COLOUR-GUIDELINES FOR
THE UNIVERSITY OF MALAYA:
FOCUSING ON UNIVERSITY IDENTITY

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This study presents a suggested array of colour guidelines for the university homepage of the University of Malaya (UM) in Malaysia which represents the school's distinction and brand image. The importance of University Identity on institutional websites is to secure their identity and differentiation from other institutions. Despite having a multicultural heritage, it is difficult to find colour guidelines of any universities in Malaysia. There are limited studies on colour analysis of UM as one of the top public universities in Malaysia. We suggest colour guidelines using 18 types of primary colours, sub-colours, and second colour for the UM website that we believe would further reflect its University Identity, its status as well as enhance the nature of multicultural outlook of the institution. Accordingly, this study will have an academic and policy-level significance not only for Malaysia but other international institutions as well.

Introduction

In an age of increasing and quickening competition, universities are entering a new phase in the world. In order to survive the competition, establishing a creative University Identity (UI) is becoming more important to secure the individuality of the university as well as to differentiate from other universities.[1] The UI is defined as a design work for a university's image and it originated from a concept of corporate identity (CI) that is applied to universities. UI is used to build a university's image through all visual elements such as symbols, logos, colours, and fonts to boost brand value.[2]

UI helps to establish a successful university image by redefining a new symbol or image, therefore increasing the trust and belonging of its members internally and externally

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[1] Yu, In-ha and Ji, Won-bae, 'An analysis on color and pattern of University's symbol mark design in terms of UI (University Identity) focusing on Universities in Seoul', *Journal of Communication Design*, 40, 2012.

[2] Kwon, Yoon-Kyung, 'Correlation between slogan design and symbol mark of UI in University', *Korean Contents Association*, Vol. 13, No.8, 2013.

while delivering a message that the university is constantly changing and developing.[3] Particularly, "colour" delivers a more direct and clearer message than other components as colour have an affect on the attitude of an observer. For example, from the perspective of marketers, management is needed through understanding of colours, from product packaging to CI.[4] In so doing, UI can be an influential tool in enhancing a university's image.

Since the image of the university is reflected in human psychology through colours, the institution should build its own image through colours, which is one of the design elements in forming the university's own identity.[5] This study is focused on an analysis on colours of the UI applied to a university's homepage. Since a university's website is the best method for public relations and advertising, it is necessary to carefully design the work to differentiate the university from other schools.[6] The importance of a university's UI on its website is steadily growing. Many universities present their own images by constructing web pages using certain colours to secure their identity and differentiation that contain their unique characteristics. However, the range of colours in institutional web pages reveals a lack of colour utilization in which only cast and auxiliary coloura are presented. In addition, there is a lack of colour harmony, the usage of various combinations, and utilization.[7]

Moreover, Malaysian cases are hard to find in the existing literature on designs and images; therefore, this study will have a positive effect on colour research in Malaysia. In the field of tourism, Malaysia is famous for the "colours of Malaysia." The "colours of Malaysia" signifies culture, fashion and traditional locations; it implies that Malaysia and colours are inextricably linked. However, it is difficult to find colour guidelines of public institutions in Malaysia. In particular, even though the University of Malaya (UM) is the best national

[3] Yu, In-ha and Ji, Won-bae, 'An analysis on color and pattern of University's Symbol mark design in terms of UI (University Identity) focusing on Universities in Seoul', *Journal of Communication Design*, 40, 2012; Lee, Ha-na, 'A study on logo design for enhancing competitiveness of college's brand focusing on color and pattern of University of Art and Design's logo affiliated in AICAD, USA', *A Journal of Brand Design Association of Korea*, Vol. 16, No.3, 2018.

[4] Chun, Semi and Son, Won-jun, 2015, 'A study on Color identity for formation of company's image', *Journal of Korea Design Forum*, Vol. 47, 2015; Lee, Ha-na, 'A study on logo design for enhancing competitiveness of college's brand focusing on color and pattern of University of Art and Design's logo affiliated in AICAD, USA', *A Journal of Brand Design Association of Korea*, Vol. 16, No.3, 2018.

[5] Son, Hye-yeon, 'A study on color design of sign and homage based on University's UI focusing on universities in Cheon-an', *Journal of Korean Society of Colour Studies*, Vol. 2, No. 3, 2009.

[6] Jeong Jin-sook, 'A study on materialization of web identity for a design of University's website', *Journal of Korea Design Forum*, Vol. 12, 2005.

[7] Lee, Ha-na, 'A study on logo design for enhancing competitiveness of college's brand focusing on color and pattern of University of Art and Design's logo affiliated in AICAD, USA', *A Journal of Brand Design Association of Korea*, Vol. 16, No.3, 2018.

university in Malaysia and is ranked 38th among in Asia, a study about colour analysis on UM is rarely found in literature reviews. On the other hand, neighboring universities such as Nanyang Technology University (NTU) Singapore and the Ewha Woman's University in the Republic of Korea have published colour guidelines by analyzing their university logos or their UI along within their homepages. Hence, this study has an academic and policy-level significance for Malaysia. This study will suggest the colour guidelines that can be used on the website to improve the current study on colour utilization; it also suggests one indicator that can be applied to reflect the current trends. In addition, we will apply the university's represented colours to its website so that we can enhance the identity expression and originality of the university.

Literature Review

Amid rapidly changing trends, colour guidelines are mainly included in urban landscaping planning. Each city and county uses colours to provide uniqueness and differentiation of the region and as part of urban branding. Public administrations try to develop symbolic colours to build unique characteristics of their city, to symbolize the city and to strengthen its cultural identity; and establish practical guidelines that can be systematically applied to the functions and characteristics of the said city.[8] Colour planning for overseas cities has taken place earlier than Malaysia's public institutions, and policies were established in various ways to establish their unique colour schemes.

Seoul

The city of Seoul developed its symbolic colours identifying it as a "city with a story of 600 years where tradition and modern characteristics coexisted." Colour guidelines were established by regions as part of an active strategy to establish the city's image. In order to discover and strengthen the cultural identity, the city published practical guidelines that could be systematically applied to Seoul's structural composition, characteristics, and

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[8] Kim, Hyun-Sun, 'A Study on extraction local character from Seoul', *Korea Society of Colour Studies*, Vol. 24, No. 4, 2010.

commercialization.[9] Through methodical research and analysis, Seoul's natural and human environmental colours were extracted into 250 phenomenological colours, 50 regional colours, and 10 representative colours.[10] The colour scheme became a practical method for short and long-term urban planning by utilizing the extracted colours through the designation of the range of applications for each region and function (Figure 1).

Figure 1. Colour guidelines development process of Seoul

London

In the early 1990's, the integration of signs and colours in various facilities in London, England was under the direction of the city's authorities. Manuals on the production, installation, size, and colour of various street facilities were then produced. Among them, signs indicating the name of subway stations with a blue background colour in the red circle pattern became regular since the 1990s. Additionally, in the case of a deteriorated facility, "black" or "blue" was added to the red background (Figure 2). Through the application of blue to the exterior of London City Hall, a new urban identity became transformed from red to blue.

Figure 2. Facility design of London, England

9 Seoul Metropolitan Government, Introduction of Seoul's symbol-colour,
  http://www.seoul.go.kr/seoul/color.do?tr_code=short, accessed 26 Feb 2020.
10 Kim, Hyun-Sun, 'A Study on extraction local character from Seoul', *Korea Society of Colour Studies*, Vol.24, No 4, 2010.

Shimane Prefecture (島根県)

In contrast, Shimane Prefecture of Japan produced colour guidelines using the four seasons and climate of the region (Figure 3). The guidelines are widely used for establishing colour landscape plans as well as in the use of environmental colours and colour extraction methods.

Figure 3. Colour guidelines of Shimane Prefecture

Universities Abroad

Presently, following the trend of globalization, many universities around the world have been working on branding and highlighting their unique identities. An in-depth explanation of the colours -including the university's represented colours- is shown below in Figure 4. It also includes the digital value standardization of colours as well as recommended ranges of dominant and assorted colours.
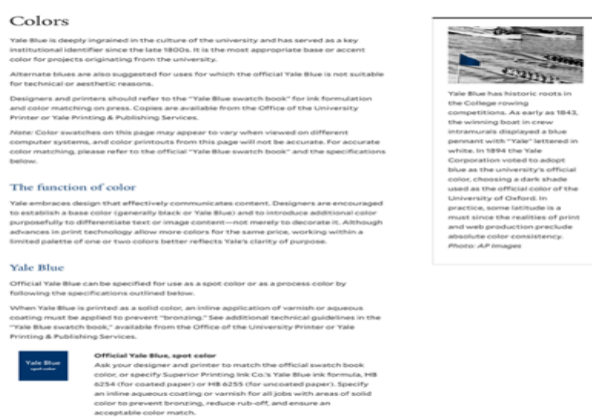
Figure 4. Colour guidelines of Konkuk University[11]

It can be said that many universities in Korea have established their represented colours to express their image of the university through UI, and have presented colour guidelines using selected representative colours through effective standardization. However, in many cases, as shown in Figure 2, only the digital value standardization of colours are used. As shown in Figure 3, guidelines for using colours are also limited, and alternatives for applying them in various fields are not shown. In the case of Seoul Women's University (SWU), the institution established its colour guidelines (Figure 3) through three dominant and four assorted colours (Figure 6).
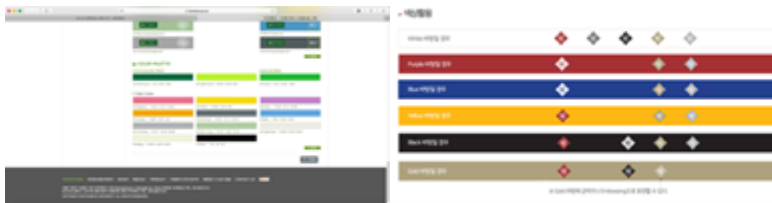
Figure 5. Colour guideline of Seoul Woman's University (SWU)

Figure 6. Colour palette of Seoul Women's University[12]

In contrast, Yale University, a prestigious American university that is anchored by its 300-year-old traditions and solid philosophy of education, its guidelines presents its history and usage of university-specific colours, the function of colours, and additional dominant colours. For example, Yale Blue represents Yale's exclusive colour which is blue; and its additional exclusive colour is also basically blue though it differs in saturation and brightness (Figure 7). Yale's colour palette consists of exclusive colours of the blue series, the auxiliary colours of gray series, and the accent colours of green and orange series (Figure 8).

Figure 7. Yale University's additional standard colours

Figure 8. Colour palette for the Yale University website[13]

In the case of the Nanyang Technology University (NTU) which is a prominent university in Singapore known for its technological innovations and signature art and design programs, the university's colour guidelines corresponds with its UI within the category of brand guide. NTU classifies its colour guidelines into primary, secondary, and a prestige metallic colour palette. The palette is expressed in cyan, magenta, yellow, and black (CMYK); red, green, and blue (RGB); hexadecimal (HEX); and Pantone Colours, making it easy to understand the university's brand and image (Figure 9).[14]

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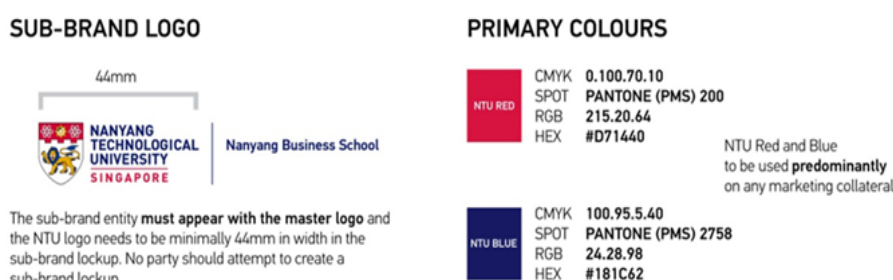
[13] Yale University website, Yale Identity, https://yaleidentity.yale.edu/web, accessed at 27 November 2019.
[14] A collection of colours produced by Pantone in USA. The number of colours is 1015 colours of glossy plate and 1013 of matte plate.

SECONDARY COLOURS

	CMYK	50.100.70.20
	RGB	124.34.63
	HEX	#7C223F

	CMYK	30.100.70.10
	RGB	167.34.68
	HEX	#A72244

NTU RED	CMYK	0.100.70.10
	SPOT	PANTONE (PMS) 200
	RGB	215.20.64
	HEX	#D71440

	CMYK	0.100.55.0
	RGB	237.21.86
	HEX	#ED1556

	CMYK	40.100.15.0
	RGB	165.36.127
	HEX	#A5247F

	CMYK	45.100.10.50
	RGB	92.0.77
	HEX	#5C004D

	CMYK	0.0.0.55
	SPOT	PMS COOL GREY 8
	RGB	140.140.140
	HEX	#8C8C8C

	CMYK	0.0.0.25
	SPOT	PMS COOL GREY 4
	RGB	200.200.200
	HEX	#C8C8C8

	CMYK	0.0.0.10
	SPOT	PMS COOL GREY 1
	RGB	230.230.230
	HEX	#E6E6E6

NTU BLUE	CMYK	100.95.5.40
	SPOT	PANTONE (PMS) 2758
	RGB	24.28.98
	HEX	#181C62

	CMYK	100.75.0.0
	RGB	0.84.166
	HEX	#0054A6

	CMYK	85.50.0.0
	RGB	27.117.188
	HEX	#1B75BC

	CMYK	60.20.0.0
	RGB	93.169.221
	HEX	#5DA9DD

	CMYK	70.0.40.0
	RGB	50.188.173
	HEX	#32BCAD

	CMYK	0.10.100.0
	RGB	255.221.0
	HEX	#FFDD00

	CMYK	20.0.85.0
	RGB	213.224.77
	HEX	#D5E04D

	CMYK	80.0.95.0
	RGB	7.177.82
	HEX	#07B152

	CMYK	100.10.90.25
	RGB	0.124.72
	HEX	#007C48

PRESTIGE METALLIC PALETTE

PMS 873 METALLIC GOLD	PMS 8862 METALLIC DARK RED	PMS 8844 METALLIC PURPLE
PMS 8784 METALLIC BRIGHT BLUE	PMS 10077 METALLIC SILVER	PMS 10390 METALLIC DARK SILVER

Figure 9. Colour palette for Nanyang Technology University (NTU)[15]

Theoretical framework

Colour harmonization has an association effect on multiple colours, and it provides value like beauty or comfort by using colours with the same, similar, or contrasting order.[16] By harmonizing with combinations of colours with differences in brightness, combinations of colours and complementary colours that are close or far from the colour wheel, colour palette can become reminiscent of continuity, unity, and symbolism. Therefore, colours can be used for branding and marketing and by using the appropriate colour matching methods, it

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[15] NTU Singapore Quick Brand Guide, 2018,
https://www3.ntu.edu.sg/CorpComms2/NTU%20Quick%20Brand%20Guide%202018.pdf, accessed at 1 December 2019.
[16] Kim Min-ki, Kim Yu-sun, Lee Ki-young, *The official guide for Industrial engineers of Colourists*, Seoul: Mijinsa, 2018.

is possible to design competitive CI as well as UI.[17] In this point of view, CI and UI should be visible and understandable from the viewer's perspective, which is comparable to the purpose of "universal design." The term universal design was first introduced by an American architect by the name of Ronald L. Mace under the philosophy of "design for all ages and abilities."[18] This design philosophy is closely associated with the theory of colours for ease of use which advocates design for all. The colours that enter should be visible light for the eye and should be recognized by the brain. Colour universal design enhances products, facilities, buildings, environment, services, and information that are related to the diversity of human beings and are usually user friendly. Web pages of institutions are virtual spaces—not physical spaces— and can be configured in various ways depending on the purpose of the production. The pagescontains visual information, and it is a space where various design principles are added to induce the user's convenience through UI and User Experience (UX) designed into the web page. It is also the most effective and inexpensive medium to promote the brand by taking advantage of the fact that it is easily accessible to viewers.[19]

Moreover, colour guidelines are used to give each university its uniqueness as part of branding. This involves the development of symbolic colours to build unique characteristics of a university as well as the establishment of colours to symbolize a university in order to discover and strengthen its cultural identity. In addition, colour guidelines establish practical guidelines that can be systematically applied to the characteristics of the universities.[20]

Methodology

The purpose of this study is to identify the colour guidelines for university websites. The subject of the research is UM, and the scope of the survey and analysis is associated with the physical image of exclusive colours and natural environments currently applied by the said

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[17] Bae, uri, "A Study on coloration of brand logo design focusing on Top 100 of most valuable global brands in 2015" , Milward Brown, in unpublished Ph.D.dissertation, Hongik University, 2016; Lee, Ha-na, 'A study on logo design for enhancing competitiveness of college's brand focusing on colour and pattern of University of Art and Design's logo affiliated in AICAD, USA', *A Journal of Brand Design Association of Korea*, Vol. 16, No. 3, 2018.
[18] Joy E. Weeber, Ronald L. Mace, https://www.britannica.com/biography/Ronald-L-Mace, date unavailable, accessed at 1 December 2019.
[19] Jeong Jin-sook,   'A study on materialization of web identity for a design of University's website', *Journal of Korea Design Forum*, Vol. 12, 2005; Son, Hye-yeon, 'A study on colour design of sign and homage based on University's UI focusing on universities in Cheon-an', *Journal of Korean Society of Colour Studies*, Vol. 2, No. 3, 2009.
[20] Kim, Hyun-Sun, 'A Study on extraction local character from Seoul', *Korea Society of Colour Studies*, Vol. 24, Bo.4, 2010.

institution. The study includes analyzing the elements of human environment of images, education, teaching, and lessons, so that a colour palette applicable to the university's homepage could be proposed. As a specific method, we examined intrinsic colours by utilizing information from literature reviews and case studies on UM. In order to construct colour guidelines for university webpages based on the literature review, visual inspections and existing digital mosaic methods using the Eyedropper tool from Adobe Illustrator were used to extract colour. UM's private colours were extracted using the Eyedropper tool, and its natural colours were extracted with a Canon EOS M3 mirrorless camera under natural daylight conditions between three hours after sunrise and three hours before sunset. Furthermore, a digital mosaic method using Eyedropper tool was also employed   during this process. In order to understand not only physical factors such as natural environment and image of the target university, but also humanistic factors such as education, teaching, and lessons, we analyzed questionnaire about image colour through the SPSS Statistics software.

The UM Human Environmental Colours Survey was analyzed using 'Naver Office Form' and 'Microsoft Excel'. The colour expressions according to the analysis results were based on the KS(Korea Standard) colours system. For the printing and computer screens, the colour proposal was expressed in CMYK and RGB. In addition, the three main colours of the institution are also represented as Pantone colours.

Findings

UM's main colours have been analyzed as follows

Table 1. UM's main colours

Colour	Colour chips	Value of colour
MALAYA Blue		C: 94 M: 96 : 6 K: 0 (PANTONE 2736C)
MALAYA Yellow		C: 6 M: 15 Y: 88 K: 0 (PANTONE Medium Yellow)
MALAYA Red		C: 6 M: 96 Y: 88 K: 0 (PANTONE 2035C)

Academy of Islamic Studies
Malaya Green
C : 88 M : 41 Y : 77 K : 45

Academy of Malay Studies
Malaya Lemon Green
C : 39 M : 7 Y : 78 K : 0

Faculty of Built Environment
Malaya Emerald Green
C : 71 M : 29 Y : 43 K : 12

Faculty of Language & Linguistics
Malaya Turguoise
C : 67 M : 10 Y : 26 K : 0

Faculty of Economics & Administration
Malaya Silver
C : 43 M : 29 Y : 37 K : 10

Faculty of Engeneering
Malaya Deep Orange
C : 23 M : 85 Y : 78 K : 16

Faculty of Education
Malaya White
C : 2 M : 0 Y : 1 K : 0

Institute of Educational Leadership
Malaya Snow Flake
C : 4 M : 3 Y : 3 K : 0

Faculty of Dentistry
Malaya Scarlet
C : 26 M : 96 Y : 28 K : 24

Faculty of Education
Malaya Cotton Candy Blue
C : 45 M : 0 Y : 14 K : 0

Faculty of Medicine
Malaya Crimson
C : 30 M : 91 Y : 22 K : 8

Faculty of Science
Malaya Gold
C : 13 M : 30 Y : 73 K : 3

Faculty of Computer Engeneering& Information Technology
Malaya Violet
C : 81 M : 100 Y : 14 K : 4

Faculty of Law
Malaya Cloud Blue
C : 74 M : 20 Y : 0 K : 0

International Institute of Public Policy & Mamagemet
Malaya Emerald Green
C : 71 M : 29 Y : 43 K : 12

Asia-Europe Institute
Malaya Dalmatian
C : 0 M : 2 Y : 0 K : 0
C : 100 M : 100 Y : 100 K : 100

Institute of Graduate Studies
Malaya Peach
C : 7 M : 25 Y : 33 K : 0

Cultural Centre
Malaya Coral Pink
C : 2 M : 63 Y : 17 K : 0

Sports Centre
Malaya Lemon Yellow
C : 11 M : 2 Y : 70 K : 0

Faculty of Art & Social Science
Malaya Cherry Blossom
C : 5 M : 34 Y : 4 K : 0

Figure 10. Colours of graduation gowns by academic institution and faculty at UM

Simultaneously, the colours pertaining to UM's natural environment was extracted through Munsell colourization for the representative buildings and targeted places in campus. Table 2 shows a serial colouration belt.

Table 2. Extracted colours of UM's natural environment

Selected images	Mosaic methodology	Extracted colour palette	Range of colour wheel	Colouration belt

In terms of human environmental factors, we examined colours and tones associated with images of UM through a survey. 26% participants were men and 74% were women who attended the university (Figure 11).
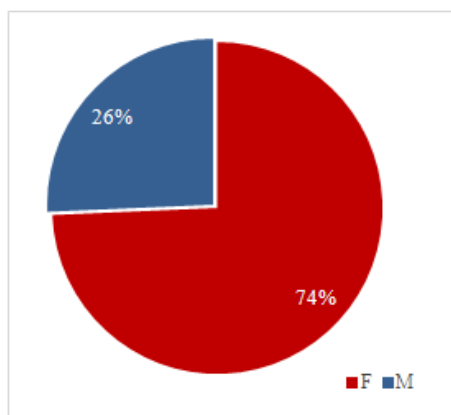
Figure 11. Percentages of participants by gender

Using the I.R.I image scale, we analyzed the result of the questionnaire related to images associated with UM.21 Participants reflected pride in the images of UM whereby 52% signified them as "Top/Best." Subsequently, the rest viewed the same images to be "Old," "Famous," "Classic," Academic and so on between 4 % and 10% (Figure 12).
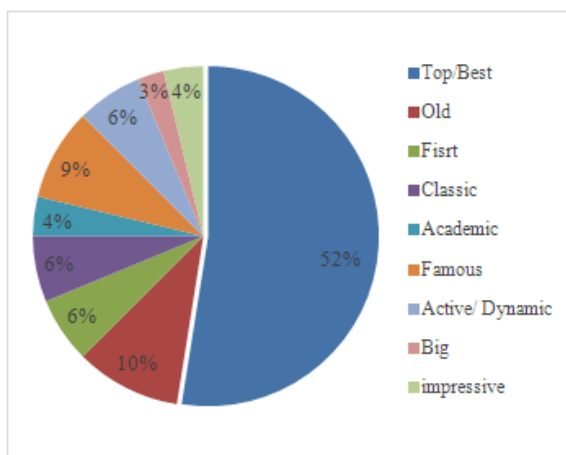
Figure 12. Respondents on UM's image

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21 Park Yeon-sun, *A dictionary for terms in fields of colour design*, Seoul: Yeorim, 2007.
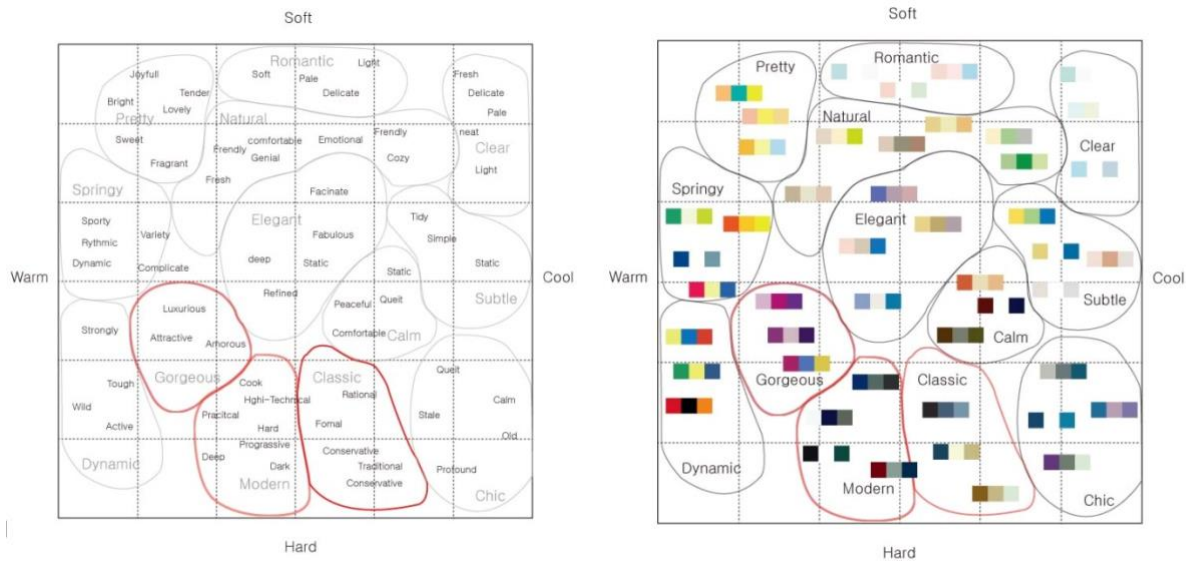
Figure 13. IRI image scale on UM's image

When analyzed using I.R.I image scale, images of the university generated characteristics such as gorgeousness, classic themes, calmness, and modernity (Figure 13). As a result of examining the colours and tones perceived in images of the university, as shown in Figure 14, overwhelmingly 66% of the colour images were dominated by blue colour. This was followed by yellow (12%), red purple (9%) and purple blue (7%). Figure 15 indicates two strongest clear-toned images. The highest was a vivid tone which was at 33% and a darker one at 22%.
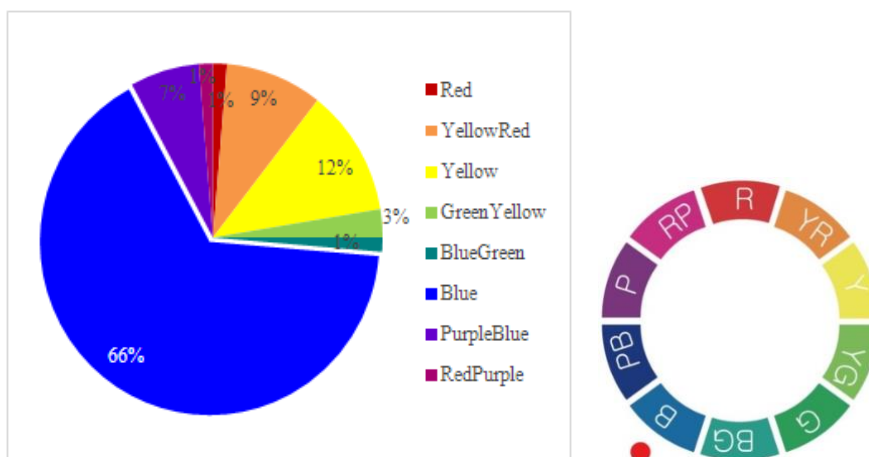
Figure 14. The result of survey on colour of image at UM
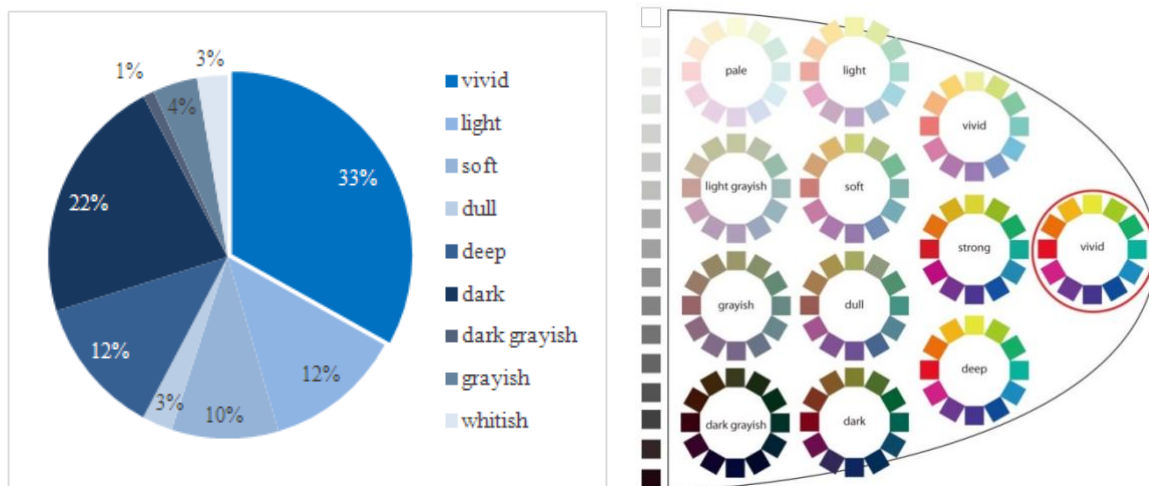
Figure 15. The result of survey on image tone at UM

A survey of the image of the university slogan "*Ilmu Puncha Kemajuan*"[22] showed that "Knowledge" was the highest identity at 30%, indicating a strong academic image. Characteristics like "Classic" and "Education" were also high at 20%, showing a strong image of traditional focus of science and education.
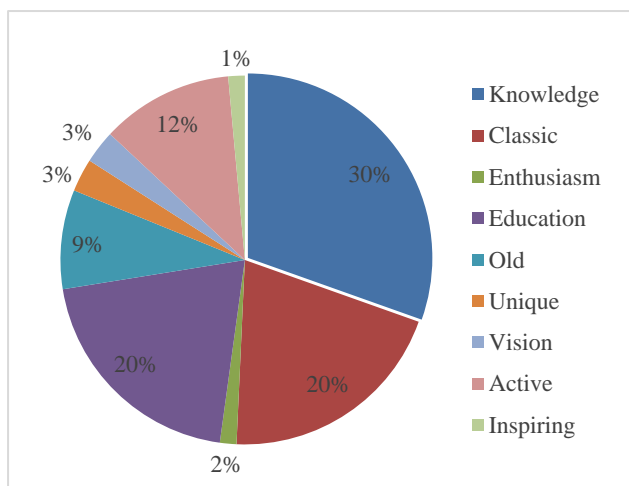
Figure 16. The result of survey on image of UM's motto

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[22] University Malaya webpage, Warta Universiti, https://www.um.edu.my/docs/warta-universiti/warta-um-2018.pdf?sfvrsn=2 accessed at 1 December 2019.
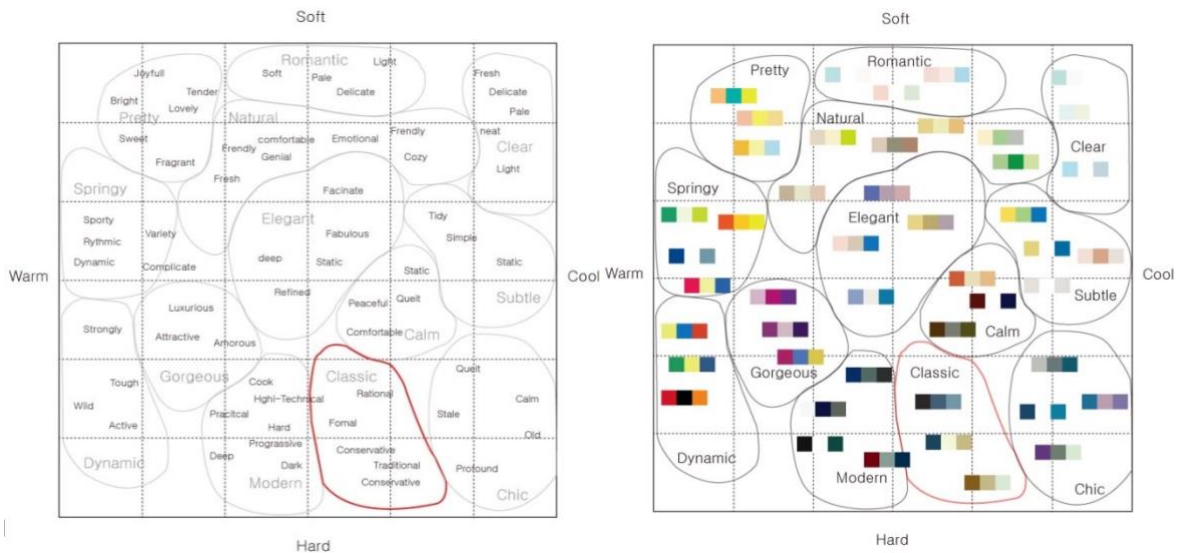
Figure 17. IRI image scale on image of UM motto

Figure 18 shows the colours and tones of UM's academic target image are associated with "yellow" as the most used colour at 55%. "Blue" and "purple" were the next highest, at 20% and 9%, respectively. In terms of tones, the highest is at 55% of lighter tones, followed by "vivid" ones with 43%. Tone usage indicates that it is clear and precise without any lower variations in the targeted image (Figure 19).
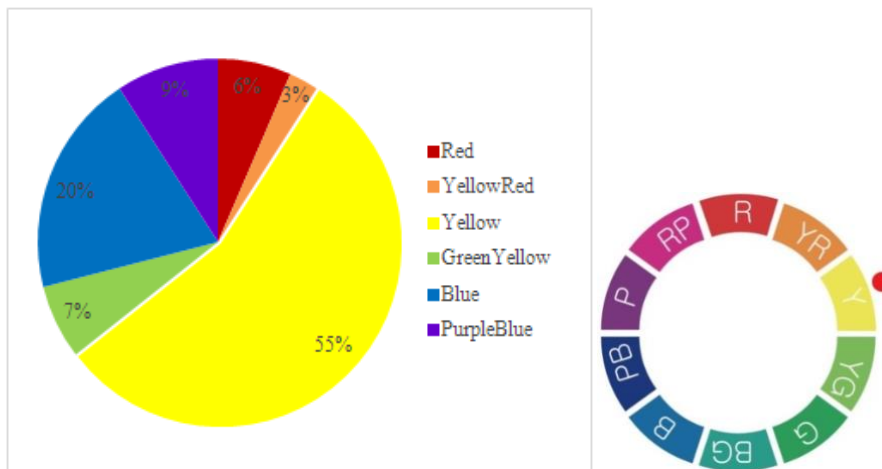
Figure 18. The result of survey on image colour of UM motto
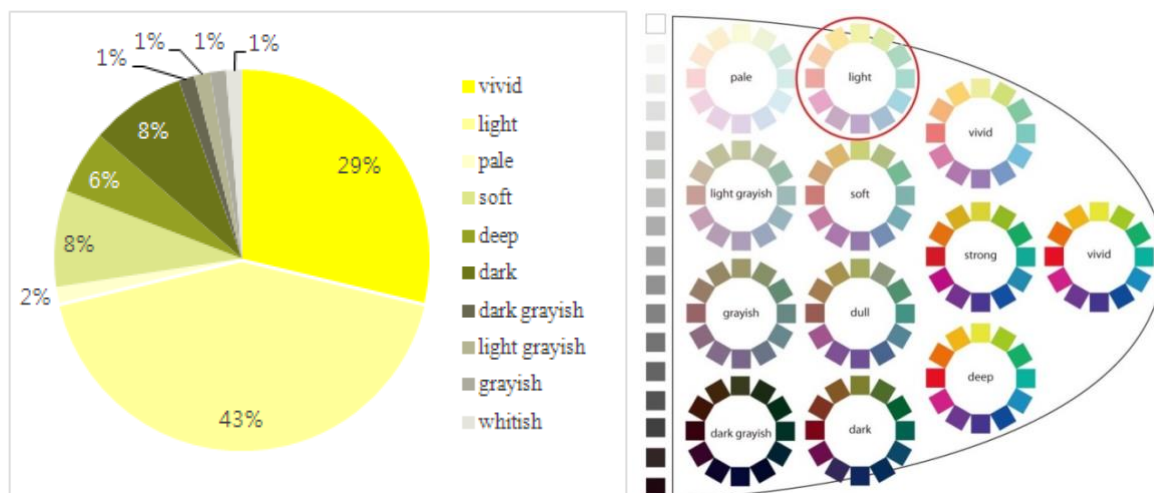
Figure 19. The result of survey on tone image of UM's motto

Guidelines and composition of colour palette for UM

This study proposes the usage of "primary colour "sub colour," and "second colour" as UM's colour palette by analyzing the elements of human environments, physical images, exclusivity, natural environments, association images, and motto. The primary colour is extracted from the three colours used in the UI of UM, expressed in blue, yellow, and red colours in CMYK, RGB, and Pantone colours (Figure 20).

MALAYA Blue
CMYK : 94 96 6 0
RGB : 59 49 131
PANTONE 2736C

MALAYA Yellow
C : 6 M : 15 Y : 88 K : 0
RGB : 245 209 40
PANTONE Midieum Yellow

MALAYA Red
C : 6 M : 96 Y : 88 K : 0
RGB : 219 34 38
PANTONE 2035C

Figure 20 . Primary colours of UM

The sub colour is proposed as a colour that is not high in saturation, which can serve as an auxiliary colour by to analyze the natural environment and human-environment elements of UM (Figure 21).

	CMYK	37 57 42 29		CMYK	53 34 77 19
RGB	138 98 102		RGB	122 128 74
	CMYK	29 52 47 22		CMYK	68 40 27 10
RGB	162 116 197		RGB	89 124 149
	CMYK	38 42 47 27		CMYK	64 38 31 13
RGB	140 121 109		RGB	96 126 143
	CMYK	36 51 55 37		CMYK	23 16 28 1
RGB	129 98 82		RGB	203 202 185
	CMYK	41 63 58 56		CMYK	35 21 29 3
RGB	96 63 57		RGB	174 182 176
	CMYK	33 47 49 27		CMYK	8 1 7 0
RGB	147 115 101		RGB	238 245 241
	CMYK	29 52 60 25		CMYK	12 9 21 0
RGB	157 111 87		RGB	230 225 206
	CMYK	56 40 51 29		CMYK	25 25 45 6
RGB	106 111 101		RGB	193 177 142
	CMYK	66 36 92 26		CMYK	36 30 39 11
RGB	90 11 49		RGB	162 156 142

Figure 21. Colours proposed as sub colour of UM (18 kinds)

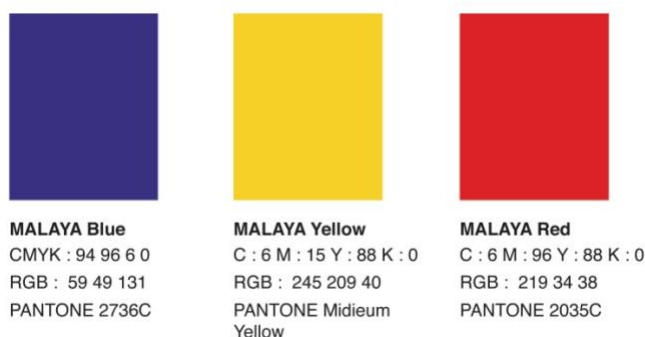The second range of colour was then suggested as a colour that was able to act as an accent colour with high saturation in the academic background and elements of the humanities environment (Figure 22).

	CMYK	25 95 77 24		CMYK	76 10 25 0
RGB	115 35 43		RGB	75 174 189
	CMYK	23 84 77 16		CMYK	45 0 14 0
RGB	171 59 51		RGB	148 210 221
	CMYK	13 30 72 2		CMYK	74 20 0 0
RGB	222 177 87		RGB	32 159 218
	CMYK	11 1 70 0		CMYK	99 91 26 13
RGB	229 238 102		RGB	41 46 107
	CMYK	39 7 78 0		CMYK	80 100 14 4
RGB	175 196 87		RGB	88 38 117
	CMYK	88 41 76 45		CMYK	30 90 22 7
RGB	19 79 58		RGB	173 50 112
	CMYK	42 28 36 9		CMYK	3 62 17 0
RGB	151 157 150		RGB	234 127 157
	CMYK	1 0 0 0		CMYK	5 34 3 0
RGB	251 253 253		RGB	237 188 211

Figure 22. Proposed second colours of UM (18 types)

Using the colours of the UM colour guidelines as proposed; this research applied colours to signboards in various spaces in campus by increasing their explicitness and readability.

| (A) | (B) | (C) |

Figure 23. Signboards in UM (A: signboard in present, B, C: newly designed signboards suggested by colour guidelines)

Conclusion

The purpose of this study is to propose how colour guidelines that can be used in universities to construct a colour palette to enhance the competitiveness and strengthen the identity of the university. The subject of the analysis was University of Malaya (UM), a national university located in Kuala Lumpur, Malaysia.

The scope of research included physical images such as main colours and natural environments around UM along with human environmental elements.In terms of research methodology, pictures were taken with the Adobe Illustrator Eyedropper tool and Canon EOS M3 mirrorless camera; they were colour-coded into the Munsell system using visual inspection and digital mosaic. They were then extracted using questionnaires to realize additional images and colours of humanities and environmental elements.

Hence, the final suggestions of colour guidelines for UM are as follows. Primary colours were proposed by extracting the colour of the exclusive colours used in the UI of UM; and sub colours were recommended based on the questionnaire results and the colours extracted from the nature and humanities environments. Second colour or point colour was

conjured by high saturation colour, which is the colour of UM's graduation gown and other academic backgrounds in the survey results. All colours have been suggested will embody the environmental elements of the university not only in colour but also as the colour of association, symbol, and space.

In addition, various colour plaettes have been proposed beyond the limitations of the existing monotonous tone changes. In other words, the recommended colours can be used for UI or layout design series or variations, and be applied in many other fields. It is expected that this study will be a meaningful case study in that it has created colour guidelines for UM designed to be utilized in channels and format that are accessed by many. In so doing, the authors believe that colours proposed here will be able to evoke a newer identity corresponding with UM's identity and status.

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