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THE PHENOMENON OF ANIMATED CHARACTERS: A GENERATION Z PERSPECTIVE

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ABSTRACT

This study delves into the factors contributing to the popularity of animated characters among Generation Z viewers, a generation deeply immersed in the digital transformation of entertainment and media. To unravel the allure of animated characters for Generation Z, this research explores their emotional resonance, educational significance, and cultural relevance. The research objectives encompass examining Generation Z viewers' affinity for animated characters, utilizing a quantitative cross-sectional methodology. A sample was selected via convenience sampling, targeting animated movie enthusiasts aged 15 to 26, who participated in an online questionnaire. The study's findings were gathered through a rigorously quality-checked questionnaire, ensuring that the measurement models for both variables, character appearance and character attributes met good quality criteria. This achievement can be attributed to the rigorous development process, which ensured content validity. The results depict a sample predominantly comprised of female university students with a pronounced penchant for animated-style movies. Their preferences lean toward 3D animation and cartoons, particularly favoring animated films segmented into parts or episodes (spin-offs). In evaluating the characters' popularity based on appearance, male characters with endearing features, long hairstyles, superhuman abilities, and contemporary attire garnered the highest favor. Furthermore, when considering character roles, Generation Z respondents displayed a preference for main characters endowed with distinct labels, unique powers, and cheerful, sociable personalities. Characters with significant wealth also piqued their interest.

Keywords: Animated characters; generation Z perspective; 3D animation; animated-style movies

1. INTRODUCTION

In the continually evolving and multifaceted landscape of entertainment and media, a phenomenon has risen to prominence, encapsulating the very essence of Generation Z. This cohort, which materialized between the mid-1990s and the early 2010s, is a product of the digital age, having come of age in an era characterized by an unprecedented surge in the availability and accessibility of animated content across a diverse spectrum of platforms (Digital Economy Promotion Agency [Depa], 2023). This proliferation of animated offerings, spanning the spectrum from enduring classics like the lovable Mickey Mouse to contemporary cultural phenomena exemplified by the ubiquitous Pikachu, has captivated the hearts and minds

of Generation Z in a manner that transcends the confines of cultural demarcations (Fuller, 2021). Generation Z, immersed in the digital age, interacts with media and culture differently, influencing their perception of and interest in cartoon characters. Exposure to diverse cultures online makes them receptive to characters from various backgrounds. They often identify with characters, seeking self-understanding and acceptance. Additionally, fandom fosters a sense of community, while entertainment remains a primary motivation (Bassiouni & Hackley, 2014).

The enthrallment that Generation Z harbors for animated characters extends far beyond mere entertainment. It serves as a potent catalyst that is reshaping the very fabric of our interaction with storytelling, consumer merchandise, and even the dynamics of social engagement. These animated characters have evolved into enduring symbols of cultural significance, weaving themselves into the tapestry of this generation's collective consciousness. This profound connection with animated characters has not only solidified their status as cultural touchstones but has also catalyzed a paradigm shift in the ways individuals of this generation perceive and interact with media, merchandise, and even one another (Depa, 2023).

Previous research has highlighted a notable gap in the field of animation design that caters to specific audience preferences. While a significant portion of research has been dedicated to creating animation content, there is a dearth of contextual studies that investigate how design aligns with the preferences of the target audience. The present research, which stems from the realm of animation design, aims to bridge this existing gap in the literature. While scholars have made attempts to establish design principles, it has become apparent that these principles may need to adapt when considering factors intricately linked to the emotions of the audience (Tirakoat, 2021). Therefore, this study aims to shed light on which components of animation design resonate most significantly with Thai youth, particularly those who are undergraduate students. This research ultimately seeks to assist animation developers in crafting designs that closely align with the perceptions and sentiments of this specific demographic group.

The purpose of this article is to study generation z viewers' animated character preferences to decipher the complexities of animation design settings. The categorization of viewers' demographics and behavior not only helps differentiate their character preferences but also sheds light on the process of preparing, planning, implementing, and evaluating education and training in animation development approaches for Generation Z audiences. However, if the research tools used to collect data are not of good quality, it will be difficult to ensure the accuracy of the research findings. For this reason, measurement tools should be developed by determining their validity.

2. RESEARCH OBJECTIVES

This research has three objectives:

2.1 To validate the measurement model of the popularity of animated characters among Generation Z viewers.

2.2 To study the popularity of animated characters among Generation Z viewers.

2.3 To compare the preferences of Generation Z audiences for animated characters based on gender, status, and behavior.

3. RESEARCH METHODOLOGY

This research uses a quantitative cross-sectional research method.

3.1 Population and sample

This research defines the population as Thai Generation Z individuals aged 15–26 who are mature enough to evaluate their own feelings about characters in animated films. They frequently consume animated movies, primarily through streaming platforms and online communities, and actively participate in discussions about these works, often sharing their opinions and fan art on social media. In this research, the sample size was determined using Roscoe's (1975) mean estimation formula, with a confidence interval of 99% and a margin of error of 1/5 of a standard deviation. According to the formular, the number of samples should not be smaller than 166. Over the decades, many researchers have relied on Roscoe's guidelines to determine sample size. These guidelines suggest that a sample size ranging from 30 to 500 is appropriate for most behavioral studies. Furthermore, Roscoe noted that for comparative analyses requiring subgroup comparisons, each subgroup should comprise a minimum of 30 participants. This rule of 30 is based on the Central Limit Theorem (CLT), which states that as the sample size increases, the distribution of sample means tends to approach a normal distribution.

The sample was selected using convenience sampling from animated movie viewers between the ages of 15 and 26 through an online questionnaire, and it took 3 weeks to collect the data. The results were from a sample response group of 203 people, which is not less than the number calculated according to the Roscoe's formula (1975).

3.2 Research tool

A structured questionnaire was used for the research. The questionnaire consists of three parts: Part 1—personal information; Part 2—respondents' behavior regarding watching animated movies; and Part 3—popularity of animated characters. In the questionnaire, Parts 1 and 2 use nominal and ordinal scales, while Part 3 is an interval scale using a 5-point Likert scale, where 1 is the lowest and 5 is the highest. The third part of the questionnaire is divided into two main dimensions: the first is respondents' liking for the character appearance, which consists of 19 items, including six sub-dimensions, and the second is their liking for the character performance, which includes 11 items with four sub-dimensions.

To ensure its quality, the questionnaire was submitted to three academics from the relevant field for evaluation. An analysis using the Index of Item-Objective Congruence (IOC) revealed that all items achieved a mean score exceeding 0.50. Following the initial analysis, a pilot test was conducted with 30 students, during which five questionnaire items were identified as needing more precise wording and were subsequently revised for improved clarity.

The third part of the questionnaire was evaluated for internal consistency using Cronbach's alpha coefficient. This method yielded a mean value of 0.853, indicating that the questions effectively measured the intended construct with internal consistency exceeding the recommended threshold of 0.70 (Nunnally, 1978). This verification of the research instrument's reliability strengthens the researchers' confidence in the appropriateness of the measured attribute, as detailed in Table 1.

Table 1: The research instrument's reliability

	Number of items (Code)	Reliability	Results: The criteria were met
Preference of the character appearance	19	0.873	✓
Character sexual appearance	3 (S1–S3)	0.701	✓
Character age	4 (A1–A4)	0.851	✓
Character race	3 (R1–R3)	0.758	✓
The appearance of the character face	3 (F1–F3)	0.712	✓
Character costume	3 (C1–C3)	0.705	✓
Character hairstyle	3 (H1–H3)	0.722	✓
Preference of the character attributes	12	0.833	✓
Character roles	3 (RO1–RO3)	0.749	✓
Character wealth	3 (W1–W3)	0.768	✓
Character abilities	3 (AB1–AB3)	0.798	✓
Character traits	2 (T1–T2)	0.703	✓

3.3 Data analysis

After data collection, descriptive statistics were computed to derive general information for each indicator. These included frequency, percentage, mean, standard deviation (SD), and correlation coefficients. Furthermore, skewness and kurtosis tests were conducted to assess the normality of the data. To evaluate construct validity, convergent validity, and discriminant validity, confirmatory factor analysis (CFA) was conducted to validate the measurement model of the variables. Finally, a multivariate analysis of variance (MANOVA) was used to compare the preferences of Generation Z, classified by gender, status, and behaviors. This was followed by several analyses of variance (ANOVAs) to identify specific group differences.

4. RESULTS

4.1 Number and percentage of respondents regarding their personal information and animation movie viewing behavior

The sample group of 203 people who responded to the questionnaire was mostly female (70.8%) and at the university level (85.7%). The data of the respondents are not very gender-balanced, and their ages are not homogeneous.

Regarding the respondents' behavior of watching animated movies, it was found that all of them (100%) were interested in animated movies and liked animated movies the most (41.9%), followed by 3D animation (27.1%) and cartoons (23.6%), respectively.

The majority of the respondents (31.5%) were willing to pay less than 500 baht, followed by those who were willing to pay 500–1,000 baht (25.1%) to buy products related to animated movies.

Most of them (85.2%) were interested in animated films that are divided into parts or episodes (spin-offs) and were interested in re-watching their favorite animations. It was found that the majority of the sample (77.3%) would like to watch them again no more than three times.

4.2 The measurement model validation of the popularity of animated characters among Generation Z viewers

Table 2 presents the correlation coefficients and normality test results for the character appearance items. Overall, the correlation coefficients were positive, providing initial support for the relationships depicted in Figure 1. Examination of skewness and kurtosis for each observed variable revealed that all values fell within the recommended thresholds (skewness ±1.00, kurtosis ±1.50) established by Schumacker and Lomax (2004), thus satisfying the assumption of normality. This confirms their suitability for further analysis. Additionally, the derived correlation coefficients for all constructs (presented in Table 2) were statistically significant, aligning with the criteria suggested by Baron and Kenny (1986).

Similarly, the analysis of preference for the character attributes (detailed in Table 3) yielded results consistent with those from the appearance analysis. The correlation coefficients were all positive, indicating initial support for the relationships illustrated in Figure 2.

Table 2: Correlation coefficients, and normality assessment of preference of the character appearance items

d	S1	S2	S3	A1	A2	A3	A4	R1	R2	R3	F1	F2	F3	C1	C2	C3	H1	H2	H3
S1	1.00																		
S2	.543	1.00																	
S3	.540	.694	1.00																
A1	.499	.458	.471	1.00															
A2	.467	.502	.414	.493	1.00														
A3	.468	.363	.424	.402	.531	1.00													
A4	.428	.349	.386	.596	.470	.574	1.00												
R1	.446	.447	.409	.388	.432	.325	.350	1.00											
R2	.322	.361	.352	.178	.288	.355	.232	.484	1.00										
R3	.419	.386	.399	.251	.413	.349	.211	.544	.657	1.00									
F1	.528	.422	.503	.293	.424	.277	.217	.395	.283	.484	1.00								
F2	.366	.491	.497	.264	.349	.219	.249	.297	.301	.392	.732	1.00							
F3	.328	.438	.452	.318	.391	.272	.271	.346	.318	.460	.561	.666	1.00						
C1	.377	.406	.444	.269	.354	.320	.237	.389	.329	.388	.366	.336	.365	1.00					
C2	.470	.508	.463	.387	.418	.369	.293	.437	.296	.417	.451	.433	.465	.709	1.00				
C3	.375	.406	.414	.348	.367	.322	.252	.378	.281	.413	.418	.383	.507	.654	.769	1.00			
H1	.440	.455	.351	.271	.424	.288	.292	.326	.224	.244	.361	.337	.279	.448	.371	.364	1.00		
H2	.454	.569	.442	.345	.364	.253	.308	.378	.268	.347	.363	.401	.371	.442	.517	.441	.725	1.00	
H3	.450	.560	.461	.361	.408	.274	.327	.388	.280	.380	.481	.510	.417	.495	.518	.499	.615	.776	1.00
Mean	4.07	4.09	4.10	3.95	4.27	4.12	3.77	4.22	4.19	4.43	4.37	4.35	4.50	4.18	4.16	4.13	3.70	3.99	4.16
SD.	.946	.882	.914	.930	.815	.862	.938	.837	.890	.826	.861	.791	.747	.903	.872	.905	1.06	.957	.981
Skew	-.72	-.92	-.71	-.39	-.91	-.71	-.15	-.85	-.82	-.43	-.38	-.20	-.50	-.70	-.91	-.87	-.33	-.84	-.41
Kurt	-.15	.94	-.21	-.71	1.40	-.08	-.81	.27	-.75	1.19	1.41	1.30	1.11	1.02	1.40	.34	-.74	.47	.45

The confirmatory factor analysis (CFA) results for the measurement model supported the six-subconstruct model. This indicates that the constructs used were exclusive (χ^2/df = 2.104, CFI = .927, TLI = .915, RMSEA = .074, RMR = .048) (Browne & Cudeck, 1993; Hu & Bentler, 1999; Ingard, 2023a; Kline, 1998; Schumacker & Lomax, 2004), as shown in Figure 1.

For the reliability analysis of the scales, Cronbach's alpha, composite reliability (CR), and average variance extracted (AVE) were calculated for the measurement scales of the appearance variables. As presented in Figure 1, the results revealed that all scales were reliable. To establish the validity of the

constructs, convergent validity requires the six subconstructs of appearance to share a high proportion of common variance. As depicted in Figure 1, construct validity is indicated by the following values: (1) significant standardized loadings exceeding 0.70, (2) Cronbach's alpha for all items within the constructs, higher than 0.7 (α = 0.928), (3) composite reliability (CR) of the constructs, greater than 0.7 (CR = 0.901), and (4) the average variance extracted (AVE), above 0.5 (AVE = 0.604). These findings provide evidence supporting the reliability of the measures (Hair et al., 2010, 2021).

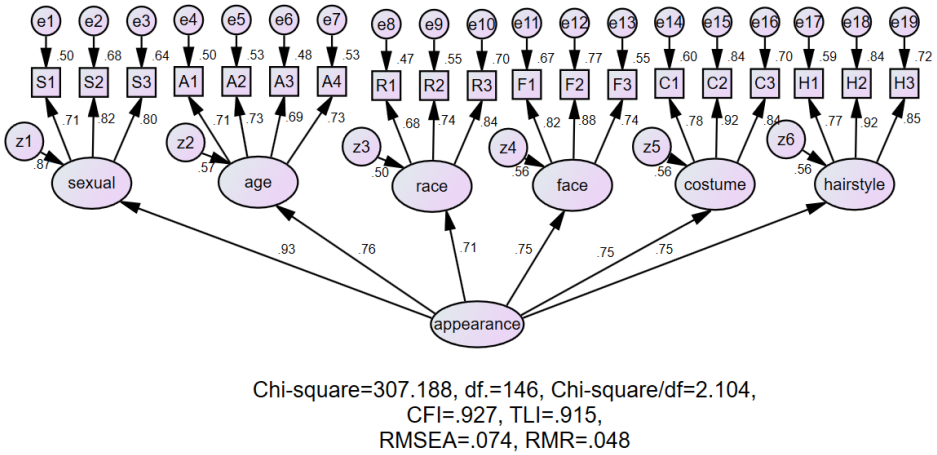

Figure 1: Measurement model of the popularity of animated characters among Generation Z viewers: Preference of the character appearance

Table 3: Correlation coefficients, and normality assessment of preference of the character attributes items

	RO1	RO2	RO3	W1	W2	W3	AB1	AB2	AB3	T1	T2
RO1	1.00										
RO2	.640	1.00									
RO3	.547	.648	1.00								
W1	.532	.510	.497	1.00							
W2	.448	.466	.401	.602	1.00						
W3	.403	.496	.384	.539	.649	1.00					
AB1	.571	.455	.525	.559	.421	.354	1.00				
AB2	.553	.440	.456	.503	.413	.368	.636	1.00			
AB3	.533	.378	.360	.465	.382	.286	.616	.714	1.00		
T1	.549	.456	.448	.436	.458	.348	.494	.536	.570	1.00	
T2	.524	.434	.483	.447	.419	.348	.527	.500	.506	.792	1.00
Mean	4.32	4.26	4.02	4.06	3.86	3.82	4.47	4.26	4.33	4.23	4.22
SD	.901	.846	.909	.960	.907	.950	.858	.941	.930	.923	.913
Skew	-0.32	-0.90	-0.65	-0.77	-0.41	-0.36	-0.59	-0.74	-0.36	-0.26	-0.53
Kurt	1.46	0.87	0.15	0.06	-0.26	-0.49	1.06	0.42	1.44	0.94	1.14

The results of the Confirmatory Factor Analysis (CFA) for the measurement model provided support for the four-subconstruct model, indicating good discriminant validity of the attributes constructs used (χ^2/df = 2.152, CFI = .964, TLI = .903, RMSEA = .076, RMR = .041), as shown in Figure 2. The attributes construct consisted of four subconstructs, all of which had significant standardized loadings exceeding 0.70. Additionally, Cronbach's Alpha (α) was 0.914, composite reliability (CR) was 0.903, and average variance extracted (AVE) was 0.701. These findings demonstrate strong evidence for the validity of the attributes construct measurement (Hair et al., 2010, 2021).

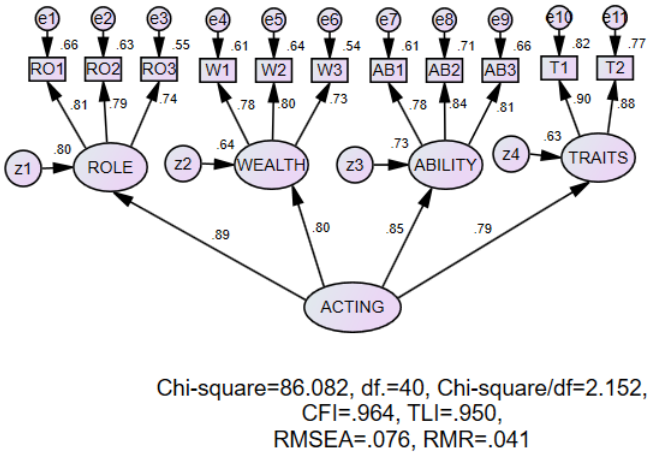

Figure 2: Measurement model of the popularity of animated characters among Generation Z viewers: Preference of the character attributes

4.3 The popularity of animated characters among Generation Z viewers

The data obtained from the third part of the questionnaire were analyzed using the mean and standard deviation, along with an assessment of popularity: 1.00–1.80 indicating least popularity, 1.81–2.60 indicating low popularity, 2.61–3.40 indicating moderate popularity, 3.41–4.20 indicating high popularity, and 4.21–5.00 indicating the highest popularity (Ingard, 2023b). The results regarding the preference for the character appearance and the character attributes were presented in Tables 4 and 5, respectively.

Table 4: Mean, standard deviation, and level of the character appearance preference

Preference of the character appearance	Mean	SD	Level of popularity
Character face (FACE)	**4.41**	**0.702**	**Highest**
The characters are handsome (F1)	4.37	0.861	Rank 2
The characters are beautiful (F2)	4.35	0.791	Rank 3
The characters are cute (F3)	4.50	0.747	Rank 1
Character race (RACE)	**4.29**	**0.716**	**Highest**
Human characters (R1)	4.22	0.837	Rank 2
Inhuman characters (R2)	4.19	0.890	Rank 3
Super hero character (R3)	4.43	0.826	Rank 1
Character costume (COSTUME)	**4.16**	**0.802**	**High**
Clothing from a bygone era (C1)	4.18	0.903	Rank 1
Clothes in the modern era (C2)	4.16	0.872	Rank 2
Futuristic clothing (C3)	4.13	0.905	Rank 3
Character sexual appearance (SEXUAL)	**4.09**	**0.779**	**High**
Male character (S1)	4.07	0.946	Rank 2
Female character (S2)	4.09	0.882	Rank 1
LGBTQ+ characters (S3)	4.10	0.914	Rank 3
Character age (AGE)	**4.03**	**0.706**	**High**
Childhood character (A1)	3.95	0.930	Rank 3
Teen character (A2)	4.27	0.815	Rank 1
Middle-aged character (A3)	4.12	0.862	Rank 2
Old age character (A4)	3.77	0.938	Rank 4
Character hairstyle (HAIR)	**3.95**	**0.897**	**High**
Bald character (H1)	3.70	1.061	Rank 3
Short hair character (H2)	3.99	0.957	Rank 2
Long hair character (H3)	4.16	0.981	Rank 1

As shown in Table 4, regarding the character appearance, Generation Z respondents showed the highest preference for character face, with the highest average score (mean = 4.41, SD = 0.702). Cute faces were the most preferred (mean = 4.50, SD = 0.747), followed by handsome faces (mean = 4.37, SD = 0.861) and beautiful faces (mean = 4.35, SD = 0.791).

The second most popular character characteristic among the sample group was race (mean = 4.29, SD = 0.716). The most popular sub-characteristic was being a superhero (mean = 4.43, SD = 0.826), followed by being inhuman (mean = 4.22, SD = 0.837) and being human (mean = 4.19, SD = 0.890), which ranked third.

Additionally, the results in Table 4 show a high level of popularity for appearance such as clothing style or character costume (mean = 4.16, SD = 0.802), character sexual appearance (mean = 4.09, SD = 0.779), character age (mean = 4.03, SD = 0.706), and character hairstyle (mean = 3.95, SD = 0.897). The details of the top preferences in each characteristic are female character, teen character, and character with long hair.

Table 5: Mean, standard deviation, and level of the character attributes preference

Preference of the character attributes	Mean	SD	Level
Character abilities (ABILITY)	**4.35**	**0.799**	**Highest**
Smart or clever (AB1)	4.47	0.858	Rank 1
Stronger (AB2)	4.26	0.941	Rank 3
Super hero (AB3)	4.33	0.930	Rank 2
Character traits (TRAIT)	**4.22**	**0.869**	**Highest**
Extraversion (T1)	4.23	0.923	Rank 1
Introversion (T2)	4.22	0.922	Rank 2
Character roles (ROLE)	**4.19**	**0.762**	**High**
Protagonist or main character (RO1)	4.32	0.901	Rank 1
Villain character (RO2)	4.26	0.846	Rank 2
Secondary or supporting characters (RO3)	4.02	0.909	Rank 3
Character wealth (WEALTH)	**3.91**	**0.802**	**High**
Rich (W1)	4.06	0.960	Rank 1
Moderate (W2)	3.86	0.907	Rank 2
Poor (W3)	3.82	0.950	Rank 3

The analysis results on the popularity of characters attributes in animated films show that character abilities were the most popular (Mean = 4.35, SD = 0.799), followed by character traits (Mean = 4.22, SD = 0.869), as shown in Table 5. According to the survey, respondents highly appreciated the following character roles: abilities (Mean = 4.19, SD = 0.762) and wealth (Mean = 3.91, SD = 0.802), respectively. Additionally, the top preferences for each character attributes include cleverness, extraversion traits, the main character role, and the rich man character.

4.4 Comparisons on the preferences of Generation Z audiences for animated characters based on gender, status, and behavior

The findings presented in part 4.3 demonstrate the overall preference of Generation Z for character appearance and character attributes, without drawing comparisons between demographic and behavioral differences among the respondents. Consequently, this part of the analysis aims to reveal any dissimilarities or similarities concerning the issues under study in order to gain a more profound understanding of the sample preferences.

Initially, Box's M test was employed to assess the homogeneity of covariance. This parametric test compares the variation in multivariate samples and specifically tests whether two or more covariance matrices are homogeneous. The results are presented in Table 6.

Table 6: The Box's M test of the character appearance preference and the character attributes preference

	The character appearance			The character attributes		
	Box's M	p-value	Results	Box's M	p-value	Results
Demographic of respondents						
- Gender	30.564	0.170	Homogeneity	30.035	0.135	Homogeneity
- Status	57.669	0.336	Homogeneity	33.483	0.092	Homogeneity
Behavior of respondents						
- Movies styles	74.984	0.099	Homogeneity	20.951	0.495	Homogeneity
- Spending	112.462	0.102	Homogeneity	34.532	0.330	Homogeneity
- Spin-off	37.714	0.073	Homogeneity	3.519	0.972	Homogeneity
- Repeat viewing	96.503	0.402	Homogeneity	26.052	0.192	Homogeneity

The results of testing for equality of covariance matrices (homogeneity of covariance) using Box's M test, as shown in Table 6, indicated that personal factors (gender and status) and behavioral factors (movie

styles, spending, spin-off, repeat viewing) have equal covariance for both character preferences (appearance and attributes). Therefore, the analysis confirmed that Multivariate Analysis of Variance (MANOVA) was an appropriate statistical method to compare the means of multiple dependent variables. Consequently, MANOVA was employed in this study. This technique is specifically designed to compare means across multiple dependent variables simultaneously.

Table 7 Multivariate test for the character appearance preference

Dependent variables:	**Character face (FACE)**	**Character race (RACE)**	**Character costume (COSTUME)**	**Character sexual appearance (SEXUAL)**	**Character age (AGE)**	**Character hairstyle (HAIR)**
Gender	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Female	4.516 (0.684)	4.264 (0.735)	4.174 (0.772)	4.134 (0.787)	4.059 (0.679)	3.931 (0.887)
Male	4.164 (0.684)	4.339 (0.671)	4.129 (0.878)	3.989 (0.758)	3.962 (0.768)	4.011 (0.926)
λ = 0.888, p-value = 0.001, Ob-power = 0.974**						
Status	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Students	4.275 (0.745)	4.218 (0.613)	4.172 (0.819)	3.977 (0.821)	4.009 (0.663)	3.894 (0.886)
Workers	4.434 (0.693)	4.230 (0.733)	4.159 (0.802)	4.111 (0.773)	4.034 (0.714)	3.964 (0.901)
λ = 0.988, p-value = 0.881, Ob-power = 0.164						
Movie styles	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Animated	4.490 (0.618)	4.321 (0.667)	4.188 (0.774)	4.153 (0.694)	4.038 (0.647)	3.961 (0.902)
3D Animation	4.444 (0.612)	4.333 (0.654)	4.378 (0.775)	4.200 (0.933)	4.050 (0.672)	3.822 (0.873)
Cartoon	4.444 (0.671)	4.215 (0.739)	4.159 (0.762)	3.965 (0.702)	3.917 (0.661)	4.014 (0.737)
λ = 0.945, p-value = 0.786, Ob-power = 0.384						
Spending	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
No	4.408 (0.718)	4.292 (0.759)	4.250 (0.707)	4.100 (0.680)	4.131 (0.662)	4.058 (0.777)
< 500 Baht	4.592 (0.562)	4.381 (0.585)	4.157 (0.898)	4.184 (0.797)	4.076 (0.667)	4.075 (0.918)
≥ 500 Baht	4.412 (0.620)	4.209 (0.716)	4.198 (0.698)	4.023 (0.694)	3.848 (0.761)	3.808 (0.869)
λ = 0.710, p-value = 0.339, Ob-power = 0.646						
Spin-off	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
No	4.278 (0.711)	4.244 (0.683)	4.089 (0.901)	3.944 (0.722)	4.008 (0.652)	3.956 (0.852)
Yes	4.437 (0.699)	4.293 (0.724)	4.173 (0.786)	4.117 (0.788)	4.035 (0.716)	3.953 (0.907)
λ = 0.984, p-value = 0.794, Ob-power = 0.207						
Repeat viewing	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
< 2 times	4.379 (0.744)	4.250 (0.630)	4.116 (0.847)	4.133(0.810)	4.056 (0.684)	4.054 (0.857)
2–3 times	4.522 (0.560)	4.320 (0.691)	4.178 (0.742)	4.108 (0.691)	4.003 (0.724)	3.857 (0.887)
> 3 times	4.289 (0.818)	4.289 (0.891)	4.210 (0.832)	3.993 (0.868)	4.033 (0.726)	3.942 (0.979)
λ = 0.934, p-value = 0.332, Ob-power = 0.655						

Note: *λ is Multivariate test by Wilks' Lambda, Ob-power is Observed power, **p-value < 0.01*

Table 7 presents the results, as indicated by the Wilks' Lambda value (λ) from the multivariate test, showing that the means of all dependent variables were significantly different across the gender categories of the respondents (p = 0.001). Therefore, we conducted further testing using the statistical procedure of analysis of variance (ANOVA). This analysis revealed significant differences among genders in terms of character appearance preference, particularly for the character face of animation (p-value = 0.001). The results are shown in Table 8. Additionally, the results in Table 7 suggests that the character face was rated significantly better by female respondents compared to male respondents.

Table 8: Univariate test for the character appearance preference

	Affecting factors: Gender					
Dependent variables:	**Character face (FACE)**	**Character race (RACE)**	**Character costume (COSTUME)**	**Character sexual appearance (SEXUAL)**	**Character age (AGE)**	**Character hairstyle (HAIR)**
F-test	11.080**	0.459	0.123	1.463	0.792	0.338
p-value	0.001	0.499	0.726	0.228	0.374	0.562
Observed power	0.912	0.103	0.064	0.226	0.144	0.089

***p-value < 0.01*

The respondents' preference for character attributes was analyzed using MANOVA, as shown in Table 9. Of all the multivariate criteria, there was an overall significant difference between gender groups and spending groups when using Wilks' Lambda (p-value = 0.007, 0.043, respectively). Following the MANOVA procedure, ANOVA was then performed.

Table 9: Multivariate test for the character attributes preference

Dependent variables:	**Character abilities (ABILITY)**	**Character traits (TRAIT)**	**Character roles (ROLE)**	**Character wealth (WEALTH)**
Gender	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Female	4.467 (0.692)	4.298 (0.822	4.236 (0.729)	3.997 (0.802)
Male	4.062 (0.959)	4.042 (0.957)	4.107 (0.836)	3.712 (0.772)
λ = 0.931, p-value = 0.007, Ob-power = 0.872**				
Status	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Students	4.333 (0.777)	4.397 (0.659)	4.207 (0.580)	3.897 (0.802)
Workers	4.353 (0.804)	4.195 (0.897)	4.197 (0.789)	3.918 (0.805)
W's λ = 0.983, p-value = 0.604, Ob-power = 0.221				
Movies styles	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Animated	4.368 (0.761)	4.206 (0.887)	4.212 (0.712)	3.914 (0.754)
3D Animation	4.368 (0.718)	4.219 (0.805)	4.201 (0.703)	3.938 (0.752)
Cartoon	4.285 (0.888)	4.209 (0.941)	4.152 (0.872)	3.921 (0.923)
λ = 0.994, p-value = 0.998, Ob-power = 0.087				
Spending	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
No	4.435 (0.689)	4.432 (0.659)	4.254 (0.806)	4.056 (0.727)
< 500 Baht	4.368 (0.789)	4.302 (0.766)	4.276 (0.684)	4.046 (0.718)
≥ 500 Baht	4.249 (0.856)	3.951 (0.951)	4.070 (0.714)	3.708 (0.887)
λ = 0.917*, p-value = 0.043, Ob-power = 0.825				
Spin-off	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
No	4.081 (0.911)	4.034 (0.944)	3.908 (0.854)	3.816 (0.889)
Yes	4.392 (0.825)	4.242 (0.892)	4.242 (0.791)	3.941 (0.778)
λ = 0.965, p-value = 0.161, Ob-power = 0.504				
Repeat viewing	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
< 2 times	4.288 (0.802)	4.169 (0.951)	4.167 (0.800)	3.941 (0.798)
2–3 times	4.476 (0.753)	4.243 (0.802)	4.205 (0.654)	3.957 (0.786)
> 3 times	4.227 (0.908)	4.227 (0.885)	4.212 (0.692)	3.833 (0.816)
λ = 0.963, p-value = 0.539, Ob-power = 0.408				

Note: *λ is Multivariate test by Wilks' Lambda, Ob-power is Observed power, *p-value < 0.05, **p-value < 0.01*

Following the initial analysis, post hoc comparisons were conducted (Table 10) to pinpoint the source of the observed differences. The results revealed significant differences in attributes preference (p-value = 0.001) and character wealth (p-value = 0.021) among Generation Z participants, with females showing a stronger preference for these aspects. An additional ANOVA analysis was conducted to explore the relationship between spending and character preferences (Table 9). This analysis identified significant differences in character race (p-value = 0.005) and character wealth (p-value = 0.017) preferences based on spending habits. Notably, Table 9 suggests that female respondents generally prioritize character abilities and wealth more compared to males. Additionally, respondents with higher spending tend to place less emphasis on character traits and wealth compared to other spending groups.

Table 10: Univariate test for the character attributes preference

Affecting factors: Gender				
Dependent variables:	**Character abilities (ABILITY)**	**Character traits (TRAIT)**	**Character roles (ROLE)**	**Character wealth (WEALTH)**
F-test	11.339**	3.687	1.197	5.426*
p-value	0.001	0.056	0.275	0.021
Observed power	0.918	0.481	0.193	0.640
Affecting factors: Spending				
F-test	0.942	5.549**	1.479	4.160*
p-value	0.392	0.005	0.230	0.017
Observed power	0.212	0.850	0.313	0.728

***p-value < 0.01*

5. DISCUSSION AND CONCLUSION

Validity of measurement scale

The study aimed to assess the validity and reliability of measurement scales for character appearance and attributes constructs. A questionnaire was developed based on academic principles, with content validity evaluated by experts and tested on small groups before being applied to a larger sample (DeVellis, 2003). This approach aligns with previous research tool development (Çınar & Kurt, 2019; Oh et al., 2021).

The research instrument was designed to capture participants' preferences for character appearance and attributes. Confirmatory factor analysis (CFA) was used to assess whether the instrument accurately reflects the intended concepts (character appearance and attributes preferences). The results of the CFA were satisfactory, indicating that the participants' responses aligned well with the researchers' expectations regarding the instrument's functionality. In addition, the instrument demonstrated good internal consistency, meaning the questions measuring each concept (appearance and attributes preferences) were consistent with each other (Hair et al., 2010, 2021).

Based on the positive CFA results, the study further examined the instrument's validity in detail. This examination included assessing convergent validity to determine whether the measures accurately captured the intended concepts, and discriminant validity, to ensure that the concepts were distinct from each other. Additionally, the reliability of all the multi-item constructs was confirmed, with each question within the instrument significantly contributing to the measurement of its corresponding concept (appearance or attributes preference). Furthermore, the overall reliability of the instrument exceeded the recommended threshold (Bagozzi & Yi, 1988). Convergent validity was established by AVEs (average variance extracted) exceeding 0.50 for all constructs, indicating that the measures adequately captured the underlying constructs (Bagozzi & Yi, 1988).

In conclusion, the measurement models for both variables demonstrated good quality criteria. This achievement can be attributed to the rigorous development process, which ensured content validity and pilot testing before final application.

Popularity of animated characters among Generation Z viewers

This research found that Generation Z participants showed the strongest preference for animated characters that possess several key traits. These characters are typically depicted in a cutesy style, with a human-like appearance and period costumes. Ideally, the character is usually a teenage female with long hair.

Furthermore, the study revealed Generation Z preferences in terms of the character attributes. They favor characters who are intelligent, outgoing, and wealthy protagonists. Specially, women prefer animated characters with cute faces, high intelligence, and wealth. This preference is lower among men. Meanwhile, viewers who watch free animated movies prefer characters with traits like extraversion and wealth more than viewers who pay for it.

It is evident that the preferences of Generation Z participants, primarily female students, demonstrate an affinity for animated characters that embody the qualities of a dreamy and romantic woman. As Bedekar and Joshi (2020) stated, many girls have imagined themselves as beautiful princesses at some point.

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