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The International Journal of Art and Design (IJAD) (e-ISSN: 2710-5776) is a peer-reviewed journal committed to advancing scholarship in the domains of Creative Arts, Visual Communication, Design Technology, and Humanities. With biannual publication cycles (January - June & July - December), IJAD provides a platform for the dissemination of high-quality research articles that explore both theoretical advancements and practical applications within the realm of art and design.

IJAD serves as a nexus for researchers, fostering collaboration and knowledge exchange across diverse disciplinary boundaries. We welcome original research papers and state-of-the-art reviews that contribute to the evolving discourse in art and design.

Furthermore, IJAD endeavours to promote a culture of scholarly writing and publication among academics, both within and beyond the Universiti Teknologi MARA community. By encouraging active engagement with the research process, we seek to elevate the visibility and impact of scholarly work in the field.

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VIDEO ANIMASI SEBAGAI MEDIUM PEMBELAJARAN DAN PENDEKATAN KREATIF TERHADAP KESEDARAN COVID-19 BAGI PELAJAR DALAM SESI PEMBELAJARAN TERBUKA DAN JARAK JAUH

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ABSTRAK

Wabak COVID-19 (penyakit Corona Virus-2019) di seluruh dunia telah menyebabkan perubahan besar dalam setiap organisasi di seluruh dunia termasuk bidang pendidikan. Pandemi COVID-19 telah banyak mengubah kehidupan para pelajar terutama dari sudut pembelajaran yang mana ianya dijalankan secara atas talian. Perintah Kawalan Pergerakan (PKP) menjadikan mereka terpaksa belajar dari rumah dan ini membuatkan pelajar merasa kecewa dan tidak bermotivasi terutama dalam menjalani proses pembelajaran. Selain itu, proses pengajaran dan pembelajaran telah beralih kepada kaedah Pembelajaran Terbuka dan Jarak Jauh (*Open and Distance Learning*) untuk disesuaikan dengan norma baharu. Bimbang para pelajar mungkin merasa cemas, tertekan atau umumnya tidak berdaya, para penyelidik telah mengeluarkan satu pendekatan kreatif untuk membantu mereka mengatasi realiti semasa dan menyatakan perasaan dan pemikiran kreatif mereka mengenai cara menangani pandemik COVID-19 melalui video animasi. Animasi telah menjadi satu medium yang menarik untuk meningkatkan kualiti pembelajaran terutama semasa pandemik COVID-19. Pendekatan pembelajaran berasaskan animasi terbukti sangat berkesan dalam pelbagai bidang, termasuk dalam kursus-kursus di universiti. Pensyarah dan pendidik kini mengintegrasikan animasi sebagai alat bantu visual dalam kandungan kursus mereka untuk memudahkan pembelajaran dan meningkatkan prestasi pelajar. Oleh itu, Jabatan Grafik dan Media Digital, Fakulti Seni Lukis dan Seni Reka UiTM Cawangan Melaka mengambil inisiatif ini untuk mengaplikasikan kandungan kursus GDT254 (Animasi 2D) agar dapat disesuaikan dengan topik berkaitan Pandemi COVID-19. Di mana, para pelajar digalakkan untuk menerapkan kreativiti, perasaan dan pemikiran mereka mengenai wabak COVID-19 serta menyebarkan kesedaran melalui penghasilan video animasi kreatif mereka. Selain itu, kajian yang dijalankan adalah berdasarkan kepada kerangka dan model ADDIE (Analisis, Reka Bentuk, Pembangunan, Pelaksanaan dan Penilaian). Hasil pemerhatian mendapati bahawa para pelajar lebih termotivasi dengan topik yang berkaitan dengan pandemik semasa berdasarkan kepada hasil akhir yang ditunjukkan dalam video animasi mereka. Selain itu, proses pembelajaran dapat dilakukan secara realistik melalui perkembangan progresif pelajar sepanjang pembikinan video animasi ini walaupun berlaku secara atas talian. Kesimpulannya, animasi adalah satu medium yang dapat membantu pelajar untuk meneroka, mengekspresi dan meningkatkan kemahiran kreatif mereka, selain menjadikan emosi dan motivasi diri pelajar lebih positif dalam mendepani situasi pandemik.

Kata kunci: Kesedaran COVID-19, Video Animasi, Pendekatan Kreatif, Motivasi Diri, Pembelajaran Terbuka dan Jarak Jauh.

PENGENALAN

Pada bulan Mac 2020, dunia digemparkan dengan pengisytiharan wabak global COVID-19 oleh Pertubuhan Kesihatan Sedunia (WHO) sebagai penyakit berjangkit yang cepat merebak di luar China, menjangkiti dan meragut berjuta-juta nyawa (WHO, 2020). Pelbagai negara termasuk Malaysia telah mengambil tindakan tegas untuk mengurangi penyebaran virus ini daripada menjadi pandemik (WHO, 2020). Di Malaysia, Kementerian Kesihatan (KKM) memulakan langkah dengan pemeriksaan kesihatan di semua perbatasan dan pintu masuk untuk mencegah penularan wabak COVID-19 di negara ini. Untuk meningkatkan penguatkuasaan, kerajaan Malaysia telah melaksanakan Perintah Kawalan Pergerakan (PKP) di seluruh negara (Shah et al., 2020). Sebilangan besar aktiviti yang penting terjejas seperti perniagaan, aktiviti keagamaan, sukan dan juga pembelajaran kerana ia terpaksa dihentikan. Wabak Covid-19 (penyakit Corona Virus-2019) di seluruh dunia telah menyebabkan perubahan besar dalam setiap organisasi di seluruh dunia termasuk institusi pendidikan, yang mana mengakibatkan sekolah dan universiti ditutup akibat Perintah Kawalan Pergerakan. Pandemik COVID-19 telah menjadikan sesi pembelajaran para pelajar terjejas. Oleh itu, Perintah Kawalan Pergerakan membuatkan sebahagian besar orang kecewa dan tidak bermotivasi dalam meneruskan pelbagai perkara. Terutama dalam penularan wabak COVID-19 yang berlaku secara drastik ini, sesi pengajaran dan pembelajaran telah beralih kepada kaedah *Open and Distance Learning* (ODL) untuk disesuaikan dengan norma baru. Secara terperinci, institusi pendidikan disarankan oleh Kementerian Pengajian Tinggi (KPT) untuk mengaplikasikan kaedah pengajaran dan pembelajaran mereka secara dalam talian (KKM, 2020). Pandemik COVID-19 ini telah mengubah landskap pembelajaran dan pengajaran di seluruh dunia secara drastik. Pembelajaran dalam talian dilihat sebagai satu-satunya pilihan yang tersedia untuk menggantikan kaedah pembelajaran secara konvensional dengan pelbagai faedah dan keberkesanan (Hsiao, 2017). Persekitaran pembelajaran dalam talian yang dinamik dan inovatif membolehkan pelajar mempunyai pengalaman pembelajaran yang bermakna yang menjadi masa depan dalam dunia pendidikan (Rapanta, 2020). Oleh itu, kebanyakan universiti di Malaysia telah meneruskan sesi pembelajaran mereka secara dalam talian untuk memastikan kelangsungan proses pengajaran dan pembelajaran selain meminimumkan penyebaran jangkitan COVID-19.

Perhatian utama semasa pandemik COVID-19 adalah memastikan semua pelajar terlibat dengan persekitaran pembelajaran secara dalam talian dengan mempromosikan pendekatan berkesan dalam proses pembelajaran mereka serta meningkatkan motivasi diri pelajar terhadap pembelajaran dalam talian. Bimbang para pelajar mungkin merasa cemas, tertekan atau umumnya tidak berdaya, para penyelidik telah mengeluarkan satu pendekatan kreatif untuk membantu mereka mengatasi realiti semasa dan menyatakan perasaan dan pemikiran kreatif mereka mengenai cara menangani pandemik COVID-19 melalui video animasi. Pada masa ini, animasi telah menjadi satu medium yang berkesan untuk meningkatkan prestasi pembelajaran di kalangan pelajar terutamanya semasa pandemik COVID-19. Pendekatan pembelajaran ini terbukti sangat berkesan dalam pelbagai bidang termasuk dalam kursus-kursus di universiti. Pensyarah dan pendidik kini mengintegrasikan animasi sebagai alat bantu visual dalam kandungan kursus mereka untuk memudahkan pembelajaran dan meningkatkan prestasi pelajar. Tambahan, animasi merupakan kaedah pedagogi yang kukuh dengan menggabungkan elemen audio, visual dan grafik yang bersesuaian untuk menjelaskan konsep yang kompleks dan menarik minat pelajar dalam proses pembelajaran (Liu & Elms, 2019). Oleh itu, animasi dapat meningkatkan pengalaman pembelajaran di kalangan pelajar, termasuk peningkatan penglibatan dan minat, peningkatan pemahaman serta fleksibiliti yang lebih besar dalam pembelajaran sendiri. Oleh yang demikian, Jabatan Grafik dan Media Digital, Fakulti Seni Lukis dan Seni Reka UiTM Cawangan Melaka mengambil inisiatif ini untuk mengaplikasikan kandungan kursus GDT254 (Animasi 2D) agar dapat disesuaikan dengan topik berkaitan Pandemik COVID-19. Selain itu, kajian ini melibatkan sebilangan pelajar dari Diploma Grafik dan Media Digital, UiTM Cawangan Melaka sebagai responden. Kajian ini meneroka proses pembelajaran pelajar dalam memupuk kesedaran terhadap pandemik COVID-19 melalui penghasilan video animasi yang diilhamkan oleh mereka sendiri. Selain itu, kaedah ini dapat mendorong pelajar untuk meneroka, mengekspresi dan meningkatkan kemahiran kreatif mereka, sekaligus memantapkan emosi dan motivasi diri pelajar semasa Pembelajaran Secara Terbuka dan Jarak Jauh berlangsung.

KAJIAN LITERATUR

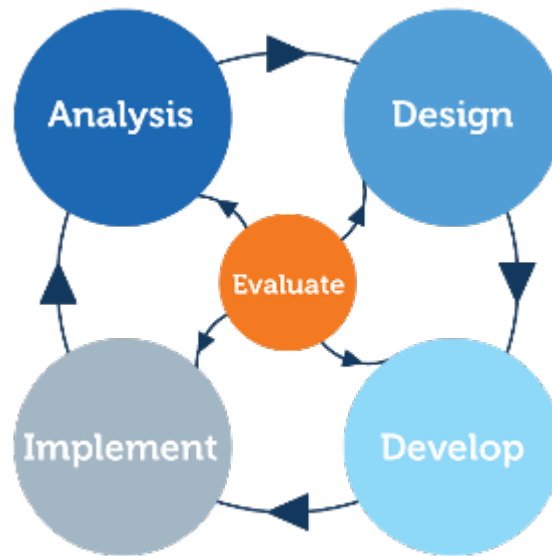
Pembelajaran Berasaskan Video Animasi

Pensyarah adalah merupakan individu penting yang berperanan dalam memastikan proses pengajaran dan pembelajaran menjadi lebih efektif dan menyeronokkan. Justeru, pensyarah perlu memastikan proses pembelajaran yang berkesan ini mampu meningkatkan minat pelajar serta mendorong mereka untuk berjaya dalam kursus yang dipelajari. Pendidikan harus menjadi satu keseronokan kepada pelajar bukan sesuatu yang membebankan dan membosankan (Damodharan & Rengarajan, 2007). Malah, generasi hari ini lebih terdedah kepada teknologi dan aplikasi terkini yang menjadi norma baru seperti aplikasi Whatsapp, Instagram dan Youtube berbanding generasi sebelumnya. Pada dasarnya, generasi hari ini berkomunikasi secara digital setiap hari. Ini kerana mereka mampu menghabiskan kebanyakan masa mereka di hadapan skrin komputer untuk menonton video, mendengar muzik, dan bermain permainan komputer. Maka, tidak hairanlah jika ramai yang telah menamakan generasi baru ini sebagai generasi digital (Shelly, Cashman, Gunter & Gunter, 2006).

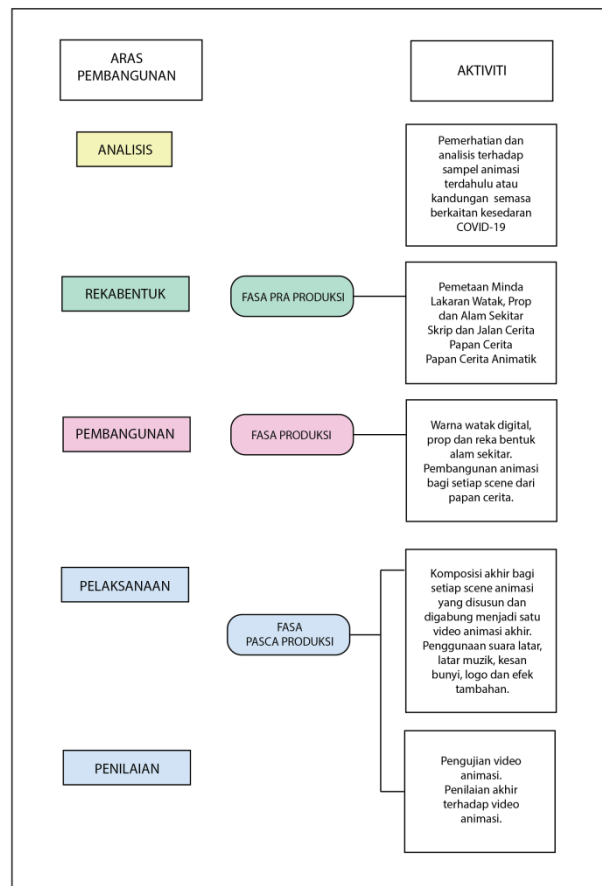
Penggunaan media dalam proses pembelajaran mampu meningkatkan pemahaman yang lebih mendalam di kalangan pelajar dan menjadikan aktiviti pembelajaran yang lebih pelbagai (Norah, Nurul Izzati & Radhiah, 2012). Video telah digunakan dengan pelbagai cara bagi menyokong pembelajaran pelajar. Video ditakrifkan sebagai media yang mempersembahkan audio dan grafik secara serentak (Shephard, 2003). Video pada asasnya adalah menyamai siaran televisyen tetapi konsepnya telah dikembangkan sejak enam dekad yang lepas (Smaldino, Lowther & Russel, 2008). Video pembelajaran merupakan salah satu media yang boleh membantu pendidik dalam proses pengajaran dan pembelajaran. Menurut Norah et al., (2012), pada masa lalu, pembikinan video memerlukan kos pengeluaran yang tinggi, tetapi pendidik pada hari ini mampu menghasilkan sendiri video berdasarkan ideologi dan kreativiti mereka. Hasil kajian Sharples (2000) mendapati bahawa penggunaan video dapat meningkatkan penglibatan dan motivasi pelajar dalam mempelajari sesuatu. Justeru, pendidik seharusnya bijak mengaplikasikan teknologi ini dengan lebih berkesan dalam pengajaran dan pembelajaran khususnya secara dalam talian. Ini kerana, penggunaan video dapat dimanfaatkan sebagai alat yang praktikal selain mampu meningkatkan kualiti kerja pelajar dan memulihkan emosi pelajar dalam mendepani pandemik COVID-19.

METODOLOGI

Proses pengembangan aplikasi melibatkan beberapa prosedur yang sistematik yang bermula dengan proses analisis, reka bentuk, pengembangan, pelaksanaan dan penilaian pengajaran (Baharudin et al., 2002). Rajah 1.0 menunjukkan keseluruhan metodologi projek ini yang menggunakan model ADDIE. Reka bentuk model ADDIE adalah model instruksional yang berfungsi sebagai panduan untuk pembinaan perisian dan bahan pembelajaran berdasarkan keperluan (Wang & Hsu, 2009). Reka bentuk pengembangan aplikasi berdasarkan ADDIE dijelaskan sebagai Analisis, Reka Bentuk, Pembangunan, Pelaksanaan dan Penilaian. Selain itu, kajian ini juga melibatkan pemerhatian (pemerhatian dalam talian) terhadap proses kerja pelajar dari peringkat awal bermula dengan lakaran idea sehingga peringkat penilaian atau pengujian akhir pada video animasi tersebut.



Rajah 1.0 Kitaran Model ADDIE



Rajah 2.0 Kerangka Model ADDIE

ADDIE adalah istilah popular yang digunakan untuk menggambarkan pendekatan pengajaran yang sistematik dan setiap fasa model terdiri daripada pelbagai langkah prosedur (Idris et al., 2018). Rajah 2.0 menunjukkan aktiviti pembangunan projek berdasarkan ADDIE model.

Secara khusus, dalam kajian yang dilakukan, proses pembangunan telah direkodkan bermula dari proses lakaran awal yang melibatkan perbincangan idea dan kreativiti di kalangan pelajar dan pensyarah mereka. Jalan cerita dan idea harus memenuhi kriteria dalam isi kandungan *Project Brief* yang diedarkan oleh pensyarah. Di samping itu, proses kerja para pelajar ini akan sentiasa dipantau dan diawasi untuk memastikan setiap proses yang dilalui oleh setiap pelajar mengikut spesifikasi yang telah ditetapkan. Seterusnya, pelajar juga perlu melalui fasa pra-produksi (skrip dan storyboard), produksi (merakam suara, reka bentuk visual dan membangunkan animasi bagi setiap *scene*) dan fasa pasca-produksi (komposisi dan *rendering* akhir) seterusnya menguji prototaip video animasi ini. Pelajar dikehendaki membangunkan animasi menggunakan Animate atau platform lain yang sesuai seperti After Effect atau Flipaclip. Idea untuk menyesuaikan pendekatan tema "kesedaran COVID-19" ke dalam video animasi mereka dapat memenuhi keperluan pendidikan arus perdana pada masa kini yang dapat meningkatkan motivasi pelajar dan pada masa yang sama masih mengekalkan nilai moral untuk mendidik pelajar tentang kesedaran pencegahan COVID-19. Selanjutnya, pendekatan video animasi ini akan membantu meningkatkan prestasi akademik dan kemahiran kreatif pelajar serta dapat meningkatkan motivasi dan pembelajaran sendiri yang baik di kalangan pelajar semasa ODL.

DAPATAN KAJIAN DAN PERBINCANGAN

Berdasarkan dapatan kajian, proses pengembangan animasi video ini berjaya dilaksanakan melalui beberapa fasa berdasarkan model ADDIE:

FASA ANALISIS

Fasa analisis adalah fasa penting dan permulaan bagi kajian kerana memberi pendedahan mengenai permasalahan dalam sesuatu kajian. Fasa ini menentukan masalah, mengenal pasti punca masalah dan menentukan potensi penyelesaian (Bhushan, 2006). Selanjutnya, dalam fasa analisis ini, para penyelidik telah mengeluarkan satu pendekatan kreatif untuk membantu mereka mengatasi realiti semasa dan menyatakan perasaan dan pemikiran kreatif mereka mengenai cara menangani pandemik COVID-19 melalui video animasi. Pelajar diminta untuk membuat pemerhatian dan analisis dari rujukan luar seperti Youtube, naskah penerbitan atau sumber dalam talian untuk mengenalpasti isi kandungan video yang bersesuaian untuk dikembangkan sebagai idea dan jalan cerita. Hasil analisis yang diperolehi terutama dari segi visual dan kandungan akan sedikit sebanyak membantu pelajar dari sudut kreativiti mereka dalam mengolah idea sendiri untuk diterjemahkan dalam pembikinan video animasi serta dalam masa yang sama memupuk kesedaran mengenai kepentingan pencegahan COVID-19.

FASA REKABENTUK

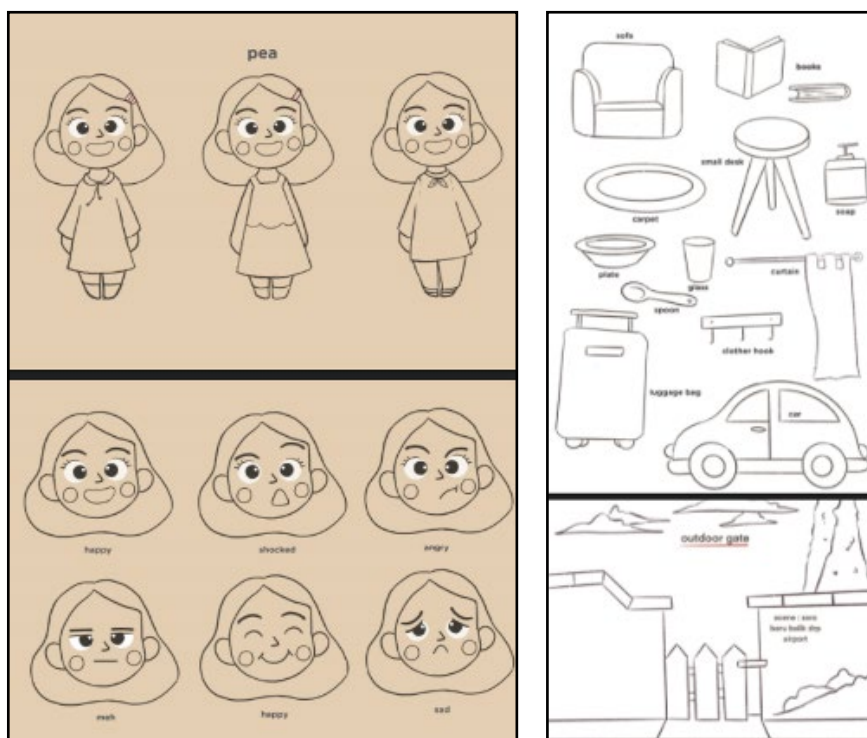
Pra Produksi

Pada fasa pra-produksi, pembangunan reka bentuk dimulakan dengan pemetaan minda (*mind-mapping*), pengembangan jalan cerita dan lakaran awal berdasarkan kreativiti mereka dan melalui sesi perbincangan dalam talian bersama pensyarah penyelia juga. Kaedah ini juga dilakukan untuk mengenalpasti kandungan yang paling sesuai dalam jalan cerita dan proses reka bentuk haruslah mematuhi kriteria yang disediakan dalam *Project Brief* untuk dilaksanakan dalam bentuk video animasi. Di samping itu, pelajar dikehendaki mengikuti tema yang telah ditetapkan oleh pensyarah iaitu tentang "Kesedaran COVID-19". Selanjutnya, isi kandungan adalah salah satu aspek terpenting dalam mengembangkan idea termasuk watak utama,

watak sokongan, reka bentuk persekitaran dan props serta *treatment proposal* (jalan cerita) dan *storyboard* (papan cerita) yang sesuai dengan tema yang telah ditetapkan. Selain itu, papan cerita animatik adalah salah satu instrumen yang banyak membantu mengatur dan memahami secara mendalam aliran animasi pada peringkat awal. Papan cerita animatik membantu meningkatkan mood dan menganalisis proses pengembangan reka bentuk visual, proses aliran animasi serta mengenalpasti susun atur kandungan yang bersesuaian dalam video di peringkat awal.



Rajah 3.0 Rujukan Watak, Prop dan Alam Sekitar



Rajah 4.0 Lakaran Watak, Prop dan Alam Sekitar

Story line - Little pea the guardian

A short story about a little girl name pea. She's watching news on the television that tells about covid-19. For everyone safety, we need to stay in our home for 2 weeks to avoid ourselves from infected by other people's virus. We also need to flatten the curve of the cases to stop getting even worse. After that Pea heard a car honk outside her house. She went outside and see her sister just came back home after 3 months studying in London. Of course her sister has been touched any germs surfaces at the airport. Pea stopped her sister from going inside the house and told her sister to stand 1 meter away because she didn't know if her sister has been infected or not. Pea tell her sister about how to stop spreading the virus and remind her to quarantine herself for 14 days in her room. Pea always help her mother to serve food for her sister every day. Pea will always ask how her sister feels, in case she feels any symptoms.

Pea get bored often because she couldn't play with her sister. She just play toys alone and do her own homework. She sometimes video call with her grandma and making cakes with her mother. Her sister always contact with the doctor to tell about her body temperature and condition. Even though her sister was not positive covid-19 or feels any symptoms, but her sister still can't step out from her room for 14 days. After 14 days passed, her sister feels even better. She wakes up excitedly to approach her little sister because she is now free from covid-19 and hugs her sister.

Character

Pea - little sister
 Sara - pea's sister

Script

Scene 1

television new sound talking about covid-19

Pea : oooh no "shocked face"

car honked



Sara : peaaa! i'm home!

Pea : stop! don't come closer, stand atleast 1 meter from me

Sara : "confused face" why?

Pea : you just got back from London and airport so we don't know if youre infected from other people from the airport / plane. So make sure you have to...

Rajah 5.0 Contoh Jalan Cerita dan Skrip

SCENE 1	
<p>SHOT 7</p>  <p>Description <u>sara is in front of her house door</u></p> <p>Camera Shot & Angle <u>close up / eye level</u></p> <p>Duration <u>4 seconds</u></p> <p>Music Background / Sfx <u>on the cliff by the sea (music)</u></p> <p>Dialog <u>sara : peaaa! im home!</u></p>	<p>SHOT 8</p>  <p>Description <u>while watching tv, pea shocked her sister has arrived</u></p> <p>Camera Shot & Angle <u>medium shot / eye level</u></p> <p>Duration <u>6 seconds</u></p> <p>Music Background / Sfx <u>on the cliff by the sea & tv sound</u></p> <p>Dialog <u>pea : o oh its sara from airport!</u></p>

Rajah 6.0 Contoh Papan Cerita



Rajah 7.0 Contoh Papan Cerita Animatik

FASA PEMBANGUNAN

Produksi

Proses digital juga penting dalam pengembangan reka bentuk animasi. Fasa ini memerlukan banyak proses dan kreativiti dalam mengubah idea dari lakaran manual menjadi reka bentuk visual yang luar biasa. Pada fasa ini, Adobe Illustrator dan Adobe Photoshop digunakan untuk reka bentuk visual. Dalam proses digital, ia melibatkan proses digitalisasi reka bentuk (*tracing*) mengikut idea manual menggunakan perisian Adobe Illustrator atau Adobe Photoshop diikuti dengan memasukkan warna ke dalam reka bentuk untuk meningkatkan penampilan watak, props dan persekitaran agar ia kelihatan lebih menarik dalam proses animasi nanti. Setelah melengkapkan reka bentuk visual, pelajar diminta meneruskan proses pembangunan animasi berdasarkan kepada *scene* dari papan cerita (*storyboard*) menggunakan perisian Animate atau platform yang bersesuaian seperti After Effect. Pelajar disarankan untuk membangunkan animasi mengikut kepada setiap *scene* dari papan cerita untuk mengelakkan masalah teknikal di kemudian hari dan mereka perlu *export* video animasi yang telah siap dalam format video (H.264) di akhir fasa produksi. Proses animasi adalah yang paling lama dan paling penting di antara fasa-fasa lain kerana memerlukan pelajar untuk memberi tumpuan dan menyerlahkan kreativiti dan kemahiran teknikal mereka dalam menggunakan perisian sepanjang menyelesaikan setiap *scene* animasi. Motivasi dan usaha setiap pelajar juga dapat dinilai dalam fasa ini dengan melihat hasil kerja dan *progress* mereka dalam menyelesaikan kesemua tugas mengikut jangka masa yang diberikan oleh pensyarah. Sebilangan besar pelajar menghadapi kesukaran untuk menghidupkan watak animasi pada peringkat awal. Namun, dengan alat bantu mengajar (rakaman tutorial) yang disediakan oleh pensyarah, sesi perbincangan (melalui WhatsApp dan Telegram) serta inisiatif mereka sendiri (pembelajaran sendiri) untuk meneroka lebih banyak dalam perisian pembangunan animasi, mereka akhirnya dapat menunjukkan prestasi yang baik walaupun dengan kekangan masa dan kemudahan semasa ODL. Selain itu, para pelajar disarankan untuk melakukan rakaman *voice over* (VO) dengan kreativiti mereka sendiri sebelum ianya digunakan dalam proses animasi untuk memastikan *lip sync* animasi dapat diselaraskan dengan *voice over*. Pada fasa ini, para pelajar juga disarankan untuk mencari latar muzik dan kesan bunyi (*sfx*) yang sesuai dengan pemandangan dalam papan cerita sebelum ianya digunakan dalam fasa pasca produksi nanti.



Rajah 8.0 Warna Watak Digital, Prop dan Reka Bentuk Alam Sekitar

FASA PELAKSANAAN

Pasca Produksi

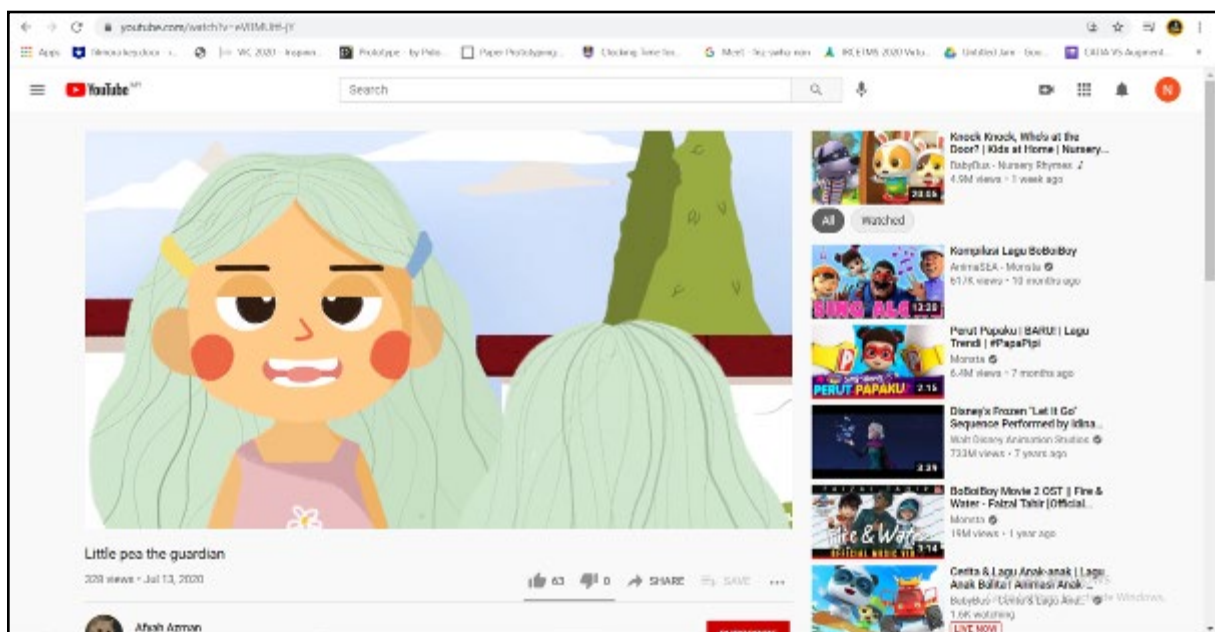
Animasi telah menjadi salah satu medium yang berkesan untuk meningkatkan kualiti pembelajaran terutama semasa pandemik COVID-19. Tambahan, animasi merupakan kaedah pedagogi yang kukuh dengan menggabungkan elemen audio, visual dan grafik yang bersesuaian untuk menjelaskan konsep yang kompleks dan menarik minat pelajar dalam proses pembelajaran (Liu & Elms, 2019). Oleh itu, animasi dapat meningkatkan pengalaman pembelajaran pelajar, termasuk peningkatan penglibatan dan minat, peningkatan pemahaman serta fleksibiliti yang lebih besar dalam pembelajaran sendiri. Susunan unsur-unsur di layar mengambil kira dari aspek ukuran paparan, kesesuaian kedudukan, dan keseimbangan. Tambahan lagi, elemen penting lain dalam video animasi harus disertakan seperti latar muzik dan kesan

bunyi untuk meningkatkan mood dan pengalaman yang menarik. Pada fasa ini, pelajar diminta untuk membuat komposisi akhir bagi setiap *scene* animasi (yang telah di *export* dalam format video) di Adobe Premiere atau platform lain yang bersesuaian. Mereka perlu menyusun atur keseluruhan *file* animasi dan ditambah dengan pengenalan logo (*logo intro*), suara latar, latar muzik, kesan bunyi, serta kredit akhir (*outro*) yang sesuai sebelum hasil akhirnya di *export* dalam format video (H.264).

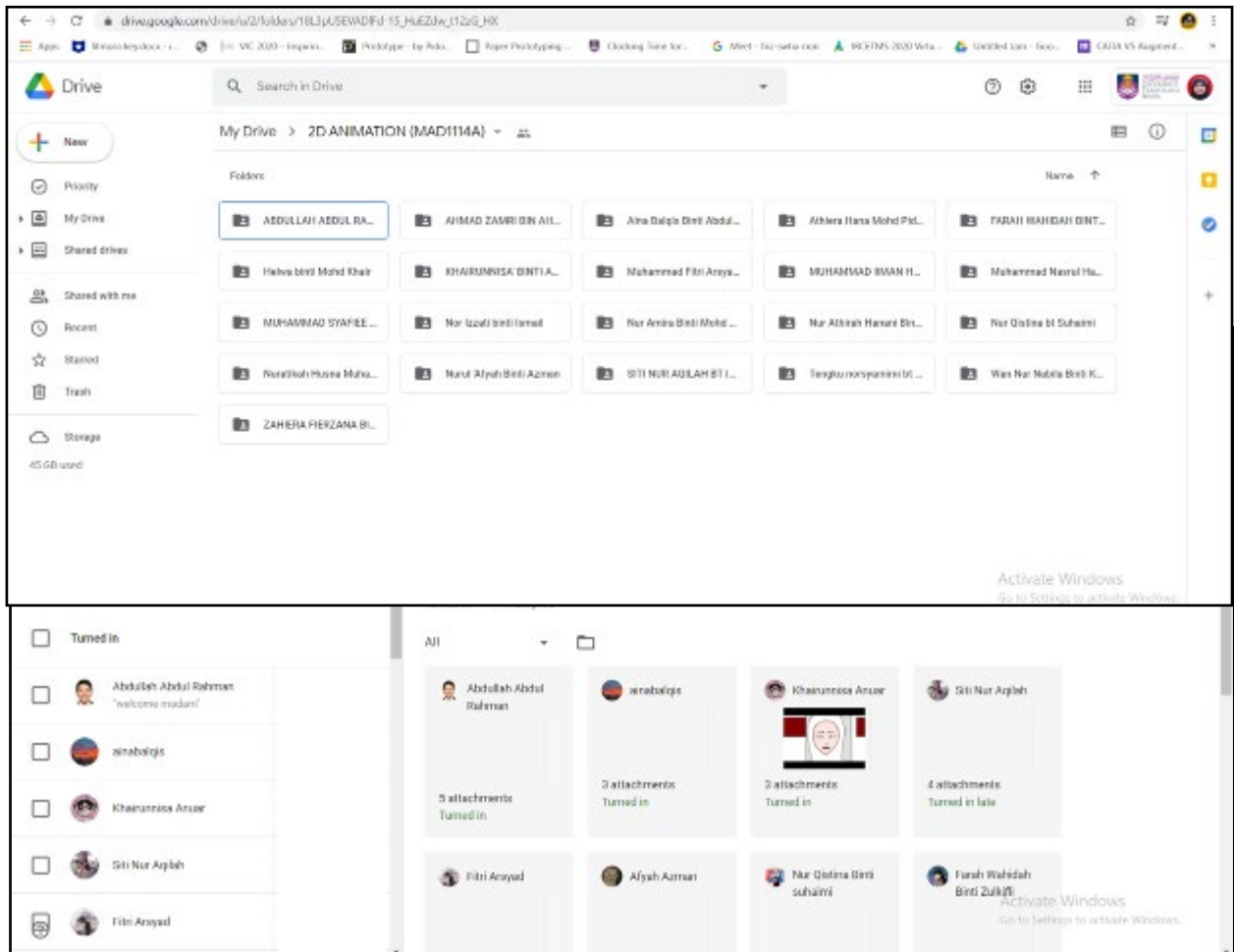
FASA PENILAIAN

Pasca Produksi

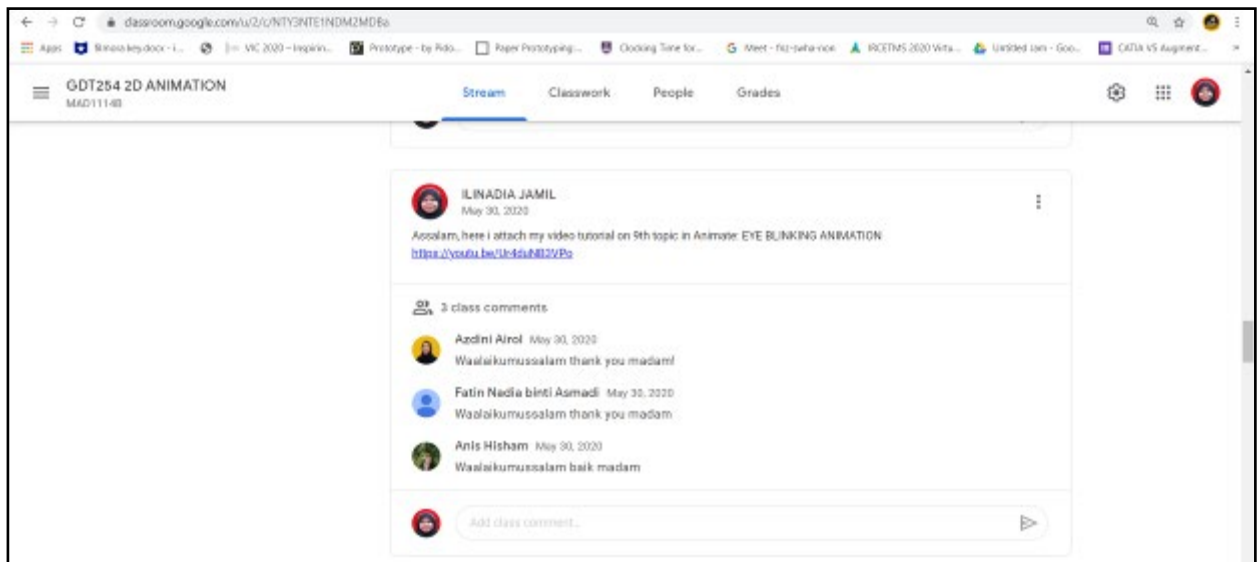
Seterusnya dalam fasa terakhir iaitu fasa penilaian, pelajar diminta untuk memuat naik video animasi di saluran Youtube untuk mendorong kesedaran masyarakat serta meningkatkan tahap keyakinan dan motivasi diri pelajar. Di samping itu, pelajar juga menjalani proses pengujian secara berkala dan berterusan dengan pemantauan dan bimbingan yang teliti dari pensyarah penyelia untuk mengenalpasti sebarang masalah dalam proses pasca produksi. Selain itu, segala *progress* karya pelajar direkodkan menggunakan beberapa platform; WhatsApp dan Telegram ketika sesi konsultasi bersama pensyarah secara individu dan juga menggunakan Google Drive untuk mendokumentasikan kesemua *progress* kerja mereka bermula dari fasa pra-produksi sehingga fasa pasca-produksi. Platform Google Classroom pula disediakan untuk pelajar menyemak sekiranya terdapat sebarang pengumuman atau tutorial terkini yang dimuatnaik oleh pensyarah. Selain itu, tugas mereka juga perlu dihantar melalui Google Classroom. Sekiranya terdapat masalah berkaitan liputan internet atau keterbatasan data dihadapi oleh pelajar, peranan pensyarah sangat penting pada ketika ini. Pensyarah akan membantu mereka dan memberi kelonggaran masa yang sesuai untuk memastikan pelajar berjaya menyelesaikan tugas yang diberikan serta mampu mengawal emosi dalam memenuhi tuntutan tugas tanpa rasa tertekan atau hilang motivasi semasa pandemik ini.



Rajah 9.0 Contoh Video Animasi yang Dimuatnaik di Youtube



Rajah 11.0 Google Classroom untuk Penyerahan Setiap Tugas



Rajah 12.0 Google Classroom untuk Perkongsian Tutorial

Setelah video animasi siap dibangunkan dan diuji beberapa kali untuk memastikan hasil yang terbaik, penilaian secara atas talian dijalankan pada minggu ke-15 iaitu minggu Penilaian Akhir bagi Program Diploma Seni Reka Grafik dan Media Digital. Penilaian dilakukan oleh pensyarah yang mengajar serta penilai kedua yang dilantik untuk menilai sekaligus membuat pemarkahan berdasarkan kepada progres pelajar dan hasil akhir video animasi.

KESIMPULAN

Kesimpulannya, tidak dapat dinafikan bahawa penggunaan teknologi dalam bidang pendidikan menjanjikan faedah yang besar kepada pensyarah dan pelajar. Memandangkan pentingnya teknologi yang diterapkan dalam bidang pendidikan, penyelidik berharap dengan pelaksanaan pendekatan video animasi kreatif ini, ia dapat meningkatkan prestasi pelajar dan memotivasikan pelajar untuk lebih fokus dan cemerlang dalam kursus yang diambil terutamanya semasa pandemik COVID-19. Idea untuk mengadaptasi kesedaran COVID-19 dalam kandungan kursus sebenarnya dapat membantu meningkatkan potensi pelajar untuk menjadi lebih positif di samping menguatkan emosi serta meningkatkan kesedaran kesihatan dan motivasi diri semasa pandemik COVID-19. Kesimpulannya, animasi adalah medium yang dapat mendorong pelajar untuk meneroka, mengekspresi dan meningkatkan kemahiran kreatif serta menguatkan emosi dan motivasi diri sepanjang sesi Pembelajaran Secara Terbuka dan Jarak Jauh berlangsung. Berdasarkan hasil kajian, diharapkan ianya berguna bagi penyelidik yang lain agar dapat mengkaji kaedah atau medium pendidikan yang lebih efektif dan menarik pada masa akan datang.

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Sustainable Heritage Costumes: A Review of Malay Manuscript in the Malay Peninsula

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ABSTRACT

Sustainability has existed in great civilisations across the globe for thousands of years without officially being recognized as ‘sustainable’. According to the National Environment Policy Act 1969 (NEPA), ‘sustainable’ is defined as something that benefits current and future generations in keeping the planet’s resources safe by the movement of economy. Later, in academic debates and discussions in the business area, there are more than hundreds of definitions of “sustainability” which are referring to humans, ethics, business, and many more (Marrewijik, 2003). Zooming in on the Asian continent, where the Malay Peninsula is located, the people have been applying sustainable concepts for ages in various contexts including costume making. The process of garment making is from scratch where all the natural resources are used which include motifs, philosophies and natural items such as grass, thatch, animal skin, and many more until the introduction of weaving in the Malay world. However, the use of costume proses, vocabularies, and fractured words in most Malay manuscripts is difficult and confusing to understand. Studies conducted in this area are also not as extensive. This paper provides a short overview of related research towards the suitability issue which comes from costume Malay heritage manuscripts by using textual analysis to create awareness on appreciating the old art heritage that can be promoted to open the minds of the next generation.

Keyword: *Sustainable Heritage, Malay Manuscript, Costume, Malay Peninsula*

INTRODUCTION

Folklore manuscripts have existed before the arrival of Islam in the Malay Peninsula during the reign of the Hindu-Buddhist era around 1030. These manuscripts focus on tales to entertain the royalists and the elites as well as an act of educational guidance for the royals to be more knowledgeable and fearless in shouldering the task as future rulers (Hamzah, 2017). After the arrival of Islam, manuscript writing began to grow rapidly in the Malay Peninsula around the 16th and 17th centuries. During those times, prominent scholars such as Hamzah al-Fansuri, Shamsuddin al-Sumatra, Nuruddin al-Raniri, and Abdul Rauf Singkel turned up to be part of the first scholars to contribute to manuscript writing. They had successfully written the first Malay manuscript without any external influence from the Arabs which were known as primary sources or muse in disseminating knowledge of writing in the manuscript form.

The development of knowledge has successfully recorded some folklore stories that have been transmitted through the medium of oral literature from generation to generation. This resulted in a great narrative of the Malay Archipelago; a folklore manuscript which becomes the intellectual heritage of the Malays. Among the stories that are popular and successful to date are namely; *Hikayat Merong Mahawangsa*, *Hikayat Hang Tuah*, *Hikayat Amir Hamzah*, *Hikayat Malim Deman*, *Hikayat Malim Dewa*, *Hikayat Awang Sulung Merah Muda*, *Hikayat Anggun Cik Tunggal*, *Hikayat Raja Muda*, *Hikayat Indera Putera*, and many more. Most of the folklores describe an adventure of heroes which includes history, romance, magic, and the glory of royalties in the Malayan kingdoms. Mostly, these texts are meticulously interpreted. Every story is described in a calibre language used in explaining every inch of the story including the description and the interpretation of costumes which carry a symbolic message in the ambiance of the story. Most folklore manuscripts describe costumes worn by the upper-class such as the royals based on how they were styled and that they were made from the references of inspirations of nature.

RESEARCH PROBLEM

Costume narration from the old Malay manuscripts is still being researched to date based on previous studies. The observations from past studies on old Malay manuscripts usually interpret their writing styles, the languages used, how the narrations are performed, how the state are governed, and many more. It is also recognised by Siti Zainon (1991) that there is still little emphasis on the typical Malay costumes by researchers in scientific research and writing. Furthermore, the use of classical language in the folk story is unclear and thorough interpretation of modern language theory is still minimal (Siti Zainon, 2009). Today's generation is more interested in visualisation as they like something to be seen directly. The interpretation of costume proses in the form of classical texts makes it difficult for today's readers to examine and understand the context of a costume feature in terms of the current sense of fashion. Adilah Jusoh (2015) also backed this claim, stating that elevated language prose remains enigmatic among the younger generation in any of the Malay's manuscripts. This has led to young people's lack of curiosity and commitment to immerse themselves in stories that are abundant with cultural values. Due to the lack of research on the studies of visuals from the manuscript, the idea of visualising the real costume prose is hardly understood.

RESEARCH METHODOLOGY

The textual analysis study is a method used to analyse the heritage costumes stated in the Malay folklore manuscripts. The depiction of heritage costumes is described into three parts which are namely; characters, situations, and moods to draw parallels with the ways costumes were styled. Through the use of vocabulary and terms on describing costume, a variety of types and styles that complement the beauty of costumes made back then is able to be discovered by readers. In addition, this study employed a variety of structured interviews and open-ended questions to deepen the experts' understanding of the research undertaken as well as the experts' opinions on the subject. Open-ended questions can also provide an opportunity for specialists to provide the topic of discussion with whatever responses they believe are

essential. Interviews between researchers and experts provide more accurate and precise data. The explanation of sustainable costume process will then be explained from the Malay literary texts mentioned in the Malay folklore manuscripts.

SUSTAINABLE HERITAGE COSTUMES IN FOLKLORE MANUSCRIPTS

A complete style of dressing is known as a costume which includes garment, ornament, equipment, and style. Costumes in the Malay world were worn in a particular period as a national costume. Back to the basics of functional clothing as in the geographical context, clothing or garment is the main 'object' in protecting the body of the wearer from extreme climates. Since the Malay Peninsula is located in the equatorial region with a tropical monsoon climate, the forms of clothing worn back from the prehistoric times about more than 200 000 years ago were made of light material of natural origin such as woven leaves and barks, which are suitable for two-season weather of rain and dry throughout the year. The process includes softening the woven leaves and barks by using special textured stones and scratching on the surface of the woven leaves and barks to create softer surface of the garments. Prior to cotton, orchids, pineapple bushes, and wild banana trees were used by the Malays as natural fibre to create cloths. Apart from that, palms trees of the *Corypha Gebanga* species were also used to create a different material of cloth during the old days. This process shows that ancient people back then were already preserving the nature by making things from scratch and benefiting future generations in keeping the planet resources safe. After the rise of the Malay civilisation in the Malay Peninsula, the art of weaving was discovered. Textile is not just textile; it is part of the Malay culture which is essentially part of ritual purposes and ceremonies in the Malay society. Heritage costumes were written and mentioned in most of the Malay manuscripts in the forms of classical Malay literary texts that provide greater depth of symbolic and aesthetic values of costumes in the Malay world. *Ikat* cloths are one of the essential cloths stated in most of the old Malay manuscripts. The *Ikats* consist of four types; *kain ikat pua*, *kain ikat loseng*, *kain ikat limar* and the most mentioned; *kain cindai* or the *patola* cloths. According to Siti Zainon (2018), *ikat* has been practiced since the Dongson era by using the warp *ikat* technique where warp thread is partly bound and patterned prior to weaving and ready to tie-dye process. The colouring process involves natural dyeing using the *lembak* leaf as a resist to create a pattern where the leaf is tied around the warp yarn before undergoing the dyeing process. *Mengkudu* roots or *Morinda Citrifolia* are used as a traditional natural dye to create the red colour. In order to get the rusty red colour, the Malays used *Passuchotria Viridiflora* or *engkerbai* leaves mixed with lime as a mordant to create the desired rusty red.

Tarum leaves (*Indigofera*) then are used as an extract colour of navy blue in dyeing the warp yarn. Usually, these colours are used in the *Ikat Pua* cloth. Besides, the Malays also came out with some of the indigenous plants' dyes, such as the *murudu* roots, indigo, and the *sepang* bark in order to strengthen the aesthetic and symbolic values of the particular cloths. Then, the oil from the candlenut tree were used as a previous treatment on the cloths. The *Cindai* cloth is another type of the *ikat* family. The weaving process involves double *ikats* usually made from fine cotton or silk enriched with silver thread, additional gold, and stamped with gold leaves. The name of *cindai* or *patola* itself is derived from the pattern of the snake gourd fruit and python which represents nature in everything, which shows how much the Malays appreciate nature. Another popular cloth that is always mentioned in the Malay folklore manuscripts is *sakhlal*. *Sakhlal* is known as a felt cloth or broadcloth. This type of cloth is often used and worn by the upper-class such as the royalties. The material of this cloth is made out of animal fur such as sheep fur and goat fur. Unlike other materials of cloths, the making process of this type of cloth does not involve weaving. Instead, it is compressed with hot-steamed power. Usually in the Malay literary texts, the word *sakhlal* is often mentioned with *sakhlal ainul-banat*. According to Azzah Aziz (2009), *ainul-banat* is one of the finest and luxurious cloths embedded with gold thread known as 'Eyes of Maidens'. This type of cloth has always been a choice of the kings and the nobles as it involves a series of the finest and the most detailed weaving craftsmanship without damaging or polluting the world. From the materials used in most of the garment process, it can be seen as highly valuable which inspires the greatness and the beauty of the divine nature being applied in the Malay arts since thousands of years ago. The following are categories of related descriptions found:

Sustainable Heritage Costumes				
Garment	Bottom	Headgear	Sash	Waist
<i>Baju Beledu</i> <i>Tengkuk Kuning,</i> <i>Baju Alang</i> <i>Sayap Layang</i> <i>Layang,</i> <i>Baju Pokok,</i> <i>Baju Sakhlal</i> <i>Ainul Banat,</i> <i>Baju Baldu Ainul</i> <i>Banat</i>	<i>Seluar Intan</i> <i>Dikarang,</i> <i>Seluar</i> <i>Gemerlapan</i> <i>Cermin Di Kaki,</i> <i>Seluar</i> <i>Pancalogam</i> <i>Dikarang,</i> <i>Meribu cermin di</i> <i>pinggang,</i> <i>Seluar panjut</i> <i>panjang kaki,</i> <i>Meratus cermin</i> <i>di kaki,</i> <i>Kembung</i> <i>Seluar Aceh</i>	<i>Tengkolok Kampuh</i> <i>Pelangi,</i> <i>Tengkolok Kampuh</i> <i>Pelangi Kuning,</i> <i>Tengkolok Alang</i> <i>bersurat kalimah</i> <i>halimunan</i> <i>Sulaiman,</i> <i>Solek Elang</i> <i>Terbang</i> <i>Menyongsong</i> <i>Angin,</i> <i>Tengkolok Hitam</i> <i>Belah Mumbang:</i> <i>Tengkolok Sering,</i> <i>Ayam Patah Kepak</i>	<i>Selempang Kain</i> <i>Bugis</i> <i>Kembayat,</i> <i>Selempang</i> <i>Sutera Bali</i>	<i>Kain Cindai</i> <i>Berambu Kuning,</i> <i>Kain Cindai</i> <i>Jantan</i> <i>Berbenang Emas,</i> <i>Berikat pinggang</i> <i>kain jong sarat,</i> <i>Kain Kembung</i> <i>Kampuh Pelangi,</i> <i>Ikat Pinggang</i> <i>Kain Cindai</i> <i>Jantan,</i> <i>Kain kesumba</i> <i>murup,</i> <i>Kain cindai</i> <i>jantan panjang</i> <i>Sembilan,</i> <i>Ikat pinggang</i> <i>Kain Limau</i> <i>perbuatan Bali,</i> <i>berkain Bugis</i>

Table 1: Categories of Sustainable Heritage Costumes

CONCLUSION

At present, an interesting fact about prehistoric traditions in wearing the simple forms of clothing of leaves and barks is that they are still practiced by the people of the Dusuns, Torajans of the Celebes, Penans, and Ibans. These ethnics mostly live deep in the interior parts of islands in the Malay Archipelago. This has shown that the process of garment-making from the prehistoric days are still relevant to wear in certain areas of this world until now. There are no chemical residues or pollution involved in the process of garment-making back then. Sustainability in the Malay world has been applied since thousands of years ago. It can be seen by the Malay's tradition in appreciating the nature by applying most of what are around, extracting the full essence of it from specific motifs and forms, common materials, and the unique artistic sensitivity of numerous artworks that remain unknown. This is in line with the definition of sustainability by the United States Environmental Protection Agency (2020) which stated that sustainability is about creating and maintaining the conditions of humans and nature in order to live in productive and harmony life and at the same time supporting present and future generations.

RECOMMENDATION

In order to preserve and re-introduce the glory of sustainable heritage costumes in the Malay manuscripts, subsequent studies can be performed in highlighting a study referencing on styles of vocabulary and fractured words used in the old Malay manuscripts. By doing so, these vocabulary usages can be seen from a whole new perspective and can be explained in more detail. Future researchers can also unravel the uncertainties by focusing on philosophical aspects of the costumes mentioned in manuscript writing. This will reveal more insights regarding the contents carried by previous researchers so they can be used as a comparative study of costumes by future researchers on relevant fashion studies.

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Design DNA: Theory Reviewing Behind the Behavioral Aspect in the Levels of Design

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ABSTRACT

Behavioral was defined in various ways of perspective regarding lives such as humans, animals, and nature. Related to acting or behaving in general, the behavioral aspect in design is abbreviated to end in response, purposely to perceived stimulations that are linked to responses produced and the design that encourages the user to react. The design level was proposed and specified by Norman (2004) as the requirement, guideline, and characteristic aspects before design. This behavioral aspect is a vital component of design levels in every design that one desired to make. The function, usability, safety, operation, and user pleasure are the other definitions to the behavioral perspective in the design levels and, it is also the second level of design at consideration in designing things after the visceral level. As the design level is a fundamental subject in design, the theory reviewing here is exposing the formulation idea in the value for recognition, trademarking and, identical aspects for product criteria specified in the behavioral level in adding product value called the 'design DNA'.

Keywords: *Design DNA, Design level, Behavioral design, Product function*

INTRODUCTION

The sense of recognition and identification over products is referred to as brand identity in general understanding, and design DNA is basically the identical significance in design. Regarding design DNA, it derives from the theory of human beings as DNA, referring to blood and human characteristic from the combination of genetics. Thus, this concept was adopted widely in the design field to define an initial identity for design, brand, and products. Fundamentally, before design DNA was formed, it is necessary to understand the design criteria and the consideration that a designer should take before doing design. Norman (2004) proposed the design levels and revealed the three levels where one took as a level, criteria, and selection to remark as design DNA in this study. The level after the visceral level is the behavioral level, which is the second level. It is a new idea after the formulation of visceral design DNA, which derives from the particular algorithm between shapes and elements by Misri, I. (2015), was technically found. In the second level of design, the behavioral aspect or other common terminology that shares a similar meaning as 'the function' would be the aspect that is focused on in this study.

LITERATURE REVIEW

The Behavioral Aspect in Design Levels

Compared to the visceral, the complexion of this function or behavioral level is seen in finding the valid aspect as product function and technique for the design DNA formulation. The design level has three stages which are 1) Visceral, 2) behavioral, and 3) reflective as the second (2) level are adapted to form the design DNA, as the guideline shown in figure 1. The visceral or the visual aspect in design DNA was already founded with the criteria components is the shapes and elements. The point here is to fill the second-level criteria components on the behavioral level. Significantly, the function terminology was declared similar to behavioral in other systematic ways and, the proper term for the criteria components arrangement is shown next.

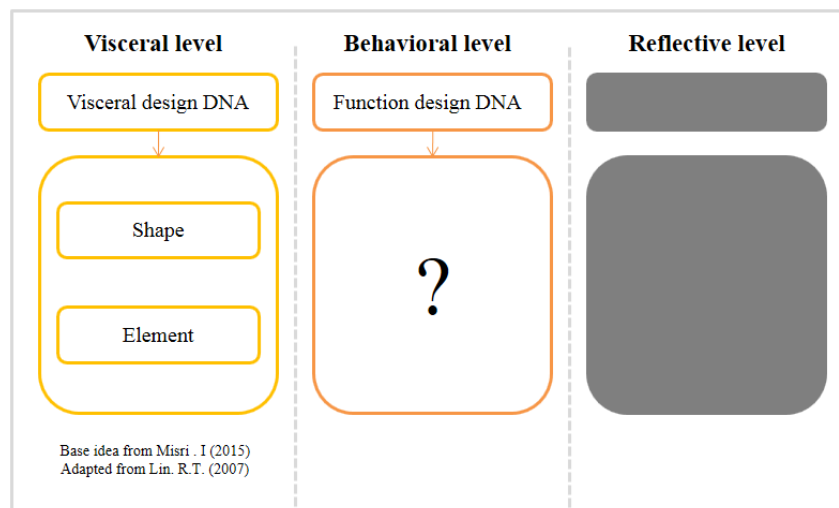


Figure 1: The Design DNA Pre-Guidelines

According to figure 1, the component for the behavioral / function design DNA will be searched, and before it started all over, the criteria component, which is the core aspects in each design DNA must be explained and understood. The criteria component derives from the combination of the 'gene' in DNA term or formally known as the subject, and this process is called the 'genetic algorithm'. The gene itself has two kinds: the genotype and phenotype (Lee and Tang, 2004). Subjectively, based on the components, it could be more than one genetic algorithm instead of each. Back to the gene, the appearance either in genotype and phenotype initially referred to the best selection amongst the list of genes and known as the fittest gene to survive as the part of component's straightly to the desired design DNA. Hence, if the fittest appearance is single, the kind of gene is the genotype, and if the appearance were attached or firmly in two or more, it goes to the phenotype kind. For example, for the visceral design DNA study (refer to Misri, I, 2015), the shape is the criteria component with the fittest gene is 'the circle' (genotype) was founded using the sample of cultural products features. Another component in this DNA is 'the element' which in the study found three particular kinds of flowers pattern by races, and these features were evaluated to find the fittest genes and references in merging to produce balance at gene determined as the phenotype. For this study, the set of criteria components' has been formed. The components were formulated to achieve the design DNA status, which in the combination of the components' called the 'Evolutionary Algorithm'. These terms are defined as the combination of two or more different types of segments of fittest genes to overcome the new evolution for design DNA. Most likely, this could be understood in the human occurrence when males and female who have different gender producing a child with cross genes between male and female; hence, a new genetic (child) is formed.

The Function Is the Behavioral

The function is also the other word for the behavioral. Other than Norman's definition, the function is also known as the relation between a human user's goal and a system's behavior (Bobrow, 1984: p 2). From the design perspective, this level refers to the purpose of a product being made, probably, to solve daily life issues and seek a better living and make life easier with the product's assistance. Hence, this function encourages the innovators or designers to elaborate and connect the function to a user through artefact or product. Whereas the designers work to produce a product or artefact specification which perform certain functions (refer Roozenburg & Eekels, 1995: p 53; Suh, 1990: pp 25-26). Generally, the function is more into what the product could do and how it can help solve problems, but technically, it has more than just the function. From Preston (1998) and redefined by Crilly (2010), the fundamental study of 'the function' was drawn from the numerous academic disciplinary within the intention of the function aspect. The function was divided into two categories: 1) Categorization referring to Purpose, Effect or Means and 2) Categorization referring to Selection, Intention, and Recognition. It has seven functions in each category. The reason for separating the category is that the function has been made to the artefact (term of the things before the product functionality was produced purposely and the function selected or alternate to the other exact function. For example, a car's basic function is for transporting people or things from one point of place to another point, which is the categorization of Purpose, Effect, and Means (PEM). In other ways, the car could be the barricade for blocking the road for certain intentions, and by changing the main purpose of the car, the function also changes categorized in the Selection, Intention, and Recognition (SIR) level.

Classification according to purpose, effect or means	Physical functions
	Status functions
	Technical functions
	Social functions
	Ideological functions
	Aesthetic functions
	Non-aesthetic functions
Classification according to selection, intention and recognition	Proper functions
	System functions
	Design functions
	Use functions
	Service functions
	Manifest functions
	Latent functions

Figure 2: The Functions List in the Categories

The list of functions in categorization is also called classification by Preston (1998), which describes that the PEM and SIR have their specific role in segregating every function from what is basically defined. Referring to figure 2, it starts with PEM top-line definition, 1) Physical functions: this is a general function assigned to, where this function depends on the artefact or physical product features, behavior, and properties. 2) Status functions: this refers to the function that is attained by the symbolic status consequences instead of their capacities of physical (Searle, 1995: pp 39-41; p 12). Hence, three major functions seem continuous and related within, which are 3) Technical, 4) Social and, 5) Ideological functions. The technical function refers to the functions over artefact or product that works in environment and physical surrounding, the social functions that work in regard of the social system and ideological is a reverence to the component aspect of

culture (Rathje & Shiffer, 1982: pp 65-67; Schiffer, 1992: pp 10-12; Schiffer & Skibo, 1987: p 596; Skibo & Shiffer, 2008: p 110). Continuously, 6) aesthetic functions and 7) non-aesthetic functions that gather in a group related to the circumstances and more into art practice-based. The aesthetic in the point is the function of embracing or sustaining aesthetic value such as beauty and daintiness, and non-aesthetic is opposite as it is unnecessary to make an object an artwork but intangibly seen in revelation (of certain truth), representation (of a certain object), and provocation (of certain action) (Stecker, 1994: p 260; also see Hansson, 2006; Zangwill, 2001: p 141).

In the next category, SIR has seven functions types, starting with 1) Proper functions as the start. It describes the presence of the product in the context of its selection background. Compared to in the same group but in discrete intention, 2) system functions are generally defined by the product's capacity to execute a function in a certain context. For example, the hammer's proper function to drive in a nail in the wood and system function is utilized when the hammer was used as paperweight instead, without any reproduced concern to a new product. In the other functions, kindly in the group with more consideration for the designer and user at intentional behavior, there are three types of functions, 3) design functions, 4) use function and 5) service functions which described what purpose is product designed, what it is used for, what is the product can serve in the aspect of beneficial (Achinstein, 1977). Next, this set of group functions considers the intensity and extent of acknowledged and recognized (distinguished 6) manifest and 7) latent functions. The manifest functions refer to those objectives implications that the participant in the system intends and acknowledges while the latent functions are those function that works oppositely which non-intended and nor acknowledges by the participant (Merton, 1957: p 51; Mahner & Bunge, 2001: p 90; Searle, 1995: p22). For example, the expensive and luxury products (manifest) are unappointed to the performance and quality, but to expose the owners' affordance, social status, and wealth (latent), outwardly, the latent functions may well be the reason some product or artefact keep surviving and produced (Almquist & Lupton, 2010).

The Formulation of Design DNA in the Behavioral Aspect Level

The major part of design DNA and the function details described are compulsory tools before including the formulation in the process. In finding desired DNA, the sample of respective concerns or subjects essentially must be specified. The acquired product must have identical aspects of brand development with the intrinsic aspect of design DNA. Determining similar characteristics was done through the communication among the designer and user, and product or artefact as the platform. Berlo (1960) suggested some characteristics such as 'culture', 'communication skills', 'attitudes', 'knowledge', and social system as important roles relating to the sender (designer) and receiver (user). These characteristics are considered subjects of communicating non-purposely for the design DNA but still beneficial as a guideline to ease the process of formulating design DNA, as seen in the 'Sample Base' in Figure 3. Before it is further developed, the framework for the function design DNA is essential to look to stimulate the understanding process.

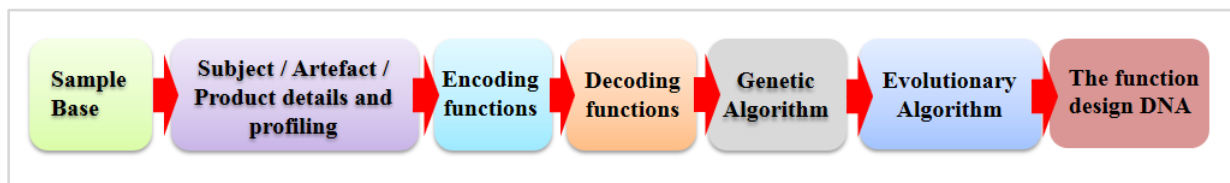


Figure 3: The Function Design DNA Formulation Framework

Initially, it aims to extract the details of the subject or sample as the core for the DNA formulation, such as culture. Lin proposed the Cultural Product Measurement table (CPM). R.T (2007) to elaborate cultural product specifications detail (Refer to Subject / Artefact / Product details and profiling in Figure 3).

Table 1: The Cultural Product Measurement Table

Object	(1)
Type	(2)
Tribe	(3)
Picture	(4)
Material	(5)
Colour	(6)
Pattern	(7)
Principle of formation	(8)
Classification	(9)
Operation	(10)
Using scenario	(11)
Cultural content	(12)

Generally, CPM defines product profiles in detail. However, optionally, it could be the platform to extract details for any data related to the expecting content for the design DNA formulation, including some adaptation without any abuse on the basic CPM structure. As the starting point to the process, the respective subjects' population is required to be found, collected, and filled in CPM (see figure 4) to identify which specification and details that possess the type of function in PEM and SIR. In figure 3, it is shown that all columns are organized, and these rows are expected to be filled with product or artefact profiles. The sampling process is shown in figure 5.

Picture		
Object	Keris (Kris)	
Type	Weapon for Malay self-defense and martial art.	
Race / Tribe	Malay	
Material	Steel, cooper, wood (handle and case) gold, silver, gems detailing	
Color	Natural-wood color, painted, nature base	
Pattern / Shape	Prosperously implemented with floral patterns and Mujarad style.	
Principle of formation	<ul style="list-style-type: none"> - Flat back and upward edge and handle form of pistol grip shape. - The accuracy of workmanship helps it to stand on the edge of form. 	
Classification	<ul style="list-style-type: none"> - Classified with its own motive by the style, the materials, the wavy blades and the holster. - The wavy blade, holster and other feature details have their own characteristics to validate the identification and distinctive meaning that specifies the status of the holder. 	
Cultural content	<ul style="list-style-type: none"> - The royal sovereignty sign and the array of valued pieces of art. - The piece of art represents the finest level of workmanships. - Believed to have the divine capacity and determination to shield the person from physical injury. - The old claims that Kris or Keris seems to have its own 'spirit' tied to it should stand on its own feet, but in the modern paradigm, logically, this could balance on its own feet if it builds with the correct methods and efficiency. 	

	CATEGORIZATION REFERRING TO PURPOSE, EFFECT OR MEANS (artefact's Function is- or should serve)	Physical functions (Phy)	/
		Status Functions (Sta)	/
	CATEGORIZATION REFERRING TO SELECTION, INTENTION AND RECOGNITION. (artefact's Function as- or intention / selection)	Technical Functions (Tec)	/
		Social Functions (Soc)	/
	CATEGORIZATION REFERRING TO SELECTION, INTENTION AND RECOGNITION. (artefact's Function as- or intention / selection)	Ideological Functions (Ide)	/
		Aesthetic Functions (Aes)	/
	CATEGORIZATION REFERRING TO SELECTION, INTENTION AND RECOGNITION. (artefact's Function as- or intention / selection)	Non-aesthetic Functions (Noa)	/
		Proper Functions (Pro)	/
	CATEGORIZATION REFERRING TO SELECTION, INTENTION AND RECOGNITION. (artefact's Function as- or intention / selection)	System Functions (Sys)	/
		Design Function (Des)	/
	CATEGORIZATION REFERRING TO SELECTION, INTENTION AND RECOGNITION. (artefact's Function as- or intention / selection)	Use Function (Use)	/
		Service Function (Sev)	/
	CATEGORIZATION REFERRING TO SELECTION, INTENTION AND RECOGNITION. (artefact's Function as- or intention / selection)	Manifest Functions (Man)	/
		Latent Functions (Lat)	/

Figure 5: Sample Product Specification and the Functions Encoding

A sample of the process is shown in Figure 5, accompanied by two partial tables on the right and left. The specification details are explained on the left table and, the 'Encoding function' process in at the right figure with remarks on which type of functions specified in each categorization of product or artefact. Each type of functions are coded into specific capital for ease segregations between functions from the encoding table. Moreover, this process would continue in terms of the population's scales and depending on the most preferred subject, which is vital to the desired DNA searching.

Table 2: table list for total result by each subject according to categorization

	Subject	Total
Categorization referring to Purpose, Effect or Means	Phy	
	Sta	
	Tec	
	Soc	
	Ide	
	Aes	
	Noa	
Categorization referring to Selection, Intention and Recognition.	Pro	
	Sys	
	Des	
	Use	
	Sev	
	Man	
	Lat	

The decoding process shows the results of the population base from the selected subject based on initial consideration. From here, the search for the compatible functions or genes would start. The decoding is pulling off the frail functions known as the unfit gene type in DNA terminology. In the population, the unavailable number would appear by functions. By categorizing the Genetic Algorithm (refer Lee and Tang, 2004; also Misri. I, 2015), which the gene numeration, the fittest gene are identified in total top number available among the scaled population, and this was done in each categorization of PEM and SIR and the others were decoded for reference in future. As seen in figure 7, the compatibility of functions or genes within the categorization observed some of the issues identified at the top. The total number has similar functions or genes in the same categorization. As this happens, the fittest function in the categorization with more than one function was meant to be suitable within the categorization in gene or functions combination, especially in PEM. The possibility of having the compatible combination is in the categorization of SIR if the fittest number total appears in two kinds of functions or gene. In this phase, PEM is seemingly categorized without any compatible match between functions and stands firmly to have a productive combination, known as The Evolutionary Algorithm (EA) (refer Lee and Tang, 2004; Misri. I, 2015) take the role.

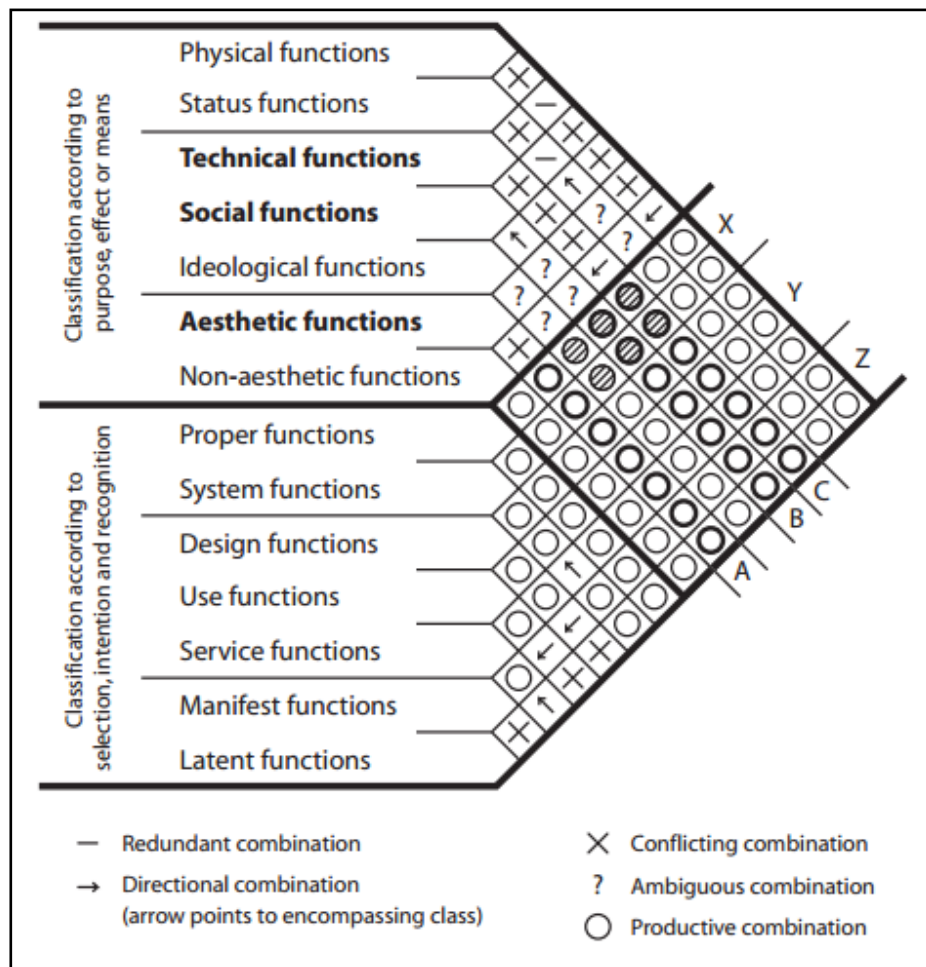


Figure 6: The Categorization (Classification) Of PEM and SIR Functions' Combination Framework

EA is simplified as a crossover combination between two categories as the idea was taken from the human combination DNA. In this role, the EA has all productive combinations when functions' categorization are merged, as shown in figure 7 and the perfect combination is the desired function DNA for the respective subject study. At some point of issue, the PEM without any compatible match within categorization as seen in the Genetic Algorithm (GA) process. Suppose the possibility of fittest functions or gene that appear more than

once, considering pulling up all function availability as the top in population for the DNA required, will be made. For example, technical and social functions (PEM), which incompatible within but still be the fittest in categorization, will be combined with the design function (SIR), which compulsory as the fittest in the total population. This step will still produce a perfect combination for the function design DNA. Therefore, this is the identity reference in the perspective of functions of design DNA.

CONCLUSION

The behavioral or the function in design is an important criterion in design to answer the purpose of a product to be produced. Hence, for the idea to find a sample of design DNA at this behavioral aspect can be referred to Berol's theory for the best solution. Other theories reviewed such CPM's table are purposely to extracting kinds of the function that available in the selected product and continued with the Preston's function matrix to organized the available kinds of function into specific categorization as shows earlier. To finalize, the productive combination as shown in the functions matrix explained the fittest kind and capable type of function to be design DNA at the behavioral aspect. At these theory reviewing points, any product without purpose is ineffectual to be made and would not improve life quality. This process is an initiative for an idea to the designer and innovator as a reference for identity and trademarking idea to be realized. This review provides a more reliable track to improve product identity and branding. The search for an identical function aspect is the second obligation after the visual aspect. Its purpose is to make a product to be straight to the point of what the user wanted and desired. Also, it prevents the product from having any additional futile function that can increase the cost of production and losses.

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THE AESTHETICS OF CALLIGRAPHY ART IN THE KISWAH OF THE KAABA

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ABSTRACT

Arabic calligraphy art is the main artistic element that has been used to ornament the Kiswah of the Kaaba. Beautiful examples of Arabic calligraphy composition and design can be found in the Kiswah of the Kaaba during the Saudi era. The Kiswah of the Kaaba is selected in the present research due to the unique composition of the Arabic calligraphy art. The study will provide a source of information to understand the Arabic calligraphy art applied to the Kiswah of the Kaaba from a unique perspective. This study is an artistic analysis to reveal about the aesthetics aspect of Arabic calligraphy design in the Kiswah of the Kaaba. The study utilised the qualitative method of research. The data collected for the study was analysed based on the Feldman's four-step approach in evaluating an artwork. The four steps are namely; descriptive, formal analysis, interpretation and judgment. The discussion section focuses on the detailed analysis of the artistic criticism method. The study concludes that the process of artistic criticism has led to reveal the aesthetics' element and principle of the Arabic calligraphy that is embodied within the applications of the Arabic calligraphy design in the Kiswah of the Kaaba. Also, the process of artistic criticism has led to reveal that the Kiswah of the Kabbah has achieved the highest aesthetical aspect of the Islamic art dimension.

Keywords: Islamic architecture, Arabic Calligraphy, Islamic ornamentation, Islamic art, Islamic civilisation.

INTRODUCTION

This paper presents the artistic analysis of the art of the Arabic calligraphy embellished on the Kiswah of the Kaaba. An example of the significance of the representation of the Arabic calligraphy composition is presented on the Kiswah of the Kaaba. The Kiswah of the Kaaba is considered the most famous sanctuary of Islam in Saudi Arabia. The application of Arabic calligraphy used on the Kiswah demonstrates the importance of the Arabic calligraphy art in the Islamic cultural identity (Abdul Gayoom, 2001).

Arabic calligraphy has a long-standing history in the Muslim society. Qur'anic verses have traditionally been written using this art form making it not only aesthetically pleasing but sacred in nature as well. Arabic calligraphy has deep spiritual and artistic values which are expressed on the Kiswah of the Kaaba. This art has a long history and is considered a sacred art form for the Muslim society. Adorning the Kiswah with some

beautiful intricate design and composition of Arabic calligraphy with Qur'anic verses add sacredness to the Kiswah. The unique design of the Arabic calligraphy art which is presented on the Kiswah implies an aesthetical and spiritual appearance that is exquisite and distinct. The aesthetical dimension of the linear formation on the Kiswah of the Kaaba presents unity, variety, balance and rhythmic pattern of the Arabic letters. Moreover, the aesthetical principles of the Arabic calligraphy design reflect the values and richness of the Islamic art. The configuration of the Arabic calligraphy design makes profound artistic styles and directions (Al-Anbaki, 2013).

LITERATURE REVIEW

Even though many writers have written extensively about the history of the Kiswah of the Kabbah, this research attempts to examine the art of the Arabic calligraphy that is visible on the Kiswah of the Kabbah from a different perspective. This research aims to reveal the aesthetical elements and principles that are inherent in on the Kiswah of the Kabbah. The Kiswah is considered a valuable piece of the Islamic art. Generally, Arabic calligraphy and linear formations embodied on the Kiswah of the Kaaba are characterised by a combination of artistic beauty magnificent and majestic view due to the flexibility and ability of the Arabic letters to form, mutate, superposition, intertwine and overlap. This gives the Kiswah a very beautiful appearance and adds a touch of dignity and prestige to it. Also, these calligraphic formations were distinguished by the combination of the aesthetic of the reciter and the good writing in an artistic calligraphic panel interconnected in the textual structure in order to produce for us an aesthetic visual rhetoric indicating the genius of the calligrapher based on a great Islamic artistic legacy that combines the heritage of the past and the originality of the present (Al-Mojan, 2012).

RESEARCH METHODOLOGY

The theoretical framework of this analysis is adapted from Edmund Feldman's (1993) four-step structure of criticism consisting of description, analysis, interpretation and judgment.

FINDING

The artistic analysis of the Kiswah of the Kaaba during the Saudi era is based on the Method of Art Criticism – The Critical Process by Edmund Feldman which includes four steps which are namely; description, analysis, interpretation and judgment.

Figures and Pictures

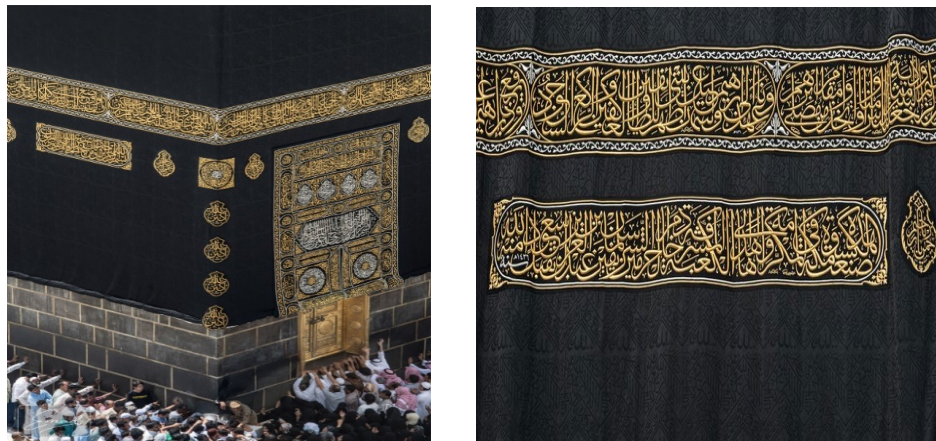


Figure 1. Detailed pictures of the Arabic calligraphy art displayed on the Kiswah of the Kaaba (2014)
<http://www.emadphoto.com/#/makkah/>

Table 1 Method of Art Criticism – The Critical Process by Edmund Feldman

No.	The Critical Process by Edmund Feldman	The Critical Process
1	<p style="text-align: center;">Description</p> <p style="text-align: center;">Naming and describing the facts</p>	<p>Naming what an observer sees is part of the overall process of description.</p>
2	<p style="text-align: center;">Analysis</p> <p style="text-align: center;">Analyzing the facts</p>	<p>Dealing with visual evidence. It is an advanced type of description.</p>
3	<p style="text-align: center;">Interpretation</p> <p style="text-align: center;">Interpreting the evidence</p>	<p>The crucial third stage of art criticism: this is the point at which our search for meaning reaches a climax.</p>
4	<p style="text-align: center;">Judgment</p> <p style="text-align: center;">Judging the works of art</p>	<p>Final stage of evaluation of criticism is the evaluation of whole works of art. This sort of judging may seem presumptuous or perhaps it is downright foolish.</p>

Description

At the first step of the analysis; description, the Kiswah of the Kaaba is made of natural black silk. The size of the cover is 658 metres and is made of 670 kilograms of silk. The embroidery contains 15 kilograms of gold threads. It consists of 47 pieces of cloth, and each piece is 14 metres long and 101 centimetres wide. All Qur’anic verses are written in Arabic calligraphy using the Thuluth style of writing. The formerly manual process of designing the embroidery of the Qur’anic verses is now assisted by computers, thus increasing the speed of production. The top third portion of the Kiswah is designed with an ornate belt. The belt’s dimensions are 95 centimetres in width by 45 metres in length. It is made of 16 pieces and surrounds the Kiswah from all four sides of the Kaaba. The belt is embroidered with protruding designs that are enamelled with silver threads and covered in gold. Traditionally, the Kiswah has been embroidered by hand. Today, the use of computer technology is helping artisans weave the designs, thus increasing the speed of production. The material is made up of silk, and a gold embroidered band is sewn about three fourth the distance from the bottom. The part covering the door, which stands 2.13 metres above the ground on the north-east side wall is covered separately with richly embroidered Qur’anic verses.

Analysis

The second step is the analysis of the elements and principles of the design. The lines are undoubtedly of extreme importance in the art of the Kiswah. Throughout the piece, the lines are beautifully placed in repetitive patterns in contrast to one another. There are strong geometric lines running horizontally and vertically across the surface, most of which are rectangular or circular in shape. The calligraphy itself is more organic with its circular and fluid lines. The words themselves are made with thicker lines while thinner lines are used for the diacritical marks. On the Kiswah, the lines in Arabic calligraphy can be described in several things. Some lines are flowing while others are delicate that can be seen on the black background of the Kiswah cloth. There are some simple geometric lines that form the shape of the composition of the calligraphy.

When it comes to analysing the tone of the application of the calligraphy design on the Kiswah, there is a high contrast between the subtle background and the creative and linear beauty formations of the calligraphy. There is a sharp contrast in the value of combination between the light and dark areas in the Kiswah background. The texture of the Kiswah is an essential element of designing the work of art. The texture of the cloth of the background of the Kiswah is beautiful and smooth. On the other hand, the texture of the Arabic calligraphy art is coarse, raised and uneven.

The art of calligraphy composition design on the Kiswah comes in various shapes. Therefore, there are some elements in the composition, such as the lamps that are distributed on the four sides of the Kiswah. On the other hand, the most visible shape of designing the Kiswah comes in geometric shape such as the rectangle that appears under the belt. The shape of the rectangle can be analysed as elongated. Also, there are many geometric shapes such as circles, triangles and squares. Also, the organic shape can be seen through the Islamic motifs. The design of linear formation of the calligraphy on the Kiswah is symmetrical on the four sides. The principle of movement is seen in every composition of the art calligraphy in the Kiswah design. The principle of movement can be seen through the calligraphic lines such as the swirling and flowing line of the Arabic letters.

In the Kiswah of the Kaaba, the colour is a crucial element to define the linear formation of the calligraphy. The colour of the calligraphic line helps each piece of different composition to stand out. The application of the colour of the Kiswah determines the composition. The background is black while the colour of the calligraphy line is gold and silver. The gold colour is considered as saturated colour because it has a high amount of brightness. The black background of the Kiswah can be defined as negative space. Meanwhile, while the calligraphic composition and form can be defined as positive space. In the Kiswah, the focal point of the Kiswah is the calligraphy geometric form and the curtain of the door of the Kaaba.

The element of value is tastefully executed and intricately designed throughout the Kiswah. Both high value contrasts and low value contrasts can be observed. At first glance, high value contrast is most prominently featured with the delicate gold embroidered calligraphic lines carefully placed in a linear manner across the rich, black silk surface. These lightly coloured lines follow a rectangular pattern with some circular patterns infused as well. Upon taking a closer look at the seemingly flat black surface, however, it becomes apparent that there are subtle dark valued lines of Arabic calligraphy also woven into the black the silk. They are equally linear but there is a strong repetition of diagonal lines that zigzag in their own rectangular pattern across the subtle dark background. The strength of their geometrical shape and linear repetition attracts the viewers' attention despite the seemingly low value contrast.

Interpretation

The third step of an artistic analysis is the interpretation of the design principle. The Arabic calligraphy composition on the Kiswah of the Kaaba creates an animated perspective using calligraphic line, repetition form and high contrast in the work to a point that the Kiswah of the Kaaba depicts the 3D view of the Arabic calligraphy. The most prevalent format of the piece is rectangular and the rich black background contrasts the gold and silver calligraphic line well. The calligraphy composition draws attention to the Kiswah. Also, all Arabic calligraphy designs are considered the focal point of the piece. This compositional choice of the placement of the calligraphy creates energy in a peaceful moment.

The design of the Kiswah uses various line qualities to create motion and animation throughout the whole work. The line of the Arabic calligraphy is dynamic and flow across all composition. The smooth and flat background of larger-scale script contrasts the small script that adorns the door of the Kaaba as well as the other composition. The writings in the background and foreground show evidence that repetition is made. The contrasts on the writings that adorn the background are made in a delicate way. This difference in line quality creates a dynamic relationship between the composition and the background.

Repetition is commonly used throughout the design of the Kiswah and it is evident in the calligraphic lines in the show movement and repeated gestures. Horizontal, curved marks act as directional lines to guide the viewers' eyes across the horizontal plane of the Kiswah of the Kaaba. The repetition of the size of the calligraphy and space also creates unity and balance in the Kiswah work. Incorporating layers of Islamic calligraphy applied by gold and silver threads over the entire composition using lines and repetition, the main elements of the Kiswah are visible.

As a result, the calligraphy lines successfully create an individual piece of art that creates movement, rhythm and dynamism using a technical, thoughtful approach. The art of calligraphy that is implied expresses the beauty and depth of the Islamic art heritage. The complexity of the Arabic calligraphy composition creates this language in its visual form to be seen by people from around the world. The calligraphy design combines some composition of the Islamic motifs in botanical shapes such as foliage. The aesthetical principles of calligraphy pieces that ornament the Kiswah are to demonstrate the values of the Arabic language.

Judgment

The fourth step is the evaluation the quality of the Kiswah. The Islamic calligraphy that is presented on the Kiswah has a distinctive character that makes it unique and different from other calligraphies in the world. It has balance and rhythm. Moreover, it is handwritten and the lines are overlapping. The Kiswah of the Kaaba contains a variety of shapes and patterns. Geometrical system of the calligraphy composition creates movement and harmony throughout the Kiswah. The elements and principles of design reinforce the organisational and aesthetical aspect of the design structure of the Arabic calligraphy on the Kiswah.

In the linear formation of the calligraphy, the illusion of space has been achieved through the overlapping between the Arabic letters and words. The design of the Kiswah looks organised via value relationship. The importance of this Arabic art form that is presented in the Kiswah describes its dimensions in detail and explain its significance not only as an art form but also as a sacred religious expression that has been held to the highest esteem by the Islamic civilisation. Unity, rhythm, and balance are the strongest principles of design associated with the calligraphy found on the Kiswah. The placement of the letters, their linear form and the high contrast between the lettering and the background reflect the values and richness of this ornate Islamic art.

The use of gold, silver and other colours has a profound meaning in the Islamic culture. In the Islamic culture, gold is the colour of paradise as the Qur'an states, "Those will have gardens of perpetual residence; beneath them, rivers will flow. They will be adorned therein with bracelets of gold." In general, the calligraphy art on the Kiswah of the Kaaba is an engaging, spiritual and unique artwork. The bright colours of gold and silver give the calligraphy art a sense of beauty, luxury and elegance. In addition, the technical skills and the quality workmanship to create the whole piece of the Kiswah as an example of a marvellous Islamic art. Finally, the Kiswah of the Kaaba is presenting a beautiful example of the Islamic calligraphy art and design. This art adds to the Kiswah a sense of spirituality and aesthetical character as well as enhancing the aesthetic of the Islamic art.

CONCLUSION

The Arabic calligraphy in the cover of the Kiswah appears in conjunction with organic patterns and motifs. The Islamic motifs that adorn the Kiswah have testifying diverse artistic statement. The aesthetical aspects of the calligraphy presented on the Kiswah are rhythm, repetitions and decorative patterns. Moreover, the art of the Arabic calligraphy and ornamentation presents complexity that holds the worshippers' attention to contemplate on the Kaaba.

Furthermore, the aesthetical aspects of Arabic calligraphy are movement and dynamism through the intricate lines and forms of the Islamic motifs. The beauty of the Islamic calligraphy presented on the Kiswah of the Kaaba is associated with Islam. The aesthetical principles of the Islamic calligraphy express unity and balance as well as to deliver a sense of universal spirituality. Meditating on the meaning of the sacred verses of the Qur'an is considered an essential aspect in adorning the Kiswah by using the holy book. The calligraphy on the Kiswah shows the variety and creativity as well as traditional Islamic colours.

The study demonstrates the effectiveness of the elements and principles of artistic design to enhance the aesthetical dimension of the Arabic calligraphy art that is presented on the Kiswah. The Kiswah of the Kaaba is notable for its sacred pieces of the Islamic art which is adorned with the verses of the Qur'an to convey the spirituality and the message of Islam. The glorious artistic heritage of the Islamic art is delivered throughout the Islamic motifs and calligraphy. The Arabic calligraphy is considered one of the most beautiful lines in the world because of its unique aesthetical features.

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Art Therapy for People with Mental Illness: Overview of the Evidence from Empirical Research on the Effectiveness of the Treatment

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ABSTRACT

Art therapy is a technique that uses creative expression to help people explore emotions, develop self-awareness and insight on life experience, overcome stress, increase self-esteem, and enhance social skills. Lately, there has been a growing interest among mental health professionals to prescribe art therapy to people with mental illness. It is crucial that the treatment for people with mental illness is informed by valid evidence, not merely anecdotal opinions, personal testimony nor superstition. This article aims to review the empirical evidence and discuss the question of whether art therapy is beneficial for an individual with mental illness. Articles published between 2000 until 2021 were retrieved from search engines including EMBASE, Medline and PsychINFO. A total of 55 empirical studies were reviewed. The majority of the review evaluating the effectiveness of art therapy suggested that most studies are limited by methodological issues including the small number of subjects, poor protocols of the intervention and subjective outcome measures. Nonetheless, current empirical evidence suggests that art therapy may be beneficial as a means for venting out the negative repressed emotions or trauma, improve communication, enhance interpersonal relationships and increase support system. Most mental health professionals recommend patients with mental illness are treated with proven effective psychotherapies (for mild to moderate cases), with additional pharmacotherapy (for moderate to severe illness), and art therapy serves as supplementary to these conventional treatments. Art therapy may be beneficial as an adjunct treatment for mental illnesses. More evidence is required to show the effectiveness of art therapy.

Keywords: *Art therapy, Mental illness, Psychotherapy, Counselling, Pharmacotherapy*

INTRODUCTION

"I dream of painting and then I paint my dream".

Vincent van Gogh (1853-1890)

Van Gogh, one of the most eminent artists in the world, and his masterpiece perceived by many as visual expressions of the troubled mind. The powerful expression through painting, however, was unable to cure his illness. He was suggested to have an inherited metabolic disease; intermittent porphyria which manifested with bouts of intervals between mental derangement and creativity, he died of suicide at the age of 37 (Blumer, 2002; Niels Arnold, 2004).

The story of Van Gogh tells us that managing mental illness is not an easy task. Using artistic work alone may not be enough to fight mental disturbances. Both, therapists, patients or clients, as well as caregivers, should strategize the best ways to provide the best care and treatment to manage the illness. In Malaysia, since the last decade, there has been a growing interest among mental health professionals such as counsellors, psychologists, psychiatrists to prescribe art therapy to people with mental illnesses (Amos & Khairani, 2020; Apdal, Karim, & Amat, 2020; Kim & Li, 2018). It is crucial that the approaches in treating people with mental illness are informed by valid evidence, not merely anecdotal opinions, personal testimony nor superstition. Hence, to equip the therapists with evidence-based therapy, this article aims to provide an overview of empirical evidence and discuss the question of whether art therapy is beneficial for people with mental illness. It starts with an argument on the causes and treatment for mental illness so that one can have a clear understanding of these fundamental aspects before discussing art therapy. The article then proceeds with summaries of the effectiveness of art therapy in the specified group of patients with reference to the available empirical evidence.

LITERATURE REVIEW

Emotion, behaviour, perception and cognition are subjective elements which difficult to quantify and measure. These qualitative parts of human nature are present in various ways and understood in a variety of interpretations. According to mental health professionals, when an individual manifest those psychological elements in abnormal ways, deviates from norms, and disturb his or her function, he or she is considered as having a mental illness [World Health Organization (WHO), 2021; American Psychiatric Association (APA), 2021]. In order to treat mental illness which, manifests in a complex and ambiguous presentation, understanding the genesis and the course of illness is paramount important. Moreover, a consensus in a form of standard guideline which is based on valid evidence is essential in managing the illness.

Genesis and Treatment for Mental Illness

The cause of mental illness is unknown. Supported by scientific evidence, mental health professionals believe that mental illness occurs as a result of interaction directly or indirectly between physical, psychological, and social factors (Davies & Roache, 2017). People may easily understand that severe stress results from life events (such as job stress, financial difficulties, trauma, marital discord, losses or death) that lead to mental illness. These are examples of social factors which relates to the interaction between an individual with his or her surroundings, people and environment. Acting in concert with the genesis of mental illness is the psychological factors include personality, temperament, psychological skills (such as poor problem solving, lack of assertiveness and poor stress management) and poor coping skills (Fournier, Roberts, & Ford, 2020). Spirituality and religious rituals are parts of many other types of coping. Almost all people experience adverse life events, but only those with poor skills to manage the problems may end up with mental illness. Equally important are the physical aspects include genetic loading,

hereditary tendency, neurochemical, neurotransmitter, enzymes, hormones, anatomical structure, physical disease and other somatic elements that contribute to mental illness (Uher & Zwickler, 2017; Yamada & Sumiyoshi, 2021). For example, one may have a mental illness when severe stress causes the imbalance of neurotransmitters (such as dopamine, serotonin and adrenaline) which is pivotal for the function of the brain limbic system; part of the brain which regulates (Marzan, Aziz, & Islam, 2021; Seitz-Holland et al., 2021). Another example of a physical factor is the gene; codes for a particular protein that is involved in the expression of traits that determines the individual's character or personality. In mental illness, gene polymorphism has been shown by scientists to take part in the genesis of mental illness (Marzan et al., 2021; Seitz-Holland et al., 2021). The contribution of physical aspects to mental illness may be difficult for ordinary people to understand, hence further explanation and education may be required.

This biopsychosocial explanation of the cause of mental illness is challenged when spiritual aspects, traditional beliefs and superstitions are parts of the grounded belief system. A recent systematic review of 15 studies in low and middle-income countries indicated that delays in treating severe mental illnesses such as psychosis ranged from 30 weeks to 225 weeks (Lilford, Rajapakshe, & Singh, 2020). The study suggested that accessing traditional healers as initial contact was significantly associated with a longer duration of untreated psychosis (Lilford et al., 2020). In Malaysia, about 54% to 69% of patients with psychiatric illness had at least once in contact with a traditional healer before seeking professional consultation (Raaj, Navanathan, Tharmaselan, & Lally, 2021). Delays in seeking treatment result in an increase in the duration of untreated illness, worsen the prognosis, make the remission of the symptoms difficult and recovery hard (Marshall et al., 2005; Perkins, Gu, Boteva, & Lieberman, 2005).

In keeping with the understanding of the biopsychosocial genesis of mental illness, mental health professionals have long practised a similar approach in managing mental illness (Álvarez, Pagani, & Meucci, 2012). Guidelines are developed to assist the therapist in providing services following evidence-based practice in reference to high-quality evidence such as systematic reviews, meta-analysis and randomised controlled trials (RCT) (Djulbegovic & Guyatt, 2017). For the psychological approach, as parts of guidelines, the recommendation for psychological approach, counselling and psychotherapy mostly aim to increase the psychological skills and to restructure the distorted belief and negative thoughts of those with mental illness (Carey, Griffiths, Dixon, & Hines, 2020). Psychotherapy also helps to correct the enmeshed interpersonal relationships, dynamic and social functions of individuals with mental illness (Weissman, 2020). The effectiveness of psychotherapy has been documented by numerous research and many guidelines (such as National Institute for Health and Care Excellence, NICE (2021) guidelines and American Psychiatric Association Clinical Practice Guidelines, APA (2021a)). Most mental health professionals recommend that psychotherapy is the main treatment and effective for mild to moderate cases of mental illness such as anxiety or depression (Van Dis et al., 2020). Furthermore, targeting the physical aspects of the illness is also crucial in treating mental illness. For severe illness, psychotherapy serves as an additional intervention to pharmacotherapy such as antipsychotics, antidepressants or mood stabilisers. In disturbed patients, psychotherapy may reduce stress, increase functions and improve quality of life (Laws, Darlington, Kondel, McKenna, & Jauhar, 2018). According to the guidelines, for severe mental illnesses such as major depressive disorder, bipolar disorder and schizophrenia, psychotherapy alone is inadequate, hence, neurotropic medications are required to control the symptoms, prevent relapse and achieve recovery (APA, 2021a; NICE, 2021). Finally, for the social aspect of the management, support from the caregivers, social inclusion, minimise stigma and promote healthy lifestyles are part of the management of mental illness (Aldersey, Adeponle, & Whitley, 2017).

Psychotherapy and Counselling

There are many psychotherapies and counselling available for mental health problems and illnesses. Psychotherapy is a well-structured process of 'talk therapy' with specific goals of treatment and delivers for several sessions (often 6 to 20 sessions) by qualified and trained mental health professionals such as a psychologist, psychiatrist or counsellor [European Association of Psychotherapy, EAP (2021)]. On the other hand, counselling is often a one-off session to provide support, assistance and guidance in resolving personal or psychological problems. Counselling can be offered by trained personnel such as mental health professionals, nurses, teachers and social workers. Contemporary and well-studied psychotherapies that show the effectiveness in treating patients include cognitive behavioural therapy (CBT)(Feng, Han, Li, Geng, & Miao, 2020; Huang, Zhao, Qiang, & Fan, 2018; Reavell, Hopkinson, Clarkesmith, & Lane, 2018), interpersonal psychotherapy (IPT) (Sockol, 2018; Whiston, Bockting, & Semkovska, 2019), psychodynamic therapy(Briggs et al., 2019; Ho & Adcock, 2018), cognitive analytical therapy (Hallam, Simmonds-Buckley, Kellett, Greenhill, & Jones, 2021), family therapy (Cottrell et al., 2018; Spain et al., 2017), marital or couple therapy (Barbato, D'Avanzo, & Parabiaghi, 2018; Roddy, Walsh, Rothman, Hatch, & Doss, 2020) and group therapy (Elias, Neville, & Scott, 2015; Li et al., 2020). For counselling, a few examples include stress management, anger management, peer counselling, grief counselling, diet and weights counselling and many others. Traditionally, psychotherapy and counselling are conducted face-to-face individually or in a group. Nowadays, with the advance in media and the internet, psychotherapies and counselling can also be delivered through virtual methods or telephone calls (Landes, Smith, & Weingardt, 2019; Maier, Riger, & Morgan-Sowada, 2021).

RESEARCH METHODOLOGY

Prescribing patients with mental illness requires the therapist to be informed with evidence-based medicine and to follow the recommended guideline. In Malaysia, since the last decade, there has been a growing interest among mental health professionals such as counsellors, psychologists, psychiatrists to prescribe art therapy to people with mental illness (Amos & Khairani, 2020; Apdal et al., 2020; Kim & Li, 2018). Hence, to equip the therapists with evidence-based therapy, this study aims to provide an overview of empirical evidence and to discuss the question of whether art therapy is beneficial for people with mental illness.

Data sources include narrative or systematic reviews and research published between 2000 until 2021. Using a keyword of 'art therapy', search engine including EMBASE, Medline and PsychINFO were used to retrieve relevant journal articles on clinical trials evaluating the effectiveness of art therapy. Selection criteria include journal articles published in English and available in full text. Refer to Figure 1 for the procedure of the review. A total of 174 abstracts from the search engines were initially retrieved. Thirty-nine abstracts had no full-text articles and were subsequently excluded. From 135 potential articles, eight articles were review articles and others were articles of empirical studies. Eighty articles were excluded because of a lack of proper methodological description on data collection and statistical analysis. The articles were iteratively read and the synthesis of the findings, authors comments and recommendations are presented in this article.

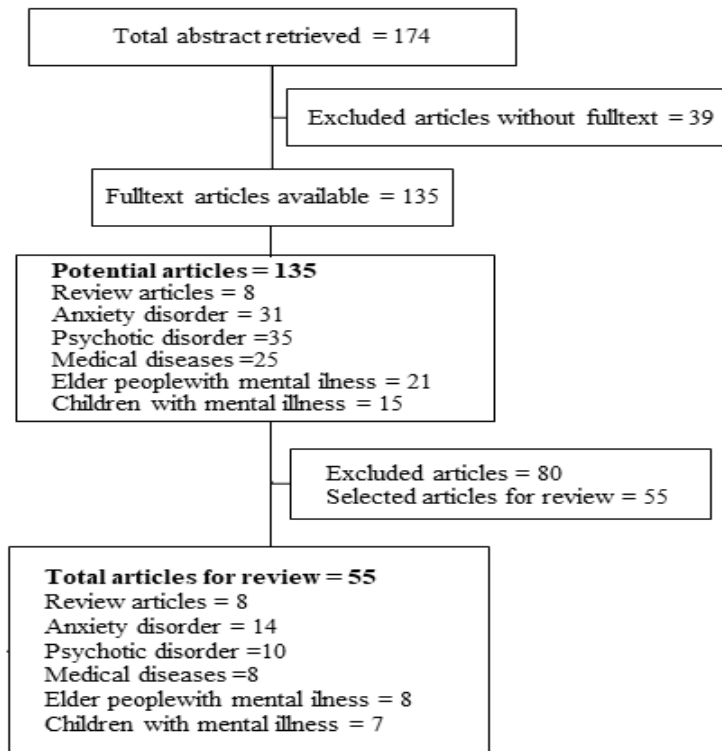


Figure 1: Flow of the process of selection of the articles for the review

FINDINGS AND DISCUSSION

Art therapy is a technique that uses creative expression to help people explore emotions, develop self-awareness and insight into life experience, overcome stress, increase self-esteem, and enhance social skills (EAP, 2021). Various types of expressive mediums are considered as art therapy such as drawing, painting, crafting, sculpture and clay-work. Moreover, included in art therapy is music therapy, dance and movement therapy, and drama therapy (Deshmukh, Holmes, & Cardno, 2018). Its nonverbal aspects may make it highly relevant to patients or clients with different language and ethnic backgrounds. It is crucial for one to understand that clients who are referred for art therapy are not required to have experience or skill in the art and the aesthetic or diagnostic assessment is not the priority (Deshmukh et al., 2018). Psychologically, it is suggested that through art, the conscious and unconscious emotional trauma of the life experience can be channelled out to relieve the negative energy through the process of catharsis (Klinke, 2018; Palupi, Rahmanto, & Lestari, 2020; Waller, 2006). Moreover, the social activities which come together during the session of group art therapy may enhance social support and improve interpersonal relationships which is vital for mental health (Wang, Mann, Lloyd-Evans, Ma, & Johnson, 2018). In recent decades, more studies have been carried out to investigate the effectiveness of art therapy in managing mental health problems and mental illness. The findings are mixed and limited, but promising (Bastiampillai, Allison, & Gupta, 2016; Gastaldon et al., 2019; Holtum & Huet, 2014). Most often, art therapy which incorporating fundamental elements of psychotherapy such as cognitive behavioural therapy and psychodynamic psychotherapy are those that show good effects (Baker, Metcalf, Varker, & O'Donnell, 2018; Boehm, Cramer, Staroszynski, & Ostermann, 2014; Schouten, de Niet, Knipscheer, Kleber, & Hutschemaekers, 2015). The majority of mental health professional believes that art therapy may be beneficial for mild to moderate mental illness when combined with conventional treatment, and for severe disorders, it serves as a complement for psychotherapy and pharmacotherapy (NICE, 2021)

Art Therapy for Anxiety

Anxiety disorders are one of the most diagnosed mental health disorders. Common symptoms of anxiety include shortness of breath, chest discomfort, palpitation, irritability, worries, fear, feelings of uncertainty and anticipation of negative consequences. Anxiety can come as mild symptoms to continuous apprehension, or sudden episodes of a panic attack or phobia. Common diagnoses including posttraumatic disorder (PTSD), generalised anxiety disorder, panic disorder, separation anxiety disorder, social phobia, specific phobia or agoraphobia. Mainstay proven treatment according to renowned guidelines consists of cognitive behavioural therapy and pharmacotherapy (APA, 2021c; NICE, 2021).

A total of 14 articles were reviewed. Referring to evidence from the empirical research on art therapy for PTSD, most authors described the limitations in the number of their reviewed studies, the number of participants, the heterogeneity of included studies, and the methodological quality of the reviewed study trial. Hence, to date, no conclusive evidence to support the effectiveness of art therapy in treating PTSD and improvement of the scientific quality is suggested (Abbing et al., 2018; Baker et al., 2018). Nonetheless, a few authors suggested potential benefits of art therapy to decrease psychological trauma symptoms and depression (Schouten et al., 2015), induce relaxation, gain access to unconscious traumatic memories, thereby creating possibilities to investigate cognitions and improve emotion regulation (Abbing et al., 2018). On the other hand, when art therapy was combined with other therapies such as in a recent randomised control trial of comparing art therapy plus cognitive processing therapy (CPT) vs. CPT alone among veterans with combat-related PTSD, the authors demonstrated promising effects of the earlier treatment in reducing depression and PTSD (Decker, Deaver, Abbey, Campbell, & Turpin, 2018). In another study combining art therapy and cognitive behavioural intervention, the authors postulated that the therapies may change maladaptive cognitive, affective, sensory and memory of the traumatic event (Sarid & Huss, 2010). Hence, from the reviewed evidence, it can be concluded that art therapy alone may help in treating anxiety such as PTSD, the combination of art therapy with other proven psychotherapies is required for effective treatment.

Art Therapy for Psychosis

According to globally recognised classification; the Diagnostic and Statistical Manual of Mental Disorders (DSM–5), there are a few psychotic disorders such as schizophrenia, schizophreniform disorder, brief psychotic disorder, delusional disorder, substance- or medical- induced psychosis. The most commonly studied psychotic illness in measuring the effectiveness of art therapy is schizophrenia. Generally, it is an illness that manifests with a variety of complex symptoms. To simplify, the symptoms can be grouped into positive symptoms (hallucination, delusion, disorganised speech, thoughts and behaviour as well as abnormal movement) and negative symptoms (reduced affect, minimal speech and thought, apathy, lack of social drive, lack of motivation, reduced social interest, and inattention to social or cognitive input)(APA, 2021b). A mixed conclusion has been gathered from the review of a total of 10 articles on the effectiveness of art therapy in the management of psychotic disorders.

In 2009, the NICE guideline began to include art therapy as part of strategies to improve negative symptoms (NICE, 2014). It also may assist in expressing oneself and working through problems using art, music, dance or drama (NICE, 2014). Besides reducing negative symptoms (Richardson, Jones, Evans, Stevens, & Rowe, 2007), proponents of art therapy also help patients to explore and cope with their psychosis, as well as connect their existential and spiritual issues through artistic work (Hanevik, Hestad, Lien, Tegljaerg, & Danbolt, 2013). Art therapy was suggested to adopt indirect ways of self-understanding using image-making to express and reflect the feelings (Patterson, Debate, Anju, Waller, & Crawford, 2011).

The NICE recommendation, however, was challenged by many scholars and professionals in mental illness (Bastiampillai et al., 2016; Gastaldon et al., 2019; Holttum & Huet, 2014). The evidence was referred to an early MATISSE study that compared three groups (art therapy plus standard care vs. control 'activity' group plus standard care vs. standard care alone). The study randomly allocated 417 participants with schizophrenia to either one of the groups to participate in weekly sessions (M. Crawford et al., 2012; M. J. Crawford et al., 2010; Leurent et al., 2014). Despite a year of weekly engagement with the treatment, the study found no effect of art therapy in improving global functioning, symptoms of illness, social function, satisfaction with care, mental wellbeing, and costs (M. Crawford et al., 2012; M. J. Crawford et al., 2010; Leurent et al., 2014). Moreover, in another study; a narrative review of 18 high-quality quantitative articles on the effectiveness of art therapy for psychosis, the authors concluded that the evidence was inconclusive to suggest the effectiveness of art therapy in adults with psychosis (Attard & Larkin, 2016).

Art Therapy for Medical Diseases

A total of 8 studies have been carried out on the effectiveness of art therapy among patients with medical diseases including stroke, traumatic brain injury and cancer patients. A systematic and meta-analysis of 13 RCTs, quasi-experimental and controlled trials among 606 breast cancer patients, the authors demonstrated the benefit of art therapy in reducing anxiety symptoms of breast cancer patients, but the therapy was not effective for reducing mood, depression and changing the functioning as well as the quality of life of the patients (Boehm et al., 2014). In another systematic review and meta-analysis of a larger number of patients, a small benefit of art therapy to reduce anxiety, as well as depressive symptoms and fatigue among breast cancer patients, was suggested (Tang et al., 2019). The studies investigating the effectiveness of art therapy for cancer patients are limited, hence, further study is required. Furthermore, in a very small study of art therapy among seven patients with stroke, a change was seen only in the drawing content of therapy, but not to the spontaneous recovery (Sacchett, 1999)

Art Therapy for Elder People

Dementia is a disease of elderly people manifested with a constellation of symptoms including deterioration of memory and cognition, personality, emotional and behavioural changes and in severe cases manifested with speech disturbances, movement difficulties and psychosis (APA, 2021b). Mixed findings were found from the review of 8 studies on the effectiveness of art therapy among elderly people and those with dementia. A few studies indicated potential benefits. For example, in a study of 45 patients with the diagnosis of mild to severe dementia who were randomly assigned to attend one hour each week for 40 successive weeks group art therapy or activity groups, the study demonstrated some positive outcomes. In the study, the participants showed some improvement in mental acuity, physical involvement, calmness and sociability (Rusted, Sheppard, & Waller, 2006). A recent systematic review and meta-analysis of 12 studies among older adults at age 60 or over, with or without any form of cognitive decline suggested some benefits of art therapy to improve global cognitive function and reduce depression and anxiety symptoms (Masika, Yu, & Li, 2020). However, in a review of studies among dementia patients, the authors found no sufficient evidence of the effectiveness of art therapy in lowering cognitive deterioration, address symptoms related to psychosocially challenging behaviours and improve quality of life (Deshmukh et al., 2018). Hence, up to date, inconclusive evidence is available to show the effectiveness of art therapy for elderly people and patients with dementia.

Art Therapy for Children

From the review of 7 articles on art therapy for children, as with other studies evaluating the effectiveness of art therapy in adults, methodological issues were highlighted by many authors and reviewers. For example, in a review of 12 studies on the effectiveness of art therapy for children exposed to trauma such as physical and sexual abuse, exposure to the violence of war, terrorist attacks, gun violence within a community, and grief following the loss of a loved one, the authors discussed on methodological problems including a heterogeneous and inadequate number of samples, lack of control subjects, inconsistency study procedure and difficulties to set the empirical outcome measures (Eaton, Doherty, & Widrick, 2007). Similar issues related to the methodology of studies was also highlighted in a review of studies on the efficacy of art therapy with parent-infant dyads (Armstrong & Ross, 2020). Hence, conclusions that emerged from the studies have to be made with caution and the therapist should provide care and treatment according to each individual case.

Nevertheless, from the review, some benefits were highlighted include improvement in the relationships between the children and therapist, and reduction in symptoms when described qualitatively (Eaton et al., 2007). In a recent systematic review of the effectiveness of art therapy to 247 children aged 5–12 years with asthma, behavioural disorders, oppositional defiant disorders, separation anxiety disorders, learning disorders, and disruptive behaviours, the authors concluded that art therapy may be effective in improving children's quality of life; anxiety; self-concept; problem-solving skills, attitudes towards school; emotional and behavioural difficulties (Moula, 2020). Supporting the effectiveness of art therapy, in a more recent systematic review by Cohen-Yatziv and Regev (2019) on 13 articles published from 2000 to 2017, the authors divided the review into four groups and briefly summarised the results. The authors concluded that some benefits found to reduce the symptoms of children with posttraumatic stress, give a positive effect on children with special educational needs and disabilities, help children dealing with medical conditions, especially persistent asthma, and the therapy may help juvenile offenders (Cohen-Yatziv & Regev, 2019).

CONCLUSION

Current empirical evidence suggests that art therapy may be beneficial for certain aspects of mental illness, but it may not be able to treat a mental illness if used alone. Art therapy may function as a means for venting out the negative repressed emotions or trauma, improve communication, enhance interpersonal relationships and increase support system. The conclusion of the effectiveness of art therapy is informed based on studies limited by methodological issues including the small number of subjects, the poor protocol of the intervention and subjective outcome measures. Hence, larger participants, more proper and thoroughly prepared protocols as well as high quality mixed methods studies are recommended to evaluate the effectiveness of art therapy. Most mental health professionals recommend patients with mental illness are treated with proven effective psychotherapies (for mild to moderate cases), with additional pharmacotherapy (for moderate to severe illness) and art therapy serves as supplementary to these conventional treatments (APA, 2021a; NICE, 2021).

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Design DNA: At the Reflective Aspects in the Level of Design

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ABSTRACT

Design DNA derives from the idea of DNA concept, commonly known as the chromosome and genetic formation that make most of the organism and, it has its identical profile and criteria. In Design DNA, it contains the attributes that can be referred to the design levels, which contains the visceral, behavioral and reflective. Hence, each level has its details where makes criteria for the desired design are completed. Moreover, these three levels are segregated with discrete aspects of making design. Continuously, each in-level design is expressed in the recognition perspective, and here, the visceral, behavioral, and reflective parts of design DNA are set to be simplified in terminology. Moreover, certain levels like visceral and behavioral aspect formulation for design DNA have been discussed, but no discussion was made in the reflective level. This study focuses on one perspective of the reflective level part and the suggested formulation in purpose for the complete design DNA.

Keywords: *Design DNA, Levels of Design, Reflective level*

INTRODUCTION

DNA can be referred to any organism or life with a particular aspect to have recognizable appearances, performances, and reactions. DNA is the primary carrier of genetic information in almost all living organisms, and the information was discrete in every organism, which makes them identical. Initially, this is the core concept to understand design DNA, where the characteristics and attributes of the design were applied to be similar to the DNA concept. As an adaption concept, common DNA has chromosome and specific genetic attribute in completing the organism. In design DNA, it has the design level criteria instead, which contained three levels as the core profile. During the formation of the desired design DNA before the product's completion, it is compulsory to understand what and how to find the pioneer character or particular attributes that need to be filled in each level before actual design DNA was formed.

LITERATURE REVIEW

The Design Level Relation to Design DNA

This study compares the last two levels of visceral and behavioral that were discussed, and their methodology was founded in formulating the 'Visceral DNA' and 'Behavioral DNA' in the previous study. One of the core levels for design DNA is called 'the reflective', hence, it is also the third level of consideration for design identity development and here where the reflective aspect details for this study is discussed. The three levels founded by Norman (2004; refer to figure 1) are the set of level or particular concerns that designers or innovators kindly follow to form more structure, and it is considered the guided ways to proper design. Moreover, proper design is unlimited to appearance and considers design from the reflective point, which is the key to designing a sustainable and relevant design. As a primary level to focus on, the reflective level, especially in design terminology (reflective design), is related to the emotion, meaning, and intangible aspect within the circle of designer artefact (referring to the product before passing through production or manufacturing process) of the user. Norman (2004 et al.) described that at the process-level approach to product effect, the reflective design should be intellectual, referring to the consideration of the artefact or product that could be from some personal lesson, self-image and experience of the user.

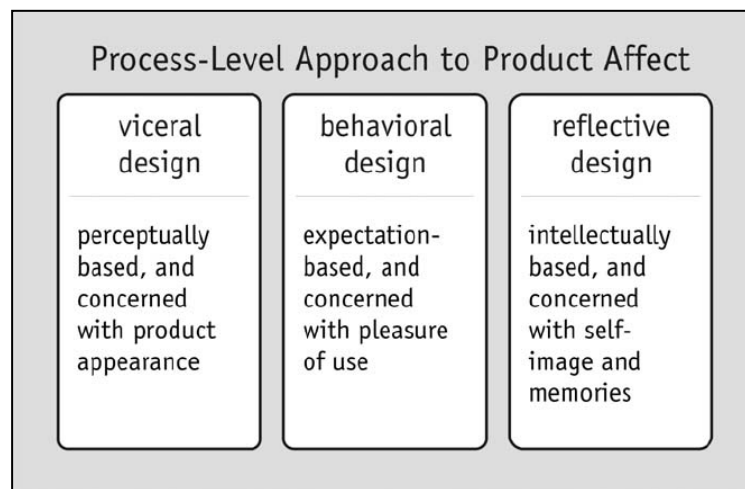


Figure 1: The Design levels

Design levels were applied and adapted in various fields in design, art, and innovation since its foundation in 2004 by assisting the designer and others to finding more exploration and formulation within the guideline. Before design DNA, one of the known research adapting this is Lin, R.T (2007), and his research has explored the significance of cultural product and how product specification could be categorized by adapting design levels. According to figure 2, referring to the cultural framework by Lin, R.T (et al.), it shows the synchronization between culture and design levels (design features). Directly to the reflective point, it stated that the horizontal bottom line has about a similar aspect between cultural layers, cultural levels and design features (design level). Those lines have their criteria related to emotion matter, intangible and affection to the user. The research aims to find and extract the content. Hence, the iconic profile that already exists in the cultural product can be adapted into the new concept of the product and still maintaining the cultural base elements and without leaving any core features includes the philosophy of culture behind the referred product. The design feature (design level) guideline facilitates the process, and the new concept product is formed with cultural identity. Therefore, this is where the design level for design DNA works as an initiative for designer and innovator searching for the origin of design identity.

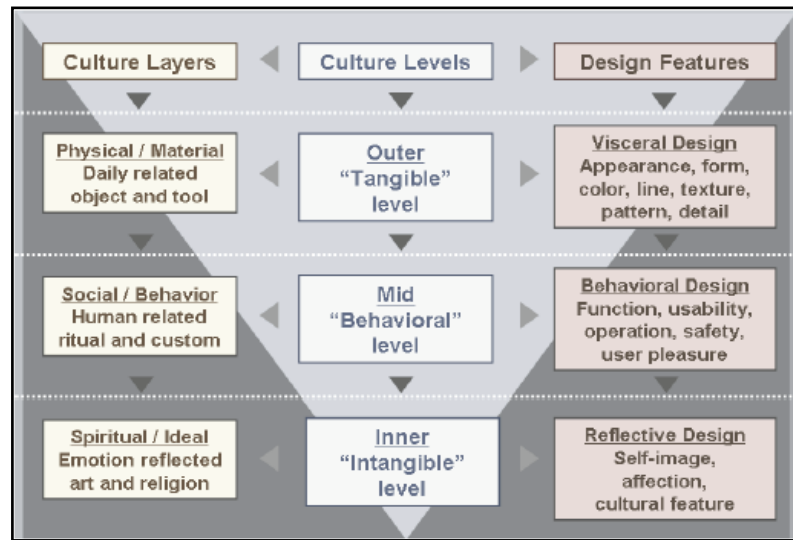


Figure 2: Three Layers and Levels of Cultural Objects and Design Features

The Reflective Design Concept

As mentioned earlier in figure 2, the reflective matter in design refers to the receiver or user's self-image, emotion, and experience. Initially, the reflective effect basically worked within the designer or innovator in initiating information, an artefact or product as an information platform, and the receiver is the user who interprets and responds to the information. This is the system of communication that involves a platform rather than direct communication between people. At this type of communication, the designer has formed their intention to create and develop some artefacts or products based on their idea. However, understanding the information depends on the user's actual interpretation of the artefact and product. The starting point begins at either the surviving product or artefact to be developed. Referring to figure 3, which is the pioneer graphical communication-based model, this model is seen as a turning up point to the other more key issue of communication's solution. The basic model shows that designers' interpretation and information delivered to the artefact are somehow interpreted discretely by the user or the receiver. The processing explanation states that the artefact or product actively transmits the product's value and passively gained by the user.

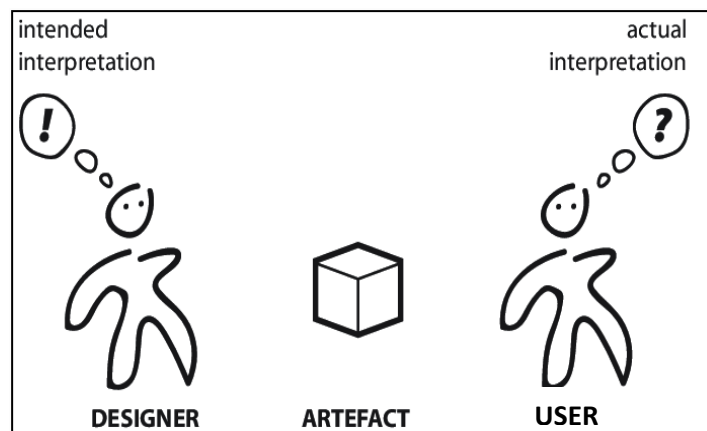


Figure 3: The Communication-Based Model of Design

From the reflective point, the communication-based model of design was adapted and translated into other systems by Schramm (1961); Maletzke (1981) and described in design model by Waller (1979) about 'the reflective depiction' or representation (refer to figure 4). The significance of the basic-model is that it maintains the main structure of three entities of the designer, the artefact or product, and the user with added initiation. It was fundamentally defined, as stated by earlier scholars, that the circumstances of the designer would express their ideas in a certain depiction and then, getting input from that representation.

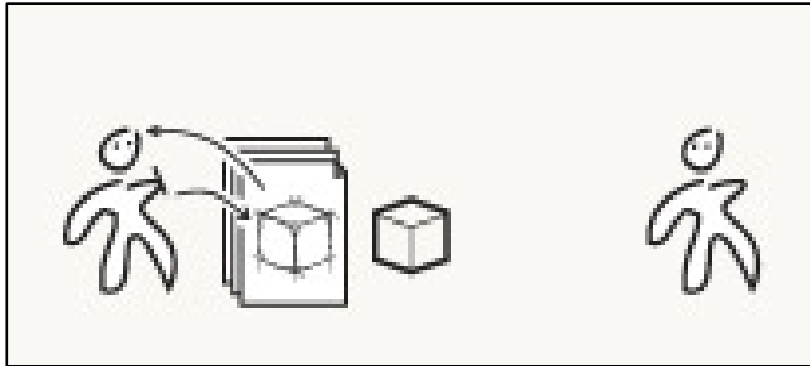


Figure 4: The Reflective Depiction

Furthermore, these reflective design DNA formulation ideas are non-about application to this core communication based but within other cross-definition to 'the collective production' in figure 5. This communication model idea was explored by Westley & MacLean (1966), and the Design models were figured by Krippendorff & Butter (1984); Coates (2003). The communication situation is defined as the designer representing a group who engages in artefacts' definition and development.

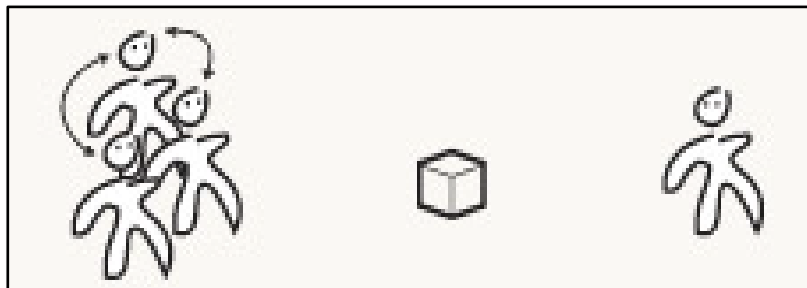


Figure 5: The Collective Production

To emphasize both types of communication-based model to form the process of reflective design DNA, the next model in figure 6 is structured for a pleasant understanding of which the entity is involved in formulating reflective design DNA for the user.

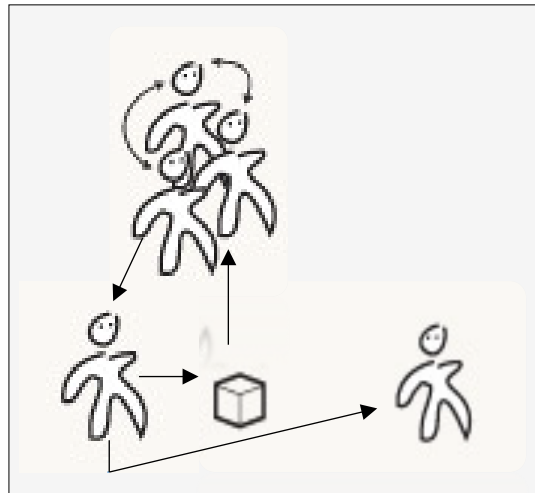


Figure 6: The Communication-Based Model Concept Idea

To add, the user in the respective model is the person who is going to adopt the DNA in trademarking or making the identity for their product establishment. In the design DNA, it has three parts to consider (visceral, behavioral, and reflective) to insert in the design, either to adapt the DNA in each or fully considering all those three parts. Regarding figure 6, the designer intends to prepare some collective ideas and samplings to be assessed and interpreted by the group of expert for refinement before the design is finalized (in this scope is the product maker). Therefore, the process of reflective design DNA is in the triangulation of the designer-artefact-experts and all procedures were revealed in the next phase.

Interpretation and Emotions Scale Over Product

The elaboration through artefact or product requires some acknowledgement and information before a decision was made. In this reflective context, the initial part is fundamentally related to common sense, representing human emotions upon examining artefacts or products. As involved in the part of designs and production disciplinary, the specific study of 'Kansei' theoretical is taking its place. The Kansei's is simplified as the study that focused on emotions and measurable feelings derived from the Japanese cultural philosophy words referring to the expression towards events, environment, and artefact. This disciplinary of mental systematized was founded by Nagamachi (1992), and other various disciplinary scholars spread its adaption. This study is essential to assist when it comes to the emotional and feeling respective study. It is categorized four kinds of aspects of interpretation perspectives, structured by steps 1) Sensibility, 2) Sensitivity, 3) Feeling, and 4) Emotion (Nagamachi, 1992; Ishihara *et al.*, 1993; Harada, 1998; Yoshikawa, 2000). The sensory system's support would reach all these particular aspect definitions as proposed and illustrated by Lokman and Nagamachi in figure 7. To emphasize, the process of Kansei's began with the sense from the 1) Cognition, 2) Vision, 3) Hearing, 4) Smell and 5) Taste, as illustrated in figure 7. It is the initial platform in receiving the data information before it was analyzed and interpreted into an intuitive sense of feeling and emotions. Way separated but linked to the process; the Qualia is the part of consideration after the first process. It is to identify the deliberate circumstances, subjective matter, and experiences related to peoples' mind.

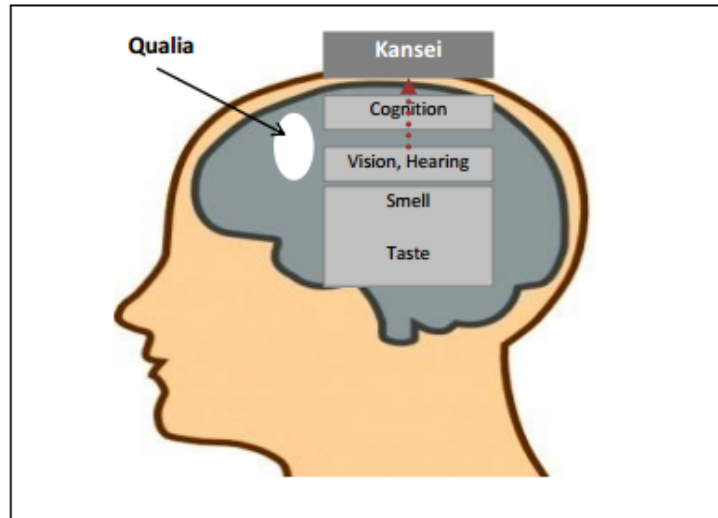


Figure 7: The Process of Kansei (Lokman & Nagamachi, 2009)

As part of the literature in Kansei's study, there was a study related to auditory system disciplinary to form the process of auditory information by adapting Kansei's interpretation process with a refinement of interpretation level details. Murakami. M & Kato. T (2011) found that each particular subjects or sample is essential to be interpreted by the level of consideration, known as the hierarchical model of the Kansei's interpretation (see Figure 8).

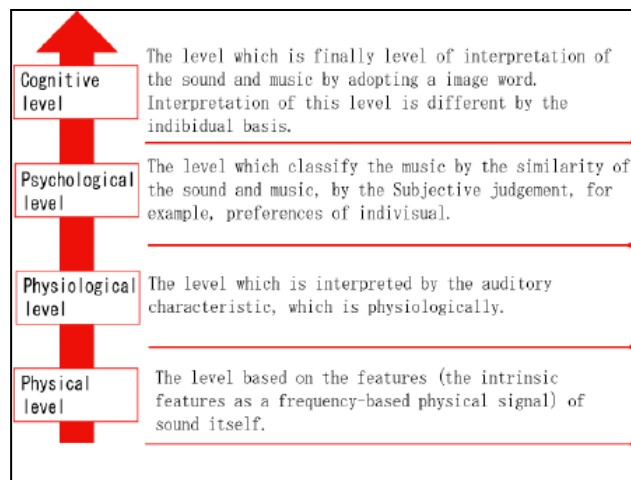


Figure 8: The Hierarchical Model of Kansei's Interpretation: An Example in Auditory Information Processing

The initial level to be interpreted by the interpreter or an expert for the reflective result is 1) the physical level, which the interpretation over the physical matter. For example, in design, it considers the shapes, lines and colors. In the next level, 2) the physiological is the interpretation over the characteristic or the mean of product. Next, level 3) is the psychological level of interpretation is referring to the preference of the interpreter to look at the samples holistically when it comes to subjective matter, and final level 4) the cognitive level is slightly discrete to the individual basic interpretation as it involves experiences that may come from the outsource adaptation and application over the samples. For these four levels, it flows in

interpreting subjects or samples, and the result from the interpretation is a core component in formulating reflective design DNA.

In finding the reflective result, the process involves individual basis emotional expression toward the subjects or samples that have been assessed. In other words, every one of the levels stated earlier was represented in the emotional base reflection. The emotion reflection appeared in various ways such as opinions, expression, and another subjective manner in delivering a feeling. In structuring and overcome the more measurable expression, the PrEmo is formed to assist this complexion.

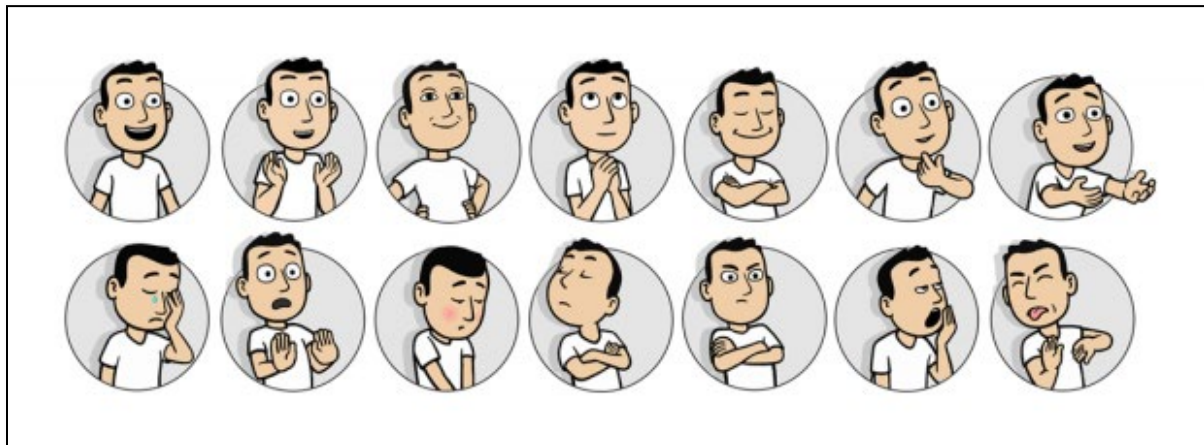


Figure 9: Set of Emotions in New Premo

It was found by Desmet (2003), and the sub-words of ‘the Product Emotion Measurement Instrument’ is defined as a non-verbal of a self-report instrument. It has 14 kinds of emotions representing feelings, categorised into pleasant and unpleasant kinds of emotions. At the early time of PrEmo's and the wider spectrum development and categorisation, it has the same kinds of 14 emotions (refer Figure 9) by Caicedo & Desmet (2009) into four split dimensional emotions which in 1) the social background, 2) the material sense, 3) Expectation and 4) Wellness. These 14 kinds of PrEmo's emotions work to answer to every interpretation over samples within Kansei's interpretation levels' guideline. The whole processes of reflective design DNA finding are explained in the following process.

METHODOLOGY

The Concept Process for Reflective Design DNA

Regarding all ideas in previous research, it assists and performs these concepts of formulating the reflective design DNA. As mentioned earlier, this initiative focuses on the reflective aspect of artefacts or products and purposely to identify the core reflective expression described in emotions as identical criteria, beneficially, to designer and innovator to find design DNA trademarking at emotions basis for product establishment. For this, all process flow is described in figure 10 as a guideline to formulate the DNA.

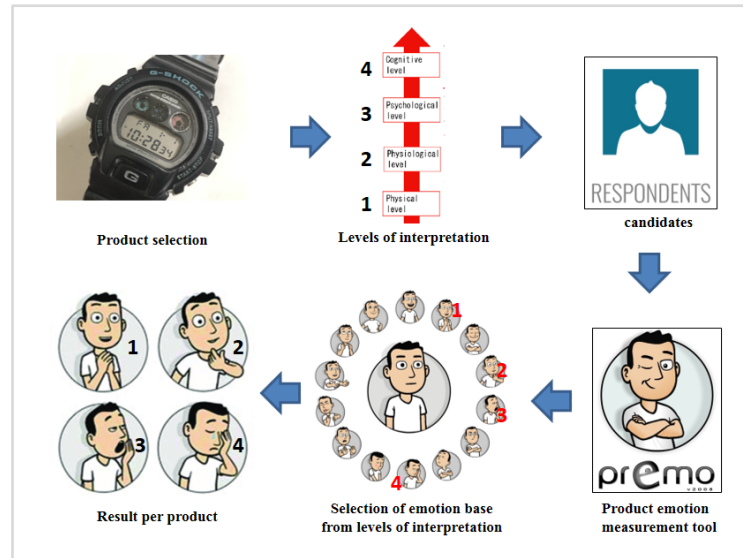


Figure 10: The Process of Product Interpreting As Phase before Finding Reflective DNA

At the first point, it stated ‘Product Selection’ as the sample of reference or simplified as themes for the concept design for their product. The sample of reference is selected based on the most dominant and preferred in the field, at least, more than one sample to follow DNA concept that acquires genetic algorithm process to have a new DNA (See Genetic Algorithm process at Misri, Izzuddinazwan, 2015). Next, ‘The levels of interpretation’ is proposed as a guideline for ‘the Respondents’ to interpret in a more structured way over each examined sample, whereas, from the level of Physical, Physiological, Psychological and Cognitive aspect interpretation. Continuing the interpreting process, the respondents must reflect their expression of the sample by using PrEemo without any other statements or opinion as their answer. Preferably, to have a population in result, the process is imperatively done in a set group of the respondents, and the fittest and most dominate emotions would be determined as the reflective aspect for design DNA.

CONCLUSION

Design is widely conducted in various fields, and it is unlimited to drawing, making, and creating. Previous research at this design DNA study explained that the levels of design have three level of main concerns to form the best design identity characteristic, partially, in this reflective aspect. The next step is the consideration over particular design levels, also seen as the designing guideline for criteria upbringing for the next concept of design trademarking that non-focusing at only outer appearance but includes the other part as mentioned in design levels. In the reflective aspect of designing, this intangible part as an intrinsic component in design is significant to ensure the product is interactive and generic to looks. Hence, other than the functions consideration in design DNA, the intuitive sense and meaning as part of product design DNA is necessary to capture user emotions and acknowledge the product identity at intrinsically at purpose for product sustainability.

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