2nd Action Plan - Term 4 2000, Week 5

1. Complete any testing that can be done before the purchase of the materials and beginning of the construction.
2. Research your areas of investigation.
3. Look into features of existing designs and write down Criteria to Evaluate success.
4. Price different Materials. Find estimated cost. Work out budget for project.

EVALUATION

Since my last evaluation I have completed some more research into the specific types of lamps that I will be making and the features of existing designs. I have decided on making a Reading Lamp, Mood Lamp, and Energy Saving Lamp. After choosing these three types I was able to research into the costs, materials, and techniques involved in making these three lamps. Using the design features of many existing designs I was able to come up with some lamps that were unique and creative.

12th Action Plan –Term 3 2001, Week 1

1. Purchase fittings.
2. Purchase rice paper for shade.
3. Glue frame together.
4. Apply finish.

EVALUATION

I purchased the fittings for the lamp. These fittings were the most expensive out of the three as they include a transformer that converts the 240V into 12V system for the light globes. The rice paper I ordered from Creamers Office Supplies. This evolved into a long wait, which I ended up ending by going to another store in Wodonga to purchase the rice paper. This move proved to be better as the rice paper that I used was thicker and glued better then the previous rice paper that I had tested. The finish made the wood come out rather dark, which related well with the colour of the rice paper.

The Projects Impact on Society and the Environment:

The project as a whole will affect both society and the environment but in totally different ways.
The lamps could affect any *person* who enters my home. That person may be a family member or a visitor, whoever they are they could be affected by the lamp in two ways. Firstly the person or persons could just see the lamps and be affected by the design or the effect that each of the lamps produces. Secondly the person or persons could actually use the lamp for what it was made for whether it be using it to read by, or relaxing in the mood light that the lamp produces. Either way the lamp will have an affect on society.

The *environment* is also affected by the project. When people see the lamps and what the features of each are, they might consider using those features in their own home. For example if someone loved the idea of how the Energy Saving Lamp only uses 9 watts to produce 40 watts, they might be inspired to go and buy an energy saving globe for their lamps/lights at their home. If this spreads just by word of mouth and a whole lot of people start using energy efficient globes then the energy needed to supply lights for peoples houses will be cut, ultimately cutting back on pollution which is produced to produce the energy, which harms the environment.

This environmental factor does not really come into play when it is just one lamp using an energy saving globe, but by the affect that the lamp has on society determines the effect that the lamp could have on the environment.

FINANCE PLANS

1st Finance Plan – November 2000

The costs for a project of this size are unpredictable. Prices can vary over time and unexpected costs arise as the project moves on. It is hard to estimate a total cost of the project, however at the present time I am setting myself a budget of $350.00, this budget doesn't necessarily determine how much I will spend or how much it will cost.

- **Research into costs to come:**

Wood - $60.00

Metal - $50.00

Lamp Shades:

- Glass - $10.00 to $200.00
- Fabric - $7.00 to $100.00
- Other - $10.00 to $100.00

Switches and Fittings - $40.00

Globes - Range from $0.60 to $20.00

Other - $100.00

EVALUATION

The costs that I have researched so far are just an estimate for what I am up for. The 'other' section refers to costs that I have not researched or have not thought of yet.

4th Finance Plan – August 2001

- Costs so far:

  Wood - $60.00

  Metal - $10.00

  Ball Bearings - $23.50

  Lamp Shades:

  - Glass - $30.00
  - Fabric - $80.00

  Fabric and Paper - $12.00

  Rice Paper - $17.00

  Switches and Fittings - $120.00

  Globes - $53.35

  Spray Painting - $95.00

  Electrics - $25.00

TOTAL COSTS = $525.85

EVALUATION

I have now finished the production of the 3 lamps. The total cost comes to $525.85. This price is over $150 more then what I first had planned but for the amount of things that I bought and the quality of the finished product this is not an expensive price as I could sell the lamps for far more than what I paid for them as I have already found out.

IDEA GENERATION

When making a project such as Lamps there are many design factors that you have to consider. Factors such as safety, aesthetics, functionality, and durability all affect the designs and the development of them.

- **Safety**

- Safety is one of the most important factors to consider when making a lamp.
- One has to ensure that the lamp is safe in the; *materials chosen*, that is that the materials are not flammable or likely to catch alight.
- The *wiring* of the lamp is another critical part of the safety of the lamp, if the wiring is not correct the lamp could short out and create a live lamp or it could cause a spark which could cause the lamp to catch alight, this can cause damage to the owners property.
- The *globes* that you chose when making the lamp are also critical in the safety of the lamp. If the globes produce too much heat then the lamp could catch alight and this can cause damage to the owner's property or to people in the area of the lamp.
- The last thing that you as a designer have to consider is how close the; globes and wires get to the stand, base, and shade.

- **Aesthetics**

- When making a lamp one of the things you want is to have an attractive design. This is known as how 'aesthetically appealing' the lamp is.
- If you refer back to the identification of needs you will see that a need was to have an attractive lamp, both when turned on as well as off.
- This factor sways you to design something that catches people's attention, before you turn it on, making the stand, base, and shade all-important in the designing stage.
- Features that are eye-catching are things like *twists* and *spirals*. These are unique and if they are made correctly, they are very aesthetically appealing.
- Another feature is the use of *unique materials*. If you use unique materials in the shade that produce an eye-catching effect then the lamp is also aesthetically appealing.
- Also the *simplicity of a design* can create an eye-catching effect. If the design is not one that is seen in Lighting Shops then people can be attracted to it.

- **Functionality**
- The lamp has to be functional.
- The purpose of the lamp may be to, provide light to read by; light for mood or a lamp that provides light but saves energy. Whatever the need for the lamp may be, the finished product has to functional and the *design has to be realistic* to allow the finished product to be functional.
- So when designing ideas one has to think to them selves is this realistic otherwise the idea is not going to be functional as it will be impossible to make or unable produce light.

- **Use and Conservation of Energy**
- This is a relevant factor when making lamps.
- If you can make a lamp that satisfies the given needs but also saves and conserves energy in the process then the lamp is even more of a success.
- The *globes*, *switches* and *materials* you use determine whether the lamp will conserve energy. If you use *energy efficient globes* and *recycle-able materials* then you are conserving energy and natural resources as well as preventing extra pollution.

INDUSTRIAL PRACTICES RELATED TO DESIGN PROJECT

Wood and Spiral Turning:

In Industry, automatic lathes perform turning. This makes the job a lot quicker and easier for the maker. It also cuts down on the margin of error because every piece is made identical. These machines are usually only used in industry, as they cost a lot of money to buy. On average they are about $100 000 to purchase.

There are many different types of automatic lathes including Back Knife, Rotary Head, V-Groove, and Saw Cutter. The business that I visited K & C Woodturning possessed the Saw Cutter type and a smaller Rotary Head Lathe.

The machines do the majority of the work themselves. With the Saw Cutter the operator is required to make a jig of the design for semi automatic lathes or for fully automatic lathes just draw the design in CAD and load the design into the lathe computer.

Bending Wood:

In Industry, to bend wood there is two ways. They either bend it as one piece (steam bending) or multiple pieces joined together (laminating).

To bend wood as one piece they make a steam chest, a strap and a jig or former. The steamed wood is bent around the former, which sets the shape and supports the inner fibres. The strap is a device that is made out of wood and flexible metal. It is used as a backing to prevent the wood from being damaged by the clamps. The steam chest is a hollow piece of metal or plastic piping. It has end caps on it with one end having a hole to let the heat in from either a small electric boiler or a 20 to 25litre drum fitted with removable cap. They heat the wood up inside this chest. As a rough guide they leave the wood to steam for one hour for every inch of thickness. The steam softens the wood fibres sufficiently to allow them to bend and compress as the wood is bent around the former and clamped with the strap.

To bend wood using multiple pieces glued together they create a jig in the shape of the desired design and clamp the glued pieces of wood together in the jig. This is then left for anything up to a day to dry. When the clamps are removed there is one curved piece of wood left. This is the same process as what was carried out on the Mood Lamp. However in industry they laminate on a much larger scale.

RESOURCES

People and Businesses:

- **Gavin Fletcher** – is my Design and Technology teacher. He was extremely helpful in the production of my Lamps. He often taught me techniques, gave advice, and assistance in the production of my project right from the outset of it.

- **Teachers of Albury High School** – were terrific in the assistance they gave me in the production of my major project. They often offered advice on how to improve things and overcome problems that occurred.

- **Lighting Bonanza –** were especially helpful. The staff members there were great, especially with their knowledge of lamps. They offered advice on globes, shades, fittings and anything else to do with lamps.

- **Greg Sargeant** – is the manager of Ebden Motor Body Repairs. He was extremely helpful in getting the spray painting of the energy saving lamp completed. He has been involved in Year 12 projects before and offered advice on different types of joining methods and techniques.

- **K&C Woodturning** – were helpful in assisting with the production of the Reading Lamp. The staff there offered suggestions on how to improve the spiral and the technique to use when doing so. They offered me knowledge on how the process of wood turning and spiral turning would be performed in industry.

Other Resources:

- **Books** – were helpful in assisting the design process, construction processes and techniques to be used. They also aided in showing the aspects of lots of different types of wood.

- **Internet** – was a useful resource as you could access lots of information quickly and easily. There were a few different sites that especially aided in the production of my Lamps. These sites contained lamp designs and techniques on how to carry out construction processes.

- **Magazines –** such as Fine Woodworking provided an excellent basis for knowledge about construction processes and techniques as well as designs.

- **Wood Show** – was an excellent place to visit especially at the beginning of our major project. There you can see a wide selection of the latest tools and techniques, as well as projects that provide a fresh intake of ideas. The demonstrations that give you knowledge of different tools, processes and techniques. It is also a great place to purchase timber as there is a wide range and it is very cheap.

- **Shops** – Around Albury there are quite a few good shops that contain lamps. These shops include Freedom Furniture, Harvey Norman, Billy Guyatts, Vicwardian Effects, Blooms and many more. These shops give you the basic ideas of what lamps are on the market and the new unique designs. Other shops such as Spotlight and the Paper Studio were helpful in supplying materials for shades such as rice paper.

School Workshop Resources:

- **Lathe** – this was a resource that I relied on for the production of the Reading Lamp, as it was a turned project. I also used the lathe for the spiral turning.

- **Band Saw** – this was used for the majority of the cutting during the Reading Lamp and Mood Lamp.

- **Circular Saw** – this was used for the cutting of the strips that were used for laminating in the production of the Mood Lamp.

- **Router** – the router was used in the production of the jigs that were used to laminate the strips of wood in the production of the Mood Lamp.

- **Cut Off Saw** – both the metal and wood cut off saws were used during the production of the lamps. They were used to cut metal and timber to correct widths, lengths and angles.

- **Oxy – LPG set** – this was used with brass rods to join the majority of the Energy Saving Lamp together.

- **Bench and Hand Drill** – were used to drill all the holes in the production of the three lamps.

- **Disc Sander** – was used to make curves and trim back wood to correct sizes.

- **Tools** – such as ruler, square, file, rasp, mallet, hammer, hack saw, tiger saw, outside callipers, inside callipers, centre punch, drill bits, spade bits, spirit level, wire cutters/crimpers, g-clamps, spring clamps, sash clamps, chisels, scrapers, gouges, vice, pliers, bradawl, and sand paper are all tools that I used during the production of the lamps.