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Meaningful Teaching through Research and Innovation

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ABSTRACT

Teaching and research activities are regarded as part and parcel of academia. Teaching and doing research at the same time have become a routine to most of us when we regard these as our preparation to equip ourselves in the learning and teaching process. This paper attempts to highlight the author's personal experience both as a lecturer and researcher. The reward from teaching and research is not merely in the recognition given through awards obtained especially through innovation projects. What is more rewarding is the inner satisfaction when our little effort is acknowledged.

Keywords: *innovation, research activities, satisfaction, teaching*

Introduction

Teaching is the finest work of all and it emerges from one's inwardness (Palmer, 1997). Therefore, teaching is a very pleasant task when one delivers this responsibility to the best of his or her ability. Through teaching, lecturers are always aware and be prepared with up-to-date information because it is a duty bound upon us to share our knowledge and valuable experience with our students. Knowledge acquired through research findings, innovative projects and publications are valuable assets for more meaningful teaching. In addition, it is a great pleasure when our humble efforts bear fruitful results and are well acknowledged by our valuable customers and stakeholders.

Lecturing and Doing Research

We often hear the statement 'I don't have time for research because my time is too occupied with teaching and students' activities'. This case actually requires good time management. If we are determined to conduct research, or at least be involved in research activities, it is a duty bound upon us to allocate time for such purpose. The choice is ours. Furthermore, we should also do it for our own career advancement.

Meaningful Teaching through Research Activities

Teaching has become a daily routine for us and it is so natural that we sometimes ignore to ponder how effective our teaching is. Most of the time, we deliver information that we gather from the thoughts and findings of others. We merely explain and elaborate theories and facts put forward by other writers or researchers which sometimes do not conform to our own conditions and cultures.

Challenged by this scenario, I began embarking on research in the early 1990s. My personal experience while undertaking a research project entitled "Preservation Characteristics of Malaysian Timbers" (Suhaimi, 1989) to fulfill the Ph.D. requirement inspired me to carry on with other research projects in the hope to establish facts which are relevant and more meaningful for my teaching career.

The research findings from two projects under the Intensification of Research on Priority Areas (IRPA) grants and five projects under the Bureau of Research and Consultancy – Universiti Teknologi MARA (BRC-UiTM) grants have been beneficial aids in my teaching. Information and facts from such findings have direct applications, thus, making my teaching interesting and more meaningful.

My research project entitled "Wood Quality Indicators of Rubberwood (Hevea brasiliensis)" (Suhaimi et al., 1998) under the IRPA grant has benefited not only my own students at the Department of Wood Industry but also students from other institutions of higher learning especially those in Universiti Putra Malaysia (UPM) where two students completed their thesis for the requirement of B.Sc. Forestry. It is more rewarding when the findings from this project were recognised by experts from Brazil and Europe.

Another research project under IRPA grant entitled "Glued-laminated Timber Beam from Light Red Meranti" (Wan Mahmood et al., 1997) has generated interest for the wood-based industries especially those dealing with heavy wooden structures. This project with a grant of RM300,000.00 is the first of its kind as it involves tropical hardwood species. Previous research in this area has focused mainly on the utilisation of softwood species for wooden structures.

Meaningful Teaching through Innovation Projects

Research findings are not only published locally and internationally for shared information and knowledge. Such findings could lead to innovative products and techniques. Chen Fung Woo and I (1998) embarked on several innovation projects in the hope to fully utilise oil palm residues. Such projects were as follows:

1. Composite Panel from Oil Palm Residues
2. Oleoglass
3. Reconstituted Lignocellulosic Panel with Simulated Wood Grain Appearance
4. Environmentally Friendly Sandwich Composite Panel
5. Environmentally Friendly Light Weight Sandwich Composite Panel

Projects 3, 4 and 5 won the Special MINDS-Henry Goh Environmental Innovation Award at ITEX'98, organised by The Malaysian Invention and Design Society (MINDS).

Inspired by the above achievements, we moved forward for international recognition. In this context, three of our innovations have been granted international recognition at International Exhibition of Inventions: New Products and Techniques in Geneva, Switzerland (Suhaimi and Chen, 1999; Wan Mohd. Nazri and Suhaimi, 2001) : 1) Zero Waste (1999), 2) Envirocard (1999), and 3) Wood I-joist: Effective Jointing Technique (2001).

Two of these innovations won the silver medal (No. 1 and No. 3) and the other one won the bronze medal (No. 2). This achievement was very rewarding and I regard it as a very powerful tool in my teaching career. As a result, students become more motivated in their learning and the process of teaching proceeds in a more meaningful manner.

In the Wood Properties I (WTE159) course, students are given first hand information regarding the findings of my research projects especially those related to the application of basic wood properties such as wood adhesives and wood joints. Findings from research work on wood treatment have enlightened my students on the importance of wood structure which is the main component of the Wood Anatomy (WTE201) course. Certain aspects of my innovation projects have been used as guidelines for the Final Project (WTE375) course, which are very much needed by the final year students (Semester 06) of the Diploma in Wood Industries (AS117) in Universiti Teknologi MARA (UiTM).

Table 1 summarizes the awards obtained through various innovation projects from the year 1998 until 2009. Most of them were presented during the Academic Conference (KONAKA) in UiTM Pahang in 2008 (Suhaimi, 2008).

Table 1: Awards for the Innovation Projects from the Year 1998 to 2009

Award	Year Obtained	Organising Body
Special Award MINDS-Henry Goh Environmental Innovations at I.TEX'98	1998	The Malaysian Invention and Design Society (MINDS)
Silver Medal Award at Geneva for invention of *Zero Waste*	1999	Committee of the 27th International Exhibition of Inventions, Geneva
Bronze Medal Award at Geneva for invention of *Envirocard*	1999	Committee of the 27th International Exhibition of Inventions, Geneva
Silver Medal Award at Geneva for invention of *Prefabricated Wood I-joist – Effective Jointing Technique*	2001	Committee of the 29th International Exhibition of Inventions, Geneva
Merit Award for the project *Exterior Type Plywood for Remote-Controlled Speedboat* at IID 2004, UiTM	2004	Institute of Research, Development and Commercialisation, UiTM Shah Alam, Selangor
Gold Medal Award for the project *Exterior Type Plywood for Remote-Controlled Speedboat* at ITEX2005, KL	2005	The Malaysian Invention and Design Society (MINDS)
Silver Medal Award for the project *Remote-controlled Speedboat from Malaysian Plywood* at Geneva 5 – 9 April 2006	2006	Committee of the 34th International Exhibition of Inventions, Geneva
Silver Medal Award for the project *Biocomposite Tile – Utilization of Malaysian Coconut Coir* at IID2007, UiTM	2007	Institute of Research, Development and Commercialisation, UiTM Shah Alam, Selangor
Bronze Medal Award for the project *Vehicle Plate from Fiberglass-Coconut* coir Composite at IID2007, UiTM	2007	Institute of Research, Development and Commercialisation, UiTM Shah Alam, Selangor

Gold Medal Award for the project *Vehicle Plate from Fiberglass-Coconut coir Composite* at ITEX2007, PWTC	2007	The Malaysian Invention and Design Society (MINDS)
Gold Medal Award for the project *Portable Press for Composite Panel Product* at IID2008, UiTM	2008	Institute of Research, Development and Commercialisation, UiTM Shah Alam, Selangor
Silver Medal Award for the project *New Design of Fiberglass Speedboat for Better Performance* at IID2008, UiTM	2008	Institute of Research, Development and Commercialisation, UiTM Shah Alam, Selangor
Silver Medal Award for the project *A New Replacement for Fishing Rod Handle-Resin-treated Pulai Wood* at IID2008, UiTM	2008	Institute of Research, Development and Commercialisation, UiTM Shah Alam, Selangor
Silver Medal Award for the project *Wooden Paddle from Resin-treated Pulai Wood* at IID2008, UiTM	2008	Institute of Research, Development and Commercialisation, UiTM Shah Alam, Selangor
Bronze Medal Award for the project *Seminar Kebangsaan Sains, Teknologi dan Sains Sosial (STSS)* at IID2008, UiTM	2008	Institute of Research, Development and Commercialisation, UiTM Shah Alam, Selangor
Patent Right Award for the project *Vehicle Plate from Fiberglass-Coconut Coir Composite* at ARCHIMEDES2008, Russia	2008	ARCHIMEDES2008 Organizing Committee Moscow, Russia
Bronze Medal Award for the project *Portable Press for Composite Panel* Product at ITEX2008, KLCC	2008	The Malaysian Invention and Design Society (MINDS)
Bronze Medal Award for the project *Biocomposite Tile – Utilization of Malaysian Coconut Coirt* at SIIF2008, Seoul Korea	2008	SIIF2008 Organizing Committee, Seoul Korea
Gold Medal Award for the project *Bow from Non-Durable Timber Species of Malaysia* at IID2009, UiTM	2009	Research Management Institute, UiTM Shah Alam, Selangor
Gold Medal Award for the project *Biocomposite Products from Coconut Husk* at IID2009, UiTM	2009	Research Management Institute, UiTM Shah Alam, Selangor

Gold Medal Award for the project *Biocomposite Products from RiceHusk* at IID2009, UiTM	2009	Research Management Institute, UiTM Shah Alam, Selangor
Gold Medal Award for the project *Biocomposite Products from Coconut Husk* at IID2009, UiTM	2009	Research Management Institute, UiTM Shah Alam, Selangor
Diamond Award for the project *Biocomposite Products from Coconut Husk* at IID2009, UiTM	2009	Research Management Institute, UiTM Shah Alam, Selangor
Grand Award for the project *Biocomposite Products from Coconut Husk* at IID2009, UiTM	2009	Research Management Institute, UiTM Shah Alam, Selangor

Conclusion

Teaching with the aid of our own research findings and innovation projects can create a pleasant environment. Not only our students can gain up-to-date knowledge, but they become more attentive, motivated and highly inspired in their studies. Therefore, the process of teaching becomes more interesting and can lead to more meaningful outputs. Finally, inner satisfaction is the reward for the valuable effort when we manage to share our valuable knowledge with our students and future generations of knowledge-seekers.

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