POSITION PAPER

HUMAN PERFORMANCE IN MORSE CODE ACQUISITION

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INTRODUCTION

Human performance in the acquisition of Morse code varies widely, shaped both by individual cognitive differences and by training methodology. Some learners progress quickly to proficiency, while others advance more slowly or experience long plateaus. These differences are not only normal but expected.

At LICW, we have consistently emphasized that OverLearn Bootcamp is not required for Morse code fluency - it simply accelerates the journey. Our teaching philosophy, refined through Project OverLearn, integrates lessons from historical research, modern cognitive science, and years of practical classroom experience.

This position paper outlines what we know about human performance in Morse acquisition, why learners progress at different rates, and what strategies can minimize frustration while maximizing success.

HISTORICAL FOUNDATIONS

KOCH (1936): ACOUSTIC PATTERNS AND CHARACTER SPEED
The most influential document shaping LICW teaching methods is Ludwig Koch's 1936 report. Koch demonstrated that Morse must be learned as **total acoustic patterns**, not by visual reference to charts. Characters sent slower than ~10 WPM were no longer perceived as unified sounds, leading learners to count dits and dahs. Koch's findings support the foundation of our **flow-first** approach.

THE 5 WPM LEGACY
For decades, U.S. licensing required 5 WPM decoding. This fostered rote memorization and chart-based counting - methods contrary to Koch's recommendations. Yet many still achieved fluency, proving that **teaching method matters, but aptitude and persistence also play decisive roles.**

THURSTONE (1919): APTITUDE AS A SPECIAL ABILITY
Psychologist L. L. Thurstone tested 165 men learning telegraphy. He found no correlation between occupation, education, or general intelligence

and success in telegraphy. Instead, he concluded telegraphy draws on a **special auditory ability**, distinct from general intelligence.

LIPMANN (1928): EARLY LEARNING AS A PREDICTOR
Otto Lipmann theorized that a student's **early performance** predicts long-term success. How quickly one learns the first few characters can indicate whether progress will be smooth or require additional time and support.

KOCH (1936) AND TAYLOR (1943): VALIDATION OF EARLY PERFORMANCE
Koch described the first 30-60 minutes - mastering 4-5 characters at 12 WPM - as a **proficiency check**. Donald Taylor's Harvard thesis (1943) validated this principle: **early learning speed is the best predictor of long-term proficiency**. This remains true today.

U.S. ARMY (1968): TIME-TO-PROFICIENCY
Army data showed an average of 55 hours to reach 12 WPM, with a 6× spread (18 to 110 hours). The key finding: every **student achieved proficiency;** only the time required differed.

WHY PERFORMANCE VARIES

Taylor (1943) concluded that differences hinge on three factors:

1. **Aptitude** – natural auditory abilities (pitch, rhythm, tonal memory).
2. **Distribution and Quality of Practice** – structured, spaced, deliberate practice outperforms brute-force hours.
3. **Motivation** – persistence, mindset, and self-efficacy drive long-term success.

Modern teaching confirms these findings. Aptitude may influence time required, but **practice quality and motivation are under the learner's control.** Every student can succeed.

ADDITIONAL PREDICTORS: MUSICAL ABILITY, AGE, AND BILINGUALISM

- **Musical Ability:** Historically linked to faster progress, as Morse depends on rhythm and tonal pattern recognition.
- **Younger Learners:** Students under 18 tend to acquire Morse quickly due to greater neural flexibility.
- **Bilingualism:** While not noted in historical Morse research, modern cognitive science shows bilingual learners often have advantages in auditory discrimination, working memory, and executive control - skills directly relevant to Morse. Bilingualism should be seen as a **potential advantage, not a guarantee.**

THE PATH TO MORSE CODE FLUENCY AT LICW

Fluency does not come from memorizing characters in isolation but from moving through deliberate **cognitive transitions:**

1. **Character Recognition** (BC1/BC2) - 44 characters.
2. **Short-Word Character Flow** (BC2 + BC Guided Practice).
3. **Flow Skills Development** (INT1) - staying in the stream, developing rhythm, managing mistakes.
4. **Increasing Effective Speed** (INT2) - reducing TTR, mastering IFR, developing Character Flow Proficiency.
5. **Word Building** → **Word Discovery** (INT3) - hearing words as natural units.
6. **Fluency** - engaging in real-time conversational CW.

This progression is at the heart of Project OverLearn and is what differentiates our pedagogy.

MANAGING EXPECTATIONS

Progress in Morse code is **non-linear.** Learners experience long plateaus followed by sudden breakthroughs. Without this awareness, students often assume they are failing when, in fact, they are consolidating skills.

Misaligned expectations lead to frustration and dropout. Proper framing - that **plateaus are normal, and progress varies widely** - reduces discouragement and fosters persistence.

STRATEGIES TO MINIMIZE ACQUISITION TIME

- **Optimize Practice:** Short, frequent sessions > long, fatiguing ones.
- **Integrate Sending & Receiving:** Reinforces recognition and production.
- **Emphasize Flow over Perfection:** Maintain rhythm; recover instantly from errors (IFR).
- **Apply OverLearn Principles:** Practice beyond mastery, reducing TTR and strengthening flow.
- **Use Bootcamp for Acceleration:** For INT1+ students, immersion accelerates fluency but is not required.

LICW POSITION

- **Human performance in Morse acquisition varies widely, and differences are expected.**
- **Aptitude influences rate, not ultimate success.** With consistent, high-quality practice, all learners can achieve fluency.
- **Curriculum must be designed for variance.** Carousels, guided practice, and OverLearn Bootcamp provide flexible pathways. Importantly, **our Intermediate and Advanced curricula are not time-based.** Students progress by demonstrated proficiency, not by the calendar, ensuring that every learner advances at the pace appropriate for them.
- **Instruction must normalize plateaus, emphasize recovery, and focus on process metrics (TTR, IFR, flow), not speed alone.**
- **Every student can succeed.** Our role is to provide the tools, structure, and encouragement that make success possible.

CONCLUSION

Morse code is not mastered through rote memorization or brute-force drills. It is acquired through deliberate progression, guided by clear principles of human learning. Differences in pace are natural and predictable, and with structured support, **every student can reach fluency.**

At LICW, we affirm that **OverLearn principles - flow-first drills, process metrics, recovery skills, and immersion options - represent the best synthesis of a century of research and modern pedagogy.** Our curriculum is designed not only to teach Morse, but to sustain learners with confidence, patience, and purpose on their path to fluency.