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Citra Alam: The Malay Male Teenager Characters Design Principle Based on Physical Form and Facial Features for Action Genre

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ABSTRACT

A character in an animation is the primary element to tell a story. The character is a medium to help the audience relate and be interested in a story. Particularly, the race of a character allows the audience to relate to the character's lifestyle. However, nowadays, many character designs do not represent their race. For example, the characters in Malay animations lack resemblance to Malay individuals. Malaysian artists are influenced by the popularity of Japanese animation or anime, leading them to create characters akin to those in anime. The current research explored the basis of the design and human anatomy of the Malays to develop a guideline for creating a Malay character. Considering that male teenage characters, aged between 13 and 17 years old, are a recent animation trend, the study focused on creating Malay male teenage characters. Accordingly, this research explored the human anatomy through the use of golden ratio measurement to determine the proportions of a Malay male teenager. Other than that, an interview with specialists in the design field was conducted to validate the developed guidelines. The results of this research findings and the measurements can be used to create a guideline for making a Malay character along with some other factors in design. This research can be further improved in the future by including data for other races in Malaysia to have comprehensible guidelines for creating multi-race characters.

Keywords: *Identity, Proportions, Character design, Facial features, Malay Teenager*

1 INTRODUCTION

Many components contribute to a story's progress, plot, and climax in animation. Among the most important components are characters. The representation of characters in an animation allows the audience to relate to the story, particularly through factors such as their lifestyle, situation, and race. One of the most relatable aspects for the audience is the character's race. (Lu, 2009) suggests that audience members are more likely to connect with and engage in a story if they share the same racial background as the character. This is through a phenomenon as a result of race projection.

A character's race in an animation is usually determined by its country of origin. This is evidenced by animations from different countries. As an example, Western animations feature Caucasian or African as main characters. On the other hand, Japanese feature Japanese main characters as main characters. This attracts the audience to relate more to the story due to the reflection of their culture, lifestyle, and shared experiences

An animation character's race is usually visualised through their character design. This includes their facial features, common body proportions, clothes, and props. These elements reflect the character's race. However, some character designs do not represent their race. This paper discussed the importance of the character's design to their race in order to develop a guideline for creating a Malay male teenage character for an action genre.

2 LITERATURE REVIEW

A person's facial features are usually closely related to their race. To illustrate, the Chinese have narrower eyes, Indians have a lot of facial hair, and Malays have matured tan skin. Due to these common tropes, it is easy to identify the race of some animation characters. However, most animated characters do not accurately represent their race, causing audiences to be left confused and unable to relate to the animation. According to (Lu, 2009), This holds particular significance in Malay animation, where characters embodying Malay individuals may lack visual authenticity. Following a comprehensive literature review, guidelines have emerged to address this concern, specifically tailored for the depiction of Malay male teenagers. These guidelines aim to enhance cultural representation, acknowledging the importance of accurately reflecting race and identity in characters to facilitate a stronger audience resonance within the realm of animation.

2.1 Facial Feature

According to (Thompson et al., 2005) the pivotal role of anthropological studies in elucidating the intricate nuances of facial features and their profound influence on an individual's racial identity. The variations observed in the nose, orbit, labia-oral region, ear, and facial region extend beyond mere physical distinctions; they serve as powerful markers that distinguish one racial group from another, unveiling a mosaic of height, width, shape, and size disparities. These nuanced variations are not just anatomical but also intricately intertwined with cultural and social backgrounds, emphasizing the dynamic interplay between biology and identity construction. Understanding these facial feature differences enriches our comprehension of the intricate tapestry of human diversity, shedding light on the complex interconnections between physical attributes and the multifaceted nature of racial identity. In Malaysia, the rich cultural tapestry is woven with distinctive facial characteristics among its three (3) main ethnicities—Malays, Indians, and Chinese. These variations encompass differences in skin tone, eye shape, nose size, and hair distribution, contributing to the vibrant diversity that defines the visual identity of each ethnic group in the country.

2.1.1 Golden Ratio

Utilizing advanced medical technologies and specialized instruments, professionals can delve deeper into facial analysis, employing techniques like 3D imaging and computer-aided measurements. The golden ratio, a mathematical principle, plays a pivotal role in discerning facial harmony by highlighting optimal proportions. This precision in measurement not only aids in cosmetic procedures but also proves valuable in medical diagnostics, allowing for a comprehensive understanding of individual facial nuances and contributing to personalized treatment plans.
The classification of facial shapes divided into three (3) main groups, guided by specific ratio values, streamlines the evaluation process, enhancing precision in cosmetic and medical applications: Short (<1.6), Normal (=1.6), and Long (>1.6) (Packirisamy et al., 2012). Utilising this method allows for advancements in understanding the intricate relationships between race and facial features, as well as the complex concept of human identity.

2.1.2 Own Race Projection

The art of storytelling relies on connecting with the audience, and one potent way to achieve this is through authentic representation of a character's race. Known as 'own race projection,' this concept emphasises that people feel a stronger affinity for characters who resemble their own racial or ethnic background (Lu, 2009). By accurately portraying a specific race's lifestyle, traditions, and cultural nuances, storytellers create a profound connection between their characters and the audience, fostering empathy and understanding. This concept bridges diverse cultures, enhances the narrative experience, and promotes cultural appreciation and social cohesion. As a result, the audience could embrace the diverse tapestry of human experiences through authentic racial representation and experience a lasting impression that transcends cultural boundaries and forges a shared emotional journey.

2.2 Vitruvian Man and The Golden Ratio of Body Proportions

According to (Alzyoud et al., 2022), Leonardo da Vinci's masterpiece, the Vitruvian Man, crafted in 1490, transcends its temporal origins to stand as a timeless emblem of the symbiotic relationship between art and mathematics. This renowned drawing not only captures the essence of human anatomy but also serves as a testament to Leonardo's intellectual depth. Inspired by the golden ratio, an enigmatic mathematical concept inherent in both nature and art, the Vitruvian Man meticulously embodies these proportions within the confines of a square and a circle. The harmonious balance achieved in the artwork, where the golden ratio subtly dictates the relationships between the man's body height, the distances from his head to his fingers, and from his navel to the floor, elevates it to an iconic symbol. Enduring through centuries, the Vitruvian Man becomes a source of admiration and awe, a visual manifestation of the profound connection between precision and beauty, leaving an indelible mark on the collective consciousness of generations that continue to marvel at its brilliance.

2.3 Character Design

Character design serves as the narrative cornerstone, influencing how audiences connect with a story. It encompasses various elements, including facial features and expressions, pivotal for fostering engagement. As highlighted by (Liu et al., 2020), distinct traits like large, well-structured eyes can evoke a sense of cuteness and endearment in a character, emphasizing the profound impact design choices wield in shaping emotional resonance and audience attachment within a narrative framework. Moreover, the deliberate exaggeration of body shapes, distinctive characteristics, and unique clothing not only allows a character to stand out but also enhances visibility and recognition among the audience. This intentional amplification serves as a powerful tool for storytelling, enabling characters to leave a lasting impression. Research, exemplified by (Liu et al., 2019b), delves into the global impact of character design, showcasing the recognition and respect accorded to specific styles across cultures. Notably, Western and Japanese character designs have achieved prominence on the international stage, underlining the cross-cultural influence and resonance that well-crafted character designs can achieve in captivating audiences worldwide.

3 METHODOLOGY

In this research, mixed methods were employed to attain comprehensive results. These approaches were categorized into two (2) segments. The initial method involved a qualitative approach, wherein a semi-structured interview was conducted with two specialists. This interview aimed to delve into the intricacies of human proportions and character design, shedding light on valuable insights that contributed significantly to the overall research objectives. The qualitative method provided a nuanced understanding, enriching the study with diverse perspectives from the specialists' expertise. One (1) was a character design specialist, and the other was a doctor who could explain human anatomy. The participants had expertise in their respective fields. The interview delved into the intricate interplay among facial features, body anatomy, and race, with a particular emphasis on the art of crafting characters representative of a specific ethnicity, in this case, focusing on the creation of a Malay

character. The research seamlessly transitioned into the analysis phase, employing content analysis as a crucial methodological tool. This method played a pivotal role in realizing the primary objective of the research, facilitating a systematic examination and interpretation of the gathered qualitative data, thereby enhancing the depth and rigor of the study.

The second method, a quantitative approach, integral to fulfilling the research's second objective. This involved gathering proportional measurements utilizing the Golden ratio, a mathematical concept renowned for its aesthetic significance. The dataset was curated from 10 participants aged 13 to 17 years old, hailing from Sekolah Tahfiz Maahad Muar. Employing rigorous golden ratio calculations, the collected measurements underwent meticulous analysis to ascertain the golden ratio within the dataset. The insights garnered from this quantitative analysis were subsequently employed to initiate character designs, marking the inception of a short animation. The utilization of both qualitative and quantitative methods ensured a holistic exploration of the complex dynamics between human proportions and character design, contributing to a nuanced and well-rounded research outcome.

In the culminating phase of the research, a synergistic approach was adopted, integrating mixed methods to refine the study's outcomes. The Golden ratio served as a guiding principle for crafting specific character designs, seeking to ascertain the feasibility of developing Malay male teenage characters through this mathematical concept. Subsequently, a qualitative method was deployed, involving another interview with Dr Suraya Md Nasir to evaluate the outcomes derived from the character designs. To validate the research's success in establishing guidelines for creating Malay male teenage characters, a survey tailored for audiences aged 13 to 17 years old was meticulously designed and implemented. The synthesis of these diverse methods culminated in the creation of a short animation, acting as a tangible manifestation of the study's findings and providing a visually compelling representation of the guidelines formulated through this comprehensive research endeavour.

4 FINDINGS

4.1 Interview Findings

In the insightful interview with the expert, a depth of knowledge was acquired concerning character design, forming the foundation for creating resonant and culturally authentic characters. By exploring into the intricacies of the target audience's preferences, designers can craft characters that not only captivate but also mirror diverse cultural and ethnic identities. This approach ensures a portrayal that goes beyond aesthetics, fostering meaningful connections between characters and audiences. The expert emphasized the importance of understanding ethnic society contexts and cultural diversity, which play a critical role in character relatability. Figure 1 visually encapsulates the thoughtful questions posed to the participant, illustrating the depth of research undertaken for a well-rounded and relatable character design process. The insights gained from this interview are invaluable for anyone seeking to create characters that truly resonate with and reflect the range of the audience.

Figure 1 Key questions for Expert in Character Design

The expert stated that no specific art style is exclusively attributed to Malays, as they have various unique styles which are influenced by Western and Manga arts. However, the Malay identity of a character design predominantly depends on the character's appearance, which can be tailored to suit different audience demographics, such as age or gender. Additionally, the production of animated characters often aligns with the cultural background, with Malay producers creating Malay stories and Chinese producers creating Chinese stories. Beyond the character's appearance, other factors also play a role in portraying Malay identity. For example, the story setting or location can help establish a cultural context. In addition to visual cues, cultural and religious nuances are subtly conveyed through characters' interpersonal interactions and rituals. The incorporation of traditional customs, language nuances, and communal traditions serves as a rich tapestry, deepening the portrayal of Malay culture and Islam within the narrative. These elements not only shape individual characters but also contribute to a more immersive and authentic storytelling experience, fostering a greater understanding of the diverse cultural landscape within the context of the narrative.

The character's face remains crucial, as a solid drawing and appeal are essential to captivate the audience. Appealing appearances resonate better with viewers, while unattractive characters may fail to engage the target audience. When portraying a Malay teenager's face, characteristics like youthfulness, dark or tanned skin, non-pointed or larger noses. This is because the indicators of Malay character appearance include tanned or brown skin, non-pointed noses, black hair, and medium-sized eyes. In addition, symbolic elements representing Malay identity, like logos or inscriptions on clothing, are highlighted. The style used by the artist, such as chibi or realistic, may influence this aspect. Interestingly, the character's body shape and proportion do not significantly determine their ethnicity. In general, the interview underscored the significance of combining elements like appearance, clothing, and context that effectively depict the Malay identity in cartoons.

Figure 2 presents crucial inquiries related to human anatomy, particularly focusing on the distinctive characteristics of Malays. This examination unveils notable aspects of Malay facial features, highlighting specific traits such as the distinctive 'M' shaped hairline, well-defined jawlines prevalent among men, broad non-pointed noses, moderately curly hair, average-sized lips and eyes, and moderately thick facial hair. Shifting the focus to body anatomy, the diversity within Malay individuals becomes apparent, with variations observed based on age. This comprehensive analysis sheds light on the nuanced aspects of Malay physiology, offering valuable insights for experts in the field. Typically characterized by small to average-sized bodies, Malays undergo noticeable changes during puberty, usually around 15 to 16 years old. Malay teenage boys, aged 13 to 17, exhibit a remarkable shift in average height, initially registering as relatively short before the onset of puberty (aged 13 to 15). Post-puberty (aged 16 and above), their stature undergoes a significant increase, reaching an average height of 160 cm. Described as apple-shaped, the Malay body shape embodies a unique blend of features, providing valuable insights into the intricacies of their physiological development, during adolescence.

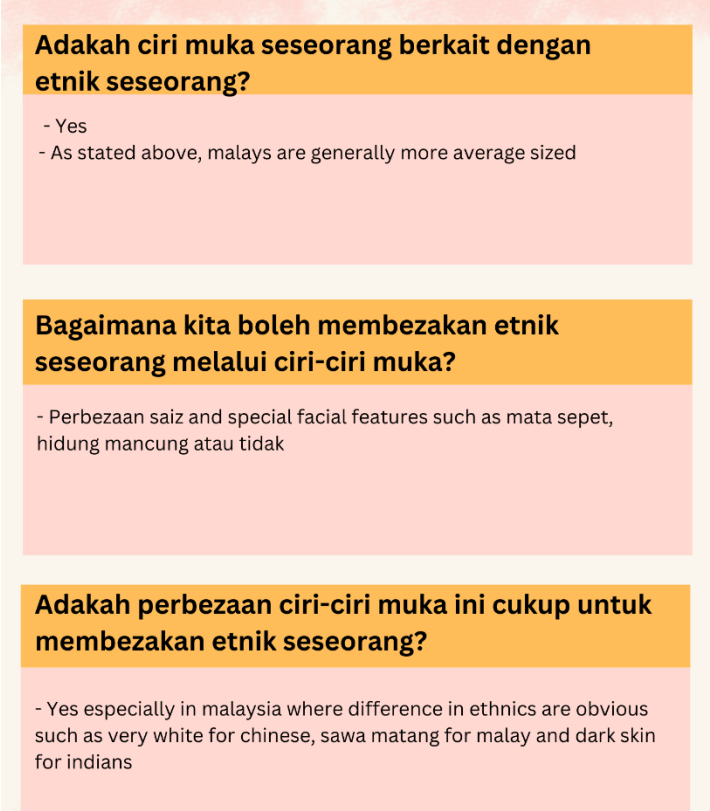

Figure 2 Key questions for Expert in Human Anatomy

The data analysis underscores the correlation between facial features and ethnicity, highlighting Malays as possessing predominantly average-sized features. Noteworthy distinctions emerge in facial traits across ethnicities, exemplified by fair skin in Chinese individuals, tanned skin in Malays, and dark skin in Indians. These differences serve as discernible markers, particularly in the multicultural landscape of Malaysia. The amalgamation of these unique facial and anatomical characteristics offers a robust basis for ethnicity differentiation. In the Malaysian context, these disparities are pronounced, allowing for a relatively straightforward identification of individuals' ethnic backgrounds through visual cues, contributing to a nuanced understanding of the diverse tapestry of the nation.

4.2 Facial Measurements

Following the interview, the study advanced to gauge the facial proportions of 10 male participants, aged 13 to 17, from Sekolah Tahfiz Maahad Muar. According to (Alam et al., 2015) recommended determining the golden ratio by dividing the bizygomatic width by the total facial height. In line with this methodology, Figure 3 showcases a representative participant, serving as an exemplar for the meticulous measurement process employed to analyse facial features and uncover potential correlations with the interview findings.

Figure 3 The side and front view of a participant

Table 1 The golden ratio face proportion for students aged 13-17 years old

Students	Upper Facial Height	Middle Facial Height	Lower Facial Height	Total Facial Height	Bizygomatic Width	Golden Ratio
F1(1)	49.75 mm	55 mm	56.45 mm	161.20 mm	112.45 mm	1.45
F1(2)	58.30 mm	58.75 mm	57.00 mm	175.05 mm	117.15 mm	1.50
F2(1)	72.25 mm	63.9 mm	59.10 mm	195.25 mm	117.10 mm	1.65
F2(2)	67.95 mm	62.85 mm	62.15 mm	192.90 mm	120.25 mm	1.60
F3(1)	62.85mm	57.25mm	59.05 mm	179.15 mm	120.20 mm	1.50
F3(2)	65.10 mm	67.2 mm	59.30 mm	191.65 mm	116.10 mm	1.60
F4(1)	67.15 mm	69.95mm	56.95 mm	194.05mm	130.30 mm	1.50
F4(2)	73.00 mm	60.9 mm	67.70 mm	201.50 mm	130.00 mm	1.55
F5(1)	72.55 mm	57.75 mm	69.40 mm	199.70 mm	123.00 mm	1.60
F5(2)	68.95 mm	64.6 mm	62.04 mm	195.54 mm	125.95 mm	1.60
		Mean				1.55

Table 1 provides a concise overview of the meticulously analysed data concerning the golden ratio of facial proportions among students aged 13 to 17. The measurements were conducted with precision, rounding to the nearest decimal for accuracy. Notably, the data reveals that Malay students exhibit a mean golden ratio of 1.55 with a margin of error of ± 0.05. This observation implies that, on average, Malay teenagers tend to have facial proportions leaning towards the shorter side within the golden ratio spectrum. In crafting the character's design, this insightful data on Malay students' facial proportions becomes a pivotal foundation, guaranteeing authenticity and accurate representation. The empirical findings guide the nuanced detailing of the character's features for a true-to-life portrayal.

4.3 Body Measurements

Table 2 The participants' upper body measurement data

No.	Age	Height (cm)	Weight (kg)	Measurement in circumference (cm)				
				Neck	Shoulders	Chest	Bicep	Waist
1.	13	139.5	31	28.9	38.2	68.1	19.7	57.3
2.		169.5	52	31.1	44.1	69	22.0	70.6
3.	14	164.8	46.5	31.7	43.1	74	21.6	64.2
4.		167	52	33	45.7	78.2	22	64.6
5.	15	151.5	52.7	36.3	43.8	88.4	28.2	84.7
6.		164.8	59	33.2	40.8	77.2	21.5	69.5
7.	16	174	55.1	35	44	79	27	74
8.		170	68.2	35	47	96.6	30.7	73.4
9.	17	162	66.4	35.9	47	86.3	27.4	76.5
10.		168.4	68.9	37.7	46.3	89.8	28.9	79.2

Table 3 The participants' upper body measurement data

No.	Age	Length (cm)					
		Arm circumference	Arm length	Arm's length (outspread)	Hand length	Elbow to Armpit	Forearm
1.	13	20.0	42.6	138.1	16.19	17.04	36.45
2.		21.5	47.0	160.0	17.86	18.8	40.21
3.	14	21	53	172	20.14	21.2	45.35
4.		23.4	50	169.5	19	20	42.78
5.	15	25.9	41.8	158.1	15.88	16.72	35.76
6.		22.6	46.5	161	17.67	18.6	39.79
7.	16	25.8	55	178	20.9	22	47.06
8.		26.6	52.6	177	20	21.04	45
9.	17	24.3	46.5	167.8	17.67	18.6	39.8
10.		25.8	46.9	172.6	17.82	18.76	40

Table 2 and Table 3 present the measurements of 10 participants using the golden ratio of Vitruvian Man. According to (Abu-Taieh and Al-Bdour, 2018), there are a few aspects that need to be measured when using the golden ratio of Vitruvian Man. For example, the length of the outspread arms is equal to the height of a man. The data was calculated by comparing the length of outspread arms and the height of each participant using a 1:1 ratio. It is counted as valid if the ratio measurement is correct by +-5cm. The result shows that six (6) out of 10 participants achieved a golden ratio. As for the shoulder, the maximum width of the shoulders is a quarter of the height of a man. The data was calculated by comparing the length of the maximum width of the shoulders and the height of each participant using a 1:4 ratio. It was counted validifies if the ratio measurement was +-5cm.

The result was that eight (8) out of 10 participants achieved a golden ratio. Then, for the forearm, the distance from the elbow to the tip of the hand was a quarter of the height of a man. The data was calculated by comparing the distance from the elbow to the tip of the hand and the height of each participant using a 1:4 ratio. The result was counted as valid if the ratio measurement was correct by +-5cm. This results in 10 out of 10 participants achieving a golden ratio.

Next, the upper arm, the distance from the elbow to the armpit, is 1/8 of the height of a man. The data was calculated by comparing the distance from the elbow to the armpit and the height of each participant using a 1:8 ratio. It is counted as valid if the ratio measurement is correct by +-5cm. This results in 10 out of 10 participants achieving a golden ratio. Finally, for the hands, the length of the hand is 1/10 of the height of a man. The data was calculated by comparing the length of the hand and the height of each participant using a 1:10 ratio. It is counted as valid if the ratio measurement is correct by +-5cm. This results in 10 out of 10 participants achieving a golden ratio.

4.4 Character Design Development

Figure 4 shows the design of the main characters generated from the analysed data. From the data, it is concluded that Malay male teenagers have short facial faces. Other than that, the data confirms that the Malays are mostly medium-sized proportions, including their facial features, such as eyes and distribution of facial hair. Figure 4 and Figure 5 reveal the characters designed based on the information gathered in the study, with more muscular characters presented in Figure 5.

Figure 4 Characters based on measurements

Figure 5 A Malay male based on measurements

4.5 Validation Interview

After the characters were meticulously developed, a crucial validation interview with the expert ensued. The expert enthusiastically affirmed that the characters had successfully achieved the objective of authentically resembling Malay individuals. Nevertheless, the dialogue with the expert shed light on the nuanced aspects that must be taken into account to truly instil a Malay identity in a character. It became evident that physical appearance is insufficient to convincingly convey a character's identity to the audience. Elements such as the character's surroundings, activities, actions, and outfits play pivotal roles in shaping and affirming their racial identity. This insight underscores the complexity of character creation, emphasizing the need to delve deeper into the intricacies of cultural context and human behaviour to authentically portray a Malay character. Understanding how these factors interplay with human anatomy is essential in crafting characters that resonate with the audience on a profound level, transcending superficial appearances.

4.6 Questionnaire

In addition to the validation interview, participants engaged in a quantitative survey using Google Forms to assess the character designs' effectiveness in representing Malays. The survey revealed a noteworthy 95 percent agreement among participants that the characters accurately portrayed the Malay people, as depicted in Figure 6. This resounding consensus underscores the success of the research in achieving its intended goal. However, it is essential to acknowledge and address a few factors that surfaced during the study, warranting careful consideration for future developments in character representation, including cultural sensitivity, diverse perspectives, and evolving societal norms in various narrative contexts.

Figure 6 Participants' responses on whether the character looks Malay

Figure 7 visually presents the responses to the question, 'Does the character look like a protagonist?'. The chart indicates a compelling division among respondents, with 57.5% affirming that the characters indeed resembled protagonists, while the remaining 42.5% held a contrary view. Despite the somewhat split feedback, the research deems the endeavour successful, given that a majority—more than half of the participants perceived the characters as protagonists. This outcome underscores the effectiveness of incorporating the golden ratio in protagonist design, highlighting its potential impact on audience perception and acceptance. Further analysis of the dissenting opinions may provide valuable insights for refining future character design strategies.

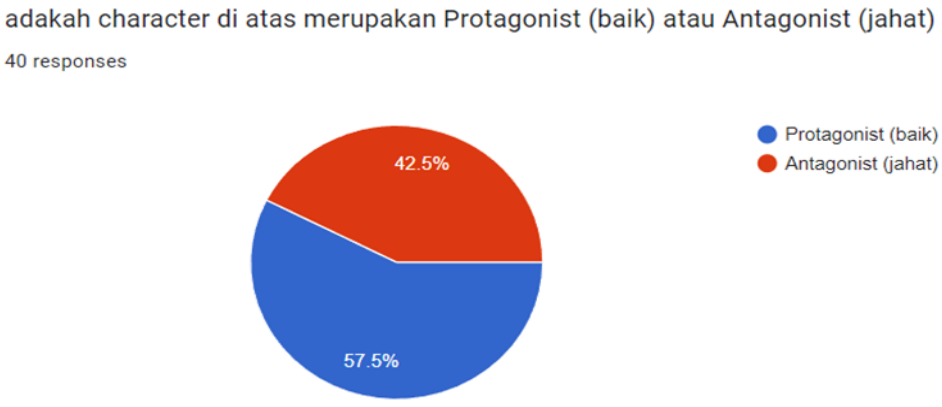

Figure 7 Chart for the question 'Do these characters look like protagonists?'

5 DISCUSSION

5.1 Character Guideline Creation

Figure 8 presents the comprehensive guidelines derived from the meticulous data measurements obtained in the current study. Specifically, concerning facial features, it's observed that the bizygomatic width (Zy-Zy) of a Malay male teenager typically constitutes approximately 2/3 of the total facial height (Gb-Me), with a mean ratio of 1.55ss. Moreover, the upper, middle, and lower facial heights are ideally distributed at approximately equal distances. Additionally, the proportions of essential facial components such as the eyes, nose, ears, and mouth are recommended to be of medium sizes, ensuring a harmonious facial structure. These guidelines serve as valuable references for various applications, including anthropological studies, medical assessments, and artistic representations, contributing to a deeper understanding of facial morphology within the Malay male teenage population.

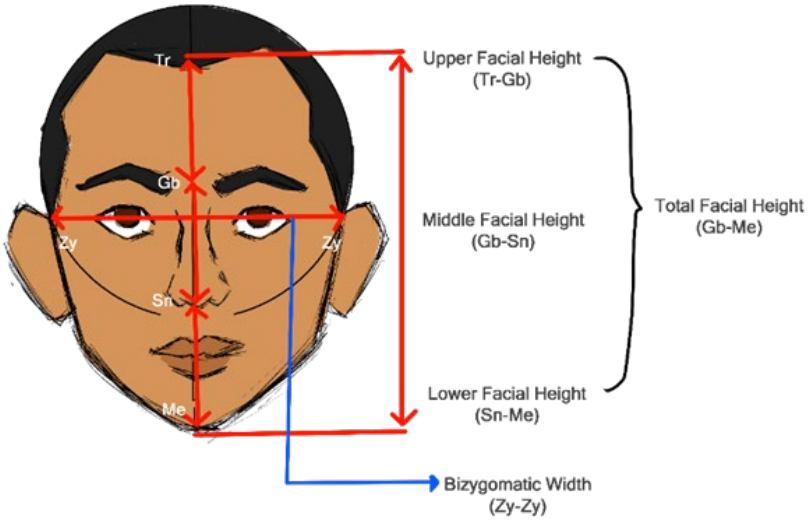

Figure 8 Framework guideline for facial features

On the other hand, Figure 9 shows the guidelines for body anatomy. There are a few aspects that need to be measured based on the golden ratio of Vitruvian Man. First, for the head, from below the chin to the top of the head, it is 1/8 of the height of a man. The data was calculated by comparing the distance from below the chin to the top of the head and the height of each participant using a 1:8 ratio. It is counted as valid if the ratio measurement is +-5cm. Accordingly, 10 out of 10 participants achieved the golden ratio. Second, the measurement between the chest and the top of the head is 1/6 of the height of a man. The data was calculated by comparing the distance from above the chest to the top of the head and the height of each participant using a 1:6 ratio. It is counted as valid if the ratio measurement is correct by +-5cm. All participants (10) achieved the golden ratio. Third, the upper arm, the distance from the elbow to the armpit, is 1/8 of the height of a man. The data was calculated by comparing the distance from the elbow to the armpit and the height of each participant using a 1:8 ratio. The finding is valid if the ratio measurement is +-5cm. Accordingly, all participants achieved the golden ratio. Fourth, the length of the hand is 1/10 of the height of a man. The data was calculated by comparing the length of the hand and the height of each participant using a 1:10 ratio. It is counted as valid if the ratio measurement is by +-5cm. The study found that 10 out of 10 participants achieved the golden ratio.

In addition to the aforementioned anthropometric measurements, the study delved into further proportions, unravelling the intricacies of human body ratios. Fifth, the revelation that the outspread arms' length equals a man's height, meticulously calculated with a 1:1 ratio and validated within a +-5cm range, highlighted a noteworthy trend. Surprisingly, 6 out of 10 participants exhibited adherence to the golden ratio in this aspect. Moving on to the sixth observation, the revelation that the maximum width of shoulders amounts to a quarter of a man's height, assessed through a 1:4 ratio with a tolerance of +-5cm, showcased an intriguing alignment. Astonishingly, 8 out of 10 participants manifested the

golden ratio in this dimension. The seventh metric explored the distance from the elbow to the tip of the hand, emphasizing a 1:4 ratio in tandem with the participant's height, and validated within a +-5cm range. Remarkably, the study unearthed a unanimous adherence to the golden ratio, as all 10 participants impeccably aligned with this particular anthropometric proportion. These findings not only contribute to understanding of human body proportions but also underscore the prevalence of the golden ratio across diverse aspects of anatomical measurements, shedding light on the fascinating harmony inherent in the human form.

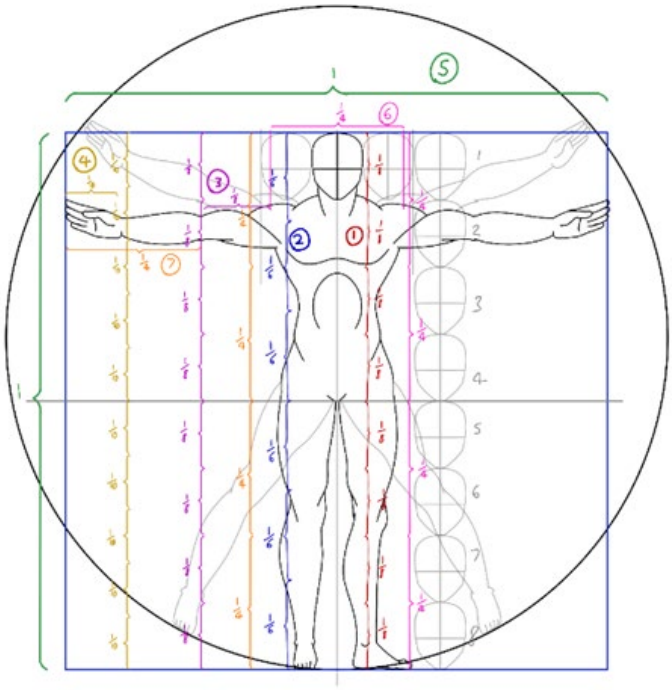

Figure 9 Framework Guideline for Body Proportion

6 CONCLUSION

In conclusion, while it is certainly possible to construct a character that visually embodies a particular race, it should not be considered an absolute mandate, given the influential factors of the character's surroundings, accessories, and general demeanour. The successful creation of a Malay character through a meticulous examination of human anatomy, facial traits, and the essentials of character design attests to the efficacy of extensive research. Moving forward, the evolution of this research can be amplified by further exploration into diverse character designs, paving the way for the development of a comprehensive framework that authentically represents various races, thereby ensuring the preservation of race identity in the realm of animation. This continuous refinement of character portrayal not only broadens creative horizons but also contributes significantly to fostering cultural diversity and inclusivity in the evolving landscape of animated storytelling, ultimately enriching narratives and resonating more deeply with diverse audiences worldwide.

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AUTHOR CONTRIBUTIONS

All the authors have contributed to the paper meticulously.

CONFLICT OF INTEREST

There is no conflict of interests.

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