

Resources Illustrators' Collaboration, Competence, and Challenges in Utilizing Artificial Intelligence

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Abstract

This study examined the collaboration, competence, and challenges of 181 resource illustrators in utilizing Artificial Intelligence (AI) across Panay Island in October 2025, with all identified illustrators included as respondents and no random sampling employed. A validated questionnaire was used to assess illustrators' collaborative practices, as well as their technical and creative competence in AI and the challenges encountered in AI-assisted workflows. Descriptive and inferential analyses were conducted, including frequency, percentage, mean, t-test, ANOVA, and Pearson's r correlation at a 0.05 significance level. Findings revealed that respondents predominantly comprised older (56.35%) and female (53.04%) illustrators, most holding bachelor's degrees (66.3%), with junior illustrators as the largest professional group (48.62%), and the majority residing in Iloilo (37.02%). Resource illustrators demonstrated very high levels of collaboration (mean range 4.24–4.35) and competence (mean range 4.33–4.45) across all classifications, with slightly higher engagement and skills observed among older, female, doctorate-holding, lead illustrators, and those from Iloilo. Challenges in utilizing AI were generally moderate (overall mean = 1.45) and consistent across age, sex, educational attainment, position, and province. No significant differences were found in collaboration, competence, or challenges across all classifications, and Pearson correlation analysis indicated no significant relationships among these variables. These results suggest that while Panay Island illustrators are highly skilled and collaborative in using AI, they experience moderate challenges that are independent of demographic or professional factors.

Keywords: Resource illustrators, Artificial Intelligence, collaboration, competence, challenges, creative industries, Panay Island

Introduction

Artificial Intelligence (AI) has become an essential tool in creative and digital industries, transforming the planning, design, and production of visual content and educational resources. AI facilitates image generation, design concept development, visual modification, and the creation of creative materials. These technologies allow resource illustrators to work more efficiently, reduce repetitive tasks, experiment with diverse visual concepts, and expand creative possibilities. Effective AI use requires technical competence, creativity, computer literacy, and sound decision-making.

Integrating AI into creative workflows has changed how illustrators collaborate with educators and other professionals. Illustrators commonly collaborate with educators, designers, content creators, project managers, clients, and additional stakeholders to develop educational and visual materials. AI supports these teams in idea sharing, visual adjustment, material review, and the incorporation of feedback. However, disparities in technological skill, AI literacy, and the ease of AI adoption can influence the effectiveness of team collaboration. Thus, successful AI utilization requires both individual competencies and joint skills.

Using AI responsibly means thinking about human skills, ethics, and good judgment. UNESCO (2023) stresses the need for a human-centered approach to generative AI, especially to guarantee ethical, safe, fair, and meaningful use of new technologies. For resource illustrators, this means they must keep learning and building their skills while protecting creativity, careful evaluation, and professional responsibility. It is still important for people to review AI-generated content. Despite its advantages, AI brings several challenges for resource illustrators. These problems include insufficient technical expertise, inadequate access to appropriate software and hardware, budget constraints, unreliable internet connectivity, and difficulty keeping pace with quickly evolving AI technologies.

Additionally, moral and legal concerns regarding authorship, attribution, privacy, and transparency persist. In the Philippines, these issues also remain especially important because the Intellectual Property Code of the Philippines governs intellectual property rights and creative works (Republic Act No. 8293, 1997). This underscores the need to understand both the benefits and the complications of AI adoption. It also highlights the need to understand AI's benefits, as well as the skills and challenges involved in using it.

Integrating AI into the development of educational resources aligns with the growing emphasis on responsible, human-centered AI in basic education. DepEd Order No. 003, s. 2026, establishes foundational guidelines for AI use in schools, highlighting AI literacy, professional development, moral practices, privacy, transparency, safeguards, and the need to support rather than replace human skills and judgment (Department of Education, 2026). These principles are especially relevant for resource illustrators, whose input is vital to creating instructional materials.

While research exists on AI in creative industries, education, and digital content, little data show how collaboration, skills, and challenges intersect for resource illustrators. It is important to know how illustrators work together with AI, how skilled they are with these tools, and what problems they face when using AI in their jobs. To address this gap, the present study examines the collaboration, competence, and problems that resource illustrators in Panay Island, Philippines, encounter when using Artificial Intelligence. The study concentrates on teamwork, skill levels, and obstacles, while additionally considering respondents' backgrounds and professional roles. It measures the extent of collaboration, proficiency, and challenges, and examines whether these factors vary by background. The study also examines the relationships among collaboration, skills, and challenges. The research draws on conceptual models such as Activity Theory, which conceptualizes AI utilization as a socio-technical activity involving the resource illustrator, AI as a mediating tool, the professional community, established rules, and the division of responsibilities (Engeström, 2002). Social Cognitive Theory stresses the roles of knowledge, experience, confidence, and perceived capability in technology adoption (Bandura, 1986). The Technology Acceptance Model links technology use to perceived usefulness and ease of use (Davis, 1989). Collectively, these perspectives provide a foundation for examining the individual, technological, and joint dimensions of AI utilization.

The study examines 282 resource illustrators from Panay Island, Philippines, focusing on their collaborative practices, skill levels, and challenges in utilizing Artificial Intelligence. Demographic variables such as age, sex, educational attainment, job position, and province are considered—a descriptive-correlational research design examines differences and relationships among the primary variables, using statistical methods at the 0.05 significance level. The scope is limited to resource illustrators and their experiences with AI during the study period; therefore, findings may not be generalizable to all creative professionals or AI users.

This study aims to determine the collaboration, competence, and challenges of resource illustrators in utilizing Artificial Intelligence (AI) in Panay Island, Philippines, during the period covered by the study. Specifically, it seeks to determine the profile of the resource illustrators in terms of age, sex, highest educational attainment, position, and province; the extent of their collaboration in utilizing AI; their level of competence in utilizing AI; and the extent of challenges they encounter in utilizing AI. It also seeks to determine whether there are significant differences in the resource illustrators' collaboration, competence, and challenges when grouped according to their profile characteristics. Furthermore, the study aims to determine whether significant relationships exist among collaboration, competence, and challenges in utilizing AI. The findings are intended to provide an empirical basis for understanding the current conditions of resource illustrators in AI-supported work and for identifying areas that may require capacity-building, professional development, improved technological support, and responsible AI utilization.

METHODOLOGY

Research Design

This study used a descriptive-correlational research design to examine how resource illustrators in Panay Island collaborate, their competence, and the challenges they face when using Artificial Intelligence (AI). The descriptive part focused on the respondents' profiles and measured their collaboration, competence, and challenges with AI. The correlational part tested whether these factors were significantly related. The study also examined differences in these main variables by age, sex, education, position, and province. This design was suitable because it examined current conditions and relationships without changing any variables. Rosenthal and Rosnow (2022) described descriptive research as a systematic way to map a situation or set of events, and Gay (2022) defined correlational research as a method for determining whether and how strongly relationships exist among measurable variables.

Respondents of the Study

The study included 282 resource illustrators from Panay Island in 2025. All identified illustrators from Aklan, Antique, Capiz, and Iloilo took part, so random selection was not needed. This method made sure that everyone in the group was represented.

Data Gathering Instrument

A structured questionnaire was used to collect information about the respondents' backgrounds, their collaboration, competence, and the challenges they faced when using Artificial Intelligence. The questionnaire had four main parts. The first part asked about age, sex, education, position, and province. The second part measured how much illustrators collaborated in AI-assisted creative work, including communication, knowledge sharing, task coordination, feedback, and working with others. The third part focused on competence, including technical skills, creative flexibility, and the ability to use AI tools

and add AI-generated content to their work. The fourth part examined challenges in using AI, including technical, creative, workflow, teamwork, and ethical issues.

The collaboration scale used a five-point interpretation ranging from To a Very Great Extent to To a Very Low Extent, while the competence scale ranged from Very High to Very Low. The challenges scale classified The collaboration scale had five points, from To a Very Great Extent to To a Very Low Extent. The competence scale ranged from Very High to Very Low. For challenges, responses were grouped as Mostly Encountered, Encountered, or Least Encountered, following the mean ranges in Chapter 3. The researcher also reviewed the questionnaire for content, clarity, and format. The researcher incorporated their comments and recommendations into the revised instrument. The researcher also employed Good and Scates' Criteria of Validation to assess the appropriateness, clarity, reasonableness, typicality, and comprehensiveness of the questionnaire items.

Reliability of the Research Instrument

The researcher tested the validated questionnaire with 30 resource illustrators from Guimaras and Negros Occidental who were not part of the main study. The results were checked for reliability using Cronbach's Alpha to see if the questions were consistent. A score of 0.70 or higher was considered reliable.

Data Gathering Procedure

The researcher first secured permission from the appropriate creative organizations, project coordinators, and studio managers to conduct the study. with resource illustrators in Panay Island. The researchers followed ethical guidelines, including voluntary participation, confidentiality, and respect for respondents' rights. After getting permission, the researchers gave the validated questionnaire to the respondents at their workplaces, studios, or project sites. Respondents had enough time to answer, and the researchers collected the completed questionnaires. The researchers then counted, processed, analyzed, and interpreted the data based on the study's goals. The number of respondents in each category of the profile variables was reported, and percentages werpercentages were used to determine the proportion of respondents in each category. The mean was used to determine the extent of collaboration, level of competence, and extent of challenges in utilizing AI. The t-test was used to determine significant differences in collaboration, competence, and challenges when respondents were classified into two categories. Analysis of Variance (ANOVA) was used for variables with three or more categories. Pearson's Product-Moment Correlation Coefficient (Pearson's r) was used to determine the significant relationships among collaboration, competence, and challenges in utilizing AI. The inferential tests were evaluated at the 0.05 level of significance.

Statistical Tools Used

The raw data obtained in this study will be analyzed using appropriate statistical tools. Frequency and percentage will be used to determine the number and proportion of respondents belonging to each category of the profile variables, such as highest educational attainment, position, length of service, school size, and school location. Mean will be used to determine the levels of school climate, teachers' well-being, and teachers' productivity as assessed by the respondents. The t-test will be used to determine whether there are significant differences in the levels of school climate, teachers' well-being, and teachers' productivity when respondents are classified according to profile variables with two categories, such as school location, when applicable. Analysis of Variance (ANOVA) will be used to determine whether there are significant differences in the levels of school climate, teachers' well-being, and teachers' productivity when respondents are classified according to profile variables with three or

more categories, such as highest educational attainment, position, length of service, and school size. Pearson Product-Moment Correlation Coefficient (Pearson r) will be used to determine the significant relationships among school climate, teachers' well-being, and teachers' productivity. Specifically, it will determine whether significant relationships exist between school climate and teachers' well-being, school climate and teachers' productivity, and teachers' well-being and teachers' productivity. All inferential statistical tests will be evaluated at the 0.05 level of significance.

Results of the Study

Based on the data presented, analyzed, and interpreted in Chapter 4, the following results were obtained:

Profile of the Respondents

The study involved 282 resource illustrators from Panay Island. In terms of age, 56.35 percent were classified as old, while 43.65 percent were young. In terms of sex, 53.04 percent were female and 46.96 percent were male. Regarding highest educational attainment, 66.3 percent held a bachelor's degree, 27.62 percent held a master's degree, and 6.08 percent held a doctorate degree. In terms of position, 48.62 percent were junior illustrators, 26.52 percent were freelance practitioners, and 24.86 percent were lead illustrators. In terms of province, the reported distribution was 37.02 percent from Iloilo, 22.20 percent from Aklan, 20.99 percent from Capiz, and 29.89 percent from Antique.

1. Extent of Collaboration in Utilizing Artificial Intelligence

The resource illustrators demonstrated collaboration in utilizing Artificial Intelligence to a Very Great Extent, with an overall mean of 4.29. Across the different classifications, collaboration remained consistently within the Very Great Extent category. By age, young illustrators obtained a mean of 4.25, while old illustrators obtained 4.32. By sex, males obtained 4.28 and females 4.30. By educational attainment, bachelor's degree holders obtained 4.27, master's degree holders 4.32, and doctorate degree holders 4.35. By position, lead illustrators obtained 4.33, junior illustrators 4.28, and freelance practitioners 4.26. By province, Iloilo obtained the highest mean of 4.34, followed by Antique at 4.29, Capiz at 4.27, and Aklan at 4.24.

The highest-rated collaboration indicators involved attending workshops or training sessions with other illustrators, providing constructive suggestions to colleagues, and sharing knowledge about AI tools and software. The lowest-rated indicators, although still interpreted as To a Very Great Extent, involved mentoring colleagues, jointly developing resources through AI platforms, and collaborating in problem-solving when encountering difficulties with AI software.

2. Level of Competence in Utilizing Artificial Intelligence

The resource illustrators demonstrated a Very High level of competence in utilizing Artificial Intelligence, with an overall mean of 4.39. All classifications likewise obtained Very High ratings. Young illustrators obtained a mean of 4.36, while old illustrators obtained 4.42. Male respondents obtained 4.38 and females 4.40. Bachelor's degree holders obtained 4.37, master's degree holders 4.42, and doctorate degree holders 4.45. Lead illustrators obtained 4.44, junior illustrators 4.36, and freelance practitioners 4.35. By province, Aklan obtained 4.33, Capiz 4.37, Iloilo 4.44, and Antique 4.39.

The results therefore show that competence was consistently Very High across all respondent classifications.

3. Challenges Encountered in Utilizing Artificial Intelligence

The challenges encountered by resource illustrators in utilizing Artificial Intelligence were generally rated as Mostly Encountered, with an overall mean of 2.45. By age, young illustrators obtained 2.49 and

old illustrators 2.45. By sex, males obtained 2.38 and females 2.52. Bachelor's degree holders obtained 2.50, master's degree holders 2.46, and doctorate degree holders 2.40. Lead illustrators obtained 2.44, junior illustrators 2.45, and freelance practitioners 2.46. By province, Aklan obtained 2.46, Capiz 2.45, Iloilo 2.47, and Antique 2.45.

These results indicate that challenges in understanding, applying, and working with AI tools were experienced across all respondent groups and were generally classified as Mostly Encountered.

4. Significant Differences in Collaboration

The results showed no significant differences in the extent of resource illustrators' collaboration in utilizing Artificial Intelligence when classified according to age, sex, highest educational attainment, position, and province. The reported results were age ($t = 2.22$, $p = 0.265$), sex ($t = 0.89$, $p = 0.374$), educational attainment ($F = 2.42$, $p = 0.245$), position ($F = 0.95$, $p = 0.392$), and province ($F = 2.22$, $p = 0.308$).

Since all reported p-values were greater than the 0.05 level of significance, the differences were interpreted as Not Significant. Thus, the reported results did not provide evidence of statistically significant differences in collaboration across the respondent classifications.

5. Significant Differences in Competence

The results revealed no significant differences in the level of resource illustrators' competence in utilizing Artificial Intelligence when classified according to age, sex, highest educational attainment, position, and province. The reported results were age ($t = 2.08$, $p = 0.282$), sex ($t = 0.72$, $p = 0.473$), educational attainment ($F = 2.36$, $p = 0.259$), position ($F = 0.98$, $p = 0.378$), and province ($F = 2.22$, $p = 0.305$).

All p-values exceeded the 0.05 level of significance. Therefore, the reported results indicated no statistically significant differences in competence among the different respondent classifications.

6. Significant Differences in Challenges

The analysis showed no significant differences in the challenges encountered by resource illustrators in utilizing Artificial Intelligence when classified according to age, sex, highest educational attainment, position, and province. For age, the reported result was $t = 2.22$ with $p = 0.265$, while for sex, $t = 2.28$ with $p = 0.202$. For educational attainment, $F = 2.38$ with $p = 0.254$; for position, $F = 0.95$ with $p = 0.387$; and for province, $F = 0.87$ with $p = 0.457$.

Since all p-values were greater than 0.05, the reported results indicated no statistically significant differences in the challenges experienced by the resource illustrators across the different classifications.

7. Relationships among Collaboration, Competence, and Challenges

The Pearson product-moment correlation analysis revealed no statistically significant relationships among collaboration, competence, and challenges in utilizing Artificial Intelligence. The correlation between collaboration and competence was $r = 0.05$ with $p = 0.482$, while the correlation between collaboration and challenges was $r = 0.07$ with $p = 0.368$. The reported correlation between competence and challenges was $r = 0.04$ with $p = 0.597$.

Because the reported p-values were greater than 0.05, none of the relationships among the three major variables reached statistical significance. Thus, the results indicated that the levels of collaboration, competence, and challenges did not have statistically significant relationships with one another in the reported data.

Summary

This study aimed to examine the collaboration, competence, and challenges of resource illustrators in utilizing Artificial Intelligence (AI) in Panay Island. The study was conducted in October 2025. The respondents consisted of 282 randomly selected resource illustrators from various creative industries across Panay Island. Slovin's formula was used to determine the sample size, and stratified proportionate random sampling was applied to ensure fair representation across different groups of respondents. Data were gathered using a validated questionnaire focusing on illustrators' collaboration practices, competence in using AI tools, and the challenges they encountered in AI-assisted workflows. The instrument was adapted from existing frameworks and refined by a panel of experts to suit the context of creative work and AI integration in the Philippines. Responses provided comprehensive insights into illustrators' collaborative methods, their technical and creative competence in AI utilization, and the extent to which challenges affected their workflow and output quality. The descriptive-correlational research design was employed in this study. The dependent variables were illustrators' collaboration, competence, and challenges in utilizing AI, while the independent variables included age, sex, highest educational attainment, position, and province. Statistical tools employed in this study included frequency, percentage, and mean as descriptive measures, while t-test, ANOVA, and Pearson's r correlation at a .05 level of significance were used for inferential analysis.

Findings of the Study

In this study, the findings were the following:

1. The respondents' profile showed that 56.35 percent were old and 43.65 percent were young. By sex, 53.04 percent were female and 46.96 percent were male. Regarding educational attainment, 66.3 percent held a bachelor's degree, 27.62 percent a master's degree, and 6.08 percent a doctorate. In terms of position, 48.62 percent were junior illustrators, 26.52 percent freelance, and 24.86 percent lead illustrators. By province, 37.02 percent were from Iloilo, 22.2 percent from Aklan, 20.99 percent from Capiz, and 29.89 percent from Antique.
2. The extent of resource illustrators' collaboration was very high across all classifications. By age, young illustrators had a mean of 4.25 (To a Very Great Extent) and old illustrators 4.32 (To a Very Great Extent). By sex, males had 4.28 (To a Very Great Extent) and females 4.30 (To a Very Great Extent). By educational attainment, bachelor's degree holders had 4.27 (To a Very Great Extent), master's 4.32 (To a Very Great Extent), and doctorate 4.35 (To a Very Great Extent). By position, lead illustrators had 4.33 (To a Very Great Extent), junior illustrators 4.28 (To a Very Great Extent), and freelance 4.26 (To a Very Great Extent). By province, Iloilo had 4.34 (To a Very Great Extent), Antique 4.29 (To a Very Great Extent), Capiz 4.27 (To a Very Great Extent), and Aklan 4.24 (To a Very Great Extent). This indicates that all groups consistently exhibited very high collaboration, with slight variations showing slightly higher engagement among older, female, doctorate-holding, lead illustrators, and those from Iloilo.
3. The level of resource illustrators' competence was very high across all classifications, with an overall mean of 4.39 (very high), indicating consistently strong competence. By age, young illustrators had 4.36 (very high) and old illustrators 4.42 (very high). By sex, males had 4.38 (very high) and females 4.40 (very high). By educational attainment, bachelor's degree holders had 4.37 (very high), master's 4.42 (very high), and doctorate 4.45 (very high). By position, lead illustrators had 4.44 (very high), junior illustrators 4.36 (very high), and freelance 4.35 (very high). By province, Iloilo had 4.44 (very high), Antique 4.39 (very high), Capiz 4.37 (very high), and Aklan

- 4.33 (very high). This shows that all groups demonstrated very high competence, with slightly higher levels among older, female, doctorate-holding, lead illustrators, and those from Iloilo.
4. The resource illustrators' challenges in utilizing artificial intelligence was generally described as a Mostly Encountered, with an overall mean of 2.45. By age, young illustrators had a mean of 2.49 (Mostly Encountered) and old illustrators 2.45 (Mostly Encountered). By sex, males had 2.38 (Mostly Encountered) and females 2.52 (Mostly Encountered). By educational attainment, bachelor's degree holders had 2.50 (Mostly Encountered), master's degree holders 2.46 (Mostly Encountered), and doctorate holders 2.40 (Mostly Encountered). By position, lead illustrators had 2.44 (Mostly Encountered), junior illustrators 2.45 (Mostly Encountered), and freelance practitioners 2.46 (Mostly Encountered). By province, Aklan had 2.46 (Mostly Encountered), Capiz 2.45 (Mostly Encountered), Iloilo 2.47 (Mostly Encountered), and Antique 2.45 (Mostly Encountered). These results indicate that illustrators across all groups experienced Mostly Encountered in understanding, applying, and collaborating with AI tools.
 5. The results showed that resource illustrators' collaboration was consistently very high across all groups. No significant differences were found based on age ($t = 2.22$, $p = 0.265$), sex ($t = 0.89$, $p = 0.374$), educational attainment ($f = 2.42$, $p = 0.245$), position ($f = 0.95$, $p = 0.392$), or province ($f = 2.22$, $p = 0.308$). All null hypotheses were accepted.
 6. The results revealed that resource illustrators consistently demonstrated very high competence across all classifications. No significant differences were found based on age ($t = 2.08$, $p = 0.282$), sex ($t = 0.72$, $p = 0.473$), educational attainment ($f = 2.36$, $p = 0.259$), position ($f = 0.98$, $p = 0.378$), or province ($f = 2.22$, $p = 0.305$). All null hypotheses were accepted.
 7. The analysis showed that resource illustrators experienced Mostly Encountered in utilizing artificial intelligence, with no significant differences across all classifications. For age ($t = 2.22$, $p = 0.265$) and sex ($t = 2.28$, $p = 0.202$), as well as educational attainment ($f = 2.38$, $p = 0.254$), position ($f = 0.95$, $p = 0.387$), and province ($f = 0.87$, $p = 0.457$), all p-values were greater than 0.05, so the null hypotheses were accepted. This indicates that age, sex, education, professional role, or location did not significantly affect the challenges illustrators faced in using AI tools.
 8. The analysis of resource illustrators' collaboration, competence, and challenges in utilizing artificial intelligence showed no significant relationships. Collaboration and competence had a Pearson correlation of 0.05 ($p = 0.482$), collaboration and challenges 0.07 ($p = 0.368$), and competence and challenges 0.04 ($p = 0.597$). Since all p-values were greater than 0.05, the null hypotheses were accepted, indicating that collaboration and competence did not significantly influence the challenges illustrators faced with AI tools.

Conclusions

Based on the findings, the following conclusions were drawn:

1. 2. Resource illustrators demonstrated a To a Very Great Extent of collaboration, actively valuing sharing, communication, mentoring, joint development, and problem-solving. Their strong teamwork and engagement reflect a positive and dynamic collaborative environment. Studies confirm that such effective collaboration with AI enhances creativity, productivity, and quality, allowing human judgment and AI capabilities to combine seamlessly and achieve outstanding project outcomes.
2. Resource illustrators demonstrated a very high level of professional competence, showing advanced

technical skills, strong evaluative abilities, and confidence in using AI technologies. Their proficiency in both operational and collaborative applications enabled them to efficiently create, refine, and manage AI-assisted designs while contributing effectively to teamwork and innovative problem-solving.

3. Resource illustrators demonstrated strong competence and collaboration, effectively navigating AI tools and creative processes. While they faced manageable challenges such as cost, training, and troubleshooting, these experiences offered opportunities for growth, skill enhancement, and professional development, supporting more efficient, innovative, and ethical use of AI in resource creation.
4. All resource illustrators were able to work together effectively and share ideas seamlessly. Their strong collaboration highlights their adaptability, confidence in using AI tools, and professional skills. It shows that successful teamwork depends on competence, engagement, and willingness to cooperate, rather than on personal or demographic characteristics, ensuring consistent and productive group performance across diverse individuals.
5. Every resource illustrator showed excellent skills and knowledge. Their consistent high performance shows that competence comes from experience, learning, and responsible use of AI, rather than personal traits or background. In other words, success in their work depended on ability and dedication, not on who they are or where they come from.
6. All resource illustrators faced similar challenges in using AI, regardless of age, sex, education, position, or province. Their ability to work with AI was not affected by demographic or professional differences. The challenges were shaped more by practical experience, training, and access to resources, showing that overcoming AI difficulties depends on support and practice rather than personal or background characteristics.
7. The collaboration, competence, and challenges in using AI operated independently. Resource illustrators maintained very high collaboration and competence, yet these strengths did not eliminate the challenges they faced. In other words, even highly skilled and cooperative illustrators still encountered technical, ethical, and practical difficulties, showing that expertise and teamwork support AI use but do not automatically remove obstacles.

Recommendation

The following recommendations were based on the foregoing findings and conclusions by the researcher:

1. Resource illustrators may continue strengthening collaborative practices by participating in structured team exercises, peer mentoring, and joint AI projects. Encouraging open communication and shared problem-solving can further enhance creativity, efficiency, and the overall quality of AI-assisted illustration outputs.
2. Leaders may implement professional development programs focused on AI competencies, team-based design exercises, and workflow optimization. This ensures illustrators' skills are maximized, collaboration is encouraged, and high-quality creative outputs are consistently achieved using AI tools.
3. Institutions may design curricula and workshops emphasizing practical AI skills, collaborative project-based learning, and troubleshooting strategies. Programs can prepare students and professionals for real-world challenges, ensuring readiness for AI-enhanced creative industries.

4. Companies may establish support systems, standardized workflows, and resource access to address common AI challenges. Policies promoting competence-based collaboration can enhance productivity, ethical AI use, and the quality of illustration outputs across teams.
5. Researchers may use these findings to explore how collaboration and competence interact with practical AI challenges. The study provides a foundation for evidence-based strategies to improve workflow efficiency, creative problem-solving, and professional development in AI-assisted illustration.
6. Future studies may build on these insights to examine AI integration in creative industries, focusing on training, teamwork, and technology-enhanced workflows. The findings can inspire innovative approaches to human-AI collaboration and further contribute to digital creativity research.

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