

MARK FEDER INVESTIGATES IF THE TRADITIONAL STEP-BY-STEP LEARNING METHOD REALLY IS THE MOST EFFECTIVE?

The Step-by-Step Approach

For anyone wanting to play an instrument, use a computer application, improve at tennis or pick up a new language, manuals are available providing step-by-step instructions for mastering the skills. The appeal of a step-by-step approach is not hard to understand. When learning a new skill, it's reassuring to be able to divide what appears to be a daunting task into small, do-able pieces. We like the idea of starting at the beginning and working forward incrementally. A clear route is laid out for our journey and all we need to do to arrive at the desired destination is to follow the prepared path. What could possibly go wrong with such a natural and rational approach to learning a new skill? Well, perhaps a few things.

Consider the experience of would-be piano players. In the video instruction course *Piano for Quitters*¹, Mark Almond notes that millions of people who take piano lessons end up quitting. He ascribes this phenomenon to the method of instruction. Along with the Industrial Revolution, he explains, came the mass production of pianos and lower prices, making the instruments readily available to the general public. Burgeoning piano sales in turn engendered "mass-produced teaching systems touted by large publishers" which required the reading of musical notation. Before placing a finger on the keyboard, the student is presented with a musical staff and introduced to rudimentary music theory. Then the student proceeds to learn and practice one note at a time in agonizingly dull and repetitive lessons devoid of creativity, discovery or enjoyment. The student who persists will eventually be able to play more interesting compositions, even getting to the point where



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something approximating music is produced. Most people, however, frustrated by tedious and unrewarding lessons, choose to abandon the instrument before that point is reached.

The parallels to the development of other skills including language learning are obvious. The building-block approach, characterized by the sequenced presentation of discrete elements, is a mainstay of conventional teaching methods and materials. Just as the beginning piano student is charged with learning single notes

and the repetitive playing of scales, the student of Latin endlessly conjugates the verb *amo* as if to populate the world with lovers. If the step-by-step approach had a higher success rate, the world would be full of multilingual, music-playing lovers, but alas, that is not the case. A method that fails more often than it succeeds merits critical scrutiny.

First, we might ask why this approach remains so popular despite its poor track record. We've already noted the appeal of

this approach and to this we should add that use and tradition have made it a venerable orthodoxy. Still, the failure rate should cause skepticism. The only explanation for the continuing domination of an approach that so often fails is that the failures are not blamed on the method but on the learner. The student thinks, "If only I were more skillful (or more intelligent, or more diligent or better at music or languages, or if I had more time) I would have been able to follow the steps and achieve the goal." So students blame themselves, not the method, for their failure, and are left feeling guilty or ashamed. And if students do not blame themselves, their teachers, by giving them low grades, let them know who is to blame. The possibility that the method may be at fault rather than the student is barely considered.

Step-by-step instruction makes questionable assumptions regarding the beginning point and the sequence in which elements must be learned. A few of the assumptions inherent in conventional piano instruction are that 1) reading music is a prerequisite for playing music; 2) learning one note at a time is a feasible approach; and 3) repetitive exercises promote learning. The requirement to read notes, incidentally, is less related to playing music than it is to using the medium of the course, namely a book. If a student can't read the notes in a book, the book itself is not very useful. So the notion of what is necessary to learn a skill is determined more by what a publisher can offer rather than by what a student might actually need.

Another assumption of the step-by-step approach is that everyone learns in basically the same way and that developing proficiency in a skill results from following the prescribed steps in the order given. Students who attempt to play a song before the required regimen of notes is learned or dare to frame a sentence before all the required structures are mastered are often reigned in by misguided teachers who forget the ultimate aim of the learning or think that if each discrete element is not perfected in isolation, the student will not ultimately be able to use it accurately. The compartmentalization of content is so pervasive and the focus on learning discrete elements so intense, that negative affective consequences of instruction that is boring or intimidating are not taken into account, although they may be of far greater import in the learning process than the particular items being taught.

Yet another assumption of many step-by-step instructional regimes is the idea that learning is based on following instructions and taking in pieces of information. At first sight, it seems absurd to question this notion because we are all so used to a model of



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education based on the dissemination of information. How else can we get knowledge or skills that we don't already possess except by someone with superior knowledge passing them on to us? Well, there are other models of learning and the traditional empty vessel idea has long since been challenged by other paradigms such as the constructivist notion that "individuals construct new knowledge from their experiences"². Noam Chomsky eloquently distinguishes between two vastly different conceptions of the learning process:

“Teaching should not be compared to filling a bottle with water, but rather to helping a flower grow in its own way. As any good teacher knows, the methods of instruction and the range of material covered are matters of small importance as compared with the success in arousing the natural curiosity of the students and stimulating their interest in exploring on their own. What the student learns passively will be quickly forgotten. What students discover for themselves when their natural curiosity and

creative impulses are aroused not only will be remembered but will be the basis for further exploration and inquiry...³

Let's return to Mark Almond's piano teaching method to see how this different conception of the learning process plays out in the real world. Almond's goal is to get his students playing music and having fun with the piano as soon as possible, and it is something he is able to achieve within minutes by providing them with the tools to play and manipulate chords. There are no long and agonizing lessons or bouts of painful, repetitive practice. Once students see how major and minor chords are formed, they can easily create them up and down the keyboard. Students, having attained almost instantaneously the ability to create interesting and harmonious sounds, fueled by excitement and enthusiasm, are free to experiment and create. It is precisely this engagement of the student in the music that motivates them further and promotes progress. »



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Almond doesn't claim the method he espouses as his own but rather suggests that it is a return to what learning to play the piano was like before it got corrupted by mass-produced methods. Although Almond does not speak of constructivism, the affective domain or experiential learning, his methods clearly relate to these concepts. In recalling his childhood piano teacher, who kept a paddle beside the piano to motivate and correct pupils, Almond recognizes that punishment and dread are not ideal motivators or the best way to keep a student's love for music alive. By facilitating students' immediate access to the medium with the goal of having them “make music right from the first lesson,”¹ instead of presenting rules and directions, he allows them to discover on their own and create their own musical pieces from the start instead of making them follow sterile and boring exercises created by others. He lets the student develop musically from the inside, much like the flower Chomsky speaks of, instead of imposing forms and rules from the outside.

Traditional language classes and methods work similarly to learning piano through a step-by-step approach. Instead of musical notation it is grammar rules and selected vocabulary that are presented in sequence. In much the same way that the goal of making music is forgotten while the student practices meaningless exercises, the use of language as a means of communication is subordinated to the production of decontextualized sentences that follow a given pattern. And just as repetitive piano lessons devoid of actual music-playing drain all wonder, excitement, curiosity and creativity from the piano student, grammar rules, drills and exercises devoid of real communicative purpose do the same to the language learner. By separating elements deemed necessary to master a skill from the actual use of the skill, be it playing music or communicating, the step-by-step approach falsely differentiates between learning and doing, as eminent educator and champion of experiential learning John Holt eloquently demonstrates:

Not many years ago I began to play the cello. Most people would say that what I am doing is ‘learning to play’ the cello. But these words carry into our minds the strange idea that there exists two very different processes: (1) learning to play the cello; and (2) playing the cello. They imply that I will do the first until I have completed it, at which point I will stop the first process and begin the second. In short, I will go on ‘learning to play’ until I have ‘learned to play’ and then I will begin to play. Of course, this is nonsense. There are not two processes, but one. We learn to do something by doing it. There is no other way.⁴

For a better sense of what goes on in the step-by-step approach, let's consider a writing program for ESL students. The agenda, laid out either in the textbook, syllabus or lesson plan might look something like this:

- Writing sentences (word order, parts of speech, subject-verb agreement, prepositional phrases, subordination, passive voice, capitalization, punctuation)
- Writing paragraphs (topic sentence, supporting sentences, connecting words)
- Writing essays (outlining, organization, descriptive, narrative, contrastive and persuasive essays)
- Revising (proofreading, editing marks)
- Research (finding sources, note-taking, plagiarism, citations)

Students start out by working on simple sentences and then sentences enhanced with descriptive adjectives and adverbs. There might be drills to help differentiate the present perfect, simple past and past progressive verb forms or other grammar practice. Students may then go on to write compound and then complex sentences and use quotations, reported speech and the passive voice. Once they have mastered the sentence, they move on to writing paragraphs, and once the paragraph is mastered, essays of different types are undertaken. The student is expected to develop writing skills by conquering one element at a time in isolation and then putting all the accumulated knowledge together. Students are assessed by the accuracy of their writing and their ability to use the structures, forms and modes covered in class.

All in all, the program design looks reasonably well organized, coherent and thorough. Is there anything wrong with this kind of systematic approach? To answer this question, let's examine some of the assumptions underlying this writing program as we did for the piano instruction. Like the step-by-step piano instruction, this program assumes that the student can learn one element at a time in isolation, practice and perfect it and then combine all the elements into a seamless whole. This idea seems to be based less on explorations of how people actually learn than on a determination to deconstruct a discipline

into constituent elements and then feed those elements, one piece at a time, to the learner. This kind of instruction subordinates the learner to the material to be learned, and the misplaced emphasis on content rather than the learning process distorts instructional focus. The information disseminated, that is, what is taught, takes precedence over what is learned. "The step-by-step approach reverses the maxim of educator Caleb Gattegno's Silent Way approach from "the subordination of teaching to learning," to "the subordination of learning to teaching." Failure to learn is blamed on the learner. A common outcome of the step-by-step approach is that the operation is successful but the patient dies, insofar as the operation goes according to plan and information is duly taught, but the skill is not learned. The success of an operation should be judged by the ultimate condition of the patient, and the success of instruction should be measured by the students' accomplishments. Blaming the patient or student for failure only perpetuates faulty practices.

Step-by-step piano instruction ignores affective considerations and deems it inconsequential to the learning process that

to follow the notes laid out by others instead of exercising their creativity and making their own music, the step-by-step writing class lays out the rules to follow and requires students to conform to the patterns presented. Instead of writing being an activity for genuine expression, full of discovery and creativity, it becomes a process of imitation.

A distinguishing characteristic of good writing is the care that goes into its creation. If one takes pride in one's work, the finished product represents the best effort that the writer is capable of at that time. When the chief focus of instruction is on outlines, topic sentences, citation format and punctuation instead of meaningful expression, composition becomes nothing more than an exercise devoid of creativity, discovery and any sense of pride. Lack of investment and pride in one's work leads to carelessness, plagiarizing and inadequate revision. Encouraging students to care about how they write is the most valuable thing that a teacher can do in a writing class, but that objective, unfortunately, gets left by the wayside in step-by-step instruction obsessed with content delivery. When students care about their writing, they are

absorbed in it and make it as perfect as they can; they are not even tempted to plagiarize. When they don't care about their writing, no amount of information or practice will make them better writers. And there's the rub – the key to improvement in a skill is absorption and involvement in the skill, the very things discouraged by the boring, repetitious, decontextualized lessons and practice that are the backbone of the step-by-step approach.

Can we create a class that does for writing what Mark Almond's method does for piano? Yes, but describing such a class is difficult and developing a syllabus all but impossible. What makes the neat, structured, "professional" look of the step-by-step syllabus possible is the fact that the content, which is not dependent upon the actual students in the class, can be determined and sequenced in advance. By contrast, what happens in a writing class focused on the learners depends upon who is in the class, what they are interested in, what paths they happen to explore and other mutable factors. The teacher of this writing class, like Almond, attempts to get students involved in doing rather than learning as soon as possible, and like Almond, provides tools for helping them progress and achieve their desired results. Instead of imposing rules and requirements on students, the teacher's strives to nurture them like the flowers Chomsky speaks of.

The beginning point of such a class is not sentences, paragraphs or outlines, but self-expression, the student's genuine attempt to convey meaning through the medium of writing. Starting with the »

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tedious exercises may bore the student. But as we have seen, the overriding emphasis on the discrete elements to be taught rather than on actually playing music drains all excitement and interest from the activity and results in students quitting. In writing instruction, the emphasis on learning to write (practicing sentence structure, punctuation, spelling) instead of actually writing (expressing one's own ideas and perceptions), thoroughly bores and frustrates students with the activity of writing even before any actual writing is done. The learning agenda is pre-planned and doesn't take into account what students already know or what they care about or need; if it's time to work on capitalization or adjective clauses, that's what the class does even if some students already know the information and others aren't ready for it. This cookie cutter approach doesn't allow students to develop their own unique gifts, perspectives and propensities but imposes the same requirements and expectations on all. Like the music method that compels pupils





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students’ own writing, the teacher aims to help students express themselves more effectively and accurately. How the teacher does that depends on each student’s interests and needs, so much of the mentoring needs to be individualized. If students are to learn to write better, they need to develop their critical capabilities of distinguishing good from bad, a faculty which, like writing itself is best developed from the inside-out rather than from the outside in. That is, instead of being told what is good, students should analyze writing they like (and writing that they don’t like) and try to determine what factors or qualities make for good or bad writing. Conventional instruction relies on imposing information and rules from the outside and filling the empty vessel that is the student, while the student-centered ideal is to start with what is already in the student and develop and expand what is there.


To forestall objections, we should clarify that the organic, from-the-inside-

out instruction described here is not less effective or rigorous than step by step instruction nor do its results differ from those aimed at by step-by-step instruction. The goal of Almond’s piano method is to produce accomplished piano players, not people who bang on the keys to have fun. His method does not preclude reading of music notation but recognizes that notation is not a prerequisite for playing. Likewise, the organic, from-the-inside-out, affectively oriented approach to writing does not produce sloppy writers incapable of writing good sentences and paragraphs. On the contrary, since they care about what they are doing, they work harder, spend more effort and are more careful about what they write. The difference is that they learn to write sentences and paragraphs, use all kinds of grammatical structures accurately, do research and provide citations in the course of expressing themselves instead of practicing these elements in isolation and out of context. The question is what kind of

class is most likely to result in accomplishing the desired goals – compartmentalized instruction consisting of cumbersome and sterile practice likely to alienate students or experiential learning that engages students and affords pleasure and fulfillment? For piano-playing, writing or any other pursuit, students learn from doing a lot of it. If instruction discourages doing by boring, intimidating or frustrating them, students will spend less time engaged in the pursuit and quit completely as soon as they can.

Another objection that some may be tempted to make about the kind of affectively-oriented instruction advocated here is that, in the case of writing, the goal is not to produce creative writers but just competent writers who can write academically acceptable prose. But we must ask ourselves how that is best accomplished. Almond’s piano instruction is not intended to produce virtuoso concert performers but rather people capable of playing the piano and enjoying it enough to do it regularly and achieve whatever level of mastery they aspire to. The same is true for writing. The goal is to produce good writers who can use their skill as they choose. Creative self-expression is a tool for achieving the goal, not the goal itself, and it is a tool which works better than the more commonly used tool of discrete element practice.

The step-by-step approach, even when it is successful is more likely to produce piano players who can read but not necessarily create music. Using a deductive learning process that fosters dependence on cues imposed from the outside discourages experimentation and inhibits the ability to learn independently. Writers trained by that approach are more likely to write in a sterile, imitative way and not continue to expand their skills. Inductive, heuristic, experiential learning, on the other hand, promotes independent growth and life-long learning.

The step-by-step approach, fixated on the material to be learned, disregards the learner and the affective considerations that impact learning. Instead of encouraging instruction tailored to the student, it forces the student to fit the method of instruction, and that, ultimately, is why it fails. 

¹ Almond, Mark (2000) *Piano for Quitters*. DVD, *Piano For Life*, ISBN: 0970235755

² [http://en.wikipedia.org/wiki/Constructivism_\(learning_theory\)](http://en.wikipedia.org/wiki/Constructivism_(learning_theory))

³ Chomsky, Noam (1987) *Language and Problems of Knowledge*. MIT Press

⁴ Holt, John (1976) *Instead of Education*. Dutton & Co.

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