Hard Lessons About Easy-Learning Systems

Two centuries of "anyone can make music" — what was promised, what survived, and what the record actually shows.

Summary

For more than two hundred years, someone in every generation has sold the same promise: ordinary people can learn to make real music, quickly. The record covers every (mostly Anglophone) country researched. The demand behind the promise has never weakened. Most of the commercial products built on that promise died. This article examines that record — instruments, notations, methods, franchises, games, and apps from 1801 to the present. It draws nine findings, compressed below into five strands.

The most important finding is an absence. No direct-to-consumer easy-learning product in this record has ever published independently-audited evidence that its buyers learned what it promised. The industry's numbers are sales numbers. A modest outcome literature exists: dissertations and a handful of peer-reviewed experimental studies on the Suzuki movement (now gathered by systematic reviews), some practice-effect studies of school assessment software, and a few dissertations on manufacturer-run schools. The studies are small and heterogeneous. None is a vendor's audit of its own promise.

Second, the problem is not starting but *quitting* — and quitting is everyone's problem. Today's products get beginners started playing other people's songs almost immediately, but they almost never continue to the making of *one's own* music. Meanwhile, the guitar-maker Fender reports — without stating a cause — that ninety percent of new players abandon the instrument within a year (its own unaudited internal analysis).[17] Traditional human-taught lessons are no refuge. In the school-age cohort followed longest, about a third had stopped lessons within three years. A decade on, four in five were no longer playing their first instrument; some had switched rather than quit.[18] Does the quitting concentrate exactly where the easy-learning products hit their ceilings? No one has measured it.

Third, survival and teaching are different achievements. What keeps a musical practice alive is an institution: a school system, a federation, a contest calendar, a club. An institution can keep a method alive indefinitely with no evidence that it works. A system's longevity therefore says nothing about pedagogical efficiency. And an institution remakes whatever the institution carries: only an institution whose needs match a teaching design will pass that design on unchanged.

Fourth, the systems with the strongest learning *designs* share clear structural properties. (System outcomes have never been measured, so this claim is about their design.) These systems present a user interface that is consistent from the outset to professional use. They grow by *adding* material, never by forcing the student to unlearn something already mastered. They keep the musical choices in the student's hands instead of automating them. They expose the patterns that stay the same across keys and songs. And they enable students to teach each other. When anyone standardizes a music system, ask who gains: Britain's band publishers standardized the fingering and clef that the student touches, and the student won with them; America's instrument makers financed the school contests, America's bandmasters set the goal of an internationally interchangeable sheet-music catalog, and the student paid.

Fifth, when a challenger system won adoption inside music's incumbent institutions, the win proved revocable *every time* in this record. The movements that endured built *their own* schools, branches, and federations beside the old ones.

The report closes with the one case that embodies every lesson: the brass band, which Britain built into the most learner-friendly instrument system in Western music that this report could document, which

America dismantled piece by piece, and which the Salvation Army preserved nearly unchanged for a century.

These nine hard lessons define nine opportunities, stated at the end. None requires new science. Several require new *evidence* — evidence that (a) the easy-learn system was actually easier, and that (b) any such *initial* ease-of-learning did not come at the cost of an artificial cap on *future* learning.

1. The oldest promise in the music business

In 1801, two Philadelphia singing masters published a tunebook with a simplified notation. It replaced ordinary note-heads with four shapes, so congregations could sight-sing without long training. They named it *The Easy Instructor*.[1] The promise in that title has been re-sold ever since. The tonic sol-fa choral movement sold it across Victorian Britain. Door-to-door accordion studios sold it in postwar America. The home-organ industry sold it in the 1960s. Plastic guitar-controller games sold it and earned nearly two billion dollars in 2008 alone.[2] Artificial-intelligence services sell it now, generating finished songs from a single typed sentence.

Two things are constant across the record. First, the demand for easy-learning in music is evergreen: in every era surveyed, on every continent surveyed, a mass market forms around the promise of fast musical competence. Second, most of the commercial vehicles died. The interesting question is not why people want to make music — they always have. The question is why so few of the systems built for them ever produced lasting musicians, and what distinguished the handful that did.

2. Technology & music employment

The employment record clears away a common confusion. Professional musicians per thousand American workers peaked around 1910, near 3.7. The ratio has ranged roughly 1.2 to 1.4 since 1990. (The series splices changing census categories, so treat it as directional, not continuous.)[3] Within it, particular technologies destroyed particular jobs. Talking pictures emptied theaters' orchestra pits; the musicians' union put its own losses at roughly twenty thousand jobs when theater orchestras were dismissed. Radio and its successors thinned the staff orchestras and background work.

Music as *activity* is a different story, with a nuance. No technology has ever ended amateur music-making. About one American adult in nine reports playing an instrument within the past year. Reported singing participation ebbs and flows in waves. The most recent wave crested in 2022 (20.2%), above the 2002–2012 crest, though below 2017's. Changes in surveys' question-wording prevent a clean trend.[4] Demand for lessons has risen through every panic about "jobs loss in the music industry". But specific practices have died outright — the parlor-piano evening, the mandolin orchestras, the miners' bands — when no institution absorbed their social function. A century of doom-and-gloom predictions sums up honestly: forecasts of professional displacement mostly came true. Forecasts that amateur music-making itself would end have failed every time. Yet the particular practice the forecaster loved sometimes did die.[5]

So the market for easy-learning music systems rests on solid ground. The amateur appetite is real, huge, and durable. But any given vehicle for it lives or dies by *whether its social function is durably institutionalized*. Every collapse in the record is a failure of the vehicle or its institution, not of the demand.

3. The graveyard and the garden

The table below compresses the record's strongest documented cases. (The full categorization of thirty-nine systems, with the criteria applied to each, is in Appendices A and B.)

Case	Era	Mechanism	Fate
Shape-note singing schools	US, 1801–1870s (South: ongoing)	Simplified notation + itinerant teachers	Displaced by incumbent notation in the North when public-school music reform captured the schools; folk survival in the South
Tonic sol-fa	Britain, 1840s–1920s	Movable-do syllable notation	Mass movement, then marginalized as the incumbent staff-notation culture reasserted
Jianpu cipher notation	China, c. 1900–	Movable number notation	Widely used — often dominant — in mainland Chinese amateur practice: a sibling movable-notation reform, accepted as an endpoint rather than a stepping stone
British brass bands	UK, 1840s–present	Regular fingering & notation; sax & saxhorn family; + contests	Peaked with industrial patronage; survives on the contest calendar
US accordion studios	1938–1963	One-button chord bass + lesson franchises	Collapsed in the rock era (multiple causes); accordion dealers pivoted to electric guitars
Chord and home organs	US, 1950–1985	One-touch harmony + free-lesson funnels	Over a quarter of "all instrument sales" in 1973, per one industry oral-history account;[6] unit sales then fell sharply and the major makers exited by the mid-1980s
Bayan (chromatic button accordion) + Soviet music schools	USSR, 1920s–1991	Fully regular button layout + state school system	The highest-scoring designed instrument system in Appendix B; usage contracted sharply when the Soviet Union collapsed
Comhaltas Ceoltóirí Éireann	Ireland, 1951–	Cheap tin whistle + branch teaching + festivals	Large and active; its 2026 festival week nearly doubled Belfast's city-centre footfall (1.65M camera-counted visits, against 0.87M the same week the year before)[8]
Valencian community music societies	Spain, 19th c.–	Society-run school feeds the town band	Present in 95% of towns above 500 population (per the regional federation); a large, pervasive survivor
Yamaha Music School	Japan/global, 1954–	Manufacturer-run lessons to create customers	5.5M+ children taught in Japan since 1954, per the company, which separately operates in 40+ countries; the durable maker-funnel
Music-game category (Guitar Hero; Rock Band)	Global, 2005–	Game controller shaped like a guitar	US retail peaked near $2B in 2008 (NPD-tracked, trade-reported); Guitar Hero on hiatus from 2011, its 2015 revival failed; Rock Band returned in 2015 to a small, long-supported audience
Karaoke	Japan/global, 1967–	Provided accompaniment for the voice	Plausibly history's largest amateur-performance phenomenon; still growing
Piano and guitar apps	Global, 2010–	Falling-note display on a real instrument	Widely used; churn-heavy; no published learning outcomes
AI music generation	Global, 2023–	Full automation of composition and performance	~$300M annual recurring revenue (an unaudited self-report announced by Suno's CEO, February 2026);[7] the question of learner competence is moot by design

Two regularities separate the garden from the graveyard.

What survives as a *practice* is an institution in which making music *together* is the point. Look at every living participatory case above: the Valencian societies, Comhaltas, the brass-band contest circuit, Yamaha's schools, karaoke's social ritual. Each is embedded in a structure that recruits, teaches, and retains — schools, federations, branches, contest calendars, weekly gatherings. Every dead case is a product whose promise was consumption-adjacent and whose funnel was a sales channel. This is a strong tendency across the categorized cases, not an exceptionless law. The counterexamples are instructive, and they are formats rather than practices. Internet tablature (guitar and piano), bundled production software, and arranger keyboards persist as *artifacts* people use alone, without any institution. But none of them carries a living practice of people making music together. Where the practice is the product, institutionalization is destiny, usually embedded in *new* institutions.

Institutional survival is zero proof of pedagogical merit. The school pre-band feeder — the Tonette, and the soprano recorder as schools deploy it — is the clearest exhibit. The school's curriculum treats it as disposable. The child is meant to move on, and many never play anything again. (That attrition has never been formally measured that I could find — the evidence vacuum again.) Yet the arrangement survives, decade after decade, because school systems absorb the churn. An institution can carry an unexamined design indefinitely. This cuts both ways. A method's longevity proves nothing about its teaching. And a method's teaching cannot save it without an institution. The two scorecards — commercial survival and learner outcome — must never be read as one.

One more datum belongs here, because it shows the stakes. Sweden's municipal music schools were founded in the late 1940s and reach nearly every municipality. They are widely credited with seeding one of the great export industries of modern pop. Swedish writers held a quarter of the US number-one hits of 2014. On several occasions, half of the US Top 10 carried Swedish writing credits. Max Martin, a product of that system, once said he had "public music education to thank for everything."[9] The link is correlational, not proven.

4. The interface record

A second regularity concerns the instruments themselves. Wherever the record shows a mass-amateur success with no subsidy behind it, some form of *regularity* appears in the instrument's design. Regularity means the same musical relationship demands the same physical action everywhere. It comes in three grades.[10]

Grade one is regularity across a family of instruments: one set of physical skills, valid at every size. Its most notable examples are the instrument families designed by Adolphe Sax, including both the saxophone family and the separate saxhorn family of valved brass instruments. The British brass band adopted the saxhorn family due to its single, regular cross-family fingering pattern and notation. The regularity of this fingering and notation enabled a student who learned one instrument to readily learn, and teach, any of the others. The British brass band system, and what became of it in America, is a story complete enough to serve as this report's closing case (§7).

Grade two is regularity of harmonic patterns. The accordion's chord-button field plays the same progression shape in every key.

Grade three is full regularity of pitch space: every interval has the same physical shape everywhere (edges aside). The Russian bayan has it, and the Soviet school system distributed the bayan at mass scale. The electric bass in standard tuning has it too. Its fretboard is perfectly regular, and it became one of the world's most widely played instruments with no dedicated mass institution attached — a fact nobody ever advertised.

The electric bass deserves a moment of honesty, because it strains the survival tendency stated above. It thrives with no formal institution of its own. The resolution: it never needed one. It rides inside the *band*, and the band — garage, church, bar — is the institution. The band absorbs recruiting, teaching, and retention for it. That is an explanation, not a proof. It is the tendency's most instructive edge case.

The guitar sits just below grade three. The six strings across its fretboard are regular (a fourth apart) except between two strings (a third apart), a centuries-old ergonomic compromise. Near-regularity plus a low price did a lot. So did one more fact: just three chords accompany thousands of real songs. Together these made the guitar, in the postwar Anglophone record, the best-selling instrument category and the least institutionalized major instrument in Western music.[11] Without any founding body, it built what is plausibly the largest *informal* teaching network in musical history: friends teaching friends from chord grids. That was possible because guitar knowledge comes in *regular patterns* — "same shape, two frets up." The voice traditions show the same economics with no hardware at all. Barbershop harmony spread through genuinely peer-to-peer woodshedding. The Victorian tonic sol-fa movement spread through a cheap, quickly trained network of local teachers and monitors. The voice carries no mechanical irregularities to memorize. Regular patterns, spatial or sung, are what one learner can tell another. Irregularities must be demonstrated, case by case, by an expert. Cheap instruction at scale appears three times in this record — guitarists teaching friends from chord grids, barbershop singers teaching each other their parts by ear, and Britain's tonic sol-fa movement drilling classes through quickly trained local monitors — and all three ran on the same fuel: material regular enough for a non-expert to teach.

5. The automation record and the musical-choice test

Here is the most reliable correlation in the commercial record: **the products that automated the user's musical choices produced the record's most conspicuous revenue spikes, and no evidence exists that any of them produced knowledgeable musicians.** The player piano took humans out of the piano-performance loop.[12] The chord organ compressed harmony to one finger; it briefly commanded over a quarter of instrument sales (per the same oral-history account cited above), then collapsed. The plastic game controller dumbed-down music's user interface so much that nothing but rhythm was left. Its category's retail sales collapsed within three years of the two-billion-dollar peak, and the leading franchise entered a hiatus from which it never recovered. The AI generator completes the sequence: composition, performance, and production automated at once. Competence is not merely untaught but undefined.

Honesty about causation: the record does not show that automation *killed* any of these products. Each death has its own documented killer. For the player piano: the Depression, radio, and records. For the home organ: Casio's price undercutting, plus the organ industry's own self-defeating added complexity. For the rhythm-game category: market over-saturation, the standard trade postmortem. What the record does show is the other half. However these products died, none ever published evidence of producing players. (The nearest counter-claim — retailer surveys from the Guitar Hero boom asserting real-instrument uptake — was never independently audited.) The diagnostic that separates them from real teaching systems is the *musical-choice test*: of all the musical choices available to the student, which does the student make, and which does the system make automatically? If the student chooses which note, which chord, when — the mental work that builds the skill is being exercised. If the machine chooses and the student merely triggers, the product is a consumption device wearing an instrument costume. Nothing in this record shows consumption ever converting into musicianship.[13]

The market has also voted on the alternative, and that vote must be faced. Rocksmith plugged a *real* guitar into the same living-room screen: real notes, real songs, genuinely novel machine-managed difficulty. It sold a fraction of the entertainment product's units. Activision reported about 24 million

cumulative Guitar Hero units in 2008, and trade coverage put the franchise over 35 million by 2010. Ubisoft's announced cumulative Rocksmith total reached "almost five million" only in mid-2021.[19] The comparison is confounded: Rocksmith arrived after the category's crash, demands a real guitar, and had a fraction of the marketing. So the gap is suggestive, not a controlled experiment. It cannot say whether buyers rejected rigor, price, hardware friction, timing, or marketing. What it can say is that the fun product vastly outsold the rigorous one. No easy-learning rigor product has ever escaped that shape. Rigor alone is niche-shaped. It reaches scale in this record only when an institution or a social practice carries it (§3).

Two further complications, because the record insists on them. First, karaoke — plausibly the largest amateur-performance phenomenon ever — leaves the execution-level choices to the singer: which notes to sing, and with what emotional emphasis. Karaoke's limitation is not automation but the absence of a ladder. Nothing beyond the melody is ever offered, to a vast public already making those musical choices every week. Second, the digital piano roll — the note-grid of Digital Audio Workstation (DAW) software — has been the most productive composition interface of the era. A generation of self-taught producers has released real music made on it. (That is an output fact; no one has measured what its users learn.) And it succeeds while hiding most of tonal music's structure. That bounds an otherwise tempting claim. Exposing musical structure is decisive for music built on that structure — song harmony, voice leading. It is not a universal precondition for creativity in genres whose structure lives elsewhere.

6. Disclosure and its impostors

Underneath the whole record sits one design question: how does a system manage what the beginner does not yet know? The record contains three distinct answers. They are habitually confused.

Progressive disclosure stages the *addition* of real content into places reserved for it. Nothing learned is ever retracted. The clearest hardware example is the Orff classroom instrument. The beginner's xylophone carries the bars of a pentatonic scale — a complete musical system, in which real music is played from the first lesson, with no external scaffolding propping it up. As the curriculum advances, new bars are added. Nothing present ever moves or changes meaning. The instrument grows toward the full diatonic scale as the student does, with chromatic bars arriving as supplements. (For the record: the staged curriculum is the founders' own published design. The removable-bar hardware was built modular for piece-by-piece purchase and repair. Classroom teachers repurposed that feature to enact the staging physically.)[14] The pattern generalizes. Each step on a well-built pedagogical ladder teaches *real music* — a genuine scale, a genuine repertoire. The ladder ascends by nesting the smaller system inside the larger system.

Scaffold-and-fade props up the learner with something external that must later be removed. The canonical case outside of music — a bicycle's training wheels — is also the cautionary one. In its own home domain, the fading scaffold has been beaten outright by *no* scaffold: the balance bike (a small children's bicycle with no pedals, no chain, and no training wheels — a bike-shaped, sit-down scooter). Children master it faster because it exercises the actual bottleneck skill, balancing, from the first moment. The scaffold (training wheels) has been largely replaced by progressive disclosure (the balance bike). The general caution: a scaffold that shields the learner from the bottleneck skill delays the learning it was meant to ease. And every scheduled removal is a designed crisis, arriving at exactly the moment motivation is most fragile. Music ran a version of this experiment at national scale. Victorian Britain's tonic sol-fa movement trained hundreds of thousands of choral readers. Their certificate literacy carried little weight in the staff-notation world of British print music and elite institutions. Curwen himself published staff-notation bridges, but the incumbent culture never accepted the cipher as an endpoint. A sibling movable-notation reform — the numeral cipher descended from the French Galin-Paris-Chevé

system, which reached China via Japan as jianpu — *was* accepted there as an endpoint. It simply became the dominant amateur notation.[15] Note where the effort-tax came from: each culture's choice of endpoint, not the designs themselves.

Guardrails fence the beginner inside a subset of the interface. Scale-locked pad grids remap their geometry when the scale changes. Light-up keyboards reduce playing to following. These fail both ways at once. The geometry taught at stage one is revoked at stage two. And the choice being guarded is usually the choice that needed exercising.

Measured against this three-way split, the most instructive cases in the record are the near-misses: systems that got most of the ladder right and stopped one rung short. The Naples conservatories of the eighteenth century were founded as church orphanages. By the eighteenth century they admitted fee-paying boarders alongside the charity boys; paying students became the majority only in the following century. Their surviving lesson-books document the most fully preserved historical blueprint in this record of a ladder that reaches all the way to making new music. Instruction staged from figured-bass patterns to free improvisation and composition, and senior students formally taught juniors. Two caveats attach. The record supports claims about their design, not their outcomes. The institutions bound boys by multi-year indenture to a harsh regimen, so citing the blueprint endorses nothing about the institution. (The conservatory lineage that descended from such houses later ossified into repertoire preservation — the fate noted in Opportunity 8, below.)[16] The Suzuki method puts the child on the permanent instrument from day one and adds repertoire cumulatively. Its pedagogy ends before improvisation or composition begin. The modern instrument-practice apps put the learner on a real piano or guitar, playing real songs, choosing real notes. And they plateau, as a category, at exactly the point where composition and improvisation would begin. Do players quit *because* the ladder stops? That is an untested hypothesis (see Finding 2).

7. The closing case: Broken Brass

Every lesson in this report happened at least once inside a single story. The full account, with its sources, is the companion paper *Broken Brass*; the gist belongs here, because no other case embodies so many of the findings at once.[21]

In the 1840s, Britain and America adopted the same new instrument family: the saxhorns, Adolphe Sax's valved brass instruments — a parallel family to his saxophone family — built in graduated sizes from cornet to tuba and fingered & notated identically at every size. Britain built the family into a system. Contest rules froze the band's instrumentation. Publishers standardized the contest line-up. Every pitched brass part except the bass trombone's was written in treble clef as a transposing part, so that a written note named the same fingering on every valved instrument in the band. The standard history states the payoff plainly: a child could start on the lightweight cornet and "grow into" larger instruments without ever learning a new fingering or notation. One fingering & notation scheme, valid across the entire band — growth by addition, patterns exposed, and every bandsman able to teach the next recruit.

America started down the same road before the US Civil War — saxhorn-centered bands with the family's regular fingering (whether the full British one-clef notation scheme crossed with them is undocumented) — then unbuilt the system in three steps. First, bandleaders rebuilt their ensembles on the woodwind-rich French military model after 1872 — and a mixed band has no single instrument family left to prove unified fingering and notation. Second, low-brass players moved between bands and orchestras, and the orchestra's concert-pitch bass clef traveled with them. Third, the school-band movement finished the job: a national contest financed by the instrument manufacturers' trade association, and one class method teaching all the wind instruments together. The result still governs American school music. Britain had standardized the *player's* interface. America instead standardized the *publisher's* interface —

interchangeable publications, but each student locked into a single instrument's fingering and notation, with no interface shared across the whole band.

One organization ran the closest thing to a control group. The Salvation Army built a total institution around a near-British system — its own publishing house, its own repertoire rule, regular work for its bands — and carried the design nearly unchanged through the century in which secular America abandoned it, in the United States and around the globe. The American school system trained bands too, at far larger scale; it just remade the band to fit its publishers' needs rather than its students' needs. That is the record's sharpest institutional lesson: an institution does not merely preserve a practice — it *remakes the practice in its own image*, and only an institution whose needs align with a practice's design will pass the design on unchanged. Neither movement ever petitioned the incumbent conservatories. Both built their own contests, federations, and journals.

A hundred and seventy years on, the British system is still running — and no controlled study of the system's central pedagogical claim can now be located, from the first Belle Vue contest to today. It is this study's most complete success at everything except proof.

Findings

1. **No direct-to-consumer easy-learning product in this record has ever published independently audited evidence that its students *learn*.** Two centuries of easy-learning commerce have produced sales figures, testimonials, and vendor-commissioned surveys. The outcome research that exists anywhere nearby — dissertations and a handful of peer-reviewed experimental studies on the Suzuki movement (a 2024 systematic review found seven eligible experiments among 481 screened records; a 2022 review preceded it),[20] practice-effect studies of school assessment software, dissertations on manufacturer-run schools — is small and heterogeneous. None of it is a vendor's audit of its own advertised promise. (Independent researchers have occasionally tested such products; one small peer-reviewed Rocksmith study reported limited gains. That sharpens the point rather than blunting it: the vendors themselves have never underwritten proof.) The industry runs on an evidence vacuum, and much of its folklore collapses on inspection (Appendix C).
2. **Starting was solved decades ago; *quitting* is the open problem — for everyone.** "Real music immediately" stopped discriminating between products around 1950. Traditional human-taught lessons are no refuge: in the school-age cohort followed longest, a third had stopped lessons by year three, and four in five were off their first instrument a decade later (switchers included). So quitting is a general problem of music learning that no product and no teaching tradition has been shown to solve. That the quitting concentrates just before composition and improvisation begin is this report's reading of the pattern, and precisely the thing nobody has measured.
3. **Any interface the learner must abandon taxes them at their weakest moment.** Training wheels, disposable pre-instruments, stepping-stone notations. Where this record shows a scheduled replacement event, it shows attrition or marginalization beside it — measured nowhere, which is Finding 1's vacuum again.
4. **The ladders with the strongest designs grow by addition, never by retraction.** Real content, added into reserved places, each stage a credible musical world. The record's best-designed systems share this shape, and designs of this shape ask their students to abandon no previous learning.
5. **Hiding structure sells; exposing structure teaches — within the music built on that structure.** One-touch products win the revenue spikes but have never published evidence of educating anyone. Regular interfaces recur in every durable mass-amateur success that lacked a subsidizing institution. The bounded exception is real and stated in §5: the piano roll's producers

create freely in genres whose structure lives entirely within its confines. And always ask who placed the regularity, and who gained. British band publishers printed every valved-brass part in one clef, and the choice benefitted everyone at once: the publisher sold one standard set of parts, the band could move any player to any empty valved-brass chair, and the student learned one fingering and notation for life. American instrument makers financed the school-band contests, and the American bandmasters' association set the goal of *internationally* interchangeable publications; the publishers gained an international market, and every student since has paid the cost — the lack of an all-band notation & fingering standard prevents them from changing instruments freely across the entire band, and prevents them from teaching and learning from each other (§7).

6. **Automation that makes musical choices for the student prevents the student from learning how to make those choices.** The musical-choice test is simple: Of all the musical choices available to the student, which are made by the student, and which are made automatically by the system? The more choices that the system makes, the more automated it is. This test sorts this paper's systems into a continuum. Rocksmith shows that leaving the most choices to the student does not sell at mass scale unless something social carries it. And karaoke shows the untapped base: a vast public already making musical choices — which notes to sing, and with what emotional emphasis — at vast and continuing scale.
7. **Survival tracks institutions, not products — and an institution remakes what it carries.** Across the categorized cases, every living participatory practice is carried by a structure that recruits, teaches, and retains. (The electric bass rides inside the band itself.) The exceptions are formats, not practices: tablature and bundled software persist as artifacts used alone. The school pre-band feeder shows that institutional persistence proves nothing about outcomes, in either direction. And the brass-band case (§7) shows the harder half: an institution reshapes a practice to fit the institution's own needs, and only an institution whose needs match a design will pass the design on unchanged.
8. **Students teaching students is the only cheap instruction at scale that this record contains.** Student-to-student happens only where the user interface the student encounters is regular enough for a student to teach, whether in British brass bands, tonic sol-fa singing groups, or guitar tab.
9. **A challenger system's institutional adoption has always proved revocable in this record.** Tonic sol-fa actually won for a time — school-board adoption, government endorsement — yet was still marginalized when the incumbent notation culture reasserted its power. Shape-note notation was displaced outright when the standard-notation party captured the public schools. The movements that endured created *their own* institutions — schools, branches, federations — beside the old ones.

Opportunities

Each lesson above can be restated as an opportunity. Several were attempted singly; none was ever taken together. Stated as imperatives for any new "easy-learn" music system:

1. **Prove that, within it, students learn faster, without an arbitrary ceiling.** The first system to publish independently audited outcome evidence competes in an empty field. Heed the record's warning, though: proof alone is niche-shaped (Finding 6). The evidence must ride inside something people already want to do.
2. **Fix the quitting point, not the starting point.** None of these systems solved the quitting problem. That is the low-hanging fruit: the musicians produced by an easy-learn system *with a low quitting rate* will rapidly outnumber all living musicians produced by the incumbent system.
3. **Present the same user-interface from novice to professional.** The ramp from beginner's interfaces to professional interfaces should be as seamless as possible. There should be no "transfer",

because the system remains the same throughout.

4. **Grow by adding, never by unlearning.** Use progressive disclosure, not scaffolding.
5. **Hide the arbitrary, show the pattern.** Strip away the accidental accumulation of complexity that seemed reasonable when it was first introduced, but which has become what software engineers call "technical debt" and "cruft". Expose the underlying simple, arguably-universal patterns of music as clearly and as consistently as possible.
6. **Institutionalize a community.** The product that arrives inside an institution — gatherings, contests, shared repertoire — inherits the survival tendency instead of fighting it. One warning: an institution bends any practice to serve the institution's own needs (Finding 7). So build the institution to need the practice — the way the Salvation Army needed exactly what the brass band's design provided, and preserved that design, nearly unchanged, for a century.
7. **Maximize student-to-student teaching.** Design the system, the community, and its institution(s) to make student-to-student teaching possible, rewarding, and respected.
8. **Start the new school; don't petition the old ones.** Two centuries of reform-by-petition lost; parallel institutions won. Attempting to win over a conservatory is pointless, because a conservatory exists to be *conservative*, to the point of fossilization. Start Innovatories instead.
9. **A free first instrument in every pocket.** Every mass movement in the record began with a cheap instrument — the harmonica, the tin whistle, the plastic ukulele. A free app, on the smartphone that's already in the student's pocket, is the cheapest beginners' instrument ever offered. Start there.

These nine are open because, on the record assembled here, no one has ever implemented them together. That is the finding, and the opportunity.

Appendix A — The categorization lens

This report graded every system in the record on eight design properties. The grades describe each system's design, never each system's outcomes — no outcome evidence validates these grades (Finding 1, the evidence vacuum).

1. *Same thing, same shape, everywhere* — regularity: does the same musical relationship demand the same physical action everywhere? Graded 0 (no regularity) to 3, matching §4's grades: 1 for regularity across an instrument family, 2 for regular harmonic patterns, 3 for full regularity of pitch space. A fractional grade (e.g., 2.9) marks a single localized deviation from full regularity. "Inh." means the system inherits the grade of the instrument the system runs on. The mark ^{n} flags a notation system, graded on whether a written symbol names the same musical relationship in every key (transposition-invariance).
2. *Grow by adding, never by unlearning*: is the growth path addition-only (Add), a dead end (Ceil), a scheduled transfer to a different interface (Tax), or machine-managed staging that fits none of those cleanly (~)?
3. *Every stage is real music*: is each stage a credible, performable musical system?
4. *The student makes the musical choices*: the musical-choice test — of all the musical choices available to the student, which does the student make, and which does the system make automatically? The more choices the system makes, the more automated the system is; the table's pass/partial/fail marks compress that continuum into three steps. Column 4 credits choice at the execution level: the student produces the music's sounds (the karaoke singer pitching a melody, the app player striking real keys). The generative choice of notes belongs to column 6 (the ladder reaches creating music). A pass in column 4 beside a fail in column 6 reads "performs, but is never asked to create."

5. *Hide the arbitrary, show the pattern*: does the design strip away historical accidents while keeping structural distinctions?
6. *The ladder reaches creating music, not just playing it back*: does the design continue to improvisation and composition?
7. *Make every student able to teach the next one*: can one student teach the system's patterns to the next student?
8. *Teach on the same interfaces that the student will always play*: does the design schedule any removal or replacement event?

The scores are this report's design-evidence judgments.

Appendix B — The record, categorized

Scores: ✓ pass, ~ partial, ✗ fail, — not applicable. "Survival" is the separate commercial/institutional scorecard.

#	System (function scored)	1	2	3	4	5	6	7	8	Survival
1	Shape notes / singing schools (choral sight-singing)	2^n	Add	✓	✓	~	~	✓	✓	niche
2	Tonic sol-fa (choral literacy)	3^n	Tax	✓	✓	✓	~	✓	~	shrunk
3	Jianpu cipher notation (mass literacy, mainland China)	3^n	Add	✓	✓	✓	~	✓	✓	dominant
4	Nashville numbers (session realization)	3^n	Add	✓	✓	✓	✓	✓	✓	durable
5	Internet tablature (song self-teaching)	1	Ceil	✓	~	✗	✗	✓	✓	dominant
6	Saxhorn family / brass bands (band membership)	1	Add	✓	✓	✓	✗	✓	✓	durable
7	Stradella accordion, US studio era (recital pop)	2	Add	✓	~	~	✗	~	✓	dead
8	Bayan + Soviet music schools (full musicianship)	3	Add	✓	✓	✓	✓	✓	✓	state-shrunk
9	Autoharp (song accompaniment)	—	Ceil	✓	~	✗	✗	✓	✓	school-niche
10	Lap steel / Oahu franchise (Hawaiian-genre playing)	2	Ceil	✓	✓	~	✗	~	✓	dead
11	Ukulele chord-frame waves (hit-song strumming)	2	Ceil	✓	~	~	✗	✓	✓	cyclic
12	Harmonica bands (school ensemble)	1	Ceil	✓	✓	✗	✗	✓	✓	dead
13	Tin whistle / Comhaltas (session tradition)	1	Add	✓	✓	✓	~	✓	✓	growing
14	Tonette / school-deployed recorder (pre-band feeder)	1	Tax	~	✓	~	✗	~	✗	durable
15	Chord / home organ (living-room pop)	0	Tax	✓	✗	✗	✗	✗	~	dead
16	One-touch keyboards and arrangers (one-touch pop)	—	Ceil	✓	✗	✗	✗	✗	~	product-durable
17	Play-along accompaniment software (improvisation practice)	—	Add	✓	✓	—	✓	✓	✓	durable
18	Loop-based production suites (bedroom production entry)	2	Add	✓	~	✗*	~	~	✓	dominant
19	AI music generation (music on demand)	—	—	✗	✗	—	—	—	—	booming

#	System (function scored)	1	2	3	4	5	6	7	8	Survival
20	Player piano (home music)	—	Ceil	✗	✗	—	✗	—	—	dead
21	Play-along records, Music Minus One lineage (instrumentalist practice)	—	Add	✓	✓	—	✓	✓	✓	durable
22	Karaoke (amateur singing)	—	Add	✓	✓	✗	✗	✓	✓	dominant
23	Guitar-shaped game controllers (music-shaped play)	—	Ceil	✗	✗	✗	✗	—	✗	crashed
24	Rocksmith-style real-guitar game tutors (guitar self-teaching)	2.9	~	✓	✓	✗	~	✗	✓	niche
25	Scale-locked grids and light-guided keyboards (guided noodling)	0	Tax	~	✓	✗	~	✗	✗	collapsed
26	Orff classroom method (elemental music)	2	Add	✓	✓	✓	✓	~	~	durable
27	Suzuki method (violin performance)	0	Add	✓	~	~	✗	~	✓	durable
28	Digital piano roll (composition/production)	2	Add	✓	✓	✗*	✓	~	✓	dominant
29	Barbershop harmony (a-cappella harmony)	—	Add	✓	✓	✓	✓	✓	✓	niche-stable
30	SmartMusic-style school-band assessment software (performance grading)	—	—	✓	✓	—	✗	✗	✓	durable
31	*Play in a Day* method book (guitar entry)	2.9	Add	✓	✓	~	~	✓	✓	historic
32	Piano/guitar practice apps (song self-teaching)	inh.	Add	✓	✓	✗	✗	✗	✓	churn-heavy
33	Guitar + folk pedagogy (popular-music entry)	2.9	Add	✓	✓	~	✓	✓	✓	dominant
34	Electric bass, fourths tuning (ensemble bass voice)	3	Add	✓	✓	✓	✓†	✓	✓	dominant
35	Naples conservatory method, design claims only (composition training)	0	Add	✓	✓	~	✓	✓	✓	historic
36	El Sistema (orchestral membership)	0	Add	✓	✓	~	✗	~	✓	durable
37	Popular-music classroom programs (school popular-music entry)	inh.	Add	✓	✓	~	✓	~	✓	growing
38	Valencian community music societies (society school → town band)	0	Add	✓	✓	~	✗	~	✓	growing
39	Yamaha Music School (maker-run group lessons)	0	Add	✓	✓	~	~	✗	✓	durable

* Rows 18 (loop-based production suites) and 28 (the digital piano roll), column 5 (hide the arbitrary, show the pattern): a documented split profile, not a flat fail. The note-grid exposes interval, rhythm, and voice structure while hiding tonal-function structure. The score reflects the hidden dimension because the hidden dimension is the one this report's tonal-music scope cares about.

† Row 34 (the electric bass), column 6 (the ladder reaches creating music): the pass rides the band practice — constructing bass lines is generative work — not any designed curriculum. No teaching method was ever attached to the electric bass at mass scale.

Notable readings:

- The two axes — design profile and survival — are largely independent, and all four quadrants are populated. ("Strong profile" reads loosely: most applicable lens items passing.)
- Strong profile, carried by an institution: row 8 (the bayan in the Soviet music schools) and row 13 (the tin whistle in Comhaltas).
- Strong profile, no formal institution: row 4 (Nashville numbers), a durable specialists' tool, and row 34 (the electric bass), carried by an informal institution — the band itself. Row 24 (the Rocksmith-style real-guitar tutors) sits between quadrants on a mixed profile.
- Weak profile, carried by an institution: row 14 (the Tonette and the school-deployed recorder), durable indefinitely.
- Weak profile, no institution: the fad graveyard.
- Column 6 (the ladder reaches creating music) is nearly empty among commercial products. Column 6's passes since 1950 are row 17 (play-along accompaniment software) and row 21 (play-along records) — both serving players who already play — plus row 28 (the digital piano roll), row 33 (guitar plus folk pedagogy), row 4 (Nashville numbers, the session professionals' shorthand), row 37 (school popular-music classroom programs), and row 34 (the electric bass, whose pass rides band practice — see the † note). No mass-commercial learning product sold directly to beginners passes column 6.
- Rows 38 and 39 (the Valencian community music societies and the Yamaha Music School) grade the two flagship institutional survivors: each scores zero on regularity, yet each survives among the healthiest entries in the table — the two-scorecard rule of §3 in miniature.

Appendix C — Notes on evidence

This report grades its sources: [P] primary or government; [S] scholarly; [I] industry or interested-party self-report, always attributed; [E] estimate, always flagged. Two compound grades appear in the endnotes: [P-flagged] marks a primary series that carries a stated defect (spliced census categories, changed question wording, or availability only through secondary summaries), and [P via S] marks a primary series available only inside a scholarly publication.

This report uses none of the field's best-loved numbers, because they fail inspection. The banned list:

- The claim that a plastic pre-band flute was in "over half of US grammar schools by 1941": traceable only to an uncited encyclopedia entry that later sources cite circularly.
- The autoharp's "half a million sold by 1898": untraceable; the maker's own 1889 booklet claims fifty thousand.
- "Two billion pieces of sheet music sold in 1910": no primary source has ever been located.
- "Only 11% of people can read music": an unsourced statistic from a 2018 opinion piece.
- The Suzuki movement's "400,000 students worldwide": the identical figure has circulated unchanged for over twenty-five years.
- "Guitar sales grew from 200,000 to 2.5 million a year, 1950–1971": aggregator folklore with no primary source; this report uses the verified trade-board import series instead.
- Any claim that the Naples conservatories "worked": the conservatories' surviving records document design, not outcomes.

An industry that publishes no audited outcome evidence runs instead on numbers like these.

1. [P]/[I] William Little and William Smith, *The Easy Instructor* (Philadelphia, 1801), the founding artifact of the American shape-note tradition; William Walker's *Southern Harmony* (1835): one of Walker's Philadelphia publishers reported nearly 600,000 copies sold by 1866 — the publisher's own claim, unaudited. ↩
2. [I]/[E] US retail sales of the music-game category peaked near $1.9B–$2.0B in 2008, per NPD Group tracking as reported in the trade press; Guitar Hero announced its own cumulative $2B milestone in 2009, was put on hiatus in 2011, and its 2015 revival (Guitar Hero Live) failed commercially. Rock Band is a separate franchise: a 2010–2015 mainline gap, then Rock Band 4 (2015) with years of continued content support for a small audience. ↩
3. [P-flagged] US Census occupational series, 1870–2023; the ~3.7 per 1,000 peak is the 1910 census; the series dips to roughly 1.2 around 2000. The census categories change across the series (musicians-and-teachers early; musicians, directors, and composers late), so it is a benchmark series, not one continuous measure. The per-1,000 ratios are this report's computation from the census occupation tables; no independently published series states them, and the underlying tables exist online only as page scans. The talking-pictures job losses of roughly 20,000–22,000 are the American Federation of Musicians' own figures [I]. ↩
4. [P] Adults reporting playing an instrument at least once in the prior 12 months: ~11.4% (National Endowment for the Arts Survey of Public Participation in the Arts, 2022, Census-administered). The singing series reads 6.7% (2002), roughly 25.3% (2017), and 20.2% (2022), across question-wording changes the survey itself flags, so no clean trend is claimed. The industry trade association's 2006 survey reports 52% of *households* containing at least one player [I] — a different question, both real. ↩
5. [P]/[S] Representative entries: John Philip Sousa's "The Menace of Mechanical Music" (*Appleton's*, 1906) predicted the death of amateur music-making from the phonograph — wrong overall, right about the parlor-piano evening, which faded for good; interwar predictions that radio would end home performance failed while home performance changed instruments; streaming-era predictions of the same shape have failed against participation surveys. ↩
6. [I] The organ-share figure is from the NAMM (National Association of Music Merchants) Oral History Program's biographical summary of Robert Laube, a Kimball piano-and-organ salesman: "over 25% of all instrument sales being organs in 1973." The summary supplies no geography, methodology, or underlying data. ↩
7. [I] Suno's co-founder and CEO announced on LinkedIn (February 2026) that the company had reached $300M in annual recurring revenue and 2 million paid subscribers — an unaudited company self-report. ↩
8. [P]/[I] Comhaltas/Fleadh: Belfast city-centre footfall totaled 1,653,999 during Fleadh week 2026, per Belfast One Business Improvement District camera counts reported by the city council, against 874,925 the same week in 2025 — visits, not unique attendees. Valencian societies: 546–550 societies, in 95% of towns over 500 population, per the Federación de Sociedades Musicales de la Comunidad Valenciana and Spanish heritage documentation. Yamaha: 5.5M+ children taught in Japan since 1954 per the company's own release, with separate operations in 40+ countries; Yamaha's published totals vary across pages. Karaoke's start date: the first machine is Negishi's 1967 Music Box, renamed the Sparko Box in 1969 when a coin acceptor was added; the 1967 machine is recognized by an IEEE (Institute of Electrical and Electronics Engineers) Milestone, and Inoue's 1971 8-Juke popularized the format. ↩
9. [I]/[S] Sweden's municipal music and arts schools operate in 283 of 290 municipalities per the national arts-schools council's count; the Swedish municipalities' association SKR reports 287 of 290 for 2024. The export metrics are from Swedish-government-adjacent profiles: a quarter of 2014's US

number-one hits carried Swedish writers; on several occasions half of the US Top 10 did. Max Martin's crediting of the municipal system is widely reported in those same profiles. ↩

10. [S] Grade definitions and per-system grades: Appendix A/B. The bayan's B- and C-system right-hand layouts are verified fully regular (production left hands are Stradella or converter free-bass; the grade-3 claim concerns the chromatic button field); the Stradella chord field is progression-regular only. ↩
11. [P-flagged]/[I]/[S] The formulation is deliberately bounded: piano leads lifetime-ever-played surveys (YouGov 2022: piano 29% vs guitar 18%, with electric variants reported separately at 9% and 8%; the piano split is available only through secondary summaries of the poll) [P-flagged]; guitar led US unit sales (the trade association reported it the top-selling category, ~3.4M units, 2005) [I]; the boom-era magnitude rests on the UK Board of Trade wind-and-string instrument import series — the nearest available proxy, guitars never being a separate customs category — 44,000 units in 1954 to 300,000 in 1958 (Russell, *Journal of the Royal Musical Association*, 2021) [P via S]. ↩
12. [S] Craig Roell, *The Piano in America, 1890–1940* (1989), the standard account of the player piano's substitution of consumption for production. ↩
13. [S] On the generation effect — why producing material teaches what re-executing it does not — see Slamecka & Graf (1978) and R. A. Bjork's subsequent work on desirable difficulties. Boundary conditions matter and are stated here deliberately: the desirable-difficulty advantage can reverse for highly interactive multi-element tasks (harmonization is exactly such a task, per Sweller's cognitive-load research); the generation effect's evidence base is chiefly single-item verbal recall; and no artifact-comparison study of these effects exists in the music domain. These boundary conditions cut both ways for the musical-choice argument: keeping the choice with the student is what exercises the skill, but real-time musical choice is itself a high-interactivity task, so a ladder must sequence that load rather than merely impose it. ↩
14. [S]/[P] The pentatonic-first staging is founder-stated (Orff and Keetman's *Musik für Kinder*, Vol. I is confined to the five-note scale). The developmental psychology Orff cited for it (Brehmer, 1925) has not survived later research, but the staging survives on structural grounds: the anhemitonic five-note stage contains no semitone or tritone collisions — its harshest simultaneity is a whole-tone second — which is what licenses unsupervised group improvisation, and the world's melodic corpora are saturated with its intervals (Mehr et al., *Science* 2019). The removable-bar hardware itself has no founder-stated pedagogical rationale in the accessible record — the documented rationale is economical piece-by-piece purchase and repair; the bars-off-and-back practice is the teaching tradition's repurposing of that feature. ↩
15. [S] On sol-fa's scale and fate, the movement's own certificate records and the standard histories (Curwen's published bridges to staff notation included); jianpu's descent from the French Galin-Paris-Chevé cipher system via Japan to China is documented in the East Asian music-education literature — a lineage rival to, not derived from, Curwen's sol-fa, and dominant in Chinese amateur practice specifically (Japan did not adopt it as an endpoint). ↩
16. [S] On the Naples conservatories' design: Gjerdingen, *Music in the Galant Style* (2007) and Sanguinetti, *The Art of Partimento* (2012). On the institution: Del Prete's archival study of the Pietà dei Turchini (1999, p. 438 — a scholar's tabulation of archival registers) tabulates recorded departures — roughly 30% for illness, 15% for misconduct or nonperformance, 15% to the priesthood, with the residual (~40%) recorded as having exhausted their indentures; it is a distribution of recorded departures, not a full-cohort completion rate, and it is the Turchini's alone, not generalized to the other three conservatories. (The journal exists online only as a non-searchable scan.) This report accordingly makes design claims only, never efficacy claims. ↩
17. [I] Fender's own internal sales analysis, stated by CEO Andy Mooney (MusicRadar interview, November 2019); no independent methodology published, and no cause of abandonment given — the

reproduction-ceiling reading (that players quit where products stop building past playback) is this report's hypothesis, not Fender's. No independent study of guitar-abandonment causes exists. ↩

18. [S] McPherson, Davidson, and Faulkner, *Music in Our Lives* (Oxford, 2012), the long-run report of the Australian school-instrument cohort (~150–160 children followed from beginner stage): roughly 15% had stopped after the first year and about a third by year three; about four in five were no longer playing their *original* instrument roughly a decade on (some had switched instruments rather than quit music; the checkpoints are synthesized from the study's published reports rather than quoted from any single table). A school-age cohort on multi-year horizons — a different population and a different clock from Fender's one-year figure for instrument buyers — so the two numbers bracket the quitting problem; they do not equate it. ↩
19. [I]/[E] Dated company announcements: Activision reported ~24 million cumulative Guitar Hero units in 2008 and trade coverage put the franchise over 35 million by 2010; Ubisoft announced 1.4 million Rocksmith units in 2013 and "almost five million" cumulative (4.8M, Rocksmith plus its 2014 edition) in mid-2021, using the round five-million formulation by 2022. None is audited, and the cutoff dates differ — the totals are reported separately here for that reason. ↩
20. [S] Liu, Wang, and Wong, "A Systematic Review of Experimental Research on the Effectiveness of the Suzuki Music Teaching Method in Instrumental Instruction," *SAGE Open* (2024): PRISMA-guided, seven eligible experimental or quasi-experimental studies from 481 screened records, most showing positive effects on posture, musicality, and technique control, with effects varying by instrument and age. An earlier systematic review of Suzuki outcomes appeared in 2022. Heterogeneous, mostly small studies — and none is a vendor audit, which is Finding 1's point. ↩
21. [S] *Broken Brass* (companion paper): the full account with graded sources — principally Trevor Herbert's scholarship (the 1992 *Historic Brass Society Journal* article and the 2000 Oxford monograph *The British Brass Band*), Taylor's 2016 University of North Texas dissertation on US collegiate brass bands, and Herbert & Sarkissian (1997) on the tradition's colonial diffusion. ↩