

Licensing and Technology Transfer Opportunity: Manipal University

Title of Technology Available: Indigenous Dental Trainer

Brief Description of Invention: The invention is an L- shaped model which comprises of a square iron rod and a rectangular shaped iron plate, welded together to form an L- shape. The rod holds the mannequin which is mounted on an articulator (1/2” hole size) and the plate is adjusted to fit into the dental chair, between the head and body of dental chairs of all types.

The existing technology available for this purpose is not portable (the jaw and other attachments are fixed at every table in a pre-clinical/simulation dental lab), it cannot use air-rotor for cavity preparation (air-rotor is important because on a patient we do all the work using an airotor) and the existing technology is expensive to set up.

Our model is very economical, easy to use, portable, can be used on any dental chair and is a feasible option for students. Our device can be used to convert a dental chair into a mannequin setup. It will provide a real patient simulation in a patient clinic.

Brief Background of Invention: When students enter their second year in dental college, they are required to purchase typodont jaws and teeth to practice their hand skills before they enter clinics and treat patients. These jaws with teeth can be fixed in a set-up (in a pre-clinical lab) available in every dental college in India. A pre-clinical lab has many, between 50-60 fixed typodont heads and the jaws fit there. It generally has a micro-motor setup, very few labs have air-rotor connections too. These set-ups are very expensive. Now once the students finish with their second year and proceed on to their third and fourth years and start seeing patients, they do-not go back to practicing ideal dental work on these models. Doing ideal dental work is very important in maintaining quality hand skills. Our innovation will help students and even practicing dentists, to use the same jaws with additional purchase of articulators and cheeks, *to fix* the model to a dental chair. Once it is fixed on a dental chair, it can be used in a similar way like a patient is treated. An airotor connection will always be present in a dental chair. Also, the welded iron device which we have designed for this purpose is extremely economical.

- The principal object of the present invention is to provide an economical device for the dental mannequin to be fixed on a dental chair for use in dental clinics and college departments. It can be used to improve clinical skills of dental students by simulating patient position including correct operator posture
- Still another object of the invention is to make available a dental model that can be used repetitively to revise old dental operative procedures and practice new procedures before working on patients for dentists
- Still another object of the invention is to make available a dental mannequin setup for practice for students appearing for clinical exams abroad

Describe the final product: The present invention relates in general to an accessory device which helps produce an economical dental mannequin setup on a dental chair. The invention is an L-shaped model which comprises of a square iron rod and a rectangular shaped iron plate, welded together to form an L- shape. The rod holds the mannequin which is mounted on an articulator and the plate is adjusted to fit into the dental chair, between the head and body of dental chairs of all types. A plastic tube of 1 meter in length is also incorporated in the setup to drain the water from the cheek.

Technological Domain (Keywords): Dental mannequin, dental manikin, Dental chair, Dexterity, Hand Skill, Dental trainer, Dental simulation, Simulation clinic, Typodont, Pre-clinical lab

Proof of Concept: Our innovation is a novel device which is extremely economical and is easy to manufacture. It use has been tested and a prototype exists as well. It has been evaluated by professionals having the knowledge in this field. It is compatible to be used with Kilgore, Columbia, Frasco, etc. jaws with an articulator which has a ½” hole size.

Stage of Development: Ready to Market technology

Provide Information on Competitors who manufacture and/or sell similar products: Amazon, Any dental material supply store, Nissin

What are the unique advantages your innovation has compared to the competition: The existing technology available for this purpose is not portable, it cannot use air-rotor for cavity preparation (air-rotor is important because on a patient we do all the work using an airtor) and the existing technology is expensive to set up.

Our model is very economical, easy to use, portable, can be used on any dental chair and is a feasible option for students. Our device can be used to convert a dental chair into a mannequin setup. Our current invention is a very simple design when compared to the existing technology. Even though the existing technology can be used on a table set-up or bench, our model has been designed to be specifically fit on to a dental chair to simulate exact patient position. It simulates exact patient movements.

A few potential companies who might be interested in this technology: Amazon, Any dental material supply store, Nissin

- Anyone (predental students, dental students, dentists) who wants to use dental typodonts of any kind in a dental clinic setup to practice new preparations/ techniques in dentistry.
- Dental Material stores which sell dental typodonts and teeth, can start providing this too.
- All dental colleges can make use of this as an additional equipment for students once they enter clinics.

Intellectual Property Status: Indian Patent application with number _____ filed in 2020