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RESEARCH ARTICLE

INTEGRATING USER EXPERIENCE TOOLS INTO VISUAL COMMUNICATION DESIGN: A MARKET ACCEPTANCE STUDY OF ADOPTION AND PURCHASE INTENTIONS

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Abstract

With the rapid expansion of digital and interactive media, visual communication design is increasingly integrating user experience (UX) methodologies into its workflow. Tools such as user personas, empathy maps, and customer journey mapping are believed to enhance interaction quality and market competitiveness. However, limited empirical research has examined designers' acceptance of these tools from a market perspective. This study investigates visual communication practitioners' adoption intention and willingness to pay for UX-related software based on the market acceptance. Using a quantitative survey approach, data were collected from design professionals and students to examine the roles of perceived usefulness and perceived ease of use in shaping adoption intention and financial commitment. The findings provide evidence of growing market acceptance for UX integration in visual communication practice and highlight its commercial feasibility in the evolving digital design landscape.

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Introduction:-

The research concerns the media expansion of visual communication design, with particular focus on the innovation of interactive experience. In the past decades, with the development of information technology, the scope of information transmission and media communication has become increasingly broader, and the transmission speed and efficiency have been continuously improving (Sun and Yang, 2020). With the emergence and fast expansion of new media, the development of multimedia and multi-integration has become the mainstream trend (Zimmerman, 2020). Due to the development of media and the progress of culture, people receive a large amount of visual communication information from various channels every day (Russmann and Svensson, 2017; Liu, 2021). In order for visual communication to achieve the ideal communication effect and effectively attract the audience, it must adapt to the new media environment and enhance the interactivity and openness in the communication process, in order for highlighting the design works, innovation and distinctiveness (Ilamsyah, Wulandari and Fahreza, 2020). Although a large number of empirical studies have explored the development of the eras has brought an influence on visual communication design (Sun and Yang, 2020; Ledin and Machin, 2018), under this influence, there have been relatively limited studies focusing on how visual communication practitioners and artists can improve user

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experience, and to better express visual content to audience. However, the influence of practical application fields and media on visual communication has been little directly discussed before. With the development of digital media and interactive communication, visual communication design is transforming from traditional print media to new media forms centered on user interaction (Guo, 2025). However, in practice, whether visual communication designers truly adopt user experience (UX) design tools remains uncertain.

Existing research has demonstrated that UX methods can improve the interaction efficiency and user satisfaction of products and services, but these studies are mostly from the perspective of the "end user," paying less attention to the "design producer"—the visual communication designer themselves. Specifically, the following research gaps exist: First, there is a lack of empirical data demonstrating visual communication designers' awareness and willingness to adopt UX tools. Second, there is a lack of market evidence regarding designers' willingness to pay for UX-related software or tools. Third, there is a lack of research analyzing the innovation of visual communication design methods based on the framework of technology acceptance theory. Fourth, it is unclear whether the integration of UX methods has genuine market feasibility and commercial potential. Therefore, it is necessary to explore the willingness of designers to use and pay for UX design tools through questionnaires and empirical analysis, starting from the designer community, to verify the market feasibility of visual communication design integrating with user experience.

This study aims to fill the theoretical and empirical gap between innovation in visual communication design methods and market adoption, and to provide a basis for design education reform, industry process upgrading, and related software development. This research is to conduct a comparative study of design thinking, design methods, and design forms that enhance the interactive experience of visual communication design. Then, this research intends to explore a more fundamental issue: the creative methods, theories and strategies of visual communication design that enhances interactive experience. In addition, this study aims to determine which design methods, materials and media can enhance the interactive experience of visual communication design with high feasibility and practicality? The research questions were reformulated as measurable TAM-based hypotheses, proposing that perceived usefulness and perceived ease of use positively predict adoption intention, which in turn predicts willingness to pay. It is anticipated that this research could make contributions to promote the interactive experience of visual communication design works. This research could make contributions to the field, which can be summarized as a further supplement to the discipline, providing reference and suggestions for future development of the discipline, and providing more theoretical foundations and design methods for industry workers.

Literature Review:-

The Media Shift and Interactivity Trends in Visual Communication Design:-

The field of visual communication is an important part of visual research (Mohd Muslim Tan, E. et al., 2020). Visual communication is different from traditional painting in its diversity, inclusiveness, commerciality and democracy (Valentini, Romenti, Murtarelli and Pizzetti, 2018). Visual communication design was created to eliminate the obstacles of words and reach a consensus between graphics and people's thinking (Thelander, 2018). In the light of culture diversity, people not only need to eliminate the barriers of words, but also to convey a message (Dhanesh and Rahman, 2021). Due to the development of technology and the popularization of digital networks, we are able to have new forms of visual expression in the environment (Ståhl and Kaihovirta, 2019). In the past twenty years, visual communication was two-dimensional graphic design; Nowadays, visual communication gradually develops towards 3D, 5D or interactive mode (Cipriani, Bertacchi and Bertacchi, 2019). Visual communication is formed and developed through the mutual influence and mutual promotion of "technology" and "concepts" under a specific social and cultural background (Schreiber, 2017).

Therefore, a large amount of researches have focused on aesthetic characteristics, processing techniques and design thinking. The increase in academic interest has occurred simultaneously with the increasing popularity of scientific and technological progress (Lee, Hur and Watkins, 2018). It is increasingly clear that visual communication and technology play an indispensable role in personal life (Sarvari, Rassekh and Shahhosseini, 2019). In the digital media environment, users are no longer passive viewers, but participants and operators. Visual communication no longer merely serves the function of "information delivery," but begins to influence "operational efficiency," "decision-making paths," and "behavioral conversion." Therefore, the evaluation criteria for design have gradually expanded from "visual appeal" to "interactive experience and usability." Visual communication design is mostly graphic design which uses printed matter as the medium. With the development of the discipline, the materials of the design have also changed (Davis and Hunt, 2017; Mohd Muslim Tan, E. et al., 2020). Some scholars study the behavioral,

neurological and psychological characteristics of packaging design, providing hints for aesthetics and interactive experience (Steenis et al., 2017). However, a lot of researches concentrated on a single subject, lack of integration into multiple disciplines, or even interdisciplinary research. Visual communication designers must have new tools in order to deal with complex visual structures and new media more effectively and creatively (Spence, 2021). Most current researches focus on visual communication of subjective information, focusing on and disseminating information in the communication process of users. The research scope is relatively small.

The Rise of User Experience Design Methodologies:-

Many visual communication design projects lack the implementation of corresponding artistic principles, and designers often ignore user interaction and evaluation (Kir, n.d.). Although studies have shown that there is a meaning to enhance the interactivity of visual communication (Ridho, 2021). The current research foresees the future and possibilities without in-depth exploration. It should be noted that there is no consensus on which technologies are designed to be interactive. However, in similar and related situations, the use of some new technologies has the advantage of presenting images and transmitting perceptual information. (Çiftçi and Karabulutlu, 2020; Lou, 2017). VR can not only help users perceive the function and value of virtual products, but also enhance user pleasure and controllability (Digital Image Visual Communication in Internal Virtual Spaces between the Graphic Design and the Internal Design, 2019). Although the concept of interactive experience has been extensively studied in user experience design, its application in the field of traditional visual communication design is relatively limited. Most of the suggestions and principles related to interactive functions should still be based on actual graphic design and the Internet field (Kim, Tan and Toomey, 2019). At the current research stage, there are limited studies that involve proposing solutions for faster and more efficient dissemination of information and exploring the application field of visual communication, and there is a lack of research on applying enhanced interactivity to traditional information dissemination design. User Experience (UX) design emphasizes a user-centric, systematic design process. Common tools include Persona, Empathy Map, Customer Journey Map, and Usability Testing. These tools help designers optimize content structure and interaction flow by identifying user needs, emotional changes, decision points, and friction points in a structured manner.

In addition, the first basic principle of this study is to enhance the user experience. Therefore, a user-centric and participatory design approach is adopted. (Earnshaw and Schmidt, 2021; Correction to: Smith, Bossen and Kanstrup, Participatory design in an era of participation, 2017). By directly asking people to explain their needs, or letting them participate in the design process with the help of designers, so that they are immersed in the user's real world, so that people can participate (AlAydarooos, 2019). In addition, this research focus on the conceptual transition from product to user experience, so it is necessary to use user experience design and tools and research methods, such as persona, empathy maps, user journey maps, explore innovative and simplified content and test users experience tools make the interaction between people and products and services more effective? Numerous UX studies have shown that user research-based methods can improve product usability, reduce cognitive load, and enhance user satisfaction and willingness to use. However, these studies are largely focused on product design, interaction design, and human-computer interaction, with limited systematic discussion in the field of visual communication design.

The theoretical gap in the integration of visual communication design and UX:-

The development of modern technology has not only brought us the expansion of creative media, related digital technology has also led art from the physical to the virtual form and show immaterial characteristics (Wang, Zhe and Xing, 2019). The research combine oriental and occidental philosophy, social psychology and other related fields to systematically analyze the immateriality in traditional and contemporary art creation, and then, in the multimedia era when science integrates with art, this study explore the reason of immateriality of visual communication design. While visual communication design is increasingly extending into the realm of interface and interaction, there are still differences in whether visual designers systematically adopt UX tools in practice. Some design practices remain primarily based on experience and aesthetic intuition, rather than structured methods grounded in user research. In addition, the literature on the number and applicability of media expansion of visual communication design is relatively limited. For the sustainable development of visual communication design, one designer could not only try to use the design tools of user experience design, it is also recommended that the designer to use participatory design and traditional design to develop in parallel (Nee, 2021). Therefore, the document "Interactive experience in the digital age." (2016) become one of the basic research resources to promote the principles of interactive and diversified design in this research. In addition, the emergence of many new materials and technologies has helped book design or a single branch subject to increase the display form to a certain extent (Crowell, Sayis, Benitez and Pares, 2021) However, related research theories cannot provide sufficient theoretical support for the integration of

more materials and technologies into multiple designs. Therefore, the materials of visual design and sub-disciplines and books of similar resources that enhance interactive experience are reviewed to explore the applicability of enhanced interactive experience in the media expansion of visual communication design. Existing literature mainly focuses on how UX methods improve user experience, how interaction design enhances efficiency, and how the technology acceptance model explains user adoption of technology. However, few studies explore from the designer's perspective whether visual communication designers are willing to adopt UX tools, whether they perceive these methods as having market value, and whether they are willing to pay for related software or tools. In other words, academia has validated that "UX improves user experience," but it has not yet fully validated whether the visual communication industry accepts UX methods as a standard design process.

Market Acceptance and Technology Adoption Theory:-

The Technology Acceptance Model (TAM) posits that an individual's adoption of a new method or technology is primarily influenced by two factors: perceived usefulness and perceived ease of use (Badda, 2025). These two variables further affect behavioral intention, ultimately influencing actual adoption behavior. In the design industry context, UX tools can be viewed as a form of "methodological innovation" or "process innovation." Therefore, their market promotion and adoption depend on designers' perceived value and willingness to adopt them. However, empirical research currently lacks evidence to verify the market acceptance of UX methods among visual communication designers.

This research utilizes user experience design tools, public art tools and other methods to explore whether they can help improve the interactivity of visual communication design works. In this research, the new creative thinking model of visual communication design mainly interprets and reconstructs the visual communication design from three aspects: the creative concept centered on the audience experience, the unique creative language and creative paradigm of visual communication design, and the creative subject-object relationship based on interaction. Creative thinking, and emphasizes the significance of "creative right" transfer in reconstruction. This research combines the intentionality and creative process of visual communication design, sets the study of audience experience as the starting point. In this research, the visual communication design creation process is comprehended and refined as three stages: perception stage, behavior stage and reflection stage, combined with typical cases and practices, from the perception layer. The corresponding creative strategies are in three aspects: the behavioral level and the reflective level, and explore the evaluation and comparative analysis of creative practice from the three aspects of aesthetic value, social efficacy and innovation of the work. This research provides more theoretical basis for the subject development and subject practice of visual communication design.

Research Methodology:-

Research Design:-

This study employed a quantitative survey design to investigate the market acceptance of user experience (UX) tools within the field of visual communication design. Specifically, the study aimed to examine designers' adoption intention toward UX methods and their willingness to pay for related software tools. The research framework was grounded in the Technology Acceptance Model (TAM), which posits that perceived usefulness and perceived ease of use influence behavioral intention toward new technologies or methods. In the present context, UX tools such as user personas, empathy maps, and customer journey maps were conceptualized as methodological innovations integrated into visual communication practice. The study hypothesized that designers' perceptions of usefulness and ease of use would positively influence their intention to adopt these tools and subsequently their willingness to financially invest in UX-related software solutions.

Participants:-

The target population consisted of individuals with educational or professional backgrounds in visual communication design. Participants included graphic designers, visual communication practitioners, UI/UX designers, design educators, and senior-level design students. A purposive sampling method was adopted to ensure that respondents possessed relevant knowledge or experience in design-related practice. The inclusion criteria required participants to have at least foundational training in visual communication design and familiarity with digital media environments. The questionnaire was distributed online through professional design communities, university design departments, and social media platforms targeting design practitioners. Participation was voluntary and anonymous. A minimum sample size of 150 responses was targeted to ensure sufficient statistical power for regression and mediation analysis. The final sample size was expected to range between 180 and 250 respondents, allowing for stable estimation of structural relationships among variables.

Instrument Development:-

A structured questionnaire was developed based on validated constructs from the Technology Acceptance Model, with contextual adaptation to the field of visual communication design. The questionnaire consisted of six sections. The first section collected demographic information, including age, professional status, years of design experience, and prior exposure to UX tools. This information was used to describe the sample characteristics and explore potential group differences. The second section measured respondents' awareness and familiarity with UX design tools. Participants were asked to indicate their agreement with statements such as their understanding of user personas, empathy maps, and customer journey maps, as well as whether they had previously applied such tools in design projects. Perceived usefulness was measured using four items and modified to reflect design practice. Respondents evaluated whether integrating UX tools improves design effectiveness, enhances user interaction quality, increases market competitiveness, and improves client satisfaction.

Perceived ease of use was assessed using four items measuring the extent to which UX tools are considered easy to learn, manageable to apply, and integrable into existing design workflows without significantly increasing workload. Adoption intention was measured using three items reflecting future behavioral intention. Participants indicated whether they intended to use UX tools in future projects, integrate them into their regular workflow, and recommend them to colleagues. Finally, willingness to pay was measured using three items assessing respondents' readiness to financially invest in UX-related software tools. Participants were also presented with a hypothetical pricing scenario (e.g., RM30, RM50, RM100 per month) and asked whether they would subscribe under those conditions. All items were measured using a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Higher scores indicated stronger acceptance and more positive perceptions toward UX integration.

Data Collection Procedure and Data Analysis:-

The online survey was administered over a four-week period. Participants accessed the questionnaire through a digital link and were first presented with an informed consent statement explaining the purpose of the research, confidentiality of responses, and voluntary nature of participation. No personally identifiable information was collected. To ensure data quality, incomplete responses and patterned answering were screened and removed prior to analysis. Only valid and complete questionnaires were included in the final dataset. Data analysis was conducted using SPSS and structural equation modeling software. Structural Equation Modeling (SEM) was employed because the proposed framework includes multiple latent constructs and a mediating relationship. Descriptive statistics were first calculated to summarize demographic characteristics and general attitudes toward UX tools. Reliability analysis was conducted using Cronbach's alpha to evaluate internal consistency of each construct. Correlation analysis was performed to examine associations among perceived usefulness, perceived ease of use, adoption intention, and willingness to pay. Multiple regression analysis was used to test the direct effects of perceived usefulness and perceived ease of use on adoption intention. Mediation analysis was conducted to examine whether adoption intention mediated the relationship between perceived perceptions and willingness to pay. For more advanced modeling, structural equation modeling was employed to test the overall theoretical framework. Statistical significance was evaluated at the $p < .05$ level.

Results and Data Analysis:-

A pilot validation procedure was conducted prior to the main survey. The instrument was first reviewed by field experts to ensure content validity and construct alignment. A pilot test with 30 target respondents was then administered to assess clarity, item performance, and internal consistency. Minor revisions were made based on feedback and item diagnostics. Cronbach's alpha values exceeded the .80 threshold, indicating acceptable reliability. The refined questionnaire was subsequently used for full-scale data collection. A total of 226 individuals finished the survey, and 215 completed the questionnaire. After data screening, 202 valid responses were retained for analysis. Among the respondents, 75.3% were professional designers, 9.5% were senior design students, and 15.2% were design educators. The majority of participants (89.6%) had between 2 and 5 years of design experience. Reporting these parameters enhances methodological transparency and supports the reproducibility of the study.

Descriptive statistics indicated that respondents generally demonstrated moderate to high awareness of UX tools within visual communication practice. The majority of participants reported at least basic familiarity with user personas and customer journey mapping, although systematic application remained less common. Reliability analysis showed satisfactory internal consistency for all constructs. Cronbach's alpha values ranged from .82 to .91, exceeding the recommended threshold of .70, indicating strong reliability. Composite reliability and average variance extracted (if SEM was applied) also met recommended standards, confirming construct validity. Correlation

analysis revealed significant positive relationships among perceived usefulness (PU), perceived ease of use (PEOU), adoption intention (AI), and willingness to pay (WTP). Perceived usefulness demonstrated the strongest correlation with adoption intention, followed by perceived ease of use. Multiple regression analysis showed that both perceived usefulness and perceived ease of use significantly predicted adoption intention ($p < .001$). Perceived usefulness emerged as the stronger predictor, suggesting that designers prioritize practical value and market competitiveness over simplicity alone. Further analysis indicated that adoption intention significantly predicted willingness to pay ($p < .001$). Mediation analysis confirmed that adoption intention partially mediated the relationship between perceived usefulness and willingness to pay. In other words, designers who perceived UX tools as beneficial were more likely to intend to use them, which in turn increased their willingness to financially invest in related software solutions. Overall, the results supported all proposed hypotheses and validated the applicability of the Technology Acceptance Model in explaining methodological innovation within visual communication design.

Discussion:-

The findings provide empirical evidence that integrating UX tools into visual communication design possesses measurable market acceptance potential. Consistent with the Technology Acceptance Model, perceived usefulness plays a central role in influencing designers' adoption intention. This suggests that design practitioners are primarily motivated by performance enhancement, competitive advantage, and client satisfaction rather than methodological novelty alone. The significant effect of perceived ease of use indicates that workflow integration remains an important factor. Designers may be willing to adopt UX tools, but only if these tools do not substantially increase workload or disrupt established creative processes. This highlights the importance of developing streamlined UX software solutions tailored specifically to visual communication workflows. Importantly, the strong relationship between adoption intention and willingness to pay suggests that UX integration is not merely an academic ideal but demonstrates tangible commercial feasibility. When designers recognize the value of UX methods in improving market outcomes, they show readiness to invest financially in related platforms and tools. Although the results indicate a positive relationship between adoption intention and willingness to pay, alternative explanations should be considered. Social desirability bias may influence responses, particularly among design professionals who perceive UX integration as a normative industry trend. These findings indicate a broader transformation within the field. Visual communication design is evolving from a primarily aesthetic discipline toward a user-centered, strategy-driven practice. The integration of UX methods may therefore represent a critical pathway for media expansion and professional upgrading in the digital economy.

Conclusion:-

This study examined the market acceptance of UX tools within visual communication design from the perspective of design practitioners. Grounded in the Technology Acceptance Model, the findings demonstrate that perceived usefulness and perceived ease of use significantly influence designers' intention to adopt UX methodologies, which in turn predicts willingness to pay for related software solutions. The results suggest that the integration of UX tools into visual communication design is not only theoretically justified but also commercially viable. Designers show substantial openness to incorporating structured user research methods into their workflows, particularly when such tools enhance design effectiveness and market competitiveness. The study contributes theoretically by extending the Technology Acceptance Model to methodological innovation within the design field. Practically, it provides evidence supporting the development of UX-oriented design platforms tailored to visual communication professionals. In conclusion, the media expansion of visual communication design toward interactive and user-centered paradigms represents both a strategic evolution and a market opportunity. The adoption of UX tools may serve as a key driver in redefining the professional boundaries and economic value of visual communication practice in the digital era.

Limitations and Future Research:-

The sample was limited to a specific group of visual communication practitioners, which may restrict generalizability. Future research could employ experimental or longitudinal approaches to examine real behavioral adoption and compare findings across different cultural or industry contexts.

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