



ABSTRACT

Appropriate Paper-based Technology (APBT or APT) is a lucrative way to produce personally designed furniture or other objects for use and creativity. Over the years the convenience, low cost and versatility of APT has promoted people with disabilities. Assistive furniture items can be made individually-good fitting and sequencing tailored for each person. Given the need for assistive devices specially in developing countries, a team of physiotherapist from UK conducted a 5-day intensive hands on workshop for therapist at Satya Special School. It was an ambitious Practical based training.

APPROPRIATE PAPER TECHNOLOGY





A REPORT ON APPROPRIATE PAPER TECHNOLOGY

Date of an event: 04-08th, 11-15th 2019

Location of an event: VTC Building

Resource Person: Diane Lyle, Dr. David Lyle, Angilley, Alan Angilley

No. of. Participants: 04-02.2019-08.02.2019 – 94 Students / 11.02.2019-15.02.2019 – 117 Students

Nature of Participants: UG & PG of Physiotherapist Students

Context:

'Art that costs nothing'

It is a good platform to address some challenges that support the students to get deeper understanding on subjects and concepts. In connection with the same thought, it was also a need from staff to experience such platform as they were finding out few solutions to create a new thing from a wastage.

Background & Need:

It was the practical workshop conducted by Satya School Team for the students of physiotherapist. Resource persons are Diane Lyle, Dr. David Lyle, Angilley, Alan Angilley and Dr. Supriya Vinod, Principal Mother Teresa College and Dr. Baranidharan Associate professor, Venkateswara College were special invitees. The Program was Started at 9.30 am with approximately 211 students were in attendance for ten days Programme. The workshop was based on:

1. What is Appropriate Paper-based Technology?
2. How do we create by using of old card board and old paper?
3. How students learn to create?
4. What materials is used to make?

So, this was a prior effort of workshop, was initially done which put a sturdy base for the students on learning, planning and creating creatively. The primary focus of the workshops will be to show and train participants how to make supportive seats, and

other assistive equipment, for disabled children (particularly those experiencing Cerebral Palsy), using old cardboard and old paper.

Objective of the Workshop:

Appropriate paper-based technology is a technology for making perfect chairs, standing frame and learning materials with the use of old card Boards, old papers and gives for the Disabled person's & other at a very low cost.



Resource Persons, Students of Physiotherapist discussed collaboratively on objectives and designing of the schedule for paper technology workshop.

- To equip the students with varieties of activities in teaching and learning especially in paper technology.
- Preparing concept /mind map, designing worksheet and knowing learning gaps.

This training programmes gives a clear technical idea of making Hard card boards, preparing glues & pasting. We got the concept of APT. Why do we have demo? To know the planning what are the process that we have to get. To get the particular concept we designed activity on content, time management, self-preparation and planning for each minute.

Schedule of the Workshop:

These comprehensive courses are designed for those without much experience, or for those lacking to increase their knowledge towards APT and tend to help for Special students.

Monday	Tuesday	Wednesday	Thursday	Friday
Welcome Introductions Expectations Rules & Responsibilities Show DVD special chair discuss 6 F's	Reflection on Mon Make glue Mention Action Plan Demo & make- strengtheners, straps, rods and ties	Reflection on Tues Make Glue Importance of Positioning Indiv item 2 nd layer	Reflection on Wed Make Glue Discuss Decorations Show Toys Chair Test	Reflection on Thursday Make Glue 1 st fitting for child in group device Discuss Adaptations
APT explanations Glue making demo Board making demo	Continue Individual item Choose group device	Discuss draw, cut group device	Group device - 1 st layers of straps	2 nd layer on group device
Plan Individual Item & group device Make Glue Make Board	How to measure a child for chair and stander, demo How to transfer measurements onto board	Continue group device- tie, strengthen	Decorate individual, item if dry enough	Continue devices Discuss long term goals & aspirations
Measure and cut individual item Reminder to collect earth, ash, charcoal	Continue individual, item-tie, strengthen, strap first layer.	Individual, item brown paper	Continue group device	Celebrations and certificates

Schedule for APT Introductory Course in India, February 4-8th, 11-15th, 2019

"For most people technology makes things easier. For people with disabilities, however, technology makes things possible. In some cases, especially in the workplace, technology becomes the great equalizer and provides the person with a disability a level playing field on which to compete."

Day – 1 APT Introductions:

Appropriate paper-based technology (APT) can also be called 'recycling in the home'. This manual explains how motivated and practical people can study how to build articles ranging from wheel-chairs to solar ware, from bedside to tables, to music stands, to coffins. APT procedures are extremely simple. Imagination and knowledge of the basic techniques convert used paper into strong and attractive devices for persons with disabilities. Then they trained for how to take paper measurements & to draw outline and design over the card boards, after cutting and assembling the parts together and making ties applying straps, fixing joints and stabilizing.

The day-1, Resource Persons discussed mainly on Introductions, Expectations and Rules of Responsibilities and demo of making glue and board. Measuring and cutting individual item and collecting earth, ash and charcoal.

APT articles have four important characteristics:



They should be:

Strong: Strength is essential for usefulness especially if it is a furniture item. Even if it is made of paper and other waste materials, it is durable because of the technology applied, considering the intrinsic characteristics of paper or card.

Useful: APT articles are useful because out of paper waste and other trash materials, different products can be produced. They range from simple tools to household wares and furniture,

and assistive devices for persons with disabilities.

Attractive: Paper waste, combined with other earth shades, create artistic designs and good color combinations that suit each individual.

Low-cost: The cost of production is very low since APT uses simple or improvised tools for producing articles which are made from paper waste and other waste materials.

Day – 2 Action Plan Demo

Before start any kind of task action plan plays an important role to complete the task in a perfect manner. Action Plans are simple lists of all of the tasks that you need to finish to meet an objective. Action Plans are useful, because they give you a framework for thinking about how you'll complete a task efficiently. They help you finish activities in a sensible order, and they help you ensure that you don't miss any key steps. Also, because you can see each task laid out, you can quickly decide which tasks you'll delegate or outsource, and which tasks you may be able to ignore. The main purpose of action plan is, while doing any of the activities if the person miss any one step then it will lead into destruction.



Making a child's chair

This chair is a Utility model, using Approach II: two vertical boards joined by a pattern of rails which support a seat board. It is not a difficult model, but making it involves a number of operations. It is the prototype of all Approach II Utility models.



Measurement:

1. How to measure a child for chair and stander, demo?
2. How to transfer measurements onto board?

An accurate measurement of the object you intend to make is necessary to ensure that it will best fit its user or purpose. For a chair, the steps are as follows:

Height of the backrest(a) and Length and width of the sitting board(b).

1. Ask the child you are making the chair for to sit down. A straight ruler or metal tape is easier to

use than a measuring tape which bends. You are measuring for a furniture item, not an appliance. Take and record the following measurements (in inches):

Height from the seat to the floor(c).

(a) Height of the backrest;

(b) Length and width of the sitting board;

(c) Height from the seat to the floor.

If special seating accommodation is to help a child sit well, gain better head and body control, or move and do things more easily, it is essential that the design be appropriate for the child's needs, and that it fit the child correctly and equally important is to carefully evaluate the child's individual needs, interests, limitations, abilities and possibilities, as well as her likes, dislikes, and fears.

Day – 3 Group device and positioning of device

The Training people clearly explained that, all of these adaptations and additions were simple and fun to make because the cardboard frame and attachments were so easy to cut, drill, and modify. Almost the only tool needed was a knife. Removable pieces molded from cardboard could be firmly attached by pressing them through grooves or holes cut into the frame. The thickness and texture of the cardboard frame provided a firm grip for the inserted posts and attachments. Few technologies can be friendlier to the environment. APT consumes waste and it recycles paper and card to make articles that would often have been made of wood.

It makes solar devices that cook without fuel and pollution. It saves human resources by making equipment that helps in the rehabilitation of people with disabilities, and by providing them and many unemployed people with the opportunity to earn a living, and APT waste is biodegradable!

To prevent damaging shrinkage, paste paper and card and leave it until the moisture has been fully absorbed, then finish your layering as quickly as possible. When laminating card, on the other hand, cover it very thinly with paste, and again work quickly.

Recognizing different kinds of paper and discovering and using their special characteristics is an ongoing process. Flour paste is the other indispensable material. It is used in every APT construction process.

Essential techniques include:

- Knowing how to make and use different kinds of flour paste
- Making and using mash



- Tearing, cutting, scoring, creasing, and folding paper and card
- Layering strips or pieces of paper and card singly or two or three layers thick
- Rolling card or paper to make tubes of different strengths and sizes
- Laminating sheets of card (or even paper) to make different kinds of boards
- Joining components and strengthening the joints

- Strengthening and tidying an article
- Decorating and Pressing and or drying, both between stages and finally Standard approaches.

Tools Needed for creating,

- For cutting cutter, scissors.
- For marking pen, pencil, markers.
- For measuring rulers or similar tools; protractor or other improvised tools/objects for making round patterns.



- For piercing or making holes icepick, nails, drilling equipment.
- For tube-making water pipes, PVC, or any smooth, cylindrical-shaped object.
- For pressing boards sacks of sand or any heavy objects or furniture's. Your work table can also be used for pressing boards.
- For finishing paint brush, preferably 1" thick for small articles and 3" thick for bigger articles.
- For paste preparation ordinary stove, kettle, ladle, pail/basin or any other container.

Day –4 Decorations Discussion

They were discussed about a decoration of individual items and group device of first layer straps. APT decoration has to be done with no-cost materials. Decorative material comes from magazines, calendars, colored wrapping paper, or earth paints. Earth painting is recommended. Once the chair is dry the seat, in particular, should be rubbed smooth. After getting dry applying I & II layer of Newspaper, finally by brown paper layer. After checking that the surface is perfectly smooth, apply a polyurethane or other varnish to harden and seal the surface. Use a hard varnish first to protect it, then a softer one to give a smooth surface. Apply the varnish with your hand, using plastic bags as gloves. This is done by varnishing the final layer of the whole article.



Creativity plays a very important role here, those who prefer wood like texture and color, craft paper may be used. There are however many options. For our book shelf, for example, which is for a child, attractive papers may be used gift wrappers with cartoon characters or even colored magazines. Finally, decoration plays an attractive role.

1. Collect Cardboard and Paper
2. Piece together the opened cardboard boxes (cartons) and paste in layers

3. Leave to dry while being pressed to stop wrapping
4. When dry plan, draw, check and cut out pieces
5. Attach together with ties and layered straps of paper
6. Check for size and suitability with the child before decorations and varnishing is done and decide what adjustments are needed and additions with an experienced Therapist wherever possible
7. Adapt and cover item with final layer of strong paper
8. Have fun decorating!

Note: APT articles should not be stood on damp surfaces, or left outside in the rain.

Day –5 Layer on group device

Finally getting trails and error correction with students. The finished things were painted or decorated and varnished. Techniques were also thought to the trainees. The trainers from UK Heather Angilley, Diane Lyle, Dr David Lyle and Alan Angilley gave away the certificates to the participants. The Colleges assured their continued support in ensuring that low cost Appropriate Paper based technology reaches the needy in Pondicherry and were willing to work with Satya in fulfilling Satya's vision of ***"Reaching the Unreached"***.



FEEDBACK:

At first all the participants were little worried how it will work out on paper boards. But after attending successful training they were all amazed and wondered the chairs and sturdy base which they made. They were really happy in getting such a good scientific knowledge of making use of old card board and paper to a very useful thing. Our trainees are easy to learn APT and develop their skills by constructing chairs and other items. It gives the possibility to be creative and different without costing the earth - of course it is a lot of fun.

CONCLUSION:

- APT has benefited people with disabilities. Assistive furniture items can be made individually - good fitting and positioning tailored for each person. When an item such as a standing frame is half-made the person needing it can try it out and everyone can see and discuss the need for alterations. Even small angles can be altered relatively easily making it perfect for the best fit.
- To create smoother and cleaner products. But the results are working remarkably well. Cardboard provides a number of advantages over other materials: especially its low cost, and the ease with which the structures can be modified and adapted to meet individual changing needs. The Training, it creates an Environmental impact between the staff and students even all the attendees, especially it is very useful for special students, while doing this kind of activities it creates the interest to the students and it will enhance their thinking power and increase the energy of body and mind.

- By training local therapists to use new technologies to produce equipment made to special students' individual specifications, you are supporting students to live fuller, more independent lives. Finally, the results are working remarkably well. Cardboard provides a number of advantages over other materials: especially its low cost, and the ease with which the structures can be modified and adapted to meet individual changing needs.

