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Lecturer:	Ms Jennifer Byrne
Year:	1
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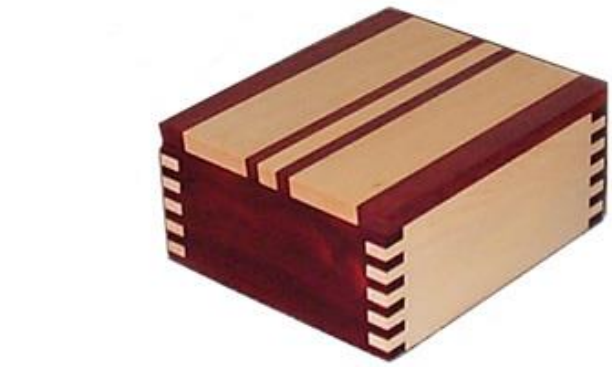
I declare that the work contained in this submission is my own work and has not been taken from the work of others save to the extent that such work has been cited within the text of this submission.

Signed:_____ Date:_____

Construction of a Trinket box



Commercially available Equivalent Trinket Box retailing at US$79.
Image courtesy of (The Krowe's Nest, 2014)

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Introduction

The given Assignment was a box construction with a hinged lid which has an individually designed marquetry panel as per details of dimension and design (see Appendix 1 and Cutting list of materials Appendix 2) and an accompanying 'Detailed diary of events & Reflection' which makes up the body of this report.

Sequence of Events

After having looked at the examples of previous Trinket Box designs with the class group a consensus emerged to alter the design of the Trinket box required for this project. Rather than having the dovetailed corners of the box being completely hidden by lapped joints, that the rear dovetail joints would be through joints to reveal the dovetails to the observer. Further that the box would be made shallower and using a mixture of American Walnut and Maple and be raised on moulded feet. The task was also set to come up with an individually design for the veneered panel of the lid, prior to the issuing of the project brief.

Having received the Assignment brief and accompanying drawing details of the box, the material needed was selected, both to rule out pieces with natural and machining flaws which would cause construction difficulties, an example would have been loose knots where dovetails would be required, while others noted were surface tear out, chipped and non-uniform dimensions. At the same time as pieces with the least flaws were being identified, a further selection criterion of this remaining stock was implemented, where selection was made for the natural grain definition with the intent of adding to the aesthetic look of the finished piece.
Having selected all the necessary material the next task undertaken was to identify all of the joint types needed and to list out a sequence of events plan and estimate of the time needed to complete each of these tasks. While at the same time identifying the machines which could be used in the manufacturing process, learning about their function and use and their proper utilisation and good Health and Safety practices.

The sequence of events identified and associated estimated and actual times are as follows:-

Event No.	**Marquetry Panel Design Sequence of Events**	**Timing (mins)**	
		Estimate	Actual
1	Look at different design possibilities, think and talk it through identifying any potential problems with tutor and peers. Make initial selection of necessary material and discuss different methods of cutting out veneers.	30	40
2	Draw template of final design for panel on AutoCad	20	30
3	Layer and sellotape all Veneers together and paste paper template to outer veneer	10	15
4	Induction and setting up Scroll saw and use of	10	20
5	Drilling starter hole scroll blade through veneer sandwich	5	12
6	Cutting out 6 jigsaw pieces from sandwich	36	74
7	Arranging different veneers into final design pattern and taping together for both sides of panel	20	25
8	Ensure press was ready with balancing panels and heated	10	23
9	Spreading even coat of PVA glue onto veneer patterns, cleaning off excess glue and covering with paper	10	15
10	Leaving panel cure in heated panel press for period	10	10
11	Removing paper and sellotape from veneered panel while hot	15	25
12	Trimming excess veneers from edges of panel	10	13
13	Sanding finished panel through grades of 180 and 240 grit by hand with cork block	15	20
	Total Times (mins)	201	322
	Total Times (hours)	3h 21m	5h 22m

Event No.	**Box Base - Construction Sequence of Events**	**Timing (mins)**	
		Estimate	Actual
14	Review design of base, think and talk it through identifying any potential problems with tutor and peers. Make initial selection of necessary material.	15	20
15	Marking front, back and sides of box.	5	5
16	Setting marking gauge and marking 4mm laps	5	7
17	Set up sliding bevel at 1:8 and marking through dovetails sockets and lapped dovetail sockets per design	10	30
18	Cutting sides of through dovetails sockets with Japanese saw	10	15
19	Cutting out waste material from centre of sockets with coping saw	10	15
20	Paring back to gauge lines on sockets	90	200
21	Cutting sides of double lapped sockets with Japanese saw	15	23
22	Chiselling out sockets of double lapped joints	60	84
23	Using through sockets to mark through dovetails	10	15
24	Cutting waste material away to form dovetails with Japanese saw	20	25
25	Chiselling dovetails back to gauge and test fitting for necessary adjustments	140	270
26	Dry fitting all sides of box and checking for squareness and fit	10	15
27	Having dovetails assessed and marked by tutor	5	5
28	Marking bottom of box pieces for grooving and grooving on spindle moulder	5	7
29	Selecting a suitable veneered panel for bottom of box and gluing a balancing veneer on to back	20	25
30	Sanding finished separate box pieces, front, back & sides through grades of 180 & 240 grit with electric sander, while following good Health & Safety practice by using extraction for dust generated.	20	30

No.	**Box Base - Construction Sequence of Events**	Estimate	Actual
31	Preparing clamps and packing blocks for gluing box	10	10
32	Dry clamping box prior to gluing up	15	15
33	Gluing up all joints, fitting base and checking for square and no twist. Cleaning off excess glue with damp cloth.	10	15
	Total Times (mins)	485	831
	Total Times (hours)	8h 5m	13h 51m

Event	**Box Lid - Construction Sequence of Events**	**Timing (mins)**	
No.		Estimate	Actual
34	Review design of lid, think and talk it through identifying any potential problems with tutor and peers. Make initial selection of necessary material.	10	15
35	Marking out rails and stiles of box with position of mortises, grooves, tenons, shoulders and haunches.	10	10
36	Using mortising machine to cut out stopped mortises and haunches on lid stiles	10	15
37	Using spindle machine to cut groove for marquetry panel	10	10
38	Using tenoning machine to cut tenons on lid rails	10	25
39	Cutting tenons with haunches and checking fit into mortises	10	15
40	Sanding finished separate lid pieces, rails & stiles through grades of 180 & 240 grit with electric sander, while following good Health & Safety practice by using extraction for dust generated.	10	10
41	Fitting panel and dry assembly of lid	10	10
42	Preparing clamps and packing blocks for gluing up lid &	10	10

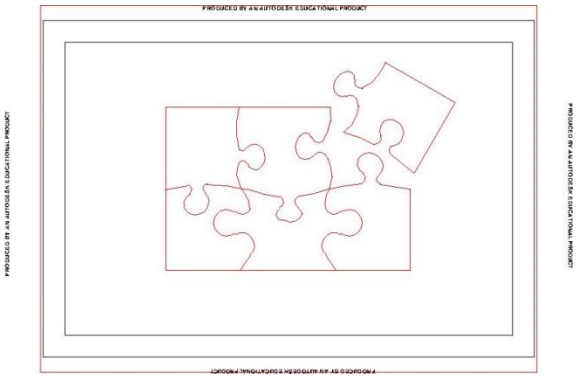
	panel		
43	Gluing up all joints, fitting panel and checking for square and no twist. Cleaning off excess glue with damp cloth.	10	11
44	Getting joggles removed by tutor on table saw	5	5
45	Dressing cut edges	5	12
46	Choose outside and hinge side of lid. Check with peers on choice.	5	15
47	Mark 3 side of lid for 4x4mm rebate on three sides. And use spindle moulder to remove same.	10	12
	Total Times (mins)	125	175
	Total Times (hours)	2h 5m	2h 55m

Event	**Fitting Hinges - Construction Sequence of Events**	**Timing (mins)**	
No.		Estimate	Actual
48	Review design of lid and box to see where hinges need to be fitted and talk it through identifying any potential problems with tutor and peers.	10	15
49	Mark position of hinges on box and set marking gauge to centre of hinge pin and scribe of on box edge top surface with gauge. Set marking gauge to centre of pin for thickness of hinge and mark off on outside edge of box at hinge position.	10	20
50	Chisel out material to allow hinges fit to box. Use bradawl to create pilot holes for fixing hinges and fix with two screws.	30	45
51	Square lid to box frame and mark positions of hinges to lid. Use marking gauge to scribe position on lid, followed by depth in on inside of lid.	10	10

52	Chisel out material to allow hinges fit to lid. Use bradawl to create pilot holes for fixing hinges and fix with two screws.	30	55
53	Fit hinges to both lid and box and check for square fit and ease of opening and adjust as necessary	10	10
	Total Times (mins)	100	155
	Total Times (hours)	1h 40m	2h 35m

Event	**Fitting feet - Construction Sequence of Events**	**Timing (mins)**	
No.		Estimate	Actual
54	Review design of feet of box and check to see size and orientation of cuts and talk it through identifying any potential problems with tutor and peers.	10	15
55	Obtain necessary moulded material for feet and mark position of cuts on feet and cut to necessary dimensions and 45 degrees on guillotine.	40	60
56	Glue and clamp feet together	10	25
57	Check base box for twist on cast bed of band saw and use sanding board to eliminate any	15	25
58	Pin and glue feet to underside of trinket box	10	15
	Total Times (mins)	85	140
	Total Times (hours)	1h 25m	2h 20m
	Overall Total times	14 h 56m	27h 97m

Pictorial sequence of events

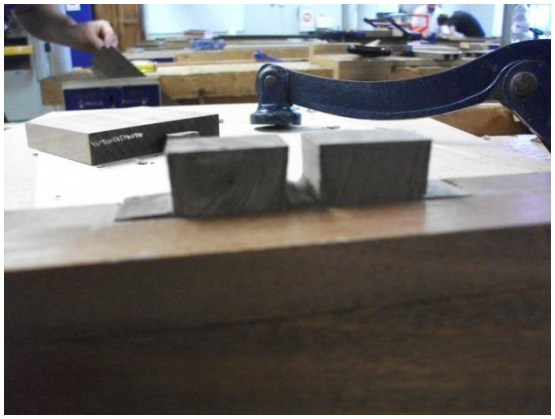


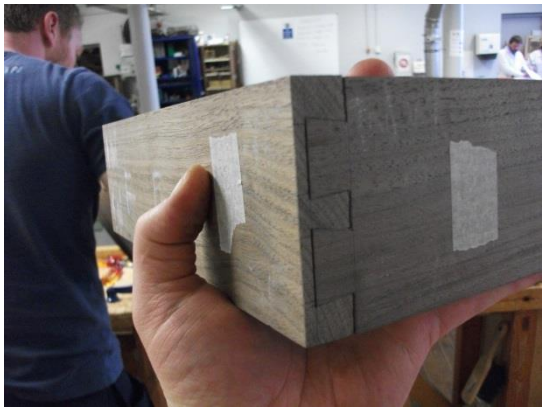
Event no. 2 – AutoCad Template

Event no. 8 - Heating up Hydraulic Press

Event no. 17 – Setting Sliding bevel @1:8

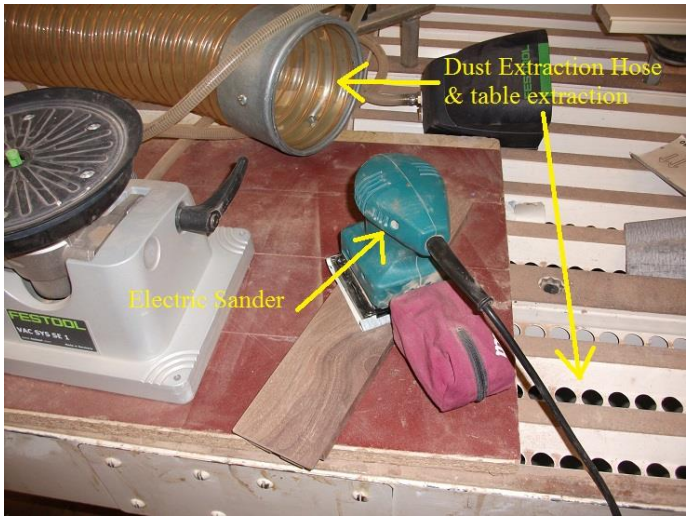
Event no. 22 – Using gauge to cut out lapped sockets





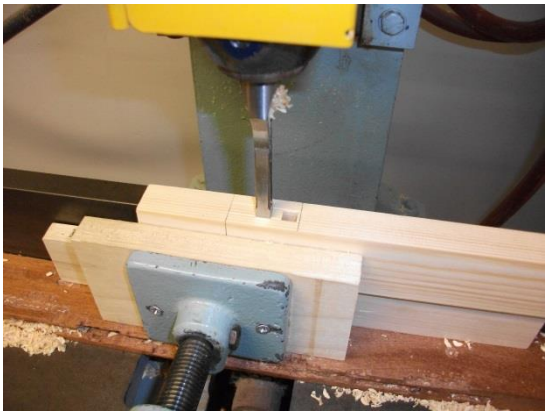
Event no. 25 – Using vice and straight edge to pare to gauge lines and test fitting

Event no. 29 – Balancing Veneer clamped in place while glue sets



Event no. 30 – Using electric sander for finish

Event no. 33 – Gluing & checking squareness of box



Event no. 36 – Using Mortiser to cut stopped mortise Event no. 37 – Using spindle

Event no. 47 – Rebate cut on 3 sides

Event no. 55 – Using Guillotine to cut feet Event no. 56 – feet glued together

When each of the machines were used to complete necessary tasks and operations, proper Health and Safety procedures were followed, where guards, push sticks/blocks, finger boards, dust & chip extraction and personal protective equipment was utilised to reduce and minimise the associated risks with the use of the machines.

Reflections and Conclusion

This assignment brought together many challenges from the start, with the first being to design a pattern for the lid panel which gave a balance between complexity of design and something which was still relatedly achievable with the skills and tools available. The scroll saw was a useful tool in this process, but was frustrating as well from the ease at which the finer blades broke. A balance had to be learned between

the amount of time pressure could be applied on the blade by cutting the veneers and allowing the blade to cool. It was also found that a high degree of hand eye coordination and concentration was also necessary, in order to be able to move cleanly and easily between the mix of curves and straights that the design pattern demanded. However it was very satisfying to develop the skills and knowledge of using this machine and to see the overall finish which helped mask some of the flaws.

There were also the challenges that the double lap dovetail joint posed and the learning outcomes that came along with them. It was found that an improvement in skills and finish was achieved with each successive socket and a learning outcome of not paring down along the grain fully before all the chopping and paring across the grain was complete. There were also marked differences found between the ways the different material behaved while being cut, chopped and pared with the hand tools. For instance with fixing the hinges to the base and lid, the Walnut of the box was easier to cut than the Maple of the lid, but it also had a tendency to tear along the grain where the Maple didn't as readily. It was also found that it was better to deal with mistakes as they happened, where chips broke away during the making process, these were glued back in place as they happened rather than being potential lost.

The initial desire of having a through lapped dovetail joint to show the dovetail rather than it being hidden behind a double lap was somewhat undermined by the difficulty in achieving a consistent and tight finish across all the joints, but this in itself achieved a learning outcome which included that skills will improve with time and that techniques to disguise mistakes well from the human eye are necessary and achievable.

As had been found in a previous assignment there is a large disparity between the estimated time to complete a sequence of events and the actual time taken which had individual margins of error ranging from 50 to 100% at times. But as with the improvements in skill and time which were seen progressing through the joints, the large variance in time should be reduced. The importance of this in terms of making a reasonable standard of living out of the skills being learned, was reinforced by the research into equivalent retailed pieces. Where the price of similar Trinket Box shown on the cover page would not make the time and resources used in this project cost viable in the short term.

Works Cited

The Krowe's Nest. (2014). *The Krowe's Nest*. Retrieved March 14, 2014, from Kenswoodgifts: http://www.kenswoodgifts.com/

Appendix

Appendix 1 – Dimension details of Trinket Box.

Appendix 2 – Cutting List of Materials.