



# Designing mascot character based on believable agent framework



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## ABSTRACT

Utilizing mascots as an extension of the brand to reach the target audience is one strategy in visual branding that has proven its effectiveness. Mascots with solid characters can build consumer trust and are even more impressive than other visual identities. However, currently, very few mascot design methods or steps lead to the creation of a mascot that is both convincing and an agent of the institution it represents. This research highlights the convincing agent design process as the primary basis for designing mascot designs. This research uses the theory of believable agents, which includes seven dimensions: personality, emotions, self-motivation, change, social interaction, consistency of expression, and the illusion of life. These seven theories will be supported by the results of the questionnaires. The questionnaire results found that credible and trustworthy agents should have a friendly personality, which can be seen from their facial expressions, body movements, and the way they present themselves. The research results confirm that the seven dimensions of a trustworthy agent can be applied to mascot design that prioritizes the formation of a unique and distinctive personality. Mascots will be perceived as genuine individuals with specific characteristics that appear in the way they act (behavior), the way they think (think), and the way they feel (emotions). The results of this research provide a bridge for designers to consider ideas up to the mascot design stage.

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## 1. Introduction

Mascot design is essential in many situations because it dramatically affects how people see a brand, how engaged they are with it, and how much they promote it. Mascots are essential marketing tools that can change people's minds, make them more likely to buy, and make them loyal to a brand [1], [2]. Moreover, mascot design is essential for creating memorable and engaging brand elements that resonate with the target audience [3]. The aesthetic aspects of cuteness and the dimensions of mascot design, including affective, language, and design dimensions, are critical in understanding the role of mascots in appealing to consumers [4]. When designing a mascot, various challenges and potential problems may arise. One significant issue is related to cultural sensitivity and representation. The use of mascots, especially those based on specific cultural or ethnic themes, can lead to controversies and criticisms regarding cultural appropriation or misrepresentation [5], [6]. Designing mascots that inadvertently perpetuate stereotypes or offend certain groups can have negative implications for the brand or organization associated with the mascot [7]. The potential for misinterpretation or ambiguity regarding the mascot's intended message is an additional difficulty in mascot design. Mascots are symbolic embodiments designed to convey the intended values, attributes, or messages of the organization they symbolize. Nevertheless, if the mascot's design lacks clarity or alternative interpretations emerge among diverse audiences, it may result in perplexity or a dilution of the desired brand perception [8].

Cultural appropriation and misinterpretation are significant issues that should be considered when designing mascots. Mascots with cultural elements have become especially controversial due to concerns about misrepresenting the character and lack of specificity. Owners of brands with cultural elements are now under pressure to reconsider the use of mascots, brand names, logos, and other representations to avoid cultural appropriation and misinterpretation [9]. Mascot design, primarily anthropomorphic use, can blur the line between mainstream representation and simplification in the form of caricature [10]. Due to the problem of misinterpretation and the risk of cultural appropriation, mascot design often considers semiotic aspects to make it easier to understand the message to be conveyed. However, the semiotic formulation of effective mascots must be in harmony with the brand they represent while aligning with the desired image of the entity they symbolize so that they can be trusted like an agent [11]. In addition, the value and cultural significance of mascots can play an essential role in branding, influencing the perception of mascots and their effectiveness in representing a product [12]. The design and use of mascots should be approached with sensitivity and cultural awareness to avoid misrepresentation and cultural appropriation. Understanding the implications of mascots on various groups and the broader context of society is critical to creating inclusive, trustworthy mascots that represent the values they are intended to embody. Furthermore, practical challenges in mascot design include ensuring that the mascot is visually appealing, memorable, and versatile for various applications. Designing a mascot that resonates with the target audience while being distinctive and recognizable among competitors can be complex [13]. Creating a mascot that can be effectively integrated into different marketing materials, merchandise, or promotional activities without losing its essence poses a design challenge [14].

Research has shown that mascot-like appearances, such as those seen in service robots or Olympic mascots, can enhance consumer enjoyment task enjoyment and promote cultural events like the Olympics [10]. The design of mascots, particularly in city branding or destination branding, contributes to strengthening brand identity and building a positive image for regions or organizations [15]. Studies have also highlighted the importance of specific design elements, such as eye shapes, in influencing the evaluation and perception of mascot characters [16]. Furthermore, mascots are utilized in various sectors, including education, health promotion, and sports, to engage audiences, promote positive behaviors, and enhance experiences [17]. The use of mascots in educational curricula or health campaigns has been shown to increase engagement and influence consumer choices [18]. In sports, mascots are integral to fan identification, brand loyalty, and enhancing the entertainment value of sporting events [2]. In creating a mascot, employing the seven dimensions of believable agent theory can be a powerful method to design a character that resonates with the audience. Mascots are often intended to evoke emotions, convey messages, and engage with individuals on a personal level [19]. By utilizing believable agent theory, designers can imbue mascots with characteristics that make them relatable, emotionally engaging, and authentic, thereby increasing their effectiveness in representing a brand, promoting a cause, or enhancing user experience [4]. Believable Agent Theory is a concept that focuses on creating computer-generated characters or agents that exhibit human-like behaviors, emotions, and interactions to enhance user engagement and immersion [20]. The believable agent theory includes seven character analysis dimensions: personality, emotion, self-motivation, change, social interactions, consistency of expression, and the illusion of life [21]. This theory emphasizes the importance of designing agents that are perceived as realistic and credible by users. This is often achieved through the incorporation of emotions, social cues, and cognitive processes [22]. By making these agents believable, users are more likely to establish a connection with them, leading to enhanced user experience and interaction [23].

An example of a study that utilized Believable Agent Theory in the context of mascot design is the research by Wattanacharoensil, W., Kantamara, S., & Muangasame, K. (2020) [19]. This study investigated mascots' influence, specifically Kumamon and Sukjai, on destination branding. The results emphasized the significance of mascots in fostering destination identity, generating differentiation, and engaging stakeholders, demonstrating how mascots exemplifying the dimensions of the believable agent's theory can make a substantial

contribution to branding initiatives. Nevertheless, applying the character dimensions of believable agents' theory in developing avatars for Indonesian companies is still limited. Nearly all organizations require an emblem to communicate with their target audience and promote their brand. Its effectiveness is contingent upon the mascot design's unity with the intended message or purpose of the brand. To develop mascots using the seven-dimensional approach of believable agents' theory, designers should prioritize incorporating human-like behavior, emotions, and interactions. This can be achieved by applying sophisticated recursive belief and theory of mind principles, as well as utilizing cutting-edge technologies that augment adaptive capabilities and mascot engagement with users. This study will investigate using the stages of believable agents' theory in the context of avatar design. This research has implications for design methodologies and facilitates the planning process for creative industry mascot designs.

## 2. Method

### 2.1. Research Steps

The research utilizes the seven dimensions of the believable agent's framework to design mascot characters. The seven dimensions of believable agents offer a thorough structure for developing relevant characters and have a substantial impact on the audience [21]. The dimensions encompassed in this context are personality, emotion, self-motivation, adaptability, social interactions, consistency of expression, and the perception of vitality. Every dimension plays a vital role in determining the traits and actions of realistic characters in different types of media, such as literature, film, and interactive digital settings. Furthermore, these aspects serve as a strong foundation for developing relatable characters that connect with the viewer. In the mascot character design process, the Seven Dimensions of Believable Agents Framework can be operationalized and measured to ensure the creation of compelling and realistic characters. Firstly, the dimension of perceptual mechanisms can be evaluated by analyzing the mascot's design features to reflect how it perceives its environment, such as eye size and field of view [24]. Secondly, emotional mechanisms can be assessed through the mascot's expressiveness in facial expressions and body language, ensuring consistency with intended character traits. To evaluate emotional mechanisms through a mascot's expressiveness in facial expressions and body language while ensuring alignment with intended character traits, it is essential to consider the rapid perceptual integration of facial expressions and emotional body language [25]. Cognitive mechanisms can then be scrutinized by examining the mascot's decision-making processes and measuring the complexity and appropriateness of its actions. Wang & Ruhe (2007) stated that by exploring the cognitive process, designers can gain a deeper understanding of how cognitive strategies impact decision outcomes in character design [26]. Social mechanisms involve testing how the mascot interacts with users and other characters and assessing communication style and empathy levels. Additionally, physical mechanisms can be evaluated by observing the mascot's movements and responsiveness, ensuring realism and fluidity. Plausibility of action focuses on the coherence of the mascot's behavior within its context. At the same time, self-organization involves monitoring how the mascot adapts and evolves based on user interactions and feedback. By systematically assessing these dimensions, designers can create mascot characters that resonate with audiences and enhance user engagement. Fig. 1 is the Research Stages.

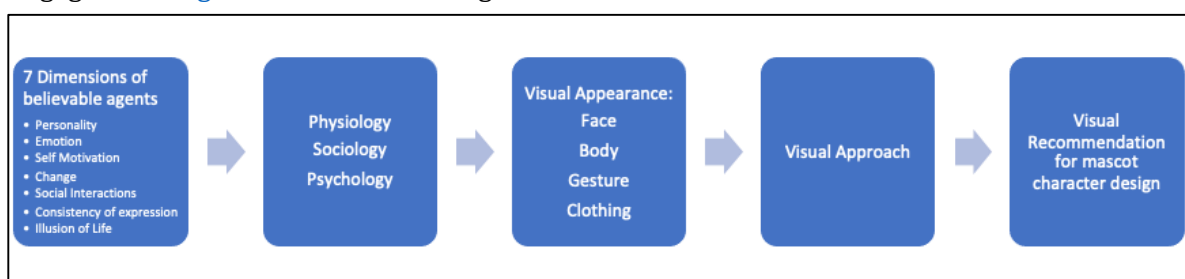


Fig 1. Research stages

Subsequently, these seven categories were condensed into three primary attributes, namely physiology, sociology, and psychology. Physiology pertains to the anatomical and physiological characteristics of mascot characters. This encompasses several factors, such as physical appearance, anatomical composition, facial gestures, and other visual components that contribute to the character's overall design. Firstly, Physiology is a significant factor in forming the initial impression of a character and impacting how the audience perceives them [27]. For instance, the selection of colors, shapes, and proportions might elicit particular emotions or communicate specific attributes about the character, such as its age, gender, or species. In addition, physiology also includes the character's bodily motions and gestures, which further improves its credibility and capacity to captivate the audience. Secondly, Sociology relates explicitly to the social dimensions of the mascot figure, encompassing its function within a community or group, its associations with other characters, and its engagements with the surrounding environment. This component examines the character's integration into its fictitious or real-world setting and ability to manage social dynamics and conventions [28]. For instance, a character's background, profession, or associations can mold its identity and conduct, impacting its interactions with other characters and the viewer. In addition, sociology examines the cultural, historical, and societal influences that can affect the development and reception of a character, ensuring that it connects with a wide range of audiences and settings. Thirdly, Psychology on visual perception explores the intricate mechanisms of the mascot character's cognition and affection. This dimension delves into the character's motives, beliefs, desires, fears, and other psychological characteristics that influence actions and decisions. A study on the psychological consequences of mascots was undertaken by Ito & Yamashita [29]. This study offers valuable insights into the psychological influence of character design decisions. Gaining insight into the character's psyche enables designers to craft more intricate and captivating personas, fostering a stronger sense of involvement and emotional attachment with the viewer. By delving into the character's internal realm, creators can infuse it with profoundness, intricacy, and relatability, transforming it from a superficial entity into a fully developed and empathic creature that profoundly connects with the viewer.

As for this research, a female character was chosen as the research subject because female advertising characters are evaluated more favorably than male characters, and these evaluations can predict advertising effectiveness [30]. For example, a study on the impact of female celebrity spokespersons in fast-moving consumer goods advertising concluded that using a famous female spokesperson significantly affects advertising impact [31]. Furthermore, the portrayal of females in advertisements has been associated with various outcomes such as ad liking, brand recognition, and brand image [32]. This suggests that using a female character as a mascot can influence how the audience perceives and remembers the advertisement. Moreover, female characters in ads have been found to have a different impact on male and female viewers, with females generally responding more positively to ads featuring female images [33]. The three fundamental qualities of the believable agent framework are converted into visual appearance through four elements: Face, Body, Gesture, and Clothing. Based on the visual outcomes, a study was conducted using a visual methodology with participants between 18 and 23 to determine which visual representations accurately portrayed the desired attributes. Consequently, the outcomes of the visual approach might be utilized as visual suggestions for constructing mascot characters. The three fundamental qualities of the believable agent framework are converted into visual appearance through four elements: Face, Body, Gesture, and Clothing. Based on the visual outcomes, a study was conducted using a visual methodology with participants between 18 and 23 to determine which visual representations accurately portrayed the desired attributes. Consequently, the outcomes of the visual approach might be utilized as visual suggestions for constructing mascot characters.

## 2.2. Questionnaire for the audience regarding visual mascot

This study employed a questionnaire to collect data and insights on creating mascot characters. The questionnaire functioned as a systematic instrument for gathering data from participants regarding their preferences, perceptions, and expectations concerning mascot characters [34]. Its design aimed to provoke reactions about several elements, such as favored visual attributes, personality attributes, methods of interaction, and emotional responses to



distinct character designs [35]. To guarantee the questionnaire's efficacy, meticulous consideration was given to its design, which encompassed the creation of unambiguous and concise questions, the utilization of suitable scales or response formats, and the incorporation of pertinent demographic questions to offer a framework for the responses. In addition, the questionnaire underwent pre-testing with a small sample group to detect any possible errors or ambiguities and make necessary improvements. Participants were selected from a pool of students aged between 18 and 23 years to provide a sample that accurately represents the younger population. The participants were given explicit guidelines on filling out the questionnaire and were guaranteed that their comments would be kept personal and anonymous. The data obtained from the questionnaire was further examined utilizing narrative descriptive techniques. The analysis primarily aimed to discover patterns, trends, and correlations among the data to reveal insights into the preferences and views of participants about mascot characters.

### 2.3. Narrative Descriptive Analysis

The study employed a narrative descriptive approach to analyze and present the data collected from the questionnaire replies. This approach entailed arranging and condensing the data logically and cohesively, emphasizing the primary themes, patterns, and discoveries from the participants' answers [36]. At first, the data underwent a thorough examination to uncover recurring themes and patterns concerning participants' preferences, views, and expectations regarding mascot figures. The topics were categorized into clusters based on similarities and correlations, enabling a systematic and ordered data investigation. Subsequently, the detected themes were explicated and elucidated in a narrative structure, emphasizing the principal ideas and insights acquired from the data [37]. This narrative description thoroughly summarizes the findings, placing them into the broader research goals and theoretical framework. During the analysis, we focused on providing comprehensive and precise explanations of the data. We utilized quotes or excerpts from participants' responses to highlight important aspects and strengthen the reliability and validity of the findings. This methodology facilitated a more profound comprehension of the viewpoints and encounters of the participants concerning mascot figures, augmenting the interpretation of the data and improving its significance and usefulness to the research environment. Ultimately, the narrative description was condensed and abstracted to extract the study's primary discoveries and conclusions, emphasizing any noteworthy insights or implications for theory, practice, or future research. The analysis utilized a narrative descriptive approach to provide a thorough and detailed interpretation of the data. This approach offered valuable insights into the development and design of mascot characters, considering audience preferences and views.

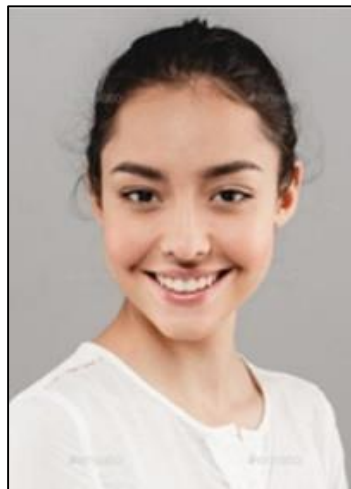
## 3. Results and Discussion

### 3.1. Visual Appearance and Visual Approach

Data was collected through questionnaires addressed randomly to respondents in the urban area from January to March 2024. Respondents consisted of 80 people, male and female, in the range of 18 - 23 years old. From the questionnaire, the following data was obtained:

- 62.5% of respondents mentioned that the most critical required trait of a brand ambassador or mascot is Friendliness. Friendly is the trait with the highest ranking. Meanwhile, the traits of Cheerfulness and Politeness were ranked second and third, namely 47.5% and 46.3%.
- Regarding facial expression as an extension of character, as many as 82.5% of respondents chose Fig. 2 as an individual perceived to be youthful and open. The facial expression in Fig. 2, featuring a smile with both lips curling upward, front teeth visible, relaxed eyes looking forward, and a comfortable neckline, signifies her genuine happiness, authenticity, and warmth. It suggests she is content, cheerful, and optimistic, reflecting a positive outlook on life and a willingness to engage with others in a friendly and approachable manner. Her relaxed demeanor and gaze indicate openness, approachability, and inner contentment, fostering positive relationships and social

connections. Overall, she appears comfortable and at ease with herself and her surroundings, embodying confidence, self-assuredness, and inner peace that make her a delightful presence.



**Fig 2.** The example of Youthful and open characteristics by questionnaire (Source: <https://www.pinterest.co.uk/pin/healthy-teeth-smile-woman-clean-skin-natural-makeup--853572935651744657/>)

- Regarding facial expression as an extension of character, as much as 92.5% of respondents chose Fig. 3 as an individual perceived to be someone with the characteristics of warmth and expression. The detailed facial expression in Fig. 3 is characterized by a wide smile with both lips upward, mouth open, and front teeth visible, along with sparkling eyes taking on a relaxed, upward curve at the outer corners resembling a smile, one eye slightly shut, lifted cheeks, and slightly raised eyebrows, conveys a complex array of emotions and personality traits. The broad smile with visible front teeth suggests genuine happiness and enthusiasm, indicating an optimistic and joyful disposition. The sparkling eyes and relaxed, upward curve at the outer corners reflect a sense of warmth, kindness, and friendliness, inviting connection and interaction. The slight shut-eye adds a playful and endearing quality to her expression, suggesting a sense of humor or mischief. The lifted cheeks and raised somewhat eyebrows further enhance the impression of openness, approachability, and expressiveness, indicating a person who is emotionally engaged and empathetic. Overall, this facial expression suggests a vibrant, charismatic, and emotionally expressive individual who exudes positivity, charm, and a zest for life, making her both captivating and engaging to those around her.



**Fig 3.** The example of characteristics of warm and expressive by questionnaire (Source: [https://www.fashionmodeldirectory.com/models/zoe\\_thaets/showphoto/595208/](https://www.fashionmodeldirectory.com/models/zoe_thaets/showphoto/595208/))

- Regarding facial expression, 83.8% of respondents chose Fig. 4 as an individual perceived as someone with cheerful characteristics. The facial expression in Fig. 4 is described as exuding genuine joy and happiness. The wide smile lifted cheeks and raised eyebrows all indicate a positive emotional state, suggesting optimism, enthusiasm, and openness. The nearly shut eyes and the contraction of muscles around the eyes causing "crow's feet" or "laughter lines" to form are characteristic of a sincere, heartfelt smile, implying a deep sense of contentment and inner happiness. The wrinkling of the nose could indicate a slight scrunching up of the face in delight or amusement, adding to the overall expression of joy and amusement. These facial cues suggest a lively, expressive, and emotionally engaged person, radiating warmth and charm to those around her. She likely possesses a playful and spirited nature, finding joy in life's simple pleasures and fostering positive connections with others through her infectious enthusiasm and genuine demeanor.



**Fig 4.** The example of cheerful characteristics by questionnaire (Source: <https://id.pinterest.com/pin/844213892634960386/>)

- Regarding gestures as an extension of character, as much as 83.8% of respondents chose Fig. 5 as an individual perceived to be someone with the characteristics of fun and confidence. The combination of the described facial expression and gesture provides insight into the character of Fig. 5. Her wide smile, open mouth with visible front teeth, and eyes half shut suggest genuine happiness and joy. This indicates an optimistic and lively personality, someone who is likely cheerful, outgoing, and enjoys sharing positive energy with others. Using the "okay" sign with her right hand further reinforces her cheerful demeanor, indicating approval, agreement, or assurance. It suggests that she is confident and comfortable expressing herself non-verbally, communicating her contentment and satisfaction with the situation or conversation. The left hand resting on her hip, with relaxed shoulders, signifies a sense of ease and confidence in her posture, suggesting self-assuredness and assertiveness. Overall, this portrayal paints a picture of a vibrant, outgoing, and emotionally expressive young woman who radiates positivity and charm, making her engaging and approachable to those around her.



**Fig 5.** The example of characteristics of fun and confidence by questionnaire (Source: <https://www.freepik.es/fotos-vectores-gratis/mujer-con-actitud/>)

- Regarding gestures as an extension of character, as much as 93.8% of respondents chose Fig. 6 as an individual perceived to be someone with the characteristics of warmth and affection. The described gesture in Fig. 6, with arms outstretched and stretching forward, complements her facial expression and provides further insight into her character. Her wide smile, open mouth with visible front teeth, and open eyes convey a sense of enthusiasm, excitement, and readiness for new experiences. The raised eyebrows indicate curiosity and eagerness, suggesting an adventurous spirit and a willingness to explore. The outstretched arms symbolize openness, confidence, and a welcoming attitude towards what lies ahead. It indicates that she embraces life with optimism and opportunities with open arms. Overall, this portrayal suggests a young woman who is dynamic, adventurous, and enthusiastic about the possibilities that life has to offer. She exudes confidence, energy, and a positive outlook, making her both captivating and inspiring to those around her.



**Fig 6.** The example of f warm and affectionate characteristics by questionnaire (Source: <https://www.freepik.es/fotos-vectores-gratis/mujer-con-actitud/>)

- Regarding gestures as an extension of character, as many as 88.8% of respondents chose Fig. 7 of an individual perceived to have energetic characteristics. The combination of the described facial expression and gesture vividly portrays the Fig. 7 character. Her wide smile, open mouth with visible front teeth, and raised eyebrows suggest a sense of excitement, enthusiasm, and confidence. The checked sign made by her right hand, pointing to the right side, indicates a gesture of affirmation, agreement, or approval, showcasing her positive attitude and assertiveness. This gesture suggests that she is decisive and sure of herself, willing to confidently express her opinions and beliefs. The positioning of her left arm, bent with her hand resting on her hip and her upright stance with one leg straight and the other bent at the knee portrays a sense of poise, self-assurance, and readiness to take action. Overall, this portrayal suggests a young woman who is dynamic, confident, and assertive, with a strong sense of self and a willingness to embrace challenges and opportunities with enthusiasm and determination.



**Fig 7.** The example of energetic characteristics by questionnaire (Source: <https://id.pinterest.com/pin/505951339390713334/>)



- Regarding clothing as an extension of character, 78.8% of respondents chose Fig. 8 of an individual perceived to have youthful characteristics. The clothing choices of Fig. 8 provide additional insight into her character and personality. The dark-colored varsity jacket suggests a blend of casual style with a hint of athleticism or collegiate influence, indicating that she values comfort and practicality in her clothing choices. This choice may also reflect her appreciation for classic and timeless fashion pieces. The khaki skirt adds a touch of femininity and sophistication to her ensemble, showcasing her sense of style and attention to detail. The red ankle boot sneakers inject a pop of color and personality into her outfit, suggesting that she is bold, confident, and not afraid to stand out. Red is often associated with energy, passion, and vibrancy, reflecting her dynamic and lively nature. Additionally, the choice of sneakers indicates that she is active and on-the-go, ready to tackle whatever challenges come her way. Carrying a backpack further emphasizes her practicality and preparedness, suggesting that she is organized, efficient, and always ready for her next adventure. Overall, her clothing choices convey a sense of confidence, style, and versatility, reflecting a young woman who is dynamic, outgoing, and ready to take on the world.



**Fig 8.** The example of youthful characteristics by questionnaire (Source: <https://id.pinterest.com/beebegunz/korean-fashion/>)

- As much as 90% of respondents chose this image as an individual perceived to be someone with amiable characteristics. The clothing ensemble of Fig. 9 suggests a blend of casual comfort with a touch of understated elegance. The unbuttoned collared lavender wool jacket portrays a sense of sophistication and refinement, indicating that she values quality and classic pieces in her wardrobe. The choice of lavender as the jacket color suggests a softer, more feminine side to her personality, while the wool material implies practicality and warmth. Pairing the jacket with a black t-shirt and trousers adds a modern and edgy twist to her outfit, showcasing her versatility and ability to mix and match different styles. The black color of the t-shirt and trousers exudes a sense of confidence, strength, and timelessness, suggesting that she is self-assured and grounded in her sense of identity. Opting for sneakers further emphasizes her practicality and comfort, indicating that she is active and on-the-go, ready for whatever the day may bring. Carrying a white backpack completes her look with a functional accessory, suggesting that she is organized, efficient, and prepared for her daily activities. Overall, her clothing choices reflect a young woman who is confident, stylish, and practical, with a keen eye for fashion and a knack for effortlessly blending sophistication with casual comfort.



**Fig 9.** The example characteristics of amiable by questionnaire (Source: <https://www.pinterest.co.kr/pin/pin-on--1548181151515355/>)

- As much as 86.3% of respondents chose this image as an individual perceived to be someone with sporty characteristics. The clothing ensemble in Fig. 10 suggests a blend of boldness, comfort, and individuality. The unzipped oversized jacket with a geometrical pattern of white, green, and navy blue immediately draws attention with its vibrant and eye-catching design. This choice reflects her adventurous and outgoing personality and her willingness to make a statement through her fashion choices. Layering the jacket over a cropped white polo shirt adds a touch of sporty-chic to her look, balancing the boldness of the coat with a clean and classic piece. The oversized green jogger pants offer comfort and style, allowing her to move freely while maintaining a trendy and casual aesthetic. The choice of white and navy blue casual sneakers complements the outfit's color scheme, tying everything together seamlessly. Additionally, sneakers suggest that she values practicality and comfort in her everyday attire, indicating an active and on-the-go lifestyle. Overall, her clothing choices convey confidence, creativity, and a strong sense of personal style, showcasing a young woman who is unafraid to express herself boldly and authentically through fashion.



**Fig 10.** The example characteristics of sporty  
(Source: <https://global.musinsa.com/jp/styling/29032>)

### 3.2. Visual Mascot as Believable Agents

Reviewed from the believable agent's theory, regarding the research results obtained from the questionnaire, the following analysis was obtained:

#### 3.2.1 Personality

As the most essential requirement for a believable agent, based on the questionnaire findings, "Friendly" has emerged as the first ranking of characteristics that must be found in a mascot. Alongside the "Friendly" personality, throughout the questionnaire, respondents chose the following characteristics to be embodied in a mascot: youthful, open, warm, expressive, cheerful, fun, confident, affectionate, energetic, amiable, and sporty. The characters' personality traits play a crucial role in their evaluation and effectiveness. Research has shown that the assessment of mascot characters is influenced by individuality and personality traits, indicating that these traits are relevant to the design of mascot characters [29]. Furthermore, the use of mascots in branding and communication is emphasized, with mascots being described as cute, friendly, and straightforward, highlighting the importance of these traits in creating an effective mascot [19]. These traits not only influence the evaluation of mascot characters but also play a crucial role in establishing emotional connections and creating favorable impressions, thereby contributing to the overall effectiveness of mascots in branding and communication.

#### 3.2.2 Emotion

The second requirement for believable agents is that they appear to have emotional reactions and show those emotions somehow. Regarding this requirement of emotion, the questionnaire shows that the most eminent characteristic perceived as necessary in a mascot is cheerfulness. Visually, the indicators of this particular characteristic can be recognized from facial expressions, gestures, and the way mascots present themselves, for example, by the clothing they wear. As shown in Fig 5, Cheerful characteristics appear on the face of the mascot, namely in the form of a smiling expression, which can be identified from smiling lines, the shape of the mouth, cheek muscles that are pulled upwards, and eyes that are half closed. As seen in Fig 6 and Fig. 8, Cheerful characteristics also appear in the gestures of the mascot; the mascot appears standing upright in a casual manner, with shoulders pulled back and arms and hands positioned in a casual but dynamic manner. The emotional appeal of mascots is crucial in creating meaningful connections with the audience. Research has shown that positive emotions, including cheerfulness, are integral to the effectiveness of mascot characters [38]. Local mascot designs often incorporate affective words such as cheerful, simple, amiable, and humorous attributes, emphasizing the significance of cheerfulness in creating appealing characters [4]. Furthermore, the emotional impact of mascot attributes, including visual and emotional factors, has been found to positively influence preference, event engagement, and sponsorship enterprise trust, highlighting the importance of emotional appeal, including cheerfulness, in mascot design [39]. Cheerful attributes are associated with positive emotions, successful outcomes, emotional attachment, and community engagement, highlighting their crucial role in creating practical and emotionally appealing mascot characters.

#### 3.2.3 Self-Motivation

The third requirement for believable agents is that they appear to be self-motivated. This means that agents are supposed to have wills and seem to have their thoughts. "They appear to think" was the term Loyall (1997) used to describe the requirement [21]. Regarding the requirement of self-motivation, the questionnaire shows an indirect correlation. This means that there are no findings of self-motivation that can be seen visually. Still, the findings implied that the respondents suggested that a mascot should have a confident characteristic. Self-motivation can be applied in the future by providing context for the mascot's appearance. Self-initiative, as a characteristic of mascots, encompasses self-motivation and the appearance of independent thought and plays a pivotal role in their effectiveness as believable agents [27]. Mascots that exhibit self-motivated actions and appear to have their thoughts are likelier to engage and captivate audiences, fostering a sense of connection and authenticity [8]. By embodying self-motivation and the appearance of independent thought, mascots can establish a compelling presence, effectively engaging with audiences and enhancing their perceived authenticity and relatability.

#### **3.2.4 Change**

Many artists believe that characters grow and change, which is crucial to the character's believability. Agents appear to grow and change as humans do and will be perceived as humane and believable by the audience. However, this change must be in line with the personality of the character or agent. Regarding change requirements, the questionnaire suggests that mascots should appear adjustable and contextual, for example, as seen in Figs 7, 8, and 9. Mascots appear in different clothing depending on the activities and situations. Respondents' approval of the change of clothing is based on the understanding that despite the changes, all the clothes align with the mascot's personality. The ability of a mascot to exhibit characteristics of change and adaptability akin to a human being significantly enhances its believability and effectiveness in representing a brand. Research has shown that anthropomorphism, including human-like representations such as mascots, influences consumer perceptions of brands' human-like characteristics, leading to brand anthropomorphization [40]. Furthermore, humanlike designs bring individuals psychologically closer to nonhuman agents, making them accept a nonhuman agent as an in-group member, thus emphasizing the impact of human likeness on perceived similarity and acceptance [41]. By embodying traits of change and adaptability, mascots can establish a more relatable and authentic presence, effectively representing the brand and fostering genuine connections with the audience.

#### **3.2.5 Social Interactions**

An agent or character is portrayed as capable of social interaction. These interactions are influenced by whatever relationships the characters have with one another, which may influence the relationships. Regarding this requirement of social interactions, the questionnaire shows that respondents perceive mascots as individuals with the characteristics of open, warm, expressive, cheerful, fun, affectionate, and amiable. These qualities play an important role in the mascot's interaction and establishing relationships with other people, in this case, their relationship with the audience. Social interactions among characters in various media, such as social media, television, and virtual reality, significantly shape the relationships and dynamics between them. These interactions can encompass positive and negative aspects, influencing the viewers' perceptions and emotional connections with the characters [42]. Parasocial interactions, where viewers feel a sense of mutual awareness and attention from the characters, contribute to the viewers' emotional engagement and identification with the characters [43]. Furthermore, media characters are known to simulate real-life social interactions, leading viewers to respond to them as if they were part of a genuine social setting [44]. In digital games, interactions between characters are perceived as more believable when they adhere to recognizable social practices and responses to social situations. These findings highlight the intricate nature of social interactions among characters and their profound impact on viewers' emotional connections and engagement with the media content, primarily through the mascot's character.

#### **3.2.6 Consistency of Expression**

Consistency of expression is one of the basic requirements for believability. Every character or agent has many avenues of expression depending on the medium in which it is expressed; for example, an actor has facial expression, body posture, movement, voice intonation, *etc.* To be believable at every moment, all those avenues of expression must work together to convey the unified message appropriate for the character's personality, feelings, situation, thinking, *etc.* Regarding this requirement of consistency of expression, all the qualities or characteristics mentioned in the dimension of personality, such as youthful, open, warm, expressive, cheerful, fun, confident, affectionate, energetic, amiable, and sporty, should be shown in the mascot as a set of permanent characteristics. However, to give the mascot distinctive characteristics, the designer needs to emphasize the most prominent characters from the ones mentioned above. In this case, the most substantial qualities are friendly, cheerful, and energetic. These qualities should be implemented in facial expression, body posture, movement, voice intonation, *etc.*, which will be carried out during the design phase. Consistency of expression is fundamental in establishing believability for characters or agents across various media platforms [43]. Whether it is an actor in a film, a virtual character in a video game, or an avatar in virtual reality, the convergence of multiple avenues of expression, such as facial expressions, body posture,

movement, and voice intonation, is crucial for conveying a unified and authentic message that aligns with the character's personality, emotions, situation, and thoughts including on the mascot [20]. Therefore, the harmonious integration of diverse avenues of expression is paramount in ensuring that mascot characters or agents are perceived as authentic and relatable across different mediums, enhancing their overall impact and resonance with the audience as a part of the branding strategy [7].

### 3.2.7 Illusion of Life

Agents are portrayed as real people who have a certain life with goals to pursue. Suppose we want our agents to be believable. In that case, they also need to appear to have specific goals. To pursue those goals, agents seem to be engaged in various activities and situated in a certain environment that is coherent with their lives. The character also appears to be broadly capable in terms of they seem to act, think, sense, talk, listen, understand, have emotions, exist in dynamic worlds, *etc.*, and are portrayed to be reactive and responsive; it means characters in the arts are reactive to changes in their world. Regarding this requirement of the illusion of life, the mascot is portrayed as a student actively engaged in formal and informal education. As seen in figs 7, 8, and 9. Mascots appear in different clothing, representing various activities, such as studying in class or sports. Furthermore, the illusion of life dimension can be obtained by showing that the mascot, as a student, certainly has the goals to achieve academic accomplishment, such as good grades and a successful professional life. To create believable agents portrayed as real people with a distinct life, they need to exhibit a sense of purpose and pursue specific goals, reflected in their engagement in various activities and their coherent interaction with their environment [21]. This portrayal encompasses a broad spectrum of capabilities, including the ability to act, think, sense, communicate, listen, understand, experience emotions, and exist within dynamic and evolving worlds [22]. The multifaceted approach to character development and portrayal not only enhances the believability of the agents but also fosters a more profound sense of connection and empathy from the audience or users, ultimately enriching their overall experience and engagement with the mascot characters.

## 4. Conclusion

The seven dimensions of a believable agent are a robust framework for creating characters that audiences genuinely love. Key to this framework is the personality dimension, which not only defines the essence of a character but also influences every aspect of his or her being. Among these dimensions, the personality trait of agreeableness stands out, which serves as a foundation for building a genuine connection with the audience. Additionally, developing a distinctive set of characters will increase the perception of the mascot as a natural, relatable entity so that concerns about misperception and cultural appropriation are overcome. The key to this perception is the ability to convey emotion, adapt to change, maintain consistency of expression, and create the illusion of life. Considering these considerations, designers must set the mascot in the appropriate context to highlight its unique characteristics and overall character. By doing this, the mascot can become real, capturing the audience's attention in a meaningful and memorable way. This method can help designers determine characters and be a guideline for mascot design.

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