Using Conceptual Blending Theory to Help College Students Design Online Communication Models

Chenxi Li [iD] *, Nur Zaidi bin Azraai** [iD]

School of the Art, Universiti Sains Malaysia, Penang, Malaysia.

* *Corresponding author:*
nurzaidi937@gmail.com

Abstract

Objective: This study examines modal social media visuals using Conceptual Blending Theory (CBT) and its theoretical foundation, Conceptual Blending Network, to improve college students' visual communication on social media.

Methods: The study explores social media visuals and CBN's mechanism. It goes beyond meme design to explain the key factors and reinforcement strategies needed to use CBN to create social media visuals. This study creates an empirical experimental model for validation, a novel approach. The experimental model teaches college students how to create engaging social media visuals. Three university teachers in relevant fields collaborated on the research project with 232 diverse undergraduates who completed surveys and interviews.

Results: The study found that undergraduates recognise the importance of visual language organisation for accurately conveying complex information on social media. Collaboration with experts and the introduction of CBT and CBN helped university students accept this advanced visual language organisation method for social media visuals.

Conclusion: Participants' understanding, comprehension, and practical exposure to the proposed methodology significantly reduced their difficulties in designing compelling social media visuals. This research helps us understand social media visual dynamics and informs educators and practitioners who want to improve digital visual communication.

Keywords: College Students, Conceptual Blending Theory, Conceptual Blending Network, Meme Design, Online Visual Communication.

<div dir="rtl">

استخدام نظرية المزج التصوري لمساعدة طلاب الجامعات في تصميم نماذج الاتصال عبر الإنترنت

لي تشنشي، نورزيدي بن عزرائي*
كلية الفنون، جامعة العلوم الماليزية، بينانج، ماليزيا.

ملخّص

الأهداف: تتناول هذه الدراسة تحليل الصور المرئية على وسائل التواصل الاجتماعي بناءً على نظرية المزج التصوري (CBT) وأساسها النظري، وشبكة المزج التصوري بهدف تحسين التواصل البصري لطلاب الجامعات على وسائل التواصل الاجتماعي.

المنهجية: لا تقف الدراسة عند تصميم الصور التعبيرية (الميمات)؛ بل تتجاوز ذلك لتبرز العوامل الأساسية واستراتيجيات التعزيز اللازمة لاستخدام شبكة التصور المزجي لإنتاج العناصر المرئية في وسائط التواصل الاجتماعي. أنشأت هذه الدراسة نموذجا تجريبيًا تطبيقيًا للتحقق وهو نهج جديد. ويقوم هذا النموذج بتدريب طلبة الجامعات على طريقة إنشاء صور مرئية جاذبة على وسائل التواصل الاجتماعي. وشارك في هذا المشروع البحثي ثلاثة مدرسين جامعيين في المجالات ذات الصلة بالتعاون مع 232 طالباً جامعياً من مختلف الخلفيات، الذين أكملوا استطلاعات ومقابلات.

النتائج: أظهرت الدراسة أن الطلاب الجامعيين يدركون أهمية الإلمام باللغة البصرية لنقل المعلومات المعقدة بدقة على وسائل التواصل الاجتماعي. وقد ساعد التعاون مع الخبراء وإدخال نظرية المزج التصوري (CBT) وشبكة المزج التصوري (CBN)في قبول الطلاب الجامعيين لهذه الطريقة المتقدمة لتنظيم اللغة البصرية في وسائل التواصل الاجتماعي المرئية.

الخلاصة: إن فهم المشاركين وتعرضهم العملي للمنهجية المقترحة قلل بشكل كبير من صعوباتهم في تصميم الرسوم البصرية الجاذبة على وسائل التواصل الاجتماعي. تساعد هذه الدراسة في فهم ديناميكيات الرسوم البصرية على وسائل التواصل الاجتماعي وتقدم المعلومات للمدربين والممارسين الذين يرغبون في تحسين التواصل البصري الرقمي.

الكلمات الدّالة: طلاب الجامعات، نظرية المزج التصوري، شبكة المزج التصوري، تصميم الصور التعبيرية (الميم)، التواصل البصري عبر الإنترنت.

</div>

1.   Introduction

1.1   Background of the study

Social media visuals are popular for online communication due to their attractive content and quick dissemination (Sampietro, 2021). 232 Chinese undergraduates showed strong interest in this evolving medium states that social media visuals like images and videos with text can convey more information than emojis, stickers, and emoticons (Tang & Hew, 2019). Ayele, (2020) Sociable media images are popular, but college students are less interested. Though interested, most students prefer emojis, stickers, and emoticons. This raises intriguing questions about the adoption of this evolving communication medium and prompts further research on college students' social media visual use. Researchers and practitioners seeking to improve online communication must understand college students' visual preferences and usage patterns as social media platforms evolve. As digital communication evolves, technology, visual communication, and social media user preferences offer new research and exploration opportunities (Al Rashdi, 2020).

Memes are versatile and effective for complex online messaging. Memes inspire laughter, thought, and social commentary on the internet. Text and images go viral on social media. Wit and cultural relevance distinguish memes from emojis, emoticons, and stickers. Memes are captivating and dynamic digital visual language mediums changing online discourse and current events.
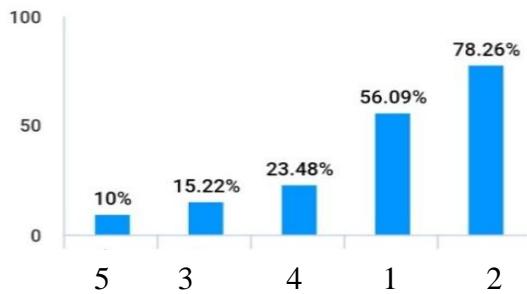

Figure 1: Bar chart of survey results

Professor Wang Ping stated in an interview that the current level of meme popularity may not necessarily be attributed to students' lack of awareness regarding their significant potential but rather could be influenced by certain intrinsic characteristics of memes (Dupont, 2021). The visual and textual elements inherent in memes are multifaceted, contributing to the heightened variability of the conveyed message. Consequently, pre-existing, widely-circulated memes on the Internet may at times, fall short of accurately representing individual emotions (Xia & Wang, 2022).

People disagree on whether popular internet memes reflect their thoughts, feelings, and attitudes. Memes are better at expressing simple emotions than complex, subtle, or personalised ones. Broad-appeal memes may not convey complex emotions or thoughts. A meme that fits their feelings may be hard to find. Due to the standardisation of memes, a more personalised and adaptable visual language is needed to accommodate diverse and nuanced ways people experience and express themselves.
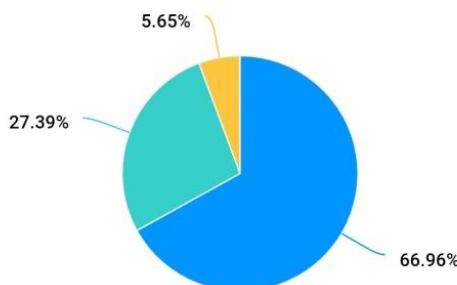

Figure 2: Pie Chart of Survey Results

Prof. Wang Ping emphasized, "Emojis, stickers, especially emoticons, which originated during an era marked by severe network transmission limitations, have become somewhat outdated in contemporary times (Suresh, 2018). But until now, more potent memes have not replaced them. Most students tend to be conservative, favouring the continued use of traditional emojis, stickers, and emoticons over readily adopting new, powerful memes that may be inaccurate or even misleading to the recipient (Chen & Siu, 2017). "While college students are generally dissatisfied with currently popular off-the-shelf memes currently in popularity, many are reluctant to design memes themselves—design memes.
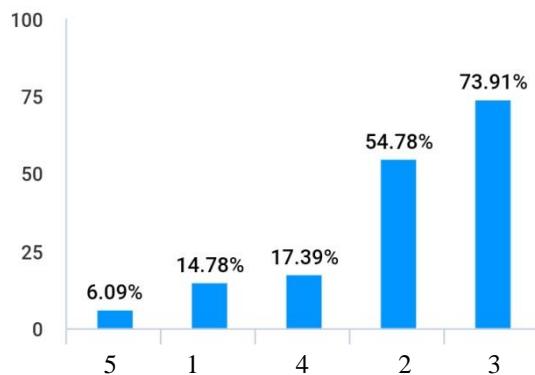

Figure 3: Bar chart of survey results

Memes show how people share visual content and can vary. Third parties sell pre-made memes for various occasions. Visual expressions without personal creation are available instantly. Built-in social app libraries contain memes. This makes adding memes to posts and conversations easy without searching. Memes can also be downloaded from popular online repositories, which contain a wealth of user-generated content reflecting internet culture and humour. Personalise a meme to express your thoughts, feelings, and attitudes. Meme generation demonstrates online visual language.

1.2 Problem statement

The survey revealed that students' reluctance to engage in modelling may be attributed to several barriers preventing them from expressing their creativity (Ahanin & Ismail, 2022). According to the survey, only 17.39% of college students have attempted to design a meme on their own; the majority prefer to borrow memes from various sources (Surikov & Egorova, 2020). In an interview, Prof. Ping Wang noted that the post-reading era has accustomed college students to actively or passively employing visual language in their daily lives (Sampietro, 2021). Moreover, contemporary advertisers and marketers extensively utilize them to promote a wide range of products. This underscores the significant role of memes in modern online communication and the substantial daily demand for such forms of communication (Cherbonnier & Michinov, 2021). College students can explore numerous meme-making applications within the smartphone application market. While various pre-made memes are readily accessible through social software, they may not align with the precise meaning students wish to convey (Surikov & Egorova, 2020). Consequently, students often find it necessary to craft their own visual language in the form of memes to address their communication requirements more accurately. meanings expressed in these memes are not always what students expect, and students need to create these visual languages (memes) on their own to fully meet their communication needs (Togans et al., 2021).

The hardest part of modulus design was mapping. Concept-visual alignment was hard. Clear and deep visual representation of complex ideas was difficult beyond aesthetics. To make sure the modulus worked, know the audience and culture. Mapping helped visualise and organise ideas. Creative communication and visual appeal were needed to convey profound meanings in the modulus. This challenge demanded design principles, cultural sensitivity, and a deep understanding of abstract visualisation.

Figure 5's Fishbone Diagram of Creative Problems covers meme design issues. Productive branch uses digital and animation. Effective meme-making uses animation and digital media. Meme designers can maximise digital visual

communication by mastering these tools. Elegant humour improves meme aesthetics by emphasising refined humour. Other meme design challenges include humour, philosophy, and event commentary. Meme designers must balance humour, tone, and purpose, making it difficult. Cultural and social context is crucial for deep philosophical reflection and event commentary. As shown by the Fishbone Diagram, meme design requires complex humour, philosophy, and cultural relevance to appeal to diverse audiences.We can elaborate on the challenges encountered by college students with the fishbone diagram provided below.
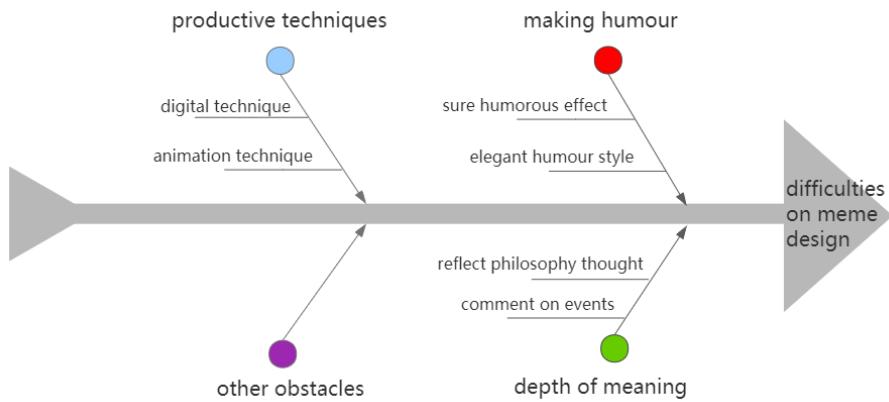

Figure 5: Fishbone Diagram of Creative Problems

Meme design presents several hurdles, particularly in the domains of humor creation, conveying meaning accurately, and mastering drawing techniques (Ahanin & Ismail, 2022). In essence, students expect memes to be humorous, convey precise meaning, and exhibit visual appeal. However, they frequently encounter difficulties in achieving these goals, which results in the abandonment of meme creation for many (Cherbonnier & Michinov, 2021). The author posits that enhancing drawing techniques can be achieved through enrolment in existing university courses such as computer graphics, animation technology, and painting fundamentals. Moreover, the creation of humor is a subject worthy of dedicated research in a separate chapter. Nonetheless, due to space limitations, this paper will not delve into the topic of humor creation, focusing instead on the precise conveyance of messages Creating a meme requires knowledge of the creative process and guidelines. Meme creation may seem impractical to those who struggle, leading to options 1 or 2. Even beginners can make memes by following basic instructions. This method suggests anyone can create memes with guidance, supporting option 3. Option 4 suggests creatives with strong visual communication skills can make complex memes. Practicality increases as people use humour, visuals, and cultural references better. A meme requires skill, creativity, and guidelines or resources.
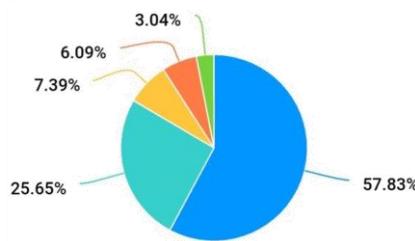
Figure 6: Pie Chart of Survey Results

Most students seek a practical guide to creativity that encourages them to express themselves using visual language in online communication (Kaye et al., 2023). Furthermore, students aspire to attain the same level of proficiency in visual expression as they possess in verbal communication. They no longer find satisfaction in relying solely on pre-existing templates, especially those who aim to use them for commenting on social events or participating in everyday

political discourse (Pinto et al., 2020). The personal creation of modals appears to be an inexorable trend. With hardware and software no longer posing challenges for college students, the true challenge lies in acquiring the skills to effectively organize modal using the visual language(Rong et al., 2022). An appropriate guide in this regard would offer students immediate guidance and serve as a sustainable foundation for them to develop modal styles.

Memes will change with 5G. Option 1 imagines overcoming image resolution, format, and buffering. Memes could display more intricate details with 5G, improving visual capacity and experience. With 5G networks' faster data transfer speeds and lower latency, memes can have more visual content. Option 2 suggests adding sound to memes to gradually change their audio nature. With 5G's increased bandwidth and capabilities, meme creators could use sound elements to express humour, emotion, and narrative. These examples demonstrate how 5G technology could improve meme development and make digital communication more immersive and engaging.
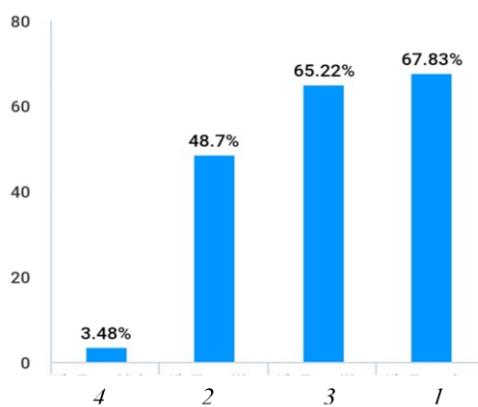

Figure 7: Bar chart of survey results

The majority of students anticipate an upcoming transformative shift in memes, coinciding with the widespread adoption of 5G technology (Garcia et al., 2022). Prof. Wang Ping also predicted the future trend of memes. He said in the interview that online communication through WeChat has proliferated over the past decade, smartphones have become the leading primary device for using WeChat, and with the advent of the 5G era (5G is already available in some parts of China), smartphones will have to be upgraded, as well as online communication apps (Cao & AlKubaisy, 2022). With over 1.2 billion users, WeChat is second only to WhatsApp and Message globally (news in 163.com, 2022) and will be at the forefront of this information dissemination revolution. As of 2022, statistics, China has approximately 44.3 million college students (source: CCTV News, 2022), likely constituting one of the largest user demographics of WeChat and one of the most prolific and creative meme-producing groups. They must be mindful of the changes brought about by 5G and endeavour to adapt their modalities to the new network environment, much like accommodating water to a new container (Ko et al., 2022).

With 5G, the network bottlenecks will soon be widened, and the limitations of image transmission will be significantly reduced (Ahanin & Ismail, 2022). This upgrade dictates that the number of dynamic modalities will increase dramatically. This possibility or possible trend influences our study to a great extent (Rong et al., 2022). Students need to be reminded that dynamic modals involve additional elements, resulting in more complex conveyed information, which places pressure on students to organize the information effectively (Garcia et al., 2022) . To address this challenge, it is essential to introduce a Conceptual Blending Network (CBN). This study not only introduces CBN to university students but also emphasizes the crucial elements and improvements when employing CBN in the domain of modal design. This not only aids students in improving their use of CBN for modal creation but also constitutes a theoretical contribution to the related field of Conceptual Blending Theory.

2. Research Methods

This study utilized a mixed research methodology, i.e., qualitative research was used as the main focus, and

quantitative research was used as a supplement. The rationale for using a mixed-method research methodology is to get a full knowledge of complicated research problems by integrating qualitative and quantitative methodologies. The validity and applicability of study findings are improved by this method. To validate the findings, controlled and systematic processes involving variable manipulation and measurement under defined conditions were used to test the research hypotheses and ensure the dependability of the results. This study invited three college faculty members in related fields to participate in the research project. This study performed surveys with university students and interviews with professionals, inspired by Harsh Suri's observations on purposive sampling in qualitative research. Participants in these randomized, face-to-face assessments were able to give in-depth feedback (Harsh, 2011).

To comprehensively collect data, this study invited undergraduate students from various sources to participate in the program. The main survey group comprised 210 students aged between 18 and 22 years. The study carefully sampled three subgroups of the larger participant pool. First subgroup focused on 106 Hubei University of Economics students' experiences. Second, 70 Neijiang Normal University students offered perspectives from another school. In the third subgroup, 34 Zaozhuang University students added diversity. This strategic subdivision lets researchers examine research topics more closely, taking into account college environment differences in experiences and perspectives. To broaden the study, former undergraduate graduates aged 25–27 were surveyed longitudinally. This third dimension included 22 participants who had been away from campus for three to five years, providing post-graduation perspectives. This age-diverse group and early adulthood experiences help researchers understand college's lasting effects. This method expands the study and allows for more nuanced early adulthood perceptions and behaviours. In conclusion, subgroups and longitudinal research improve results. The study explores early adulthood experiences in different college environments more thoroughly thanks to the diverse perspectives from different universities and the temporal dimension provided by former graduates.

Data collection and analysis

The primary research methodology employed in this study was qualitative. Data collection and analysis followed a systematic process encompassing exploration, description, ranking, interpretation, and prediction (Mtuy et al., 2019). To conduct interviews with three university faculty members, this study prepared distinct forms and subsequently arranged online interviews. Experts' perspectives were drawn from three invited teachers specializing in the fields of new media, aesthetics, and animation from different universities. These lecturers were most likely chosen for their knowledge in the relevant sectors of new media, aesthetics, and animation, ensuring that the study benefits from a varied range of perspectives and insights. The inclusion of specialists from various universities allows the research to benefit from a wide range of perspectives and experiences, which enhances the study's validity and depth.

The quiz randomly selected a small group of students, typically 10 (five males and five females), who were asked to take the test without any advance notice. The quantitative method strictly adhered to academic standards for large-scale sampling (Budden, 2007), ensuring that the number of surveyed students exceeded 200. To facilitate the survey for the target group, the questionnaire was initially designed using an application such as Google Form. Subsequently, it was shared with the class through a link in the WeChat group, allowing students to submit their answers online. Finally, statistical software such as SPSS transformed the data into visual charts.

2.1. Validity and reliability

Internal validity can be defined as rational planning, step-by-step implementation, and scrutiny (Kula & Gler, 2021). The external validity can be defined as transferability. The purposive sampling method was used to ensure the transferability and sustainability of this study (Harsh, 2011). By selecting persons or instances with features, experiences, or attributes that closely matched the study's emphasis, this strategy ensured transferability and sustainability, allowing for in-depth research and relevant discoveries. The inclusion of an additional survey of recent undergraduate students is crucial for students. Reliability in this context, can be understood in terms of the principle of objectivity. In the qualitative study, the different roles played by the three invited faculty members in this study were based on their specialized fields of study. This arrangement ensured the credibility of the particular sources of knowledge.

Despite its thoughtful design with diverse subgroups and a longitudinal dimension, the study may have had internal and external validity issues. The study's focus on Chinese universities may limit its applicability. Students from these institutions may not be representative of the general population, limiting the research. The 25–27-year age range of former graduates may not capture all post-graduation experiences, which could affect internal validity by overlooking nuances within a larger age range. These limitations must be considered when interpreting the study's findings, which may not apply beyond the sampled groups and settings.

Were there any limitations in the study that may have impacted its internal or external validity?
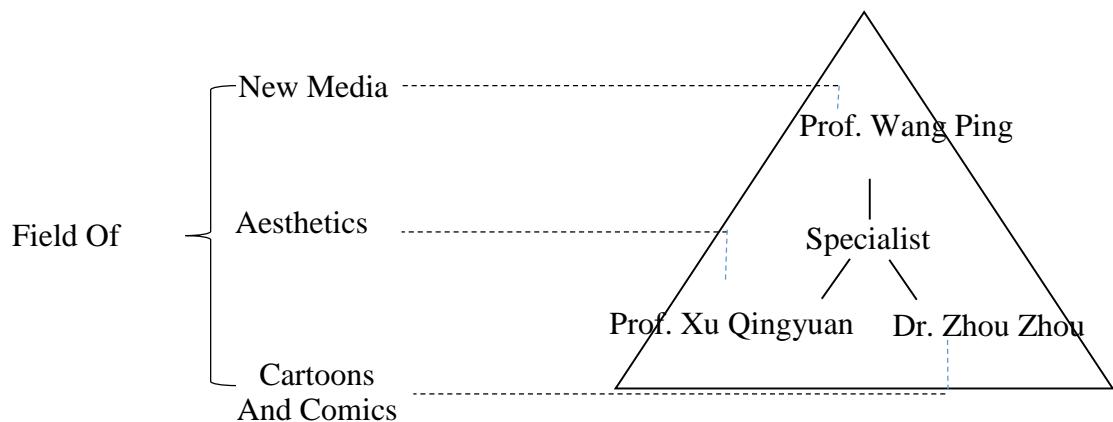

Figure 8: Structure of the team of experts involved in the study

In the quantitative study, data were collected from various sampling sources. Each university possesses its unique characteristics, influencing students' educational backgrounds to some extent. Therefore, a comprehensive data collection necessitates surveying students from multiple universities rather than just one. This approach enhances the objectivity of the data.
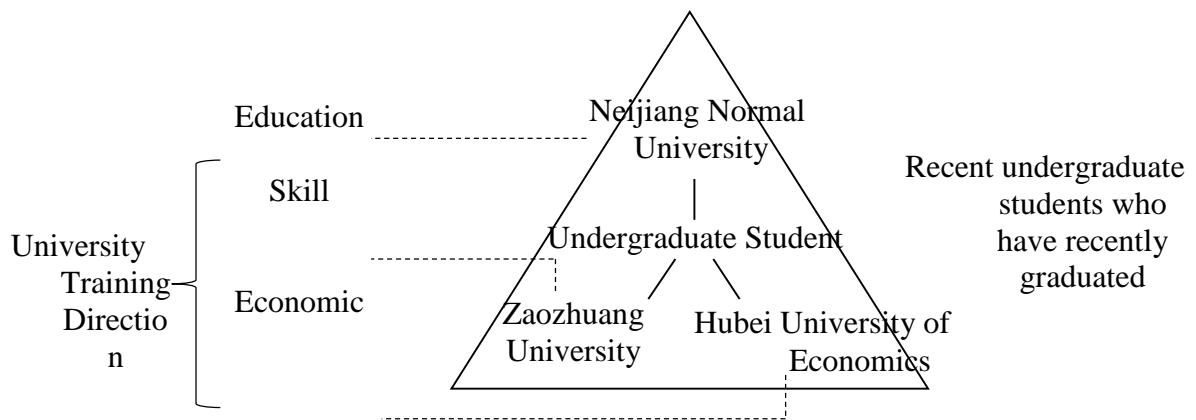
The researcher was personally engaged in every stage of the research process. The active participation of the researcher in study design, data collecting, analysis, and reporting ensured thorough and cohesive research. Open communication and involvement were promoted by participants' regular role briefings. This method ensured that the study's quality and dependability were maintained throughout its various stages. At each stage, participants were briefed on their role in the study and the academic objective of each research phase. From the design of the study to its reporting, the researcher consistently ensured the study for completeness and coherence (Kula & Gler, 2021).

Participants added depth and coherence throughout the study. Participants may have discussed variables, methodologies, and research instruments during study design using their experiences. Data collection involved participants sharing perspectives, providing vital data, and adding valuable insights. The study's academic goals matched

participants' real-world experiences through collaboration. Regular briefings and open communication stressed participants' importance in study quality and reliability. Each research phase clarified participant roles and academic goals, aiding comprehension. This active involvement ensured the study's completeness, coherence, and reliability by including diverse perspectives. Participant engagement throughout the research process shows a strong methodological approach that values participants as vital to study success.

3.   Research Findings and Discussion

3.1   Mechanisms of CBN for meme creation

The conceptual metaphor theory was first proposed by American linguists Lakoff & Johnson in their book Metaphors We Live By. Based on many daily spoken materials, this theory reveals that "metaphor is not only a matter of language or words but also a matter of people's thinking process because human mental activities rely heavily on metaphors and their symbolism" (Liang, 2002; Qian Xie, 2017) based on the previous research, the Conceptual Blending Theory proposed by American cognitive linguists Fauconnier & Turner opens up a broader prospect for the study of the meaning construction and reasoning mechanism of metaphors, which has a tremendous cognitive explanatory power (Hui-Hui Guan, 2007). The theory can be generalized and visualized as the operation of a Conceptual Blending Network (CBN), which consists of two input spaces, a generic space and a blend space, as shown in Figure 10. The four circles represent the four mental spaces, and the dots within the circles signify the constituent elements of each mental space (Liang,2002; Xiao, 2014).

Figure 10: Conceptual Convergence Network Basic Structure
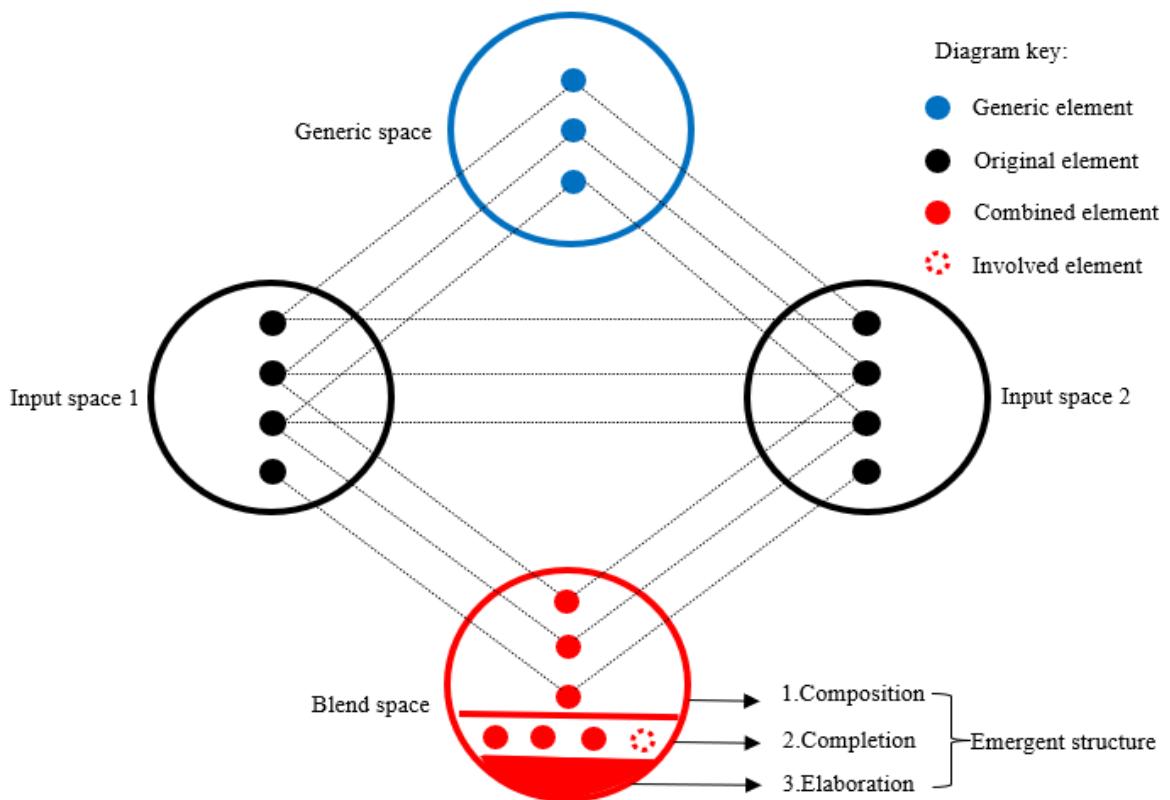
The process of conceptual blending involves partially projecting the shared standard information from two input spaces into both a generic space and a blend space. In this blended space, the content projected from the two input spaces undergoes three interrelated psycho-cognitive processes: composition, completion, and elaboration, ultimately resulting in the emergence of a new structure. Professor Xu Qingyuan stressed in their work that the CBN operational principle, as illustrated in the

graphic, provides a larger application of the Conceptual Blending Theory. This suggests that the theories of conceptual metaphor and blending were probably used in the study in relation to the development of memes. For instance, the study may have looked at how memes combine abstract concepts with visual features to express comedy or make an impact, following the principles of Conceptual Blending Theory. It would also have been possible to examine how underlying abstract notions affect the production and understanding of memes through the use of conceptual metaphors.

3.2 Abstraction of CBN

When teaching CBN to college students, the section recognizes that the principles of "Emergent structure" can appear abstract and difficult at first. Additional explanations are necessary to improve student comprehension. Furthermore, it is worth mentioning briefly how a comprehensive comprehension of "Emergent structure" directly aids college students within the context of the study, assisting them in grasping the practical implications and importance of this idea in their academic pursuits. The formation of an emergent structure is a highly abstract and dynamic cognitive process that demands the full utilization of one's imagination.
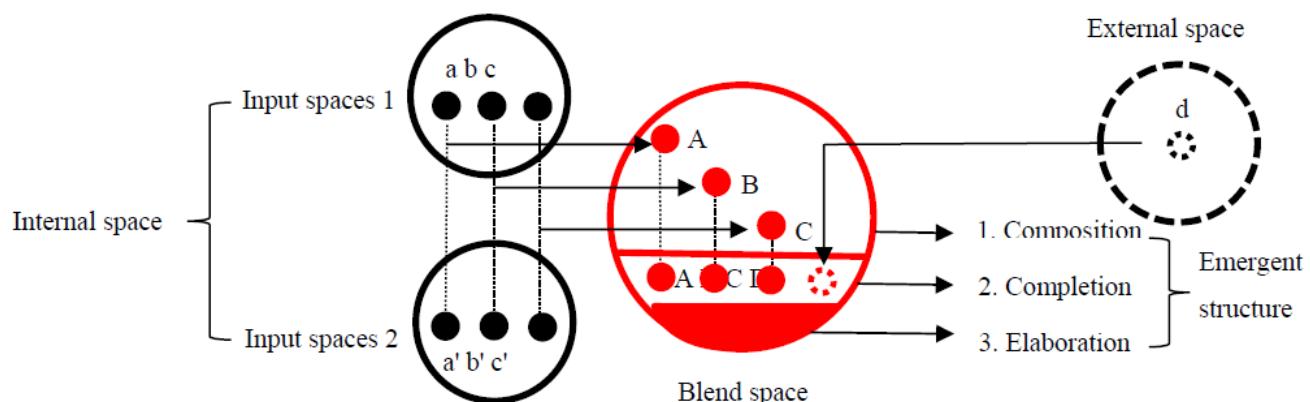

Figure 11: Process of meaning synthesis in Emergent structure

Not all elements in the Emergent structure originate from the input space; hence they do not precisely match the corresponding elements in the input space. The new elements generated here are not only from combination but also from association and imagination pertaining to the world beyond the conceptual blending network. Understanding that not all pieces in the Emergent structure originate directly from the input space, but may entail combination, association, and creative aspects from the broader world, is critical. The highlighted insight is needed to understand CBN logic. Highlighting the system's creative and dynamic data analysis. Creative thinking at CBN goes beyond data analysis to generate new ideas and connections. This dynamic approach is essential to understanding how CBN blends and creates new concepts. New information activation drives emerging CBN structure. CBN generates emergent structures from conceptual inputs, demonstrating its creativity and adaptability. Audience context aids this. CBN synthesises and refines concepts using context to match audience knowledge. This dynamic blending and context-related knowledge incorporation process reveals Conceptual Blending Network's logical mechanisms and produces nuanced and contextually relevant outputs. Through reorganization, reconstruction, and integration of information, Emergent structure ultimately achieves the overarching objective of constructing complex meaning (Qian, 2017). Professor Xu Qingyuan emphasized that the diagram designed in this study particularly highlights the abstract part of CBN and provides a more direct illustration of the process of synthesizing information through an Emergent structure. Once students grasp the concept of Emergent structure, comprehending the logical mechanism of CBN becomes more accessible. The emphasis on the diagram thus corresponds with the study's primary goal, which is to improve college students' comprehension of CBN. The figure fills in the gaps between theory and practice by offering a clearer, more visual representation of the process of information synthesis using the Emergent structure. It provides students with a concrete illustration of how abstract notions come together, allowing them to better understand the logical mechanism

of CBN.

3.3 Critical factors for CBN application to meme design

CBT is a theory that delves into the study of metaphor. So, what does the metaphor signify for modality? From a certain point of view, metaphor can be viewed as a close synonym for modality. Metaphors improve visual, auditory, and sensory meaning. Metaphor connects conceptual domains by describing elements of another. Communication modality includes sensory and communicative outlets. Metaphor enriches language and communication. Visual metaphors explain abstract concepts using concrete imagery. Sound metaphors convey abstract ideas and emotions. Metaphor helps sensory or communicative mediums convey ideas and experiences more vividly and elegantly. Upon examining the content of today's prevalent models, it becomes the most frequently featured figures in models: symbolic characters. These include animals, children, fairies, celebrities, and minor characters almost dominating the modal scene. Each of these characters symbolizes the meaning behind them, and the events that happen to them are usually represented metaphorically. We can reflect the symbolism of these characters in the following diagram.
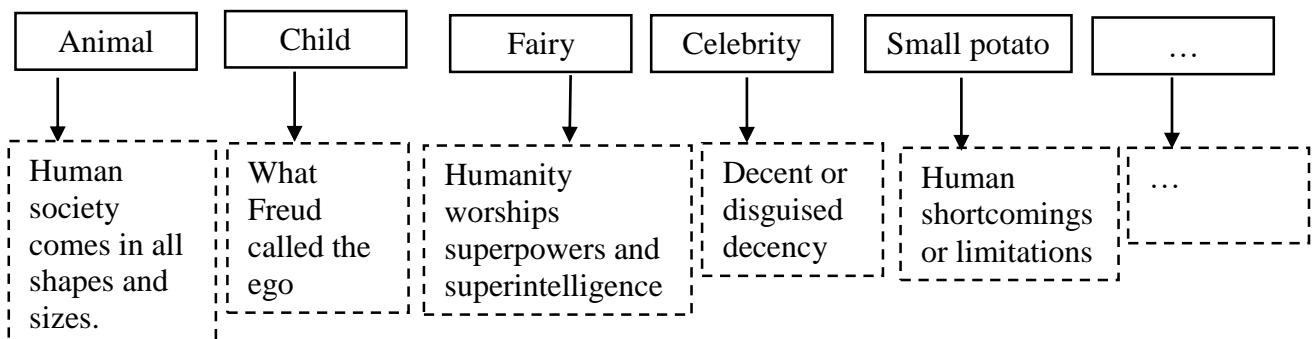
Figure 12: Symbolism of popular modal protagonists

Interestingly, there are several composite roles in the popularity module, where the original roles mentioned above can be combined into more symbolic roles. The following Venn diagram shows some of these combinations.
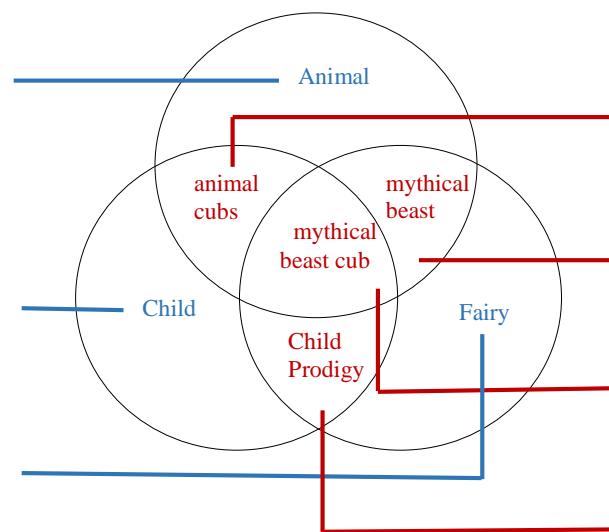
Figure 13: Composite Symbolic Role

Dr. Zhou Zhou emphasized in an interview that meme creation is often about creating a relaxed atmosphere and smooth communication with a humorous tone and that there is a crucial requirement for the selection of meme

protagonists. Dr. Zhou Zhou's emphasis on the necessity of creating a calm environment, facilitating seamless communication with a humorous tone, and selecting meme heroes in meme development was made during a study interview. Understanding the basic concepts and techniques of meme production is one of the study's objectives, and this interview with an expert on the topic offered insightful information. Dr. Zhou Zhou's insights add to the study's overarching goal of acquiring a better understanding of memes' creative and communicative qualities, particularly as they pertain to humor and character selection. The speed at which the protagonist conveys information must align with the pace of online communication, meaning that the information conveyed by the image should match the information conveyed by the text. Generally speaking, the text is presented in the form of short sentences to facilitate fast real-time interactive communication. Consequently, modals should release information in as brief a time as possible. If a modal invests too much time in displaying or buffering the image, it may impede or even disrupt the online communication flow. This is one of the reasons why memes nowadays use GIF format to avoid buffering. Meme users also expect this fast pace. The results of a survey of university students support this view.

The length of a dynamic modal should match its purpose. Communication durations vary by scenario to avoid overwhelming the audience. One to two seconds may improve user interface notifications and feedback. This delivers information quickly and concisely without user interruption or impatience. Complex or detailed information may take 3-4 seconds. The presentation is more complete without rushing. A dynamic, engaging experience and user comprehension should be balanced in length. "Other" is flexible because user preferences or circumstances may require different durations for optimal effectiveness.
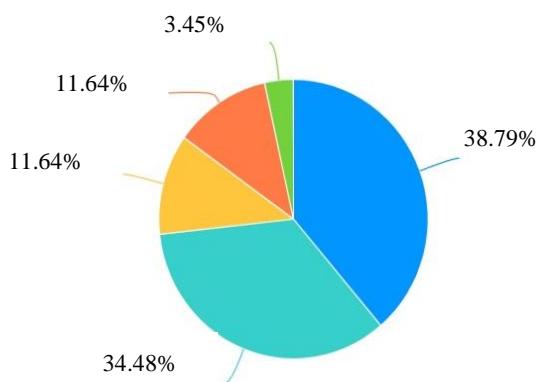

Figure 14: Pie Chart of Survey Results

From the survey results, it is clear that most students expect a modal duration of 2 to 3 seconds. 2-3 seconds is now the standard duration of a dynamic-type modal, and longer or larger sizes may technically cause image buffering in today's 4G transmissions, so keeping the duration short and the size small has become a requirement for modal creations nowadays. Since keeping the duration short is an inherent requirement of modal design, what does it mean to have a symbolic character as the protagonist? Dr Zhou Zhou analyzed this in an interview, saying that in order to shorten the duration of a complex module, the information must be remarkably compressed, and those protagonists who cannot compress a large amount of information in a few seconds are considered inefficient, and they usually impede the communication, thus becoming unwelcome or unacceptable.

This is consistent with the study's main purpose, which is to investigate the mechanics of meme formation. Dr. Zhou Zhou's findings highlight how important information compression is to the creation of memes, particularly when it comes to making sure that the contents are communicated succinctly and captivatingly. Dr. Zhou Zhou's experience is utilized in the study by emphasizing the importance of efficient information compression, which is critical in the field of meme-based communication. On the contrary, those characters who can compress a large amount of information and release it

quickly are considered ideal meme protagonists and are becoming increasingly popular. Using symbolic characters is no accident, but is the result of a gradual development in the competitive process. The survey tells us the most famous protagonists at the moment.

Animals are expressive meme protagonists. Animals' body language and facial expressions convey joy, confusion, and frustration instantly and universally. Doge and the distracted boyfriend meme use animal antics to entertain and humour online interactions. There are archetypal animal roles and traits. They can represent cat sassiness or dog loyalty, giving meme creators many funny and relatable options. Children's innocence and unfiltered worldview make them charming meme protagonists. Memes show how funny childhood is by contrasting honest reactions with adult ideas or situations. Child experiences are universal, making them good for cross-generational humour. Escapism and imagination come from fairy and magical creature memes. Memes can visually express social commentary or satire by metaphorizing fantastical beings for traits or ideas. Faeries and magical creatures' endless visual possibilities make captivating memes.

Surreal and absurd, the "little man" meme shows a small, suited figure in unexpected situations. Surreal elements make this meme confusing and funny. Since the little man has no context, viewers make up stories, adding to the meme's mystique. The little man often addresses viewers, breaking the fourth wall and helping them accept the absurdity. Celebrities can quickly express themselves with memes. Celebrity scandal memes appeal to celebrity culture. Memes can also criticise public life or celebrities.
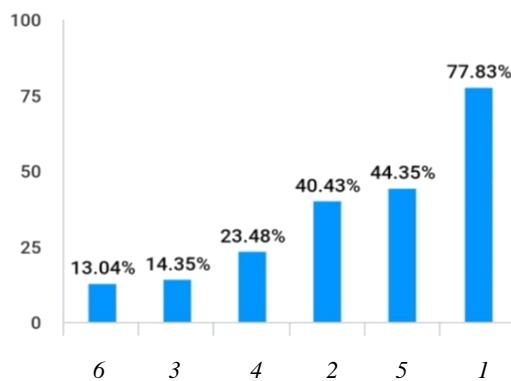

Figure 15: Bar chart of survey results

From the results of the popularity survey, we can see that among the many symbolic characters, the animal ranked first, and the chart shows that the animal is way ahead in the race for the title. Compared to the 44.35% of votes received by the second place, the first place received a whopping 77.83% of the votes, which shows that the animal character is highly symbolic. We will use the animal character as a representative to continue the thesis of this paper.

3.4   The role of CBN criticality factors on meme design

The above analysis leads to an essential argument in this study that using symbolic roles should be considered an essential element of CBN because it provides an effective way of compressing, releasing, and transmitting information for complex modal designs. To examine how symbolic characters facilitate the process of message communication, we administered a quiz test to a small group of college students. During the quiz, students were provided with six cards, each containing copies of a series of posters from a subway station in Wuhan, China. These posters, titled "Citizens' Convention on Civilized Subway Travel," featured vibrant animal characters accompanied by humorous captions aimed at promoting the message. Students were asked to write down the characteristics of each animal symbol, the object it symbolizes, and the message it conveys. As students came in individually to take the quiz, the teacher stood next to that student with a stopwatch in her hand. The use of a quiz format to examine the efficiency of symbolic characters in this research study provides various benefits that are closely related to the research issues. A reliable assessment of the

impact of symbolic characters on learning is essential, and quizzes offer a controlled and uniform testing environment that guarantees the same settings for every learner. The measurable nature of quizzes allows for the objective assessment of student performance, making them an ideal choice for evaluating the effectiveness of these characters in delivering information and aiding comprehension in this study. As soon as the student began to turn over the cards, the teacher pressed the stopwatch, and as soon as the student began to write, the teacher pressed the stopwatch again and recorded the time it took him or her to respond to those posters. The table below shows the answers of one of the students; note that all the answers are almost identical.

Table 1: Analysis of the meaning of messaging

Animal	Symbolic characteristics	target audience	Information conveyed
Lion	Bellow	Passengers who talk loudly	Do not raise your voice in the train.
Salted Fish	lying dead	Passenger lying on the seat	Do not lie on the seat
Octopus	Many tentacles	Passengers holding many handrails	Do not occupy more than one handrail
Monkey	like to climb	Passengers climbing the handrail	Do not climb the handrail
Bull	Rampage	Passengers who hit other passengers	Do not bump into others
Kangaroo	pocket package	Passengers carrying luggage	Do not orget Baggage Security

As seen in the table above (Table 1), almost all the students who did the quiz clearly understood the message the designer wanted to convey in the poster. The poster designers have successfully utilized the animal characters for promotional purposes. Dr. Zhou Zhou stated in an interview that employing animals as characters in visual communication aids in highlighting the core attributes of these characters through the power of nonverbal expression. Animals serve as symbols representing various individuals, and by crafting metaphors using this symbolism, the audience can distinctly perceive themselves through their animal counterparts. The general time required for student response is shown in the Table 2 below:

Table 2: Average message reception time

Animal	Student										Average time
	No.1	No.2	No.3	No.4	No.5	No.6	No.7	No.8	No.9	No.10	
Monkey	2.69"	3.33"	2.86"	2.43"	2.37"	3.25"	2.7"	2.12"	2.56"	2.78"	2.709"
Salted Fish	4.02"	5.56"	4.39"	5.66"	5.21"	4.33"	4.89"	4.72"	4.01"	4.07"	4.686"
Octopus	5.1"	5.35"	5.6"	6.03"	5.3"	5.79"	6.23"	7.01"	6.99"	7.21"	6.061"
Monkey	3.03"	3.34"	3.56"	3.87"	2.97"	3.09"	2.77"	2.69"	3.11"	2.79"	3.122"
Bull	4.3"	5.53"	4.47"	5.03"	4.76"	4.81"	5.63"	5.59"	4.98"	4.71"	4.981"
Kangaroo	3.15"	3.11"	3.28"	4.32"	3.18"	2.83"	3.9"	3.35"	3.02"	2.72"	3.286"

As we can see from the table above, the amount of time it took each student to receive the information from each poster varied, but in general, the average time taken to respond ranged from about 2 to 6 seconds. This is a very short reaction time, and the actual time consumed by the students should be even shorter if we do not consider the fact that they were nervous during the quiz. Dr. Zhou Zhou analyzed the reason for this rapid response in an interview, saying that because we are used to conceptualizing animals as extremely simplified characters, magnifying some of their features and downplaying others, animals have gradually become highly conceptualized communication symbols. This conceptualization firstly maps certain features of human beings through the corresponding symbols of animals, and secondly maps the corresponding relationships between human beings through the absolutized relationships between

animals. The efficient compression and rapid release of information creates an "at-a-glance" visual effect that significantly reduces the audience's preparation time for perceiving information.

If we focus on other symbolic roles, we can also discover their superiority in modal design. We can use the same reasoning to reveal the symbolic power of other primitive roles such as fairies, children, minor characters, celebrities, stars, and other composite roles, demonstrating that symbols are a key factor in the construction of meaning in modal design and that the use of symbolic roles not only dramatically reduces the reaction time required for the transmission of a message but also improves the accuracy of that message.

3.5 Enhancement means for CBN application to meme design

This study identifies symbolism as a critical factor in CBN and encourages students to design modals using symbolic characters. In addition, this study suggests means to enhance the key factors to maximize the role of CBN in modality design. The first suggested means is through multimodal activation of symbols. As shown in the figure, CBN's mechanism fuses multimodal elements into an organic whole so that the meaning it conveys is complex and precise. In an interview, Dr. Zhou Zhou said that textual modalities often activate symbols, and that text recognizes metaphors by activating the metaphorical target, triggering the metaphorical mapping, and restricting the corresponding elements of the metaphorical mapping. For students, using the visualization of images and the exactness of text to construct clear symbolism is a simple and reliable means of reinforcing key elements (Huang Lihe, n.d.).

The second means is to reinforce the symbol through animation. According to a survey of college students, most believe that animated meme is a type of meme ahead of other dynamic memes. Dr. Zhou Zhou said in an interview: Still frame images can produce smooth motion visual effects by adding intermediate frames. Dr. Zhou Zhou's claim can be verified by German psychologist Max Wertheimer's experiments on the Phi phenomenon, in which Wertheimer argued that psychological compensation occurs when people perceive incomplete information (Mungan, 2022). Due to this involvement of mental activity, viewers can always produce intermediate frames automatically and irresistibly in their brains. Dr. Zhou Zhou repeats his point by stating that the animator's job, to some extent, if not all, is to make the viewer's illusion solid through frame-by-frame (intermediate frame) visual generation. Fluid motion visualization effectively enhances the expression of the frame. In this study, the symbolic characters are considered the protagonists of the modal design, so the principle of using the animation method is to refine different symbolic characters by matching different animation techniques. Let us take the example of animal characters. According to Paul Wells, the modeling of animal characters in animation can be accomplished around some aspects such as eye contact, facial gestures, physical features and behavioral habits, body rhythms, direct expression of motivation and its immediate execution, and overall treatment of the character (Wells, 2013). By introducing students to these animation techniques, they can learn to use appropriate animation as a means of reinforcement.

3.6 Value assessment of CBN applied to meme creation

To demonstrate to students how to use CBN for modelling and assess the application value of CBN for meme design, this study designed an experiment. The experiment purposely chose a tricky social event as the topic of the modal like Experimental model Octopus". Nowadays, college students often encounter commercial frauds such as campus loans and credit card frauds, and many students become victims, but a few bravely fight back. These incidents are hot topics in campus life, and students' attitudes are complex, whether they are filled with righteous indignation, sympathy for the victims, or a desire to fight the criminals. They all want to say something with meme. The information contained in these incidents is also complex, and the modeler needs to organize this information succinctly and accurately so that the viewer can grasp the meme's meaning and the creator's comments in a matter of seconds.
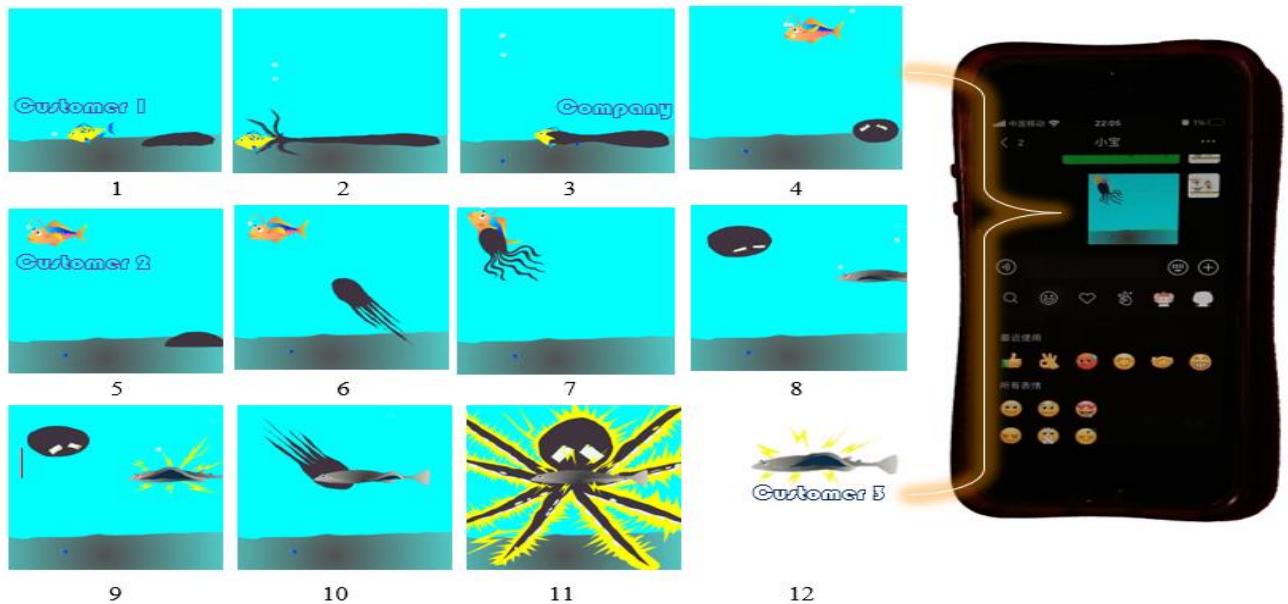
Figure 16: Experimental model "Octopus".

Designer: Li Chenxi Mobile Apps: WeChat Module Duration:15 sec Module Resolution:240*240 pixels

This experimental module was distributed to the class's WeChat group, and all groups of students were asked to watch the module repeatedly in class and then fill out the questionnaire sent to them. Of the 232 students surveyed, 166 students thought that the experimental modal had a significant information capacity, 178 students thought that the modal recounted the significance of the event accurately and commented on it clearly, and 165 students thought that the modal reflected profound philosophical thinking.

Question:

Does this experimental meme exhibit a large narrative capacity?

answer:

1. Yes
2. no
3. Others

Question:

Does the experimental meme accurately convey the message of the event and the author's comments?

answer:

1. Yes
2. no
3. Others

Question:

Did this experimental meme spark any deep thoughts?

answer:

*1. Yes*
2. no
3. Others
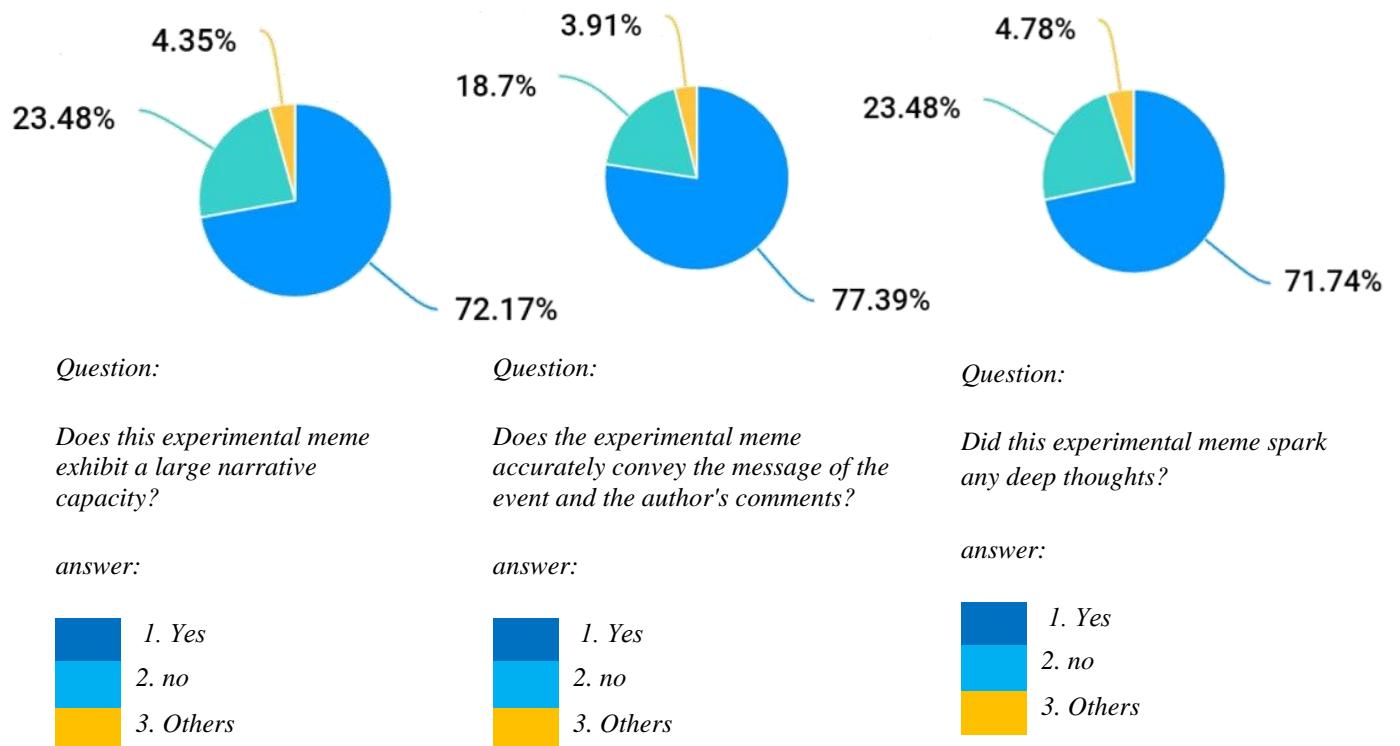
Figure 17: Pie chart of survey results

All the students who participated, a small group of students were asked to take a quiz. In the quiz, students were asked to analyze the role of CBN in this experimental modality. They wrote down their understanding of CBN, and all the answers unanimously recognized the positive role of CBN in the construction of meaning in this modality. Below is one of the students' answers.
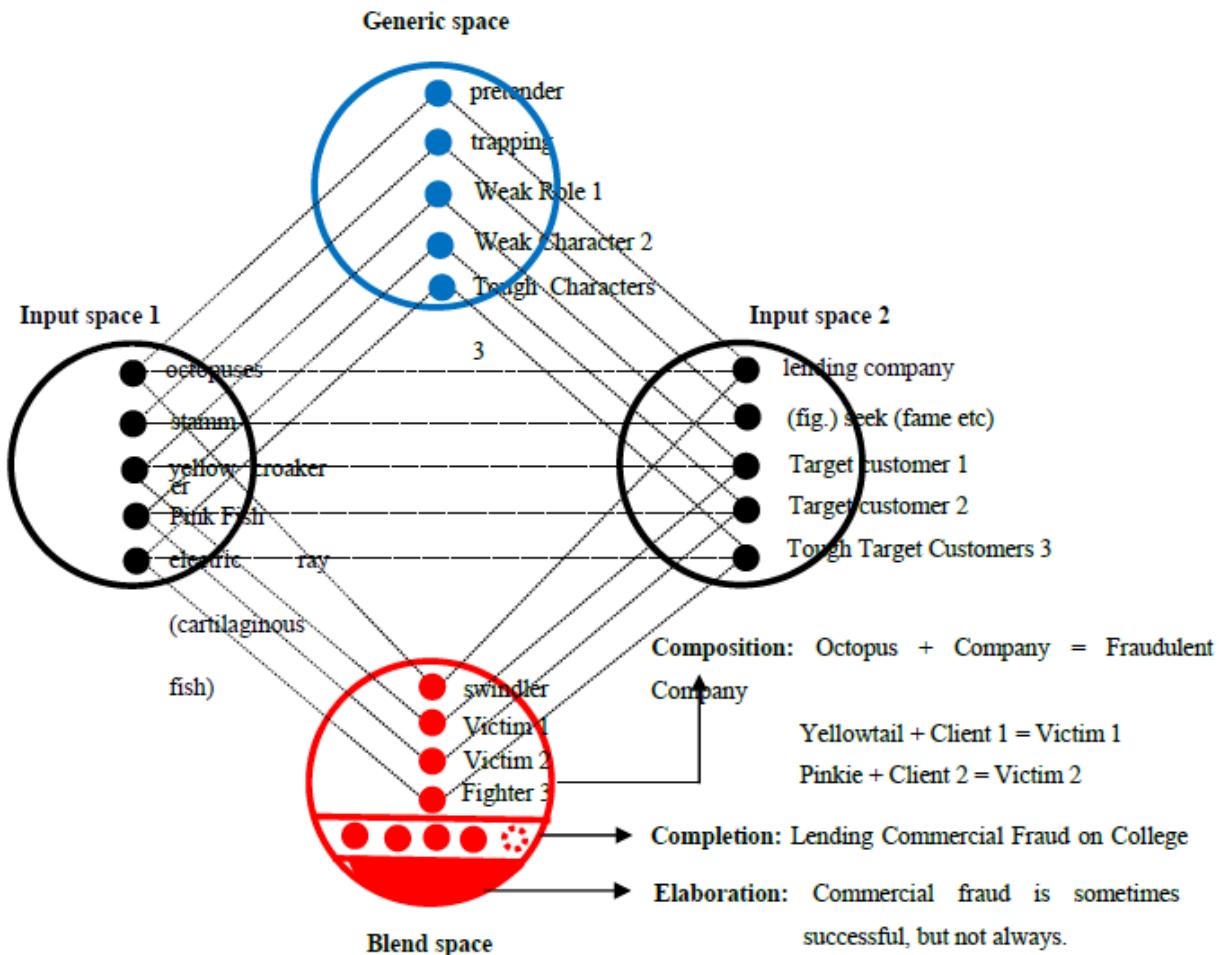

Figure 18: Analysis of the role of CBN in experimental modal creation

When asked about CBN's enhancement of this meme, they wrote: In the experimental meme Octopus, the textual modality marked the symbolic meaning of the characters, eliminated the uncertainty of the images, and the animation technique fleshed out and detailed the characters, effectively improving the accuracy of the message delivery. Overall, most students recognized the value of CBN as a guide for meme creation, with 181 out of 210 current undergraduates and 22 recent graduates believing that CBN was a powerful tool to help them solve the difficulty of constructing meaning when creating memes, and 182 believing that in the long run, CBN provided them with new ideas for their modal designs.

I can now create meme meaning thanks to Conceptual Blending Network. I can use memes to creatively and effectively communicate complex ideas thanks to CBN's innovative information analysis and blending. Since the system's nuanced and dynamic analysis generates new connections beyond the data, my meme creation has improved. The ease of meme design and visual expression of ideas and emotions have increased. CBN changes lives, but experiences vary. "Others" shows different perspectives on whether CBN has solved meme creation problems. Some creators like CBN, but others prefer other methods. CBN simplifies meme creation by visualising meaning.

The CBN could improve my meme design. Memes can be enhanced by CBN's novel theoretical core and dynamic conceptual blending framework. I want to improve visual language organisation, complex communication, and creativity

with CBN. CBN's theory may improve meme design. CBN may help meme designers with different styles and creativity. "Others" acknowledges creators' varied views on CBN's meme design legacy. Based on experience and preferences, some see benefits, while others disagree.
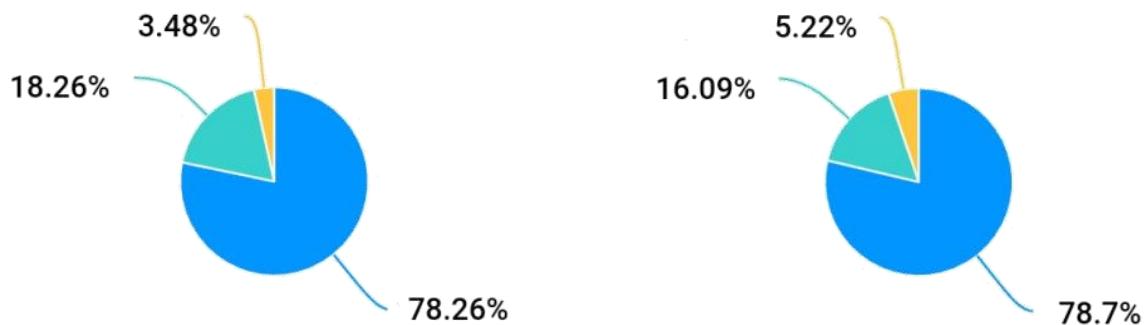

Figure 19: Pie chart of survey results

The study's selection of a difficult social event for the experimental modality, specifically commercial frauds impacting college students, is significant in the context of establishing CBN's application usefulness for meme design. Through addressing a real and pertinent problem that students often face, the study highlights the applicability and significance of CBN in using meme creation to address difficult and emotionally charged subjects. The addition of a quiz to measure students' grasp of the role of CBN in the experimental modality adds an important dimension to the research. This evaluation statistically assesses students' understanding of CBN's use in meme creation, providing insight into the efficacy of the intervention as well as adding to the study's overall validity and reliability. While the student's testimonial about CBN's enhancement of the meme provides a personal perspective on its worth, including more testimonials from a diverse range of students would provide a more comprehensive view of CBN's impact on meme creation, enhancing the study's depth and qualitative insights. It is significant to note that students believe that CBN will be beneficial for modal designs in the long run. A brief discussion of how this long-term perspective could affect and benefit future meme creators by fostering new and effective meme design techniques would add depth to the debate emphasize the study's findings' long-term impact on meme creation practices would add depth to the discussion and highlight the study's findings' long-term impact on meme creation practices.

Though insightful, the study has limitations. The findings are limited to specific universities, age groups, and cultures. Future studies may include participants from diverse geographic, cultural, and educational backgrounds to improve external validity. Most data was self-reported, which may have introduced biases or social desirability. Observational or experimental data could illuminate early adulthood. Researchers may broaden the study's longitudinal scope to improve results. Alumni follow-up may reveal college's long-term effects. Socioeconomic and cultural factors may clarify early adulthood experiences. Quantitative surveys and qualitative interviews may illuminate the college-to-young adulthood transition. Addressing these limitations and using a broader research approach would improve future study results.

Were there any limitations to the study and how could the results be improved in the future?

4 Conclusion

This study describes the mechanism of action of CBN and its key factors and reinforcers in modal design, aiming to help college students solve the difficulties of meaning construction in modal creation.

Three invited university teachers commented that the study extends the application area of cognitive linguistics to modality design. The introduction of Conceptual Blending Theory in this study, especially the focused analysis of CBN,

makes it easier for students to construct accurate and profound meanings in modal design.

Most undergraduate students, including recent graduates, agreed that the Conceptual Blending Theory helped them a lot in designing memes. They said that this study filled the gap in meme design creation guidelines in one way or another and provided them with a helpful tutorial. They welcomed this study. Most of the students will happily using Conceptual Blending Theory as a guide for creation from now on and keep exploring what this study has inspired them, and they confidently say that after six months or a year of practical practice, they can design memes more efficiently and accurately.

5   Recommendations for Future Studies:

The study's thorough evaluation of CBN's process and its implications in modal design is an impressive accomplishment. The affirmative comments from academic instructors, recognizing the growth in the applicability of cognitive linguistics to modality design, highlight the work's value in connecting theory and research. Future studies should study the long-term impact of merging Conceptual Blending Theory and CBN in modal design to further this research topic. This involves determining whether the knowledge and abilities that students have gained remain stable over time and continue to inform their creative processes even after they have finished their studies. Researchers can get insights into the long-term viability of these approaches in improving modal design by tracking their long-term consequences. Further research would be instructive in performing comparison analyses to assess the efficacy of different linguistic and cognitive theories in modal design. Such comparisons could provide a broader perspective on the relative strengths and limitations of various theoretical frameworks in the context of creative output, providing significant insights for both educators and practitioners. Beyond meme design, it would also be advantageous to broaden the research's focus to investigate the use of CBN and Conceptual Blending Theory in other creative fields. Understanding how these ideas influence different kinds of communication, artistic expression, and design may indicate their versatility and broader relevance in the creative business. Gathering user experience feedback should be an important part of future study in this sector. Researchers can assess the efficiency of memes designed using CBN in communicating messages and interacting with the audience by soliciting qualitative insights from meme consumers. This user-centered approach can demonstrate whether the implementation of Conceptual Blending Theory and CBN genuinely improves the audience's knowledge and emotional connection with the memes, offering light on their practical effectiveness in real-world creative communication. Finally, to enhance the study's impact, it is suggested that instructional tools or guidelines based on the research findings be developed. These resources could be useful tools for students and aspiring meme producers, allowing them to study and use Conceptual Blending Theory and CBN in modal design. Future research can empower a broader audience to tap into the benefits of these linguistic and cognitive theories and apply them effectively in their creative activities by providing accessible materials and tutorials.

Modal design using CBT and CBN affects communication and interaction over time. CBT's foundational principles and CBN's network-oriented approach can help modal designs represent concepts more intricately and nuancedly, improving audience comprehension and engagement. This integration allows context-aware message transmission. Modal designs with blended concepts improve audience engagement and communication over time. Metrics measure CBN audience communication and engagement. Medial design attention is measured by audience engagement. Click-through rates, modal interaction time, and user feedback measure conceptual blending's message delivery. CBN can be assessed by post-interaction surveys or assessments of modal information comprehension and retention. Conceptual Blending Theory and modal design's CBN drawbacks. The complexity of blended concepts may confuse viewers. Clarity and complexity must balance. Cultural and contextual factors may affect audience interpretation of blended concepts, making universal modal designs difficult. User testing and feedback are needed to improve modal designs for diverse audiences and cultures. Finally, real-time modal design with CBN may require technological challenges and computational complexity-responsiveness trade-offs.

What are the specific long-term consequences of merging Conceptual Blending Theory and CBN in modal design? How effective is the use of CBN in communicating messages and interacting with the audience, and how can this be measured? Are there any potential limitations or drawbacks to the implementation of Conceptual Blending Theory and CBN in modal design, and if so, what are they?

6. Statement of Declaration

Availability of data and materials:

The datasets used and/or analysed during the current study available from the corresponding author on reasonable request.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Funding Acknowledgement

The research did not receive a grant from any public, commercial, or non-profit funding agency.

REFERENCES

Ahanin, Z., & Ismail, M. A. (2022). A multi-label emoji classification method using balanced pointwise mutual information-based feature selection. *Computer Speech & Language*, *73*, 101330. https://doi.org/https://doi.org/10.1016/j.csl.2021.101330

Al Rashdi, M. (2020, March 5). A Small-Scale Exploratory Study on Omani College Students' Perception of Pragmatic Meaning Embedded in Memes. Arab World English Journal (AWEJ) Proceedings of 2nd MEC TESOL Conference. https://doi.org/10.2139/SSRN.3798154

Ayele, S. (2020). One Does Not Simply Define Memes: A Prototypical Theory to Understanding Internet Memes. 1–36.

Budden, L. (2007). Critical Thinking Skills. Developing Effective Analysis and Argument. in Contemporary Nurse (Vol. 25, Issues 1-2). https://doi.org/10.5172/conu.2007.25.1-2.174a

Cao, Y., & AlKubaisy, Z. M. (2022). Integration of computer-based technology in smart environment in an EFL structures. *Smart Structures and Systems*, *29*(3), 375–387. https://doi.org/10.12989/sss.2022.29.2.375

Chen, X., & Siu, K. W. M. (2017). Exploring user behaviour of emoticon use among Chinese youth. *Behaviour and Information Technology*, *36*(6), 637–649. https://doi.org/10.1080/0144929X.2016.1269199

Cherbonnier, A., & Michinov, N. (2021). The recognition of emotions beyond facial expressions: Comparing emoticons specifically designed to convey basic emotions with other modes of expression. *Computers in Human Behavior*, *118*, 106689. https://doi.org/https://doi.org/10.1016/j.chb.2021.106689

Dupont, S. D. (2021). *High School Teachers' Perceptions of Student Cell Phone use in the Classroom: A Case Study*. Liberty University.

Garcia, C., Țurcan, A., Howman, H., & Filik, R. (2022). Emoji as a tool to aid the comprehension of written sarcasm: Evidence from younger and older adults. *Computers in Human Behavior*, *126*, 106971. https://doi.org/https://doi.org/10.1016/j.chb.2021.106971

Guan, H. (2007). Dynamic deduction of Conceptual Blending Theory on humorous cartoon (p. 4).

Harsh, S. (2011). Purposeful sampling in qualitative research synthesis. *Qualitative Research Journal*, *11*(2), 63-75.

Huang, L.H. (n.d.). Synaesthetic, metaphor and multimodality metaphor. https://www.163.com/dy/article/GV7S7CGV053277XZ.html

Kaye, L. K., Rocabado, J. F., Rodriguez-Cuadrado, S., Jones, B. R., Malone, S. A., Wall, H. J., & Duñabeitia, J. A. (2023). Exploring the (lack of) facilitative effect of emoji for word processing. *Computers in Human Behavior*, *139*, 107563. https://doi.org/https://doi.org/10.1016/j.chb.2022.107563

Ko, E., Kim, D., & Kim, G. (2022). Influence of emojis on user engagement in brand-related user generated content. *Computers in Human Behavior*, *136*, 107387. https://doi.org/https://doi.org/10.1016/j.chb.2022.107387

Kula, S. S., & Güler, M. P. D. (2021). University-school cooperation: Perspectives of pre-service teachers, practice teachers and faculty members. *Asian Journal of University Education Asian Journal of University Education*, 17(1), 47-62. https://doi.org/10.24191/ajue.v17i1.12620

Leiser, A. (2022). Psychological Perspectives on Participatory Culture: Core Motives for the Use of Political Internet Memes. *Journal of Social and Political Psychology*, *10*(1), 236-252. https://doi.org/10.5964/jspp.6377

Liang, (2002). Reasoning Mechanism and Cognitive Function of Metaphor LIANG.

Mtuy, T. B., Burton, M. J., Mwingira, U., Ngondi, J. M., Seeley, J., & Lees, S. (2019). Knowledge, perceptions and experiences of trachoma among Maasai in Tanzania: Implications for prevention and control. *PLoS Neglected Tropical Diseases*, 13(6). https://doi.org/10.1371/journal.pntd.0007508

Mungan, E. (2022). Gestalt Theory: Its Past, Stranding, and Future ... 8(2020), 585-618. https://doi.org/10.7816/nesne-08-18-15

Pinto, V. R. A., Teixeira, C. G., Lima, T. S., De Almeida Prata, E. R. B., Vidigal, M. C. T. R., Martins, E., Perrone, Í. T., & Carvalho, A. F. de. (2020). Health beliefs towards kefir correlate with emotion and attitude: A study using an emoji scale in Brazil. *Food Research International*, 129, 108833. https://doi.org/https://doi.org/10.1016/j.foodres.2019.108833

Rong, S., Wang, W., Mannan, U. A., de Almeida, E. S., Zhou, S., & Ahmed, I. (2022). An empirical study of emoji use in software development communication. *Information and Software Technology*, *148*, 106912. https://doi.org/https://doi.org/10.1016/j.infsof.2022.106912

Sampietro, A. (2021). Emojis and the performance of humour in everyday electronically-mediated conversation: A corpus study of WhatsApp chats. *Internet Pragmatics*, *4*(1), 87–110. https://doi.org/10.1075/IP.00062.SAMP/CITE/REFWORKS

Suresh, S. (2018). The influence of Emoji on Communication using Social Media-A Quantitative Study among College Students of Mysuru. *Research Journal of Humanities and Social Sciences*, *9*(1), 158. https://doi.org/10.5958/2321-5828.2018.00028.1

Surikov, A., & Egorova, E. (2020). Alternative method sentiment analysis using emojis and emoticons. *Procedia Computer Science*, *178*, 182–193. https://doi.org/https://doi.org/10.1016/j.procs.2020.11.020

Tang, Y., & Hew, K. F. (2019). Emoticon, Emoji, and Sticker Use in Computer-Mediated Communication: A Review of Theories and Research Findings. *International Journal of Communication*, *13*(0), 27. https://ijoc.org/index.php/ijoc/article/view/10966

Togans, L. J., Holtgraves, T., Kwon, G., & Morales Zelaya, T. E. (2021). Digitally saving face: An experimental investigation of cross-cultural differences in the use of emoticons and emoji. *Journal of Pragmatics*, *186*, 277–288. https://doi.org/https://doi.org/10.1016/j.pragma.2021.09.016

Wang, D., & Li, D. (2022). Exploring Multiliteracies and Multimodal Pedagogies in Chinese Language Teaching: A Teacher's One-Year Action Learning Circle. *International Journal of Computer-Assisted Language Learning and Teaching (IJCALLT)*, 12(1), 1–19. https://doi.org/10.4018/IJCALLT.298704

Wells, P. (2013). Understanding animation. In Understanding Animation. https://doi.org/10.4324/9781315004044

Xia, J., & Wang, P. (2022). Am I trolling?: A CA-informed approach to Gangjing in a Chinese online forum. *Discourse, Context & Media*, 47, 100609. https://doi.org/10.1016/J.DCM.2022.100609

Xiao, X.Y. (2014). The explanatory power of Conceptual Blending Theory on rhetoric of humour.

Xie, Q. (2017). A Study of Cognitive Mechanism of Multimodal Metaphor in Political Cartoon Based on Conceptual Integration Theory. 28(3).

Xu, B., Li, T., Zheng, J., Naseriparsa, M., Zhao, Z., Lin, H., & Xia, F. (2022). MET-Meme: A Multimodal Meme Dataset Rich in Metaphors. SIGIR 2022 - *Proceedings of the 45th International ACM SIGIR Conference on Research and Development in Information Retrieval*, 2887-2899. https://doi.org/10.1145/3477495.3532019