



International Teaching Aid
Competition 2023

Reconnoitering Innovative Ideas in Postnormal Times

iTAC

2023

iTAC 2023
INTERNATIONAL TEACHING AID COMPETITION
E-PROCEEDINGS

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PREFACE

iTAC or International Teaching Aid Competition 2023 was a venue for academicians, researchers, industries, junior and young inventors to showcase their innovative ideas not only in the teaching and learning sphere but also in other numerous disciplines of study. This competition was organised by the Special Interest Group, Public Interest Centre of Excellence (SIG PICE) UiTM Kedah Branch, Malaysia. Its main aim was to promote the production of innovative ideas among academicians, students and also the public at large.

In accordance with the theme "Reconnoitering Innovative Ideas in Post-normal Times", the development of novel ideas from the perspectives of interdisciplinary innovations is more compelling today, especially in the post-covid 19 times. Post-pandemic initiatives are the most relevant in the current world to adapt to new ways of doing things and all these surely require networking and collaboration. Rising to the occasion, iTAC 2023 has managed to attract more than 267 participations for all categories. The staggering number of submissions has proven the relevance of this competition to the academic world and beyond in urging the culture of innovating ideas.

iTAC 2023 committee would like to thank all creative participants for showcasing their innovative ideas with us. As expected in any competition, there will be those who win and those who lose. Congratulations to all the award recipients (Diamond, Gold, Silver and Bronze) for their winning entries. Those who did not make the cut this year can always improve and join us again later.

It is hoped that iTAC 2023 has been a worthy platform for all participating innovators who have shown ingenious efforts in their products and ideas. This compilation of extended abstracts published as iTAC 2023 E-Proceedings contains insights into what current researchers, both experienced and novice, find important and relevant in the post-normal times.

Best regards,

iTAC 2023 Committee
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ECO-WATERCOLOUR

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ABSTRAK

Cat air atau *watercolour* merupakan medium lukisan yang menggunakan pigmen dan berasaskan air. Cat air telah digunakan selama ribuan tahun dan mungkin sejak zaman prasejarah lagi. Cat air digunakan secara meluas di dalam karya-karya seni yang popular dan menjadi pilihan pelukis-pelukis profesional untuk menghasilkan karya dan lukisan mereka. Ia juga menjadi pilihan para ibu bapa dan guru untuk menjadi salah satu medium seni bagi perkembangan kanak-kanak. Penggunaan cat air dapat mengembangkan daya imaginasi kanak-kanak sekaligus mampu mengembangkan kreativiti dan kemahiran motor mereka. Semasa mewarna menggunakan cat air ini juga kanak-kanak akan belajar mengenai ekspresi visual dan pengecaman warna. Namun, cat air di pasaran kebiasaannya mengandugibahan yang memudaratkan seperti pigmen daripada kobalt dan kadmium yang merupakan logam berat. Bahan-bahan ini amat merbahaya apabila kanak-kanak menelan atau memasukkan cat air ke dalam mulut secara sengaja atau tidak sengaja. Maka adalah penting untuk membuat alternatif terbaik bagi mengurangkan segala kemungkinan buruk yang boleh terjadi apabila menggunakan cat air. Oleh itu, kami telah mencipta cat air yang mesra alam atau *eco-friendly* yang diperbuat daripada bahan-bahan semulajadi yang mudah diperolehi. Produk kami juga menggunakan konsep *zero waste* dimana kami menggunakan semula sisa sayur-sayuran dan buah-buahan sebagai asas kepada pigmen cat air kami. Contohnya seperti bunga, kulit buah-buahan dan sayur-sayuran. Sasaran kami di dalam projek Eco- Watercolour ini adalah untuk menghasilkan cat air yang mesra alam terbaik yang berkualiti tinggi dan selamat untuk digunakan terutamanya kepada kanak-kanak. Kami juga menemukan bahan pengawet yang mampu mengelakkan cat air ini daripada teroksida dalam masa terdekat supaya ia boleh digunakandalam jangka masa yang lebih lama.

Kata kunci: cat air, pigmen, mesra alam, zero waste, eco



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