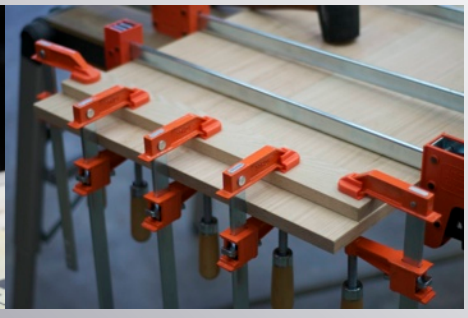
Making a Coffee Table





Erik's Externship

An adventure in learning about learning...along with some splinters, bleeding, bent nails, silly assumptions, broken screws, and a little bit of frustration peppered with a choice selection of expletives (censored, of course)!

Introduction

Hello journal, and hello world. The hello world thing was actually a bit (*pun intended*) of computer humor. If you get it, great! If you don't, it's really not worth an explanation. Yet, it suffices to say my area of study and the breadth of my professional experience have been technology-related. Thus, a venture into the realm of creating handmade, wooden furniture represents a significant departure from what I would consider to be my norm. From this splinter of a notion, my journey begins.

For my Externship project, I will be building by hand a coffee table, constructed from American Red Oak. That is a description of the physical end product only, the artifact. The artifact is tangible, concrete, able to be observed; it is material and occupies space.

What I am seeking to learn is not just a single thing, not just production of an artifact. Most evidently, there is the craft of furniture making. The tools, techniques, and skills required to transform wood into furniture have always been intriguing to me. Additionally, I am interested in the self-teaching of said craft. Perhaps less obviously, however, I am interested in the process of teaching myself. Specifically, I want to determine for me the most well-suited, or effective, method of self-teaching.

Becoming a more efficient self-teacher is important to me because of my numerous interests. In my personal life, there are hobbies in which I'm interested but have no experience, such as furniture making, painting, and playing guitar to name a few. In my professional life, I am required to be conversant (*if not in some cases expert*) in a vast array of technologies, for few of which I've had any formal training. The underlying theme is a body of knowledge and skills that I desire, or in some cases require, that are simply not feasible in terms of time and money to acquire by means of formal, institutional learning. Thus, learning how better to learn will be of lasting value to me, regardless of the endeavor.

"Why furniture making?" one might ask. The interest was sparked while still in my junior year of high school. Having always being interested in drawing, I took a drafting class in my sophomore year and found that not only was I good at it, but really enjoyed it as well. I continued to dabble with drafting subsequent to completing the class. In my junior year, we moved to a new house. To my mother's annoyance, she could not find in stores the furniture to suit her taste. I sketched out

some ideas for her, and she really liked them-namely a coffee table, an end table, a dresser, and a chest of drawers. So, Mom decided to have custom furniture built and asked me to draft the exact plans for the aforementioned pieces. Conveniently, Tim, a friend of the family happened to be an accomplished wood worker.

We approached Tim with the plans and the opportunity, which he accepted. I reviewed the drawings with Tim and made a few minor tweaks. After that meeting, we waited weeks for our new furniture to be completed. I'll never forget the feeling of Tim finally arriving in his truck loaded with the newly crafted furniture. It felt as if the drawings I had given Tim weeks earlier had somehow, almost magically, transformed into physical reality. I didn't understand the process, but I was hooked. And now, I will understand the process by doing.

Learning Style Inventory

Having re-taken Kolb's Learning Style Inventory (LSI), I've confirmed what I already knew about my learning style; I am an assimilator, almost exclusively so. Albeit, I had at no time previously ascribed a label to my style of learning. As evidence of my preferred learning style, I submit my LSI kite for review.

Preferred Learning Style: Assimilating

I absolutely agree with this assessment and description of me as a learner; it describes me perfectly in learning situations. I am not one to dive into new or unfamiliar situations. I have a need to understand at a very logical level any endeavor which I am about to undertake. Additionally, I am more comfortable in learning situations in which there is guidance provided, such as formal education with its syllabi, lectures, and professors who can assist with the assimilation of concepts and theories. Given my preferred learning style, it becomes a bit easier to understand my disdain for group projects and discussions with their inherent lack of structure, order, and logic.

It also occurs to me the high standards to which I hold myself likely contribute to corralling me into the assimilator quadrant. Unrealistic as it is, I prefer to do things perfectly if at all possible, even if it is the first time I have attempted that particular thing. Doing so requires that I gather and understand a great deal of information as a prerequisite to any action. Resultantly, I am not a risk taker when it comes to new learning, as illustrated by the near zero scores for Active Experimentation and Concrete Experience in my kite.

A typical example of my learning that corroborates the assimilator characterization is a commonplace occurrence at my job. As a systems support engineer in the managed services department at my company, I provide upper level information technology support to our customers. The customers I support are not the end users of a particular system. Rather, I support the information technology staff of our customers. The arrangement is analogous to being the help desk for the help desk.

Given the wide variety of technologies in use by our customers, it frequently occurs (*more so than I would prefer*) that I am called upon to support products with which I have absolutely no familiarity. The end result is a mad scramble to become familiar through first acquiring product documentation. The second step is usually to find videos that will speak to the use of and demonstrate a product's functionality. Despite its compressed timeframe, this two step process is very much akin to the

formal classroom in which there is material to read that is later covered by lecture.

Peak Learning

Best of Times Worst of Times

Test number one was by no means conclusive in identifying the time of day most well-suited or congenial to the promotion of effective learning for me. In some cases, my answers were simply contradictory in nature, yet truthful nonetheless. Case in point, I dislike getting up in the morning, yet I dislike going to bed in the evening. I love sleeping, but I hate the amount of unproductive time consumed by the simple and necessary act of sleeping. So, perhaps I'm an owl who secretly desires to be a lark? Anecdotally, I attribute my dislike of early mornings to the Marine Corps-reveille at 04:30 for years on end gets real old, real quick.

Incidentally, I was able to identify that reading of new material is best done several hours after awaking. However, that creates an unfortunate circumstance during weekdays as I am either at work or still commuting in that timeframe. As I see it, I have but two alternatives (*neither being mutually exclusive*). One being, during weekdays, I get up one to one and one half hours earlier (*that being roughly at 4:00 a.m.*) to allow myself some reading and research time before going to work. The other alternative (*and infinitely more preferable*) is to get up on the weekends at the same time as I do during the week; the thought behind this approach is to maximize the time available during my window of peak learning opportunity (late morning time). The challenge with either of these alternatives will be forcing myself to bed early enough to make them even vaguely plausible. I truly am my own worst enemy.

Groupers & Stringers

Test number two landed me squarely in the Stringers' camp. By squarely, I mean by a score of Stringers 9 to the Groupers lowly 2. However, this classification by no means comes as a surprise to me. The rigidity and structure so typical of a Stinger's learning preferences fit me to a Tee. There is little room for ambiguity and the path to understanding a given topic is clear and concise. Almost laughably, I am slave to this particular mentality. As an example, if a book contains a preface, it will be dutifully read before venturing into chapter one. Moreover, and here's the laughable part, reading of the author's acknowledgements (*should they exist*) is a prerequisite to reading the preface.

Four Quadrants

Test number three was a bit revealing to this cranky old Marine, but not in an Earth-shattering kind of way. Let's face it, I cling to some pretty staid ideas on education, on the formal process of how it should impart knowledge to its students. I am forty-five years old; my primary education, secondary education, and initial foray into post-secondary education were all rooted in what I consider traditional teaching. The simple staples being reading assignments, being lectured to regarding said reading assignments, and finally puking out a writing assignment that hopefully convinced the instructor you were actually paying attention. It's a structured and fairly rigid process...kind of like the day to day routine in the life of a Marine....hmmm.

The Marine Corps, it seems, is an inescapably recurring theme in the very fabric of my existence. As the saying goes, once a Marine, always a Marine. And, that's a good saying if you're a good Marine. But, I digress. The real point, the revealing point to which I alluded earlier, is that I was not wholly aware of the impact the Marine Corps had upon all aspects of my life. In examining the Four Quadrants of learning for this particular test, I automatically assumed the strongest preference for style A (*with its logic and data*) was a foregone conclusion given my profession and nerdy proclivities. However, this was not the case; style B with its stability, procedure, and order edged out style A (*if only barely*). It was then I realized the Marine in me (*beholden to structure, hierarchies, order, and processes*) still very much has an affect on my day to day life. So, for me, structure is the

framework in which data and logic can reside-sounds like a good fit.

On the other hand, styles C and D are absolutely foreign to me. Style C reminds me of the kids who used to smoke a lot of marijuana and were "totally blown away" by the most recent lecture in their philosophy class. Worse yet, they wanted to tell you about it. For style D, I have but the following two words: starving artists.

Personal Intelligences

Test number four purports my three strongest intelligences to be linguistic, musical, and bodily-kinesthetic. Should this test be accurate, then I'm in luck as two of these three will be employed (*and there will be no singing on my part despite being able to do so in key*). However, I will harness my linguistic intelligence to chronicle, hopefully in great deal, this business of building a coffee table. With any luck, my bodily-kinesthetic intelligence will make the motions of using the required tools seem natural and intuitive. Should that not be the case, I suspect I'll be spending yet even more money to replace ruined boards of red oak.

Personal Learning-Style Profile

So, as a result of completing the above tests, my personal learning-style reads as follows:

1. My best time for learning is late morning, so I feel best when I can schedule my learning times on the weekends.

2. I'm a stringer. I like to learn bottom-up, so my preference is to approach a new subject from its foundation of basic theories moving forward to advanced subjects.

3. I like generally to learn through structure, so my preference is to approach a new subject by learning about its origins and its foundational, basic concepts.

4. My two strongest intelligences are linguistic and musical, so I enjoy learning most when it involves detailed description and there's music playing in the background.

Styles and Resources

Going through the exercise of matching learning resources to my personal learning-style resulted in the following three choices:

- Reading a book or two on the subject.
- Attending a series of lectures.
- Visiting a game preserve, taking pictures, and acquiring relevant materials

Having arrived at these choices, I was eager to discover the correlation between them and my learning style; what do they say about me as a learner? The connections were startling easy to make. Of reading a book or two, that speaks to acquiring foundational knowledge, the Stringer in me. Attending lectures will advance me from the basics to the most current information, also satisfying my Stringer traits; it also placates my Style B tendencies. Visiting the preserve, however, was not so cut and dried. Nature photography is a favorite pastime, so that's an obvious attraction, but not really related to the Peak Learning chapter. Then it occurred to me this choice is representative not so much of first-hand experience, but of research, the active search for and acquisition of knowledge-which I truly enjoy.

In Summary...

Better understanding myself as a learner and consciously acknowledging the ways of learning to which I am most amenable will undoubtedly be of positive value. It will allow me to design future learning endeavors (*as well as this one*) in a manner conducive to success. Potentially of equal (*or greater*) value is understanding that learning by means of less-preferred ways is an opportunity; they afford a different kind of knowledge-the kind that makes the learning experience more complete. To that end, building this coffee table without the benefits of

demonstration and formal instruction will definitely push me outside the comfort zone of my preferred learning methods. I'm leaving me to my own devices.

That Whacky Wood...

So it would seem the quick trip to the store I envisioned to acquire the raw materials (*boards of American Red Oak*) was not to be. The twenty minutes approximated by my uninformed imagination was stretched into the reality of an hour and a half of contemplating the various attributes of the candidate boards. Frankly, I'm glad it turned out this way.

I'm glad it turned out in this fashion as it caused a bit of a realization for me. For one, I became more aware of the many sub-processes involved in the overall process of building a piece of furniture. It's funny that I didn't see it this way as that's exactly how I view technical projects in my profession, in more of a project management approach with its milestones, resource constraints, critical interdependencies, and so on.

It also made me cognizant of the potentially blinding effects of assumptions. Assumptions, if recognized for what they are, can serve as beacons for opportunities of additional learning. When encountering circumstances in which the actual outcome is not consistent with the assumed outcome, we tend to think that something must have gone wrong, thereby preserving the validity of our assumptions. But, we didn't actually ***think*** something was wrong; we ***felt*** it was wrong, which is not logical.

The preservation of an assumption is psychologically paramount. After all, who embraces the opportunity of going through life being wrong ALL of the time? Clinging to our assumptions keeps us right, protecting our belief in what we think we know. But again, this is not logical. When an assumption falls short of its mark, interpreting it as an invitation to discover the reasons behind the unexpected outcome is a useful response, not an unthinking reaction. Choosing this interpretation is the mark of an open mind, receptive of a learning opportunity; this is the path I am choosing.

As for the wood, I had assumed it would be a simple matter of venturing out to the store, selecting the appropriate number of boards of the required widths specified in the plans and going about my merry way. Wow, was I ever mistaken! The assumption, all boards are perfect-wrong, wrong, and wrong! It seemed reasonable to me to assume a store offering boards for sale would only stock boards suitable for their intended purpose. Surprising as it was to me, it turns out this is not, in fact, the case. I liken it to a trip to the grocery store for eggs, only to find three quarters of the cartons containing cracked eggs or eggs otherwise unfit for human consumption.

Edges are not necessarily square or without splinters. Ends are not necessarily undamaged. Surfaces are not necessarily without dents or large knots. And warps, are not necessarily absent. Costs, however, are unnecessarily high!

Building the Workmate

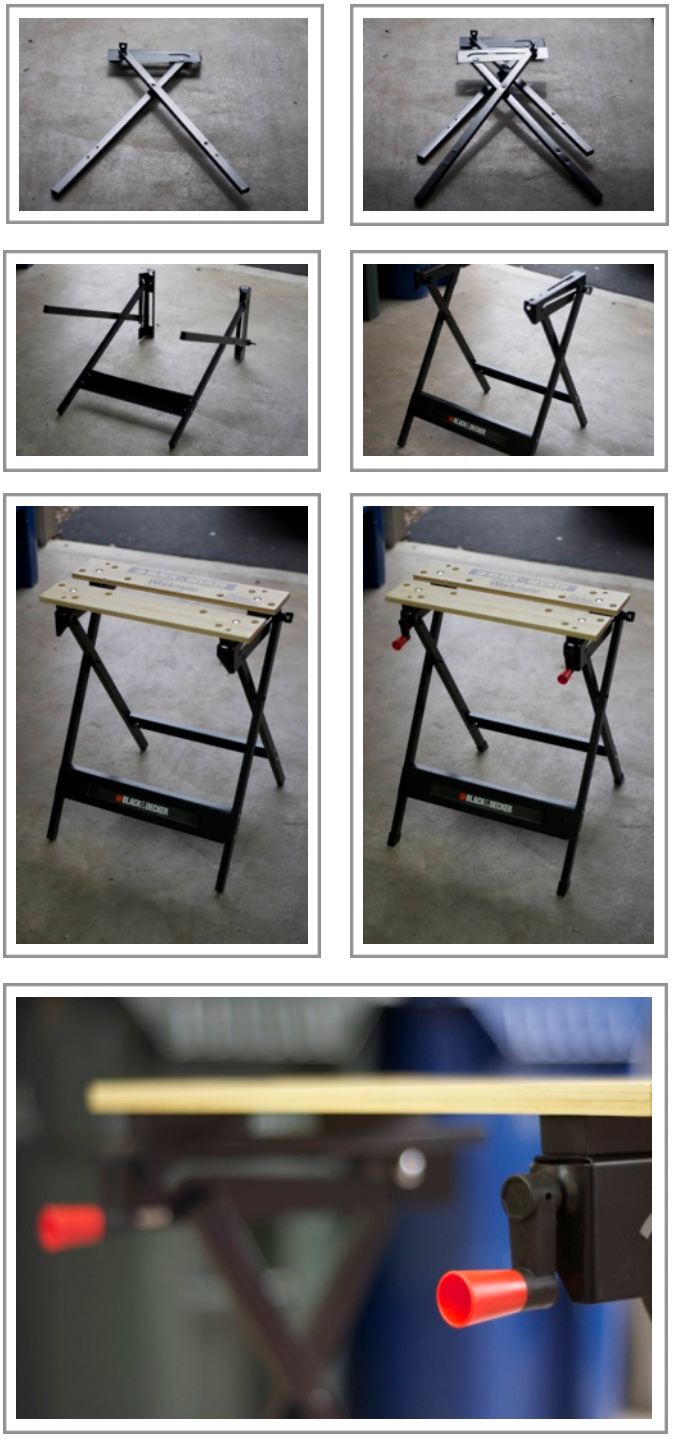
Who would've thought, I have to assemble the Workmate? So, I'm building tools to build...interesting. I suppose if I had given it any thought whatsoever, I would have easily deduced from the dimensions of the box containing said Workmate that there was no feasible manner by which the individual parts could somehow already be connected. Nonetheless, I was still surprised

upon finding an assortment of parts when I opened the box containing what I thought might be a fully functioning Workmate, ready to go, ready to make me a handier man-not the case.

Acquisition brings a false sense of accomplishment.

Interestingly, I think this experience might be saying something about me, or perhaps about us as Americans, or maybe even us as humans. Okay, so maybe just about me. I am going about the business of building a coffee table. As part of this process, I have made some obvious assumptions, such as assuming I'll need to buy tools that I do not yet own. However, it would seem that I've carried the assumption a bit too far, assuming that acquisition of an item implies said item is ready for use, and able to aid me in accomplishing my goal. Such was not the case, as revealed to me by the box full of Workmate parts, parts waiting patiently for assembly.

So what is this really saying? Perhaps it speaks to the larger picture of achieving a goal. Achieving a goal is very often the result of achieving a series of smaller, yet related, sub-goals. Yet, it's not enough that we knock out these sub-goals, for in and of themselves they are of no consequence unless they are held together by the glue of the ultimate goal sought. And that glue of which I speak, it is work; it is the binding constant, for it ties together the individually meaningless sub-goals into the greater accomplishment, the end goal. In my case, the coffee table is that end goal. So, buying the wood is of no real consequence. Same goes for the tools that have only recently found a home in my garage. Acquisition brings a false sense of accomplishment. (*That notion is something upon which I believe I'll stew for quite a good while.*)



And now that I realize how the parts (*sub-goals*) come together, in earnest I will get to work; there is much glue to be applied (*and screws, and nails, and sawing, and sanding, and...*).

Kolb's Learning Cycle

As I understand it, the implication of Kolb's Learning Cycle is that true learning is not achieved if an experiential component is not incorporated into the learning process. Thus, true learning occurs when one can relate one's experience to the context in which it occurred and understands the outcome based upon the variables contributing to the circumstance. To that end, the learning cycle differentiates between simply acquiring information and actually knowing something, the result of learning. As I've stated previously, acquisition does not equal accomplishment.

Meaning, one can accumulate a vast collection of facts and later recall them when required. So doing does not demonstrate true learning. Rather, it is the result of a dated, formulaic approach to formal education wherein memorization and regurgitation of facts for the purpose of passing tests is the norm, a norm that perfectly describes the majority of my secondary and post-secondary education. That is not to say recollection of facts, the knowledge gleaned from others' learning, is not without its uses. For instance, a child knows fire will hurt him, but only as a result of his parents' repeated warnings. Only when the child touches the hot stove does he truly learn the meaning of how fire will hurt him. Arguably, had the non-experiential knowledge been heeded, the child would have been better off, not having had to suffer the painful lesson.

The coffee table also serves to illustrate the difference between experiential and non-experiential knowledge. After reading about the tools, techniques, and materials used in furniture making, I knew about furniture making, albeit at a very rudimentary level. After reading the plans for the coffee table, I knew, in theory, how to build a coffee table. However, it was not until I attempted and completed building of said coffee table that I truly learned about furniture making and what it truly means to build a coffee table.

The learning cycle, according to Kolb, is broken down into four distinct stages. Each stage feeds into the other, with true learning being the outcome when all stages are visited by the would be learner. Though Kolb holds that the majority of instances will begin with concrete experience, he contends that the learning process can begin at any stage in the cycle.

Concrete Experience

At this stage, one is actively engaged in the experience from which learning can be afforded. The learner needs to be cognizant of the activity's outcome. One should note if the outcome is in keeping with one's expectations. If not, how did it differ? The cognizance and attention to outcomes assumes the learner is actively engaged in the activity with an awareness of this learning cycle - the type of learner I aspire to be having undergone this process.

As an example, I engaged in the various activities that together comprise the process of building a coffee table. As an assimilator, I did so by the following the instructions in a book of furniture plans intended for beginning wood workers. The results, overall, were acceptable. In retrospect, the individual tasks/activities in which the outcome was unexpected afforded the greatest opportunity for learning.

Reflective Observation

At this stage, the learner is to evaluate the actual outcome, comparing it to the expected outcome. Were the expectations met? If yes, fantastic. Make note of the steps taken. If not, still make notes of the steps taken. Understanding how one arrived at a particular result allows one to either repeat the steps in the case of a desired outcome, or to alter the steps taken in which the outcome was undesirable.

Affixing the battens to the underside of the table top and shelf was one of the first opportunities for me to reflect

upon my efforts. The ensuing debacle of driving the first three screws absolutely demanded reflective observation. Continuing in the same fashion simply wasn't a viable option; if the table was going to exist, change was necessary.

Abstract Conceptualization

The learner contemplates in this stage the underlying reasons for the success, or more importantly, failure, of attaining the desired outcome. Contemplation will take the forms of analysis and research. Analysis breaks down each step taken into its various constituents. Research will reveal an array of suitable alternatives for said constituents, or perhaps the need for omission of a particular constituent, or maybe even altering the process in its entirety.

Continuing with the batten example, my personal research resulted in such an abundance of information, much of it conflicting, that it served no useful purpose. Given my dilemma, I sought the advice of an expert (*crotchety old guy - we'll meet him later*). Through his guidance, a suitable replacement was identified for the common wood screw (*failing constituent*), that being the outdoor-use, self-tapping, serrated-thread, ceramic-coated, wood screw.

Planning Active Experimentation

Putting alternatives into action is the theme of this stage. From the abstract conceptualization, a different road, or roads, to the desired outcome are mapped out. Actively following these different paths will mete out which best facilitates the most desirable outcome, that being the outcome most in line with ones expectations.

Completing the adventure with the battens, I repeated the previously executed process, except this time it was with the newly acquired screws. To my satisfaction, the new screws performed admirably. Resultantly, I had acquired, firsthand, knowledge regarding the properties of hardwoods and different types of fasteners with respect to their suitability for use with hardwoods. Generalizing this new knowledge, I can apply it to future scenarios that are approximately similar in context and reasonably expect to accurately predict outcomes of actions taken in those scenarios.

My View

Overall, I am a proponent of Kolb's Learning Cycle, specifically of the experiential component of learning. Experience allows for being actively involved in making the connection between theory and practice. Making that connection, in my opinion, is when and where true learning occurs. It allows for understanding of phenomena at an elemental level. Without the element of experience, learning becomes a vicarious exercise, memorizing of the facts afforded of others' learning and devoid of firsthand discovery.

Construction

I'm beginning to sense a theme here, and that would be the wood. Of course, I suppose that really ought not be a revelation of any sort. It is, after all, the raw material from which the table will be created. Being surprised about that makes about as much sense at being surprised water is a theme in learning how to scuba dive.

Measuring

Even the simplest of things aren't nearly so simple as one might assume. Take, for instance, the "simple" act of

measuring where to cut the 1" x 6" boards. These boards will comprise the surface areas of the table top and the table shelf.

The cut line must be drawn across the width of the board. So, from a corner at the end of the board, one measures down the edge of the board 40 1/4", making a mark on the edge of the board with a pencil. Then again, from the opposite corner of the same end, one measures down the opposing edge to 40 1/4", also marking the board's edge with a pencil.

Then, using a combination square, one draws a

connecting line between the two marks on the edges of the board that is, in theory, perpendicular to either edge of the board. If the line is perfectly perpendicular to each edge, then measuring in a straight line from any point at the end of the board to the line drawn between the two marks should result in identical measurements. Had this bit of measuring, marking, and drawing turned out so neatly and straightforward as my theory, I would have been greatly pleased. Alas, my theory was rather ill-informed.

Some basic assumptions about the wood, upon which my theory was predicated, disallowed consideration of some very important realities about the wood. For one, the end of the board might not necessarily be perfectly square at each corner. Moreover, the cut forming the end of board might be slightly canted, giving the board a different length depending upon which side of the board is being measured. Then, warps in the board can occur in the board not only from end to end, but from side to side as well. Interestingly, or perhaps maddeningly, warps needn't run the entire length or width of a board either. The perfectly vexing aspect of all these anomalies is that, except in extreme examples, they are hidden from the casual glance of the naked eye. Without careful, repeated measurements at multiple places on the board, they remain so hidden until the time for joinery comes (*which, coincidentally, is when the expletives begin*).

On a practical note, all this measuring is typically marked with a pencil. While the pencil itself is an obvious requirement, a good eraser is a much less obvious requirement, and often times more useful than its counterpart. Also as a matter of practicality, I found that when working on multiple identical pieces, one can measure, re-measure, and mark the first piece. Then, forego the same routine for the remaining pieces. Rather, use the first piece measured as the template for the remaining pieces. Depending on the type of project, this can be a real time saver. However, this time saver is not without a caveat. Specifically, it only applies if one is cutting a single piece from the stock. If multiple identical pieces are to be rendered from a single piece of stock, this is not good advice. I'll explain in the next section.

Cutting (which is not ripping)

Being a fan of semantics, I was delighted to pick up this little, yet important, bit of knowledge. In the past, I had heard the term “ripping" associated with the act of sawing wood. Not understanding that it was not a generic term for sawing, I had until this project been using the term indiscriminately, and as it turns out, incorrectly.

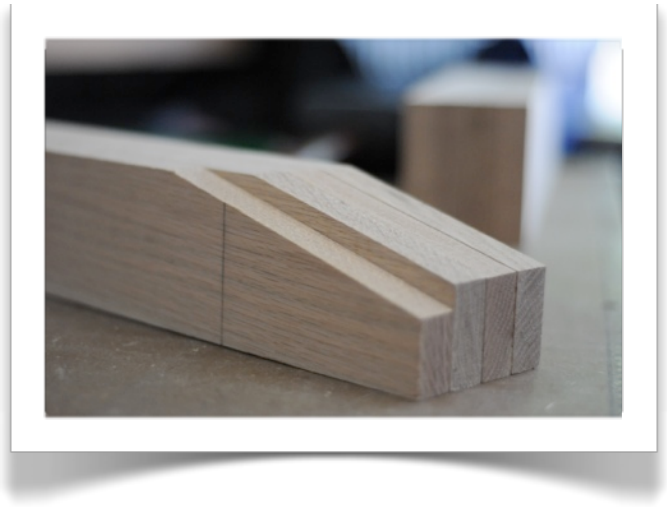
The distinction between cutting and ripping is actually quite simple. Both involve using a saw of some type. What makes them different is the direction of the cut relative to the grain of the wood. Sawing across the grain, the saw blade being perpendicular to the grain, is referred to as cutting. If, however, the saw blade is running with the grain, or parallel to it, that is ripping. Generally speaking, one cuts wood to shorten it, ripping being used to narrow it. Regardless if cutting or ripping, cleaning up the resulting sawdust takes considerably longer than the time to make it.

Cutting is another of those things, I have learned, that is not always simple. It’s somewhat akin to salt in a recipe, if you’ve added too much, there’s no taking it out. Similarly, there is no return from cutting a board too short. For instance, there is no means by which an eighth of an inch can be reaffixed to the board.

And, there are no shortcuts (*I know it’s awful, but I swear that was a completely unintentional pun.*). There is simply no substitute for carefully measuring and marking each individual piece before cutting it to size-this I learned in a very frustrating fashion. It involved cutting the pieces for the sides of the table’s legs.

Given the length of the stock from which I was cutting the leg sides, it was evident that I could cut three sides from each piece. Thinking I would save time, I measured out three pieces by marking cut lines 16.5 inches, 33 inches, and 49.5 inches. Moreover, I then used this marked piece of stock as a template. Meaning, I then set another piece of stock parallel to the marked piece and continued the mark across to the new piece. The goal was to create three leg sides, each measuring 16.5 inches in length. That goal was not achieved.

What I had achieved though was creating eight leg sides, each varying (*however minutely*), in their respective lengths; no two were the same. Discovering this, the realization slowly began to sink in that had saved myself no time whatsoever. Quite conversely, I had instead managed to create more work to be done, but no more time in which to do it. As one might be inclined to imagine, this is again one of those moments wherein free flowing expletives were the predominate sounds emanating from my makeshift wood shop.



Gradually, the more congenial and curious side of me wrestled control of my mind (*and mouth*). How, precisely, had this happened? I was especially careful to make every cut dead center on the marked line, but the measuring tape indicated otherwise. I was utterly perplexed.

I began measuring the difference in lengths, and none of them seemed to differ by more than an eighth of an inch. It was as if there was a consistency in my inaccuracy, which was encouraging yet at the same time quite vexing. Bearing that in mind, I racked my brain for what could be truly consistent in the whole process. The wood is variable. I am variable. My operation of the miter saw is vari… And, that’s when the light bulb turned on - the miter saw is the constant!

Upon inspecting the saw blade itself, I discovered it's overall surface is approximately one sixteenth of an inch wide. The tip of each tooth is yet a bit wider. The teeth measure nearly one eighth of an inch wide. Thus, the wood displaced by making a cut with the miter saw is roughly equal to one eighth of an inch, which easily accounts for the variance in length of the aforementioned leg sides.

Filing

I initially sought to rectify the differences in the leg side lengths by filing the longer pieces into compliance with the shorter pieces. No such luck. This is where I quickly learned that a file, at least in my untrained hands, does not necessarily produce a flat surface despite itself being flat. It took only one leg side to come to this understanding. The filed end was uneven, grooved, and beveled.

Filing, it would seem, is a technique best reserved for spot adjustments and not wholesale modifications that need to applied uniformly to an entire surface. Thus, all the long leg sides made repeated trips back to the miter saw, where sometimes the cuts were so minuscule that only a barely perceptible smattering of sawdust made its way to the ground. As a matter of principle, the initially filed leg side was spared a return trip to the miter saw. I want it to serve as a reminder of lessons learned.

Smoothing the Wood

And speaking of cleaning, sawdust is nothing compared to the talcum-like powder created by sanding. By comparison, sawdust is rather well-mannered. Unless disturbed by the breeze allowed by an open garage door, it's mostly content to lie motionless at the scene of the crime. The same cannot be said for the dust created by sanding; it goes everywhere and gets into everything. As evidence, and much to my annoyance, an even coating of this dust saw fit to find its way underneath the cover on my motorcycle.

Man vs. Machine

Sanding by hand and sanding with the aid of a machine both have their benefits as well as shortcomings; I utilized two methods of each. By hand, the simplest method was a piece of sandpaper held by hand, the other being a piece of sandpaper attached to a sanding block. The sanding block affords the best opportunity of producing an even surface over large areas, but also requires the greatest amount of physical exertion. The piece of sandpaper held by hand turns out to be ideal for smoothing edges and getting into tight spaces where neither the sanding block or a machine would be able to reach; these are the advantages. The disadvantages of this method are hand fatigue and the heat generated from the friction of the sandpaper against the material being sanded. If done too quickly, the heat can become quite painful to the tips of the fingers or palm of the hand. Additionally, this method produces the greatest likelihood of embedding splinters deeply into one's flesh.

The primary advantage of sanding with mechanical assistance is the significantly increased surface area that can be covered in the same amount of time compared to hand sanding methods. On the other hand, mechanical sanding comes with its own challenges. I used a palm sander and a random orbital sander, each with its own peculiarities of operation specific to the type mechanical motion being employed.

Regardless, each of these sanders wanted to track with the grain of the wood. And, the tracking was influenced by the amount downward pressure applied in the hand grasping the tool. Additionally, it's very tricky applying the downward pressure in a manner such that the pressure is evenly distributed across the sanding surface. Failing to do so can cause grooves in the surface being sanded, or bevels if the area being sanded is narrower than sanding surface of the machine.

Regardless of chosen method, the possibility of over sanding always exists. This is sanding to the point where uneven surfaces are created, sometimes even altering the length or width of a piece. And, the mess created by either varies only in the amount of time required to make said mess. In the end, it just depends upon the requirements of the piece being sanded along with ones skills and preferences.

Sanding vs. Filing

While both of these actions have generally the same result, that being smoothing and removal of imperfections, they are rarely interchangeable. Moreover, if done blatantly wrong, they will actually serve to introduce imperfections and areas of roughness. Sanding is always the more forgiving of the two if executed in a manner not amenable to the wood's properties, such as going against wood's grain. If done lightly enough, and with a very fine grade of sandpaper, one can get away with it. On the other hand, attempting such foolishness with a file will serve only to instantly create a bed of splinters in the wake of the file's path.

In general, sanding is best suited to flat surfaces and the long edges that exist between two flat surfaces, such as the 90 degree edge between the narrow side of a table and the table's top. However, I've learned of a caveat regarding the edges; the edge must run with the grain of the wood to be a suitable candidate for sanding. Should the edge run perpendicularly to the wood's grain, such as at the end of a board, then filing becomes the best option smoothing the corner or taking off otherwise unwanted wood. A common scenario in which this filing is done is cleaning up a cut made by the miter saw or jigsaw.

Fastening Wood

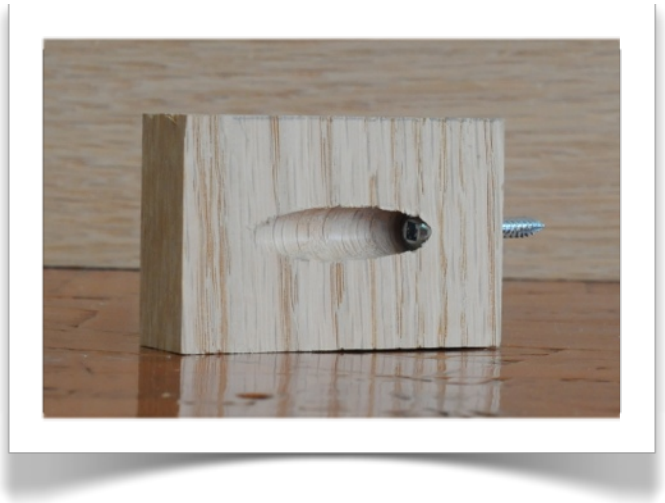
Fastening pieces of wood to each other is what gives a creation not only its form and structure, but its strength

and stability as well. More formally known as joinery, there are many methods by which one can fasten one piece of wood to another. Some of the advanced methods, such as mortise and tenon or dovetail joints, involve shaping the pieces of wood such that they interconnect with each other. Simpler forms, as used in my coffee table, are screwing, glueing, and nailing.

Screwing

There is a surprising amount of work that goes into screwing together two pieces of wood for a piece of furniture. Reason being, it's preferable that the screw not be visible, or at least not obvious. To make the screw completely invisible, it must be used on the inside or underside of the piece where it simply cannot be scrutinized. Doing so requires the use of pocket hole screws.

A pocket hole is created by affixing with a clamp a jig (*more about this generic term later*) to the side of the wood where one wishes to create pockets. The jig, in this instance, is essentially a guide for a specialized drill bit that creates at an angle a hole in the side of the wood near its end. This hole serves as a channel into which a pocket screw can be driven. The channel guides the screw such that the screw exits the wood at its end. When the flat side of an additional piece is mated against the end of the piece of wood in which a pocket hole has been drilled, this allows the screw to pierce the end of the pocket hole and plunge into the flat surface of the adjoining board's surface which is mated to the end of the board in which the pocket hole is drilled. When the screw sinks into the adjoining piece, it pulls the two pieces together, creating a joint.



If screws must be driven through visible surface areas, then measures must be taken to make them as discrete as possible. Specifically, pre-drilling, countersinking, and wood plugs are the methods employed. At the locations at which the screws will be driven, holes should be pre-drilled and countersunk. A hole roughly equal in width to the shaft of the screw, minus the threads, should be first be drilled. This removes wood from the screw location, making it easier for the screw's threads to bite.

Additionally, the pre-drilled hole should be countersunk. Countersinking creates a depression in the wood's surface directly above the pre-drilled screw hole that is deep and wide enough to accommodate the head of the screw.

One countersinks with a countersink drill bit, of which there two basic types - fixed and adjustable. A fixed countersink bit is a separate bit that is used after pre-drilling the screw hole with a standard drill bit. It is used to hollow out the screw hole entrance such that it can accommodate the screw head below the surface of the surrounding wood.

An adjustable countersink bit combines a tapered standard drill bit and a countersink bit whose position can be adjusted by sliding it up or down the shaft of the tapered standard drill bit. The countersink bit locks into place by means of a bolt that transverses the radius of the countersink bit and pins against the shaft of the tapered standard drill bit. Adjusting the position of the countersink bit controls the depth of the pre-drilled screw hole as well as that of the countersink hole as the countersink bit has a collar which prevents drilling beyond the depth at which the countersink bit is set.

Ultimately, the purpose of countersinking is to create hole that can be filled which will conceal the screw head from sight. Filling the hole can be accomplished with wood filler, plastic plugs, or wooden plugs cut from the scraps of wood created by cutting working pieces from stock. The latter of these methods produces the best results as the grain of the surface of the plug can closely match the grain of the surface area surrounding the hole being filled.

Creating wood plugs involves the use of a plug cutter, which has proven itself very tricky in use. The plug cutter is pressed into a wood scrap's surface. Removing the plug cutter from the hole it creates leaves a small column in the center of the hole that is created which becomes the plug.

The column can be snapped out of the hole with a screwdriver. The aforementioned tricky part is getting the plug cutter into the wood. The plug cutter is essentially a large, hollow drill bit, which bores out a column of a desired width that can be subsequently removed from the hole it creates. If the tip if the plug cutter is resting upon the surface of the wood when one starts drilling, it does not plunge into the wood, creating the desired plug. Rather, it skates awkwardly along the surface of the wood, chewing up the surface while leaving an interesting pattern.

Largely, this behavior was due to my improper use of the plug cutter. I was using it in a hand drill and pressing into a piece of wood held by a vice. The error in this method was the reliance upon visual acuity to set the whole edge of the plug cutter evenly into the surface of the plug stock. If the cutter is canted one way or another, the leading edge gripped the surface of the wood, dragging the cutter in the direction of the drill's rotation. Eventually, through sheer stubbornness, I was able to cut the number of required plugs. In retrospect, I now understand the usefulness of a drill press, wherein the drill bit is affixed to a mechanism of guide rails that allow its travel to proceed at an angle that is perfectly perpendicular to the surface being drilled.

Glueing

Glueing is about the only process of wood working that is about as simple as it sounds. One needs only to apply a modest coating of glue to the mating surfaces involved and press them together. The only caveat is that one should be prepared with a damp rag to wipe up the excess that runs out when the surfaces are pressed together. Failing to do so results in a "glue stain" that requires a considerable amount of sanding to remedy.

Nailing

Nailing, or finish nailing more precisely, can easily be an exercise in frustration if one is not diligent in minding the impact between the face of the hammer's head and the nail head. More often than not, a hammer strike that is not flush with the surface of the nail head will result either in a bent nail, or altering the path of the nail such that it does not drive straight, perhaps angling upward through the surface of the adjoining piece of wood. Such an occurrence, or course, necessitates repairs be made to the violated wood surface.

Ideally, the final hammer strike brings the nail head flush with the surrounding surface into which it is being nailed. A nail set is then used for the purpose of concealing the nail.

The nail set tip is placed upon the head of the nail. The rear of the nail set is a striking surface upon which a hammer can be swung. The goal is to set the head of the nail just below the surface of the wood. After which, the resulting hole can be covered with wood filler. In my case, I used wood filler that is compatible with sanding and staining. Thus, for the most part, the filled hole assumes the appearance of the surrounding wood once sanding and staining has been completed.

Hardwood

I have learned through this project the true meaning of hardwood. When I initially sought to pre drill the holes for the wood screws, I was taken aback at the results. The first hole drilled produced wisps of smoke and a slight smell of burning wood. It also seemed to me that I had exert an awful lot of pressure on the drill to sink the bit into the wood.I thought I had perhaps inadvertently drilled through a knot in the wood. Turning the board over to inspect revealed a smooth, knot-free surface. Now I had become even more curious.

Drilling the second hole produced even more smoke, and the edge of the hole appeared to be slightly charred. Determined to get my drilling completed, I proceeded with the third and fourth holes. Removing the countersink bit from the fourth hole was even more surprising. The spiral groove of the bit was absolutely packed full of black, smoldering wood. Removing the burnt wood revealed the entire bit had changed color; it was now an iridescent, bluish, black color common to metals that are subjected to extreme heat for long periods of time, such as exhaust system components on an automobile engine.

At this point, I had begun giving serious consideration to the possibility that perhaps I was doing something wrong. In this particular set of holes, there were twelve more yet to be drilled. My knee-jerk reaction at this point was to stop drilling, lest my project go up in flames. Such a course of action, or inaction to be more precise, would bring the whole project to a screeching halt - not acceptable. Thus, I arrived at a compromise; I would simply let a few minutes pass in between drilling each new hole, thereby allowing the drill bit to cool. While this injected more time into the process overall, it solved the problem with the smoking wood. Still, I am a bit miffed that the book made no attempt at all to warn me of this circumstance arising.

Not only will this hardwood permanently char one's drill bits, it eats common wood screws for lunch! When I say common wood screws, I am referring to the #8 x 1¼" zinc-plated variety that can be found in the bulk screw bin at just about any hardware store. And by eats for lunch, I mean mercilessly snapping in half any screw foolish enough to burrow into the wood. The amusing part of this is that I didn't realize the screws were snapping until attempting to drive the third screw.

When driving the first screw, the screw suddenly began to turn very easily as the screw head just dipped below the surface of the wood. "Great!", I facetiously thought; the very first screw, and I managed to strip the hole. Trying to back the screw out of the hole proved fruitless. Not wanting to waste any more time, I moved on to the next screw.

Thinking perhaps the cordless drill was not allowing enough feel while driving the screw, I blamed the drill's power for the stripped hole. As such, I opted for driving the next screw by hand. What a surprise that was! I was absolutely astounded at how difficult it was driving that screw by hand. I actually had to take two rest breaks to recoup strength in my hand, wrist, and forearm. Eventually, the screw's head sank below the wood's surface, and again the sudden lack of resistance. And again, I was unable to back the screw out. Now I'd managed to strip two holes and was a bit perplexed as to how I was going to avoid stripping the third hole.

Given the difficulty of driving the second screw by hand, I returned to the drill for the third screw. This time, I focused on controlling the drill's speed, keeping it on the

slow side so as to avoid over-torquing the screw. And then, the screw head snapped right off its shaft, this time before the entire screw disappeared below the board's surface. Almost as if to mock me, the screw head dangled helplessly from the magnetized driver bit. Again, the light bulb reappeared.

It was at this moment I realized I had not in fact stripped the two previous holes. The screws' shafts had snapped inside the wood. As evidence, I was able to pull out half a screw with a pair of needle nose pliers from second hole. Further corroborating the snapped screw theory, a slight gap remained between the two boards in which the screw could be clearly be seen, embedded in both boards.

Now having a better understanding of the wood's hardness, I began searching in earnest (*and haste*) for a screw able to overcome Red Oak's resistance. Google, in all its might, served only to provide a litany of wild goose chases. Then I went to the Big Box stores, only to find their aproned employees are only slightly more knowledgeable about woodworking than a McDonald's drive-thru cashier. At this juncture, enter Ace Hardware.

As the saying goes, with age comes experience. So, when asked if I needed assistance by a clerk who obviously appeared less than half my age, I politely declined. I headed to the fastener aisle confident I would be able to find "better" wood screws. And...I was wrong. Okay, so I needed assistance, especially if I wanted to avoid leaving Ace Hardware screwless.

But, I didn't want help from that kid, either. I went looking for that old, crotchety guy. You know the guy I'm talking about; he's wiry and slightly wrinkled with leathery skin. You can tell he's spent most of his life tinkering in his garage and probably worked in the trades in his younger years. Despite being retired, he works part-time at the Ace to keep himself busy, but mostly because he drives his wife bonkers when he's home all the time. That's the guy I want, and I think every Ace Hardware has one - must be a rule of some sort.

I searched the whole store and, thank goodness, I found him. I explained my Red Oak dilemma to old, crotchety guy and he knew exactly how to solve my problem. He took me to a different section of fasteners, those meant for materials used in outdoor construction such as decks, fences, and railings. The solution was a self-tapping, serrated thread, ceramic-coated outdoor wood screw. If I were to use one word to describe this screw, it would be vicious. And, I'm quite pleased to report the Red Oak didn't stand a chance against my new weapon. Thanks, old, crotchety guy!

Here is the technical, nerdy stuff of wood being hard. Technically, the hardness of wood is a measure of its density. The metric of wood density is number of pounds per cubic foot. Thus the denser the wood, the heavier the wood - and more difficult with which to work. As a point of reference, Western White Pine, which is commonly used for construction lumber, weighs in at 27 pounds per cubic foot. Our stubborn, unyielding friend the American Red Oak tips the scales at 45 pounds per cubic foot. For me, meaning has finally been given to the phrase, 'strong as an oak.'

Clamping

As segues go, hardwood serves perfectly to introduce clamping. Red Oak's will does not bend to nail or screw, not even my new vicious screws. They easily pierced the wood, but they could not pull warped surfaces together. Along with hardness comes rigidity, and this is where

warps in the boards, however slight, come dramatically into play. Simply stated, clamping is a necessity, period.

All previous woodworking experience I have had thus far has been with soft pine woods constructing crude objects such as the shelves and workbench in my garage.

There is nothing even vaguely precise about these creations. They are rugged and strong, which suits their respective purposes. Being of soft pine, they also served to teach me that warps can be pulled out of adjoining boards simply by screwing them together, letting the screw force two flat mating surfaces against each other. That was the truth that I knew. Now I know that truth is not universal.

The table top and shelf are identical in construction. The surface boards are first laid side by side, face down on the work bench. They are then clamped to prevent the boards from shift while performing the next step. The next step is to affix battens

bat·ten[1]
/ˈbatn/

noun

1. a long, flat strip of squared wood or metal used to hold something in place or as a fastening against a wall.
   synonyms: bar, bolt, rail, shaft; More

to the underside of the surface boards. The battens are laid across the surface boards and then fastened to the surface boards with wood screws, one screw per surface board. In this manner, the battens secure the side by side arrangement of the surface boards into a singular piece.

Driving the first, second, and third screws into the first batten, as previously described, provided a rather rude introduction to the properties of American Red Oak. The first and second of these attempts aptly demonstrated the rigidity of the wood, and I only realized this retrospectively. The screws snapped after after descending into the countersunk screw hole in the batten, which means the screw had also driven into the adjoining surface board as well. And, the screw snapped, leaving a slight gap between the batten end and the surface board. Meaning, there was a slight warp in the batten. The screw's head pulled against batten as it drove into the surface board, yet it was unable to overcome the

resistance of the warp, snapping off as a result. Had this been pine, it would not have been a problem.

Problematic as they, warps are absolutely no match for clamps. Clamps master the wood. Flat surfaces are mated, obeying the will of the wood worker. Clamps, in their many shapes, sizes, and names have but one purpose, holding things in place. Pipe clamps, bar clamps, and cabinet-maker clamps are but a few of the available clamp types. Each clamp type is specific to the kind of work being done and the material that is being clamped.

Also common to the many varieties of clamps is their basic method of operation. Generally, a clamp will have two opposing faces that are drawn toward each other by mechanical means. The work pieces to be held together are placed in between the opposing faces. When the opposing clamp faces each meet the surface of the pieces to be held together, resistance is created. Continuing to draw the clamp faces toward each other overcomes this resistance as pressure is created between the two clamp faces. Imagine crushing a walnut in a vice (*also a type of clamp*); this is the type of pressure to which I am referring. The aforementioned cabinet-maker clamps are capable of generating 1,000 pounds of pressure, which proved very useful several times throughout the coffee table's creation.

The Jig (improvisation)

Jig. Such a small word, yet it's packed with so many meanings, each dependent upon context. It could be a fishing lure. It could be an actual dance. It could even be a metaphorical dance referring to a circumstance that has nothing at all to do with dancing. Or, it could be a tool used to hold or guide another tool. And, it could also be contraption devised to hold a piece of material in a particular location or position to facilitate working on said piece with yet another tool. All that said, I'm certainly glad I didn't have to learn English as a secondary language - what a pain in the rear!

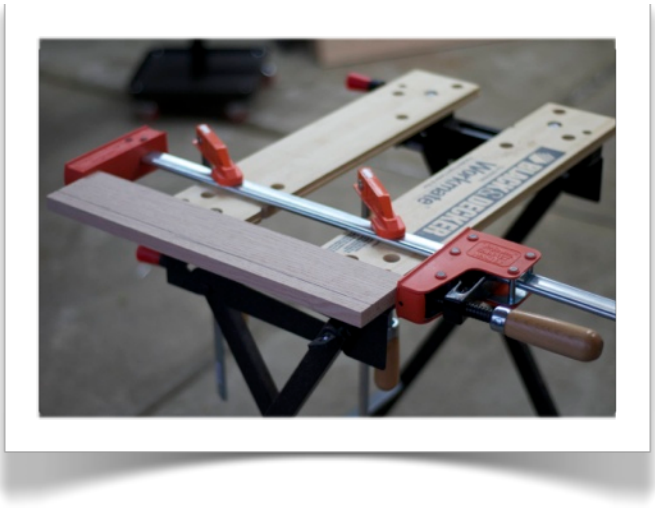
But, I digress. The jigs to which I'm referring specifically are the latter two of the aforementioned possibilities. In reading the plans for the coffee table, I first encountered reference to a pocket hole jig, which is a tool that can be purchased. This was my first experience with the term jig in woodworking parlance. I naively assumed that "jig" and "pocket hole" were inseparable; meaning, "jig" was specifically associated with "pocket hole", thereby precluding the existence of any other jig type. There was no actual logic in arriving at that conclusion, that's just how it occurred to me.

Reading further, the plans then referred to yet another type of jig. This time, it was just called a jig. In this instance, the jig consisted of a piece of wood attached with clamps to the piece of wood that was going to be ripped with a jigsaw. The jig served as a guide rail against which the jigsaw traveled, resulting in a straighter rip. Similarly, a very long, specialized type of clamp was also discussed as a jig. This particular type of clamp also serves as a guide rail for ripping, but for circular saws rather than jigsaws. Nonetheless, it was still a jig. And for fear of my head exploding, I don’t dare venture into the etymology of the word jigsaw. Enter here, confusion. My idea of jig had just been invalidated.

In the midst of construction, I needed to rip four of the leg sides. Due to their small size, utilizing the workbench to secure the leg sides for ripping proved unworkable. I was also beginning to understand the usefulness of a table

saw, which I do not own. The construction plans merely stated what needed to be done, with no hints whatsoever as to how it should be done. In the absence of instruction, I realized improvising was going to be required on my part.

While fiddling with my Workmate, one of the leg sides, and some small bar clamps, the light bulb turned on yet again. A jig, quite simply, is the physical manifestation of improvisation. It matters not if the jig is a prefabricated tool purchased in a store, or if it's uncomplicated as clamping one piece of wood to another. The improvisation serves as an aid, or facilitator, to the task immediately at hand. It's funny to me that it took so long to figure that out as I've been improvising throughout this entire project to accommodate for circumstances not addressed in the project plans, not to mention the ambiguity in some of the plan's instructions. My improvisation turned out to be a simple jig, merely clamping the leg sides to the Workmate in such a fashion that the edge to be ripped was overhanging the edge of the Workmate, thus allowing the reciprocating jigsaw blade to rip through wood without coming into contact with the Workmate. And with that, the jig is up.



Reflection

I noticed myself using my learning style when I prepared for the project, preparation being crucial to the execution of every step. In the absence of any prior knowledge regarding furniture making, I relied not just heavily, but solely upon the beginner's furniture making book I had chosen as my source of instruction. I assumed this book would contain sufficient information and detailed instructions that would cover the entire process from start to finish. Building the coffee table should have been nothing more than merely executing the instructions as described.

Ultimately, a number of situations arose that simply were not addressed by the book. As an assimilator, this was a tremendous let down. It was somewhat akin to going on a safari in a foreign land, only to wake up one morning finding that your safari guide has vanished in the middle of the night, abandoning you to survive by your own wits and device. At this point, survival depends heavily upon ones willingness and ability to venture outside of their comfort zone. Otherwise, failure awaits, and the safari ends in its tracks.

In dealing with these unforeseen situations, my venture was into the learning style of the accommodator; I had to adapt to the situation at hand and take risks (*of which I am averse*) to complete the coffee table. One such situation was the making and use of wood plugs to cover the screw holes in the table legs. Not only was there no instruction on how to make the plugs, the plugs I fabricated were ill-fitting and far too long for the countersunk screw holes.

Fortunately, the wood glue swelled the fibers of the wood plug and the surrounding wall of the countersunk screw hole that the fit was acceptable after the glue had dried. While the fit worked out for me, the length of the plugs was such that each plug extended well beyond the surrounding surface of the leg side. I cut the plug as flush as possible to the surrounding surface using a multi-tool with a wood blade. I then sanded the top of the plug until it was even with the surrounding surface of the leg side.

While this approach worked, it had an unexpected side effect. The surface of the plug had not received the same amount of sanding as the leg side. Thus, the manner in which it accepted the various stains was different than the rest of the leg side. The end result is that the plugs are quite visibly obvious. My takeaway from this experience is that finish sanding for a piece is best left until all the holes have been plugged.

I'm least comfortable learning when I must take action in the absence of knowledge. Doing so greatly increases the likelihood for failure, which is not an acceptable option. Ironically, taking no action achieves no result, which arguably is no better than achieving the wrong result. Thus, inaction is in its own right tantamount to failure, if for no other reason that the opportunity for learning is denied.
Knowing this, I realize that becoming a more balanced learner will require actively practicing the skills of an accommodator, which is the polar opposite of an assimilator; that will create an initial balance. To complete my learning profile, expanding my learning capabilities by including the skills converging and diverging learners will also be necessary.

Learning Methods

Method	Reading
Learned From This Method	From reading, I learned of the theory behind the practice of woodworking as it relates to furniture making. I also learned about the techniques employed and the tools necessary to make use of those techniques.
Comfort With This Method	I am very comfortable with this method of learning. I use it nearly every day at work.
Not Learned From This Method	I could not learn from this method the actual use of the tools required by the techniques. Practicing use of the tools with pieces of scrap wood helped with this shortcoming.

Method	Viewing Pictures
Learned From This Method	I was able to understand how the finished results were supposed to appear.
Comfort With This Method	I was relatively comfortable with this method in that I visually understood the goal I was trying to achieve.
Not Learned From This Method	As there were no detailed instructions on the application of finishes, I had to improvise. I only learned which finish was to be applied in what order (*from reading*). I had no the specifics of physically applying the finish to the wood.

Method	Interview
Learned From This Method	I learned of a suitable alternative to the common wood screw.
Comfort With This Method	I was only moderately comfortable with this method of learning as I had no way of vetting the experience of the interviewee.
Not Learned From This Method	I did not learn if there was a different method in which to use the new screws. For instance, was pre-drilling the hole necessary, and if so, was there a difference in the diameter requirement for the screw hole?

Method	Active Experimentation
Learned From This Method	How to flush cut wood plugs and create a jig for ripping small pieces of wood.
Comfort With This Method	I was least comfortable with this method as it lacked guidance and examples.
Not Learned From This Method	I did not learn the best practice method for flush cutting or securing small pieces of wood to be ripped with a jigsaw.

Considerations

If I were to do this project over again, I would allow more time for practicing use of the tools, perhaps even practicing their use ahead of time on pieces of scrap wood. Reason being, employing the tools in a fashion that produced predictable and repeatable results was often times not the case. Frequently, this circumstance created additional work that would have otherwise been unnecessary. In retrospect, I think I was trying to learn too many things in concurrence. I acquired and used a number of tools with which I had no previous experience. Moreover, I was using them in an endeavor with which I also had no experience.

I entered into this project with a very loose assumption that tools were tools and their operation was simplistic according to their shape, construction, and intended function. For instance, a wrench turns nuts or bolts. A screwdriver drives screws. There's not a lot of skill involved in these examples. The tool is metal. The object being manipulated is metal. If one is possessed of basic motor skills, it is likely the tool can be successfully employed, accomplishing the task at hand.

Working with wood, being relatively very soft compared to metal, is almost completely dependent upon the worker's skill with a given tool. An unskilled wood worker armed with hard, metal tools creates opportunity for unintended results that is practically without limits. The only remedy for this condition is that the wood worker be skilled and proficient in the use of his tools, skill and proficiency being afforded only by practice.

Looking beyond the realm of making furniture, identifying the areas of knowledge or skill in which I am deficient with respect to a particular task is my takeaway from this exercise. If I know what I don't know, I believe I can be a much more effective learner. The key here, I think, is to analyze tasks not only in terms of the desired outcome, but what are the requirements which make the desired outcome a possibility.

As a learner, I have gained important insights into my learning style. Foremost, I have come to realize that I make a great many assumptions, some consciously and others not, about the subject of study. A conscious assumption results when my (*often times cursory*) assessment of a thing concludes my knowledge of that thing is either complete or sufficient for the purpose at hand. Doing so narrows my vision and actively dismisses the possibility of existence for unknown attributes or aspects of the thing in question. Academically, the active dismissal is nothing short of arrogance. Almost without fail, these active assumptions turn out to be incorrect, inevitably leading to frustration that need not to have occurred.

Unconscious assumption results of not giving a thing its full consideration. Not necessarily being dismissive, it's more so a lack of careful analysis. Call it malaise, call it laziness or sloppiness, call it what you will, what it renders is singular, the missed attribute(s). One cannot observe what one cannot see, and the missed attribute(s) thereby becomes to one's learning a missed opportunity.

Ultimately, the only safe assumption is to assume one has no knowledge about a given topic. If in the course of study one discovers that one does possess knowledge regarding an aspect of the topic, acknowledge that fact and continue on. However, continuing on in this circumstance does not mean moving on to the next topic. Instead, let the existence of prior knowledge serve as a reminder to give the topic its due attention, examining it thoroughly through the eyes of an open mind.

Another key insight is the degree to which my learning favors the assimilator's style; it is extreme. To say I am slave to the manual, book, guide, or any such set of instructions would by no means construe exaggeration. While facilitating a thoroughness, perhaps even a correctness, in my approach to new situations or concepts, it serves also to my detriment.

The book feeds the assimilator, yet at the same time nourishes in the assimilator a growing lack of self reliance. The answer is always in the literature so says the assimilator's mantra. But, when the book is missing

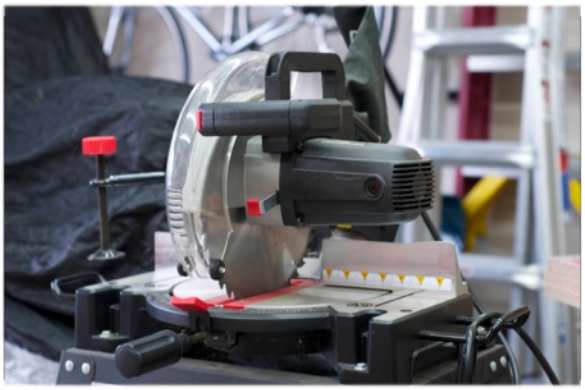
information, is misleading, or worse yet, just plain wrong, the letdown experienced by the assimilator is monumental.

As an assimilator, risk taking is certainly not in my wheel house. However, risk taking is precisely what is required when the book proves wrong. Remaining squarely corralled in the assimilator's quadrant serves only to hinder progress. While outwardly this could be perceived as procrastination, it is more accurately described as an inability to take any action. This realization has demonstrated to me that I cannot rely exclusively upon the book, but must seek to actively engage in the activities typical of the neighboring learning styles. In so doing, I can become a learner more amenable to the many opportunities for learning that aren't neatly contained in the pages between an introduction and an index.

When I design my advanced project, I'll be sure to avoid the pitfalls of assumptions. Given the technical nature of of my advanced project, assumptions could easily lead to hours, if not days, of irrelevant research. I will avoid assumptions by two mechanisms; first by the safe assumption, that is, I will assume no knowledge. The second mechanism will be employed when I encounter a subject in which I have prior knowledge; I will challenge myself to learn something I don't know about that subject.

I will also prioritize identifying the required software early in project, or perhaps even before the project. Through active experimentation, I will gain at least basic familiarity with the software before diving headlong into the project. Moreover, I won't read their instructions, at least initially. I'll simply install them and start using them, seeing what I can learn about their operation before consulting their attendant manuals. Learning the tools, and the trade, was a bit taxing during the coffee table undertaking.

A Table is Born...



Miter Saw

Bench Plane

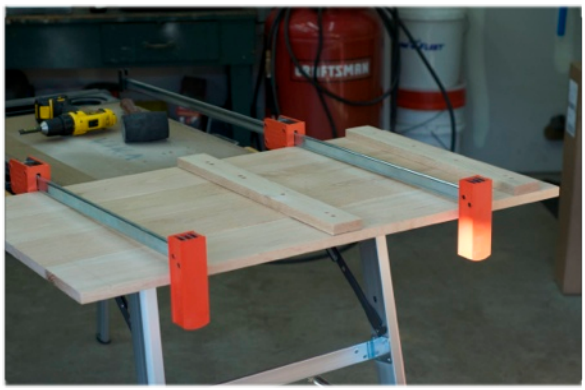
Drills, Jigsaw, Circular Saw and others...

Templates...not always a good idea

Miter Saw in action

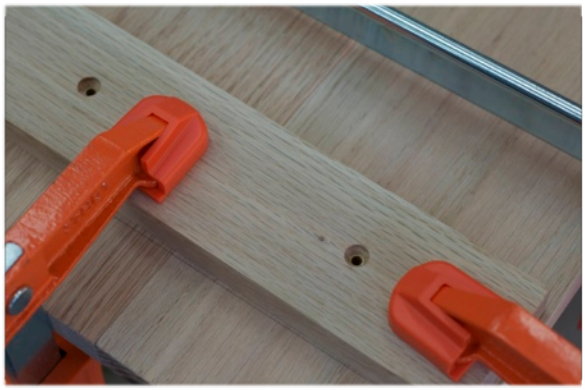
Shelf boards held with bar clamps

The first batten...breaker of screws

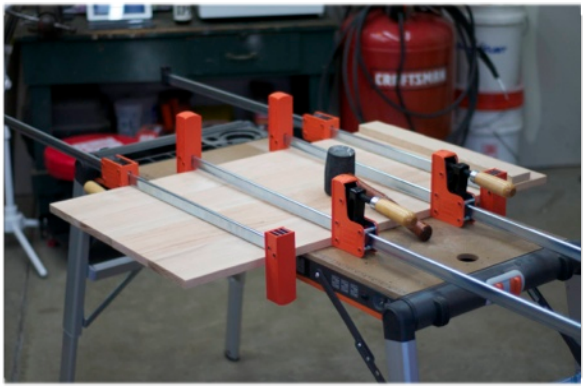


Shelf boards held with cabinet maker clamps

Batten held with bar clamps

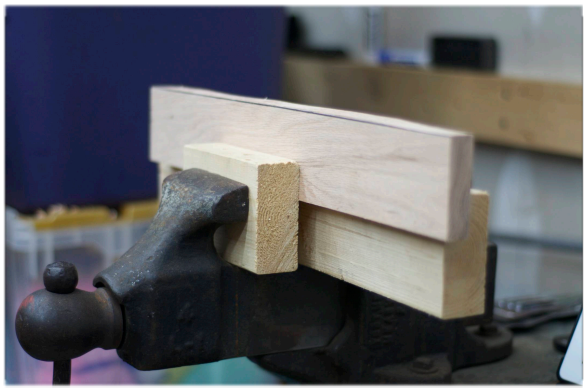


Batten held with bar clamps



Top boards & cabinet maker clamps

Batten held with bar clamps



Jig for planing table leg sides

Pre-fitting table leg sides

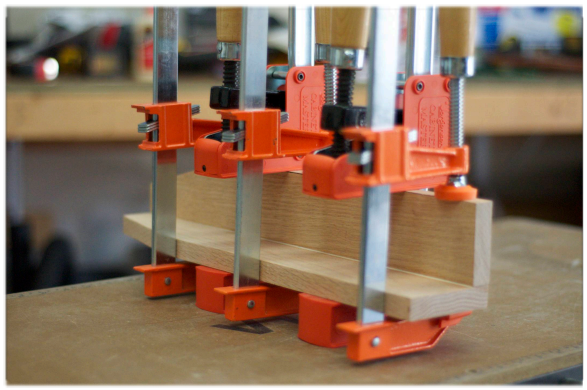


Table leg sides glued & clamped

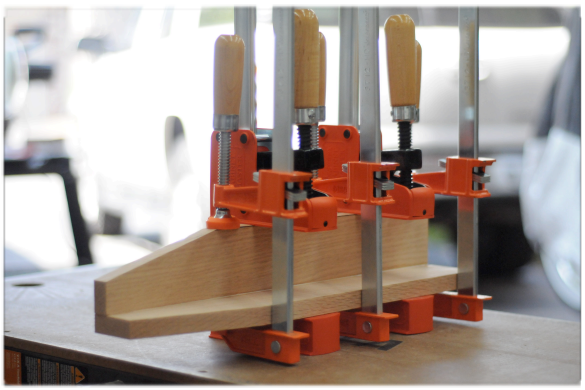
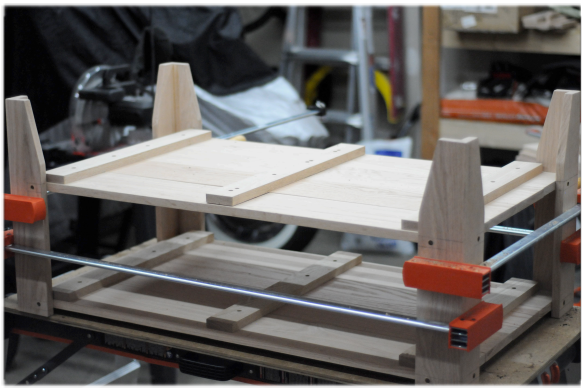
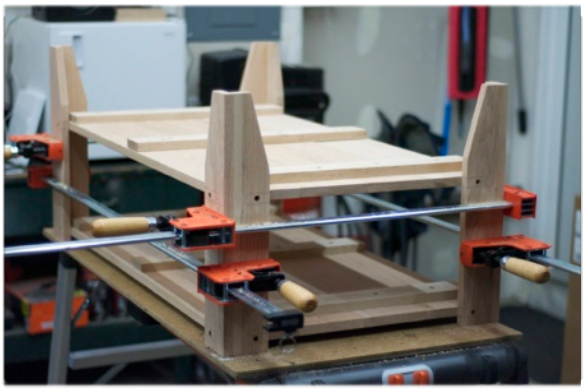


Table leg sides glued & clamped

Table Legs



Clamped for assembly



Clamped for assembly

Screw and nail holes filled

Finished!