute for live instruction. This policy is based on both privacy considerations and instructional effectiveness.

## **PRIVACY AND LEARNING ENVIRONMENT**

LICW classes are intended to be safe and comfortable places to learn.

Students must be free to:

- Make mistakes
- Ask questions
- Experiment with new skills
- Struggle through difficult material
- Recover from missed copy

They must be able to do these things without concern that their participation is being captured, preserved, analyzed, or distributed outside the live class environment.

Recording changes behavior. When participants know they are being recorded or automatically transcribed, they often become more self-aware and cautious. This can lead to reduced participation, hesitation in asking questions, avoidance of risk-taking, and reluctance to make mistakes openly.

These effects are subtle but significant. They can interfere with growth, especially in a skill that depends on repetition, experimentation, recovery, and confidence through imperfection.

For this reason, LICW prioritizes a private, non-recorded environment that encourages active participation and learning.





## **AI NOTE-TAKING, TRANSCRIPTION, AND MEETING-SUMMARY TOOLS**

AI note-taking tools, automated transcription services, meeting-summary tools, and similar technologies should be treated as recordings for purposes of LICW academic classes.

Even when these tools are described as note-taking rather than recording, they may capture, preserve, summarize, analyze, process, retain, or distribute class content. This may include student questions, copying attempts, mistakes, instructor feedback, chat comments, names, voices, and other class interactions.

Examples include Otter.ai, Zoom AI Companion, Zoom transcription or summary tools, automated notetakers, transcription bots, screen-recording tools, browser extensions, or similar services.

Members may not enable, invite, launch, or use these tools in LICW academic classes unless specifically authorized by LICW for an approved accessibility, administrative, or instructional purpose.

This policy is not intended to prevent ordinary personal note-taking by students. Students may take their own private handwritten or typed notes for learning purposes. The concern is automated capture or processing of class activity in a way that changes the privacy, comfort, and trust of the learning environment.

AI note-taking tools create the same instructional and privacy concerns as recordings. They may make students less willing to ask questions, make mistakes, experiment, or participate openly. They may also create the impression that a class can be reduced to a transcript or summary, when the value of LICW instruction lies in live interaction, immediate feedback, guided practice, and the development of real-time listening skill.

## **THE ROLE OF LIVE INSTRUCTION**

The LICW Method depends on live interaction between instructor and student.

Morse code learning is not simply exposure to content. It is a dynamic process that requires:

- Immediate feedback



- Correction of timing and rhythm
- Adjustment of difficulty
- Reinforcement of correct habits
- Interruption of incorrect habits
- Encouragement through frustration and missed copy

In a live class, the instructor can hear how a student is copying or sending, identify emerging errors or inefficiencies, adjust pacing and content in real time, guide the student back into flow, and reinforce recovery after misses.

This feedback loop is central to the LICW Method.

## **WHY RECORDED CLASSES ARE NOT A SUBSTITUTE**

A recording can present information, but it cannot provide real-time guidance.

Recorded instruction cannot:

- Respond to student errors
- Correct timing or rhythm
- Adapt to the student's level
- Reinforce proper habits at the moment they are formed
- Help a student recover when flow breaks
- Adjust the exercise to match the needs of the class

As a result, recorded instruction tends to become passive. The student may listen or watch, but is not being guided in real time.

This matters because a core principle of LICW instruction is: Practice makes permanent, not perfect.

When students practice without guidance, they risk reinforcing incorrect patterns, including improper timing, analytical decoding habits, inconsistent rhythm, loss of flow, and poor recovery habits.

Once established, those habits can be difficult to correct.

Live instruction reduces this risk by ensuring that practice is observed, guided, and corrected in real time. Recorded instruction, by contrast, can unintentionally encourage unsupervised repetition of errors.



For that reason, LICW prioritizes live participation over convenience. The decision not to provide recorded academic classes is not an operational limitation. It is an intentional part of the curriculum design.

## **ACCESSIBILITY CONSIDERATIONS**

Accessibility needs should be handled thoughtfully and compassionately.

When a student requires assistance with note-taking, hearing, comprehension, disability access, or another learning-related need, LICW should consider the specific need and the least intrusive way to support access while preserving the privacy and instructional integrity of the class.

Any exception involving recording, transcription, AI note-taking, meeting-summary tools, or similar technologies must be authorized by LICW leadership in advance.

If a student has an accessibility need that may require an exception, the student should be referred to LICW leadership so an appropriate accommodation can be considered. Individual instructors should not be expected to evaluate or approve these tools during class.

The goal is to support participation while maintaining the live, private, and interactive learning environment that makes LICW instruction effective.

## **INSTRUCTOR GUIDANCE**

Instructors should be consistent in communicating and enforcing this policy.

If students ask why recordings, transcripts, or AI summaries are not available, instructors may explain that LICW classes are live and private because students need a comfortable environment in which to practice, make mistakes, recover, ask questions, and receive real-time feedback.

If an AI notetaker, transcription bot, meeting assistant, automated summary tool, or other unauthorized recording or transcription tool appears in class, the instructor should address it promptly and calmly. A simple explanation is sufficient:

“LICW classes are live and private. We do not permit automated recording, transcription, AI note-taking, or meeting-summary tools in class without prior authorization.”



If the tool was enabled by a student, the instructor should first ask the student to disable it or remove it from the session.

If the student complies, the instructor may continue the class without further discussion.

If the student does not comply, if the tool remains active, or if the instructor believes the privacy of the class is still being compromised, the instructor should claim host or co-host authority if necessary and remove the automated participant or the student from the Zoom session.

Instructors do not need to debate the policy during class. The goal is to protect the learning environment, not to argue about the technology.

If a student explains that the tool is needed for accessibility or note-taking support, the instructor should refer the student to LICW leadership so an appropriate accommodation can be considered. The tool should not remain active in class unless it has already been authorized by LICW.

Instructors should also be alert to Zoom settings, participant names, audio prompts, captions, chat messages, or other indicators that recording, transcription, AI note-taking, or meeting-summary tools have been enabled.

Any intentional, repeated, or disputed use of unauthorized recording, transcription, AI note-taking, or meeting-summary tools should be reported to LICW leadership after class. If a student is removed from class for this reason, the instructor should notify leadership promptly and provide a brief description of what occurred.

## **CONCLUSION**

The LICW policy on live instruction and class privacy is not merely administrative. It is part of the instructional design of the LICW Method.

Students learn Morse code most effectively when they participate in real time, receive immediate feedback, and feel safe enough to make mistakes openly. A private, non-recorded class environment protects that process.

LICW should continue to preserve live, private, interactive academic classes as a core feature of the curriculum while addressing accessibility needs with care, judgment, and appropriate authorization.



# ***POSITION ON DECODERS***

## **EXECUTIVE SUMMARY**

Morse decoders, sometimes called translators, are now common. They appear as built-in features in modern transceivers, as software applications, and increasingly as AI-assisted tools. LICW students will encounter them, and some will use them.

LICW's responsibility is not to moralize or judge, but to provide clear and practical guidance consistent with the club's instructional mission.

This is an academic position, not a judgment on members who use decoders. The academic question is whether decoder use strengthens or weakens the skill being developed. The cultural expectation is addressed in **The LICW Culture Guide**: members, especially those with health, hearing, fatigue, accessibility, or confidence concerns, should be treated with kindness and respect. Any formal accommodation policy, official tool recommendation, data-use issue, or platform integration belongs in **The LICW Governance Guide**.

That mission is best understood through three developmental phases: the Path to Proficiency, the Path to Fluency, and the Path from Fluency to Mastery. Within that model, decoders should be understood not as ethical violations, but as tools whose value depends on whether they strengthen or weaken the skill being developed.

For some members, especially those dealing with health issues, hearing limitations, fatigue, stress, or other medical realities, a decoder may make the difference between being able to participate on the air and not being able to participate at all. LICW should acknowledge that reality with kindness and respect.

At the same time, for members whose goal is to develop independent CW skill, it is important to understand that decoders do not generally support that outcome when used as a primary learning aid, and may actively interfere with it.

LICW's position is therefore clear: decoders may serve as accessibility supports, occasional verification tools, and limited sending-feedback tools, but they should be strongly discouraged as a learning aid for students seeking proficiency, fluency, and mastery.



## **BACKGROUND: WHY THIS GUIDANCE IS NOW NECESSARY**

Decoders are not new, but their availability and capability are expanding rapidly. Many operators now have access to CW decoding at little or no additional cost, whether through a radio, a phone, a website, or a software package.

As these tools improve, students may be tempted to use them as a primary route to on-air participation.

LICW's academic concern is practical rather than ideological. When a decoder becomes the primary source of meaning, the student's attention is drawn away from sound and toward printed text. That shift interrupts the repetitions the brain needs in order to develop Morse code as sound, preserve continuity through uncertainty, and build independence from deliberate character-by-character construction.

In short, a decoder may support operating in some contexts while still being training-negative when used as a substitute for listening.

## **TWO COMPETING ARGUMENTS**

### **The Pro-Decoder Argument**

A decoder can function like a quiet Elmer beside the operator. It can reduce anxiety, help confirm uncertain information, and make early on-air participation feel more achievable.

It may also provide legitimate support in cases involving fatigue, hearing limitations, weak signals, QRM, QRN, or other practical constraints. In some settings, especially where an error in a callsign, number, or key exchange item is costly, a decoder may provide useful confirmation.

For some students, this limited support may increase confidence and encourage early operating activity. That benefit should not be dismissed.

### **The Counter-Argument**

When a decoder becomes the primary source of meaning, the student is no longer required to remain in the stream through incomplete copy, tolerate misses, or reconstruct meaning from context.



Continuous decoder reliance weakens sound-first pattern recognition, reduces the development of Instant Flow Recovery, and suppresses the transition from decoding toward flow, word discovery, and conversational comprehension.

A second concern is dependency. When conditions degrade, fists vary, timing becomes irregular, or noise intrudes, the operator who has relied on a decoder often lacks the internal skill required to compensate.



## **LICW PRINCIPLE: DECODERS ARE NOT “CHEATING,” BUT THEY ARE OFTEN TRAINING-NEGATIVE**

LICW should avoid framing this issue as one of purity, ethics, or cheating. A decoder is simply a tool. The central academic question is whether its use strengthens or weakens the skill LICW exists to develop.

LICW should also avoid judging members whose health, hearing, fatigue level, or other physical realities make decoder use necessary. For some operators, a decoder is not a shortcut. It is an accessibility aid that allows them to remain active and engaged. That use deserves respect.

At the same time, LICW’s instructional experience leads to a clear and important observation:

Routine reliance on decoders does not support the development of independent CW proficiency.

Over time, instructors have consistently observed that when a decoder becomes the primary source of meaning, the student’s auditory processing, continuity, recovery, and word-discovery skills do not fully develop. While this is not a formal study, it is a repeated and consistent outcome across many students and instructional settings.

For that reason, LICW’s position should be stated plainly:

**Decoders may be valid accessibility supports, occasional verification tools, and limited sending-feedback tools. They should not be treated as a normal or effective learning pathway for students whose goal is to develop independent CW skill.**

When a decoder becomes the primary source of meaning, it displaces the core developmental loop: hearing Morse code as sound, remaining in the stream through loss, recovering instantly after misses, and reconstructing meaning from context.

Accordingly, for students seeking proficiency, routine reliance on a decoder should be strongly discouraged. A decoder may support participation, but it does not teach the brain to copy Morse code.

This principle applies across all developmental phases.





In the Path to Proficiency, students must learn characters as complete acoustic patterns without becoming visually dependent on printed output.

In the Path to Fluency, students must strengthen flow, reduce Time To Recognize, develop Instant Flow Recovery, and move toward word discovery and conversational comprehension.

In the Path from Fluency to Mastery, operators may use tools selectively under difficult conditions, but continued growth still depends on direct engagement with sound, continuity, and meaning.

## **WHEN DECODERS MAY BE OF VALUE**

Decoders may provide legitimate value when used in a limited and clearly secondary role, or when required for accessibility.

A decoder may serve as an operating aid when the cost of an error is unusually high, such as confirming a callsign or number. It may reduce anxiety for a new operator during early on-air activity, provided it does not become the primary source of meaning.

In some cases, decoders may offer real accessibility support for operators dealing with health issues, fatigue, hearing limitations, weak signals, or adverse conditions.

Decoders may also be used as verification tools after a practice session or QSO. In that role, the student listens first, attempts copy internally, and then uses the decoder only to confirm uncertain items.

Decoders may also have limited value as feedback tools for sending practice. Used after a short sending exercise, a decoder can help a student identify whether spacing, rhythm, and character formation are clear enough to be recognized consistently. This use is different from relying on a decoder to receive Morse code. The decoder is not replacing listening or becoming the source of meaning. It is being used as a check on the student's transmitted code.

This use should remain limited and purposeful. The goal is clean, well-timed, human-readable CW, not merely machine-readable output. Instructor feedback and human copy remain the preferred standard, but a decoder can provide useful supplemental feedback during independent sending practice.



Used in these ways, the decoder functions as an aid rather than a substitute.

## **POTENTIAL DOWNFALLS OF DECODER RELIANCE**

The danger begins when the decoder shifts from secondary aid to primary source of meaning.

When students read printed decoder output while listening, attention is drawn away from sound and toward text. This weakens auditory pattern recognition and interrupts the development of flow.

A second danger is dependency. The student may appear to function well only under conditions where the decoder is effective.

A third danger is the loss of training stimulus. Missing, staying in the stream, recovering, and reconstructing meaning are not failures. They are the mechanisms through which proficiency develops.

When those mechanisms are bypassed, development slows or stops.

## **INSTRUCTOR GUIDANCE**

Instructor tone matters. Students should not be shamed, and members with accessibility needs should be treated with care and respect.

At the same time, instructors should be clear and direct about the academic impact of decoder use.

Useful instructor language includes:

- “A decoder is a tool, not a moral issue.”
- “If a decoder helps you stay on the air, that matters.”
- “If your goal is to build independent skill, it helps to do as much of the listening work as you can yourself.”
- “Missing is not failure. It is part of the learning process.”
- “Your job is to stay in the stream.”
- “Use a decoder as a check, not as a crutch.”
- “If the decoder is doing the receiving work, your brain is losing repetitions.”
- “A decoder may help check your sending, but the goal is clean, human-readable CW.”



This framing keeps the emphasis on learning, growth, and long-term development.

## **CONCLUSION**

Decoders will continue to become more common and more capable.

LICW should not ignore them, shame their use, or pretend that they have no value. For some members, they provide meaningful accessibility support. In limited circumstances, they may also help confirm uncertain copy or provide supplemental feedback on sending.

However, decoders should not be promoted as a normal learning pathway for students whose goal is independent CW proficiency, fluency, and mastery.

The LICW Method depends on direct engagement with Morse code as sound. Students must learn to hear the code, remain in flow, recover from misses, tolerate uncertainty, and construct meaning without relying on printed output.

A decoder may assist an operator, but it cannot replace the learning process.



# **ACADEMIC EVALUATION OF NEW INSTRUCTIONAL TOOLS AND IDEAS**

## **PURPOSE**

This section governs the academic evaluation of new instructional tools, class formats, practice resources, technologies, and teaching ideas. Its purpose is to help LICW welcome useful innovation while ensuring that proposed changes are evaluated against the instructional principles that preserve the LICW Method.

This section should be read together with the change-culture and documentation-culture principles in **The LICW Culture Guide**, and with the technology, privacy, data-access, platform-administration, intellectual-property, and financial-authority provisions in **The LICW Governance Guide**.

Academic approval does not by itself authorize platform deployment, member-data access, recording, AI transcription, use of LICW intellectual property, paid commitments, contracts, or changes to official club systems. Those issues require governance review.

The goal is not to discourage new ideas. The goal is to ensure that useful instructional innovation is welcomed and evaluated carefully, while decisions involving authority, money, member data, platforms, or institutional assets are handled through the proper governance process.

## **BACKGROUND**

Instructional tools and learning resources continue to evolve rapidly. Artificial intelligence, AI-assisted development tools, automation platforms, and web-based learning applications now make it possible for instructors, students, and members without formal software-development backgrounds to create useful prototypes, practice tools, and learning resources.

This creates important opportunities for LICW. Good ideas may come from members who understand the student experience directly, from instructors who see recurring learning challenges, or from volunteers who recognize a way to make practice, class preparation, communication, or student support more effective.



At the same time, new tools should not be adopted simply because they are new, convenient, or impressive. Some may support the LICW Method, while others may unintentionally weaken it by encouraging visual decoding, passive learning, overreliance on transcripts, excessive automation, reduced live interaction, or a focus on measures that do not reflect real fluency.

For that reason, LICW Academics should remain open to new ideas while evaluating them carefully. New tools and ideas should be welcomed, examined, tested where appropriate, and judged by their effect on learning, instruction, and the member experience.

## **LICW ACADEMIC POSITION**

LICW Academics should remain open and welcoming to new instructional ideas, including those made possible by artificial intelligence and other emerging technologies.

The central question for LICW Academics is not whether a tool is traditional or new. The central question is whether it helps students develop sound-first recognition, flow, continuity, recovery, real-time comprehension, CW fluency, and eventual mastery in a manner consistent with the LICW Method.

A new instructional tool, practice resource, or teaching idea should be welcomed for consideration when it appears to:

- Support sound-first learning
- Strengthen flow, continuity, recovery, and real-time processing
- Help students practice more effectively between classes
- Improve accessibility or reduce barriers to participation
- Improve instructor effectiveness
- Support student confidence, engagement, and persistence
- Reinforce live instruction rather than replace it
- Improve the overall student or member experience

A tool or idea should be approached with caution when it appears to:

- Encourage visual, mnemonic, or analytical decoding
- Replace listening rather than develop auditory processing
- Reduce the importance of live instruction and real-time feedback



- Create privacy concerns or capture student participation without clear authorization
- Overemphasize speed, accuracy scores, or other measures at the expense of flow and comprehension
- Encourage passive learning rather than active practice
- Add complexity without improving learning or member experience
- Conflict with established LICW instructional principles



## **ROLE OF THE INSTRUCTOR MEETING**

The regular instructor meeting is an appropriate place to introduce, demonstrate, and discuss new instructional tools or academic ideas.

LICW instructors are an especially valuable review and test group because instructors understand the LICW Method, observe student progress directly, and can evaluate whether a proposed tool supports or conflicts with the club's instructional principles.

When appropriate, new ideas may be introduced first as demonstrations, limited trials, or instructor-reviewed prototypes before being recommended more broadly to students or members. This allows LICW to encourage creativity while preserving academic consistency.

## **ACADEMIC EVALUATION QUESTIONS**

LICW does not need a rigid approval process for every idea. However, tools or resources that may affect instruction, curriculum, student practice, accessibility, privacy, or official LICW instructional recommendations should be evaluated thoughtfully before broad use.

Useful questions include:

- What learning problem does this tool or idea address?
- Does it support the LICW Method?  
Does it strengthen sound-first learning, flow, recovery, or real-time comprehension?
- Does it help students practice more effectively?
- Does it improve the student, instructor, or member experience?
- Does it protect student privacy and class trust?
- Does it reinforce live instruction rather than replace it?
- Does it avoid visual, mnemonic, or decoder-like shortcuts that interfere with auditory processing?
- Is it suitable for limited testing before wider use?
- If adopted, who will maintain it, explain it, and keep it aligned with LICW academic practice?

The goal is not to slow innovation. The goal is to ensure that innovation is purposeful, sustainable, and aligned with LICW's long-term academic objectives.



## CONCLUSION

LICW should remain a learning organization. The club should be open to new instructional tools, new academic ideas, and new contributors, especially as technology makes it easier for members to create resources that may benefit students and instructors.

At the same time, LICW should evaluate instructional innovation through the lens of the LICW Method. New tools should be welcomed when they improve learning, support instructors, strengthen accessibility, or enhance the member experience. They should be modified or declined when they conflict with the principles that support real Morse code proficiency, fluency, and mastery.

The best path is neither resistance to change nor novelty for its own sake. The best path is thoughtful academic experimentation guided by the LICW Method.





# ***PRESERVING THE LICW METHOD THROUGH FUTURE CURRICULUM CHANGES***

## **PURPOSE**

This section addresses academic continuity. Its purpose is to ensure that future curriculum changes preserve the instructional principles that make the LICW Method effective while still allowing thoughtful improvement, refinement, and innovation.

Proposed curriculum changes should also be reviewed for cultural and governance impact. Changes that materially affect member trust, instructor tone, volunteer workload, public messaging, accessibility, founder voice, or the student experience should be reviewed against **The LICW Culture Guide**. Changes that require formal authority, budget approval, contracts, platform access, member-data access, intellectual-property decisions, policy adoption, or board action should be reviewed under **The LICW Governance Guide**.

## **BACKGROUND**

LICW has developed its instructional model through years of classroom experience, observation, and refinement. Many of its core practices - flow-based learning, sound-first recognition, continuous curriculum structure, and communication-driven instruction - have proven effective across a wide range of students.

As the club grows and leadership evolves, there will be opportunities and pressures to modify the curriculum, adopt new tools, or align with external practices. Some of these changes may be beneficial. Others may introduce unintended consequences.

Without a clear set of principles, well-intentioned changes can gradually alter the instructional model, leading to inconsistency, reduced effectiveness, and loss of institutional knowledge.

For that reason, it is important to define not only what LICW does today, but how future changes should be considered.

## **FOUNDATIONAL PRINCIPLES**

The LICW curriculum may evolve in structure, delivery, and supporting tools. However, the academic method described in this guide rests on



several foundational principles that should be understood before significant changes are made.

The objective is not to bind future leaders to every current practice, but to ensure that future changes are made with awareness of the instructional principles, classroom experience, and student outcomes that shaped the LICW Method.

## **CORE PRINCIPLES THAT SHOULD NOT BE ALTERED WITHOUT STRONG EVIDENCE**

The following principles form the foundation of the LICW instructional model. They should not be altered without clear, consistent, and long-term evidence that a proposed change improves student outcomes without introducing unintended consequences.

- Sound-first learning, with no dot/dash decoding and no visual or mnemonic character-learning pathway
- Flow-based development
- Continuous curriculum (no fixed-length proficiency courses)
- Live instruction with real-time feedback
- Communication-driven learning

These principles are interdependent. Changes to one may affect the effectiveness of others. For that reason, they should be considered collectively when evaluating proposed modifications to the curriculum.

## **APPROACH TO FUTURE CHANGES**

Innovation is not only permitted, but expected. LICW has always improved by observing students carefully, learning from experience, and being willing to adjust when a better path becomes clear. Future curriculum changes should continue in that spirit: open to new ideas, grounded in evidence and student outcomes, and aligned with the principles that make the LICW Method effective.

At the same time, not all changes are beneficial. Some practices that appear helpful in the short term may conflict with long-term skill development.

For that reason, proposed changes should be approached deliberately and evaluated within the context of the entire instructional model.



## **EVALUATION AND ADOPTION OF CURRICULUM CHANGES**

Significant curriculum changes should be approached deliberately and evaluated over time before broad adoption.

As a general practice, proposed changes should be:

- Discussed among senior instructors and leadership to ensure alignment with LICW principles
- Observed across multiple classes and instructors to confirm consistency of effect
- Evaluated over time based on student performance and long-term outcomes before being incorporated into the curriculum

This approach helps ensure that changes are not driven by isolated experiences or short-term results, but by consistent and repeatable improvements in student development.

### **EVALUATION CRITERIA**

Before adopting a change, instructors and curriculum leaders should consider:

- Does the change support sound-first recognition, or does it encourage analytical decoding?
- Does it promote continuity and flow, or does it interrupt or fragment the learning process?
- Does it reinforce communication and real-world usage, or does it move learning toward abstraction?
- Does it reduce or increase reliance on tools that bypass auditory processing?
- Does it align with observed student success over time?
- Does it introduce short-term gains at the expense of long-term development?

Changes that conflict with these principles should be approached with caution, even if they appear effective in limited contexts.

### **COMMON SOURCES OF DRIFT**

Instructional drift often occurs gradually and with good intentions. Common sources include:



- Adopting widely used external practices without evaluating their alignment with LICW principles
- Modifying instruction in response to short-term student frustration
- Introducing tools or techniques that simplify early learning but weaken long-term outcomes
- Emphasizing measurable results, such as speed, over the underlying skills that support real proficiency

Over time, these changes can accumulate and alter the instructional model in ways that are not immediately apparent.

## **ROLE OF OBSERVATION AND EXPERIENCE**

LICW's method is grounded not only in historical research, but in continuous observation of student performance.

Future changes should be informed by:

- Direct classroom experience
- Long-term student outcomes
- Patterns observed across instructors and levels

A single class, cohort, or short-term result should not drive broad curriculum changes. The emphasis should remain on consistent, repeatable outcomes over time.

## **USE OF ATTENDANCE DATA AS AN ACADEMIC QUALITY INDICATOR**

Attendance data is an important tool for evaluating the health, usefulness, and appropriate sizing of LICW academic offerings.

Attendance should not be treated as the only measure of class quality. A low-attendance class is not automatically a poor class, and a high-attendance class is not automatically a better class. However, attendance trends can provide useful information when considered over time and in context.

LICW should use attendance data to help determine whether academic offerings are properly aligned with student needs, level demand, instructor availability, time slots, and curriculum priorities. Patterns in attendance may indicate that a class is meeting a strong need, that a time slot is difficult for students, that the class description is unclear, that the offering



overlaps too closely with another class, or that the class may need support, clarification, adjustment, or review.

Attendance data is most useful when viewed as a trend rather than as a single measurement. A temporary drop in attendance may reflect holidays, seasonal travel, competing club activities, or normal variation. A sustained pattern, however, may warrant closer examination.

The ideal class size also differs according to the type and purpose of the class. Some classes are most effective with smaller numbers. For example, a dedicated sending class may work best with approximately six students, allowing each student enough time to send and receive meaningful instructor feedback.

Other classes benefit from larger participation. As students move into higher levels, larger classes can provide more varied listening experiences, a wider range of sending styles, and more natural conversational energy. In many Intermediate and Advanced classes, a larger group may strengthen the learning environment, provided the instructor can still maintain focus, participation, and useful feedback. At the upper end, approximately 18 to 20 students may be a healthy and effective class size for certain higher-level offerings.

Attendance data should therefore be used to right-size classes, not simply to maximize numbers. The goal is to provide the right class, at the right level, at the right time, with the right number of students for the instructional purpose being served.

Instructors and curriculum leaders should be attentive to attendance patterns and willing to ask practical questions:

- Is this class scheduled at a time students can reasonably attend?
- Is the class serving a clear academic purpose?
- Is the class description accurate and understandable?
- Is the class too small, too large, or appropriately sized for its purpose?
- Are students returning over time?
- Does the class support progression within the LICW Method?
- Does the attendance pattern suggest a need for instructor support, schedule adjustment, consolidation, expansion, or redesign?

Attendance data should be used with judgment and care. It should inform conversation, not replace it. When attendance raises concerns, the



appropriate response is not assumption or criticism, but inquiry: review the class purpose, speak with the instructor when appropriate, consider student needs, and determine whether any adjustment would better serve the curriculum.

Used properly, attendance data helps LICW remain responsive without becoming reactive. It allows the club to preserve strong offerings, right-size underused ones, identify emerging demand, support instructors, and ensure that academic resources remain aligned with student learning and the long-term health of the LICW Method.

## **ROLE OF INSTRUCTOR JUDGMENT**

Instructors are encouraged to apply judgment, adapt to student needs, and contribute to the evolution of the program.

However, that judgment should operate within a shared set of principles.

Individual variation in style is appropriate. Variation in method should be considered carefully, particularly when it affects foundational elements of the curriculum.

When in doubt, instructors should favor consistency with established principles and seek discussion before adopting significant changes.

## **ROLE OF INSTRUCTOR SELECTION**

Preserving the LICW Method begins before instructor training. It begins with the selection of instructors who are likely to teach in a manner consistent with LICW's culture, academic principles, and student-centered approach.

LICW values CW ability, but raw CW skill alone is not the primary qualification for instruction. The strongest instructors are not necessarily the fastest operators or the most technically accomplished CW practitioners. They are the instructors who can meet students where they are, explain ideas clearly, encourage without pressuring, correct without discouraging, and help students remain engaged through frustration, missed copy, plateaus, and uncertainty.

For that reason, instructor selection should place high value on:

- Empathy



- Patience
- Relatability
- Humility
- Clear and encouraging communication
- Sound judgment
- A student-centered attitude
- A genuine desire to give back
- Willingness to learn and teach within the LICW Method

These qualities matter because LICW instruction is not simply the transfer of CW knowledge from a skilled operator to a less experienced student. It is a relationship of encouragement, guidance, patience, and trust. Many of LICW's best instructors are people who were helped by the club, experienced the value of that care, and developed a desire to offer the same support to others.

This service-minded cycle is one of LICW's greatest strengths. Members receive care, encouragement, and guidance from LICW instructors, and that experience often creates a desire to give back. It is part of what LICW sometimes describes informally as its "secret sauce."

That desire to give back is often a better starting point for instructor selection than raw operating ability alone. CW skill can continue to grow. The LICW Method can be taught. But empathy, patience, gratitude, and a genuine desire to help other students succeed are essential qualities that cannot be assumed merely from a person's code speed or operating experience.

Instructor selection should also recognize that LICW has its own teaching culture and academic method. Bringing in an experienced CW operator or instructor from outside LICW is rarely successful unless that person first spends meaningful time engaging with the club's culture, curriculum, terminology, and instructional philosophy.

Outside experience can be valuable, but it does not automatically transfer into LICW instruction. Operators who learned or taught through visual, mnemonic, speed-centered, accuracy-centered, or highly rigid methods may naturally return to those methods when teaching, especially when students struggle. That can create instructional drift even when the instructor's intentions are good.





For that reason, prospective instructors should first become familiar with LICW as students, members, observers, assistants, or active participants in the instructor community before being asked to teach. They should understand not only what LICW teaches, but why it teaches that way.

The goal of instructor selection is not to find perfect instructors. The goal is to identify people who are student-centered, open to learning the LICW approach, aligned with the LICW Method, and motivated by a genuine desire to help preserve the club's culture of kindness, patience, encouragement, and sound-first learning.

## **ROLE OF INSTRUCTOR TRAINING AND QUALIFICATION**

After appropriate instructor selection, the preservation of the LICW Method depends on the consistent preparation and ongoing development of instructors.

Instructor training is one of the main ways LICW's teaching principles are shared, reinforced, and preserved across the club.

For that reason, instructor qualification should include:

- Demonstrated understanding of LICW instructional principles
- Ability to apply sound-first, flow-based teaching methods
- Familiarity with curriculum structure and progression
- Ability to recognize and correct common student errors
- Alignment with LICW instructional philosophy and expectations

Initial qualification is only the starting point.

Ongoing instructor development is equally important and should include:

- Continued observation of classes and instructional practices
- Periodic review and reinforcement of LICW teaching methods
- Opportunities for feedback, discussion, and refinement
- Exposure to updated curriculum guidance and appendices

Without ongoing reinforcement, even experienced instructors may gradually revert to familiar but inconsistent methods, particularly when responding to student frustration or external influences.

Instructor training therefore serves two essential functions:





- Initial alignment with the LICW Method
- Ongoing protection against instructional drift

For academic continuity, this is critical. Curriculum can be documented, but it is ultimately delivered through instructors. Consistency in instructor preparation ensures consistency in student experience.

For this reason, instructor training and qualification should be treated as an integral part of the LICW academic system, not as a separate or administrative function.

## **ROLE OF INSTRUCTOR MEETINGS AND CONTINUING ALIGNMENT**

Regular instructor meetings are an essential part of preserving LICW's academic culture and maintaining alignment across LICW instructors.

LICW's bi-weekly instructor meetings provide a forum for discussing curriculum development, instructional practices, student needs, class operations, and emerging issues. All instructors are welcome to attend, and participation is encouraged as part of continuing instructional development.

These meetings also help preserve continuity across a large and distributed teaching environment. They allow instructors, moderators, and media developers to hear the same guidance, understand the reasoning behind changes, and remain connected to the broader academic direction of the club.

Unlike regular academic classes, instructor meetings may be recorded. The purpose of recording these meetings is not student instruction, but institutional continuity. Recordings ensure that instructors, moderators, and media developers who cannot attend live still have access to the discussion, guidance, and context needed to remain aligned with LICW Methods and expectations.

In this way, instructor meetings serve both a cultural and academic function. They reinforce shared purpose, support consistency, and help ensure that the LICW Method is carried forward with clarity and continuity.

## **CONCLUSION**



Preserving the LICW Method does not mean resisting change. It means ensuring that change is purposeful, informed, and aligned with the principles that support long-term student development.

The goal is to maintain an academic program that continues to improve while remaining true to its core instructional philosophy. That continuity depends not only on written curriculum, but also on instructor preparation, continuing alignment, shared discussion, and a culture of thoughtful improvement.

Future instructors, moderators, media developers, and curriculum leaders are encouraged to build on this foundation with experience, judgment, and openness to better methods, while preserving the principles that allow students to develop real Morse code proficiency, fluency, and mastery.