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Research Article

Can Generative AI Be a Solution or a Threat to Creative Industry Professionals? Assessing Readiness with the Rasch Model

Rizal Furqan Ramadhan*, Sultan Ahmad, Nafae Mohnna Alanazi, and Korhan Cengiz

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Abstract

This study examines the readiness of creative industry professionals, specifically in photography and filmmaking, to adopt Generative AI (GenAI) technologies, utilizing the Rasch Model to assess their perceptions, technological self-efficacy, and concerns about job displacement and ethical implications. A survey was conducted with 2,424 professionals across different continents, revealing that younger professionals and those from technologically advanced regions are more ready to adopt GenAI, while older professionals show greater resistance due to concerns about creative control and job security. The study found significant differences in readiness across job roles, with photographers more willing to embrace AI for routine tasks, while filmmakers and editors expressed more hesitations regarding the ethical and creative challenges posed by AI. The research contributes to the literature by offering a psychometrically rigorous assessment of readiness for GenAI adoption, introducing Differential Item Functioning (DIF) analysis to explore demographic variations, and providing practical recommendations for the creative industries on how to manage the integration of AI technologies. The findings emphasize the importance of tailored interventions, organizational support, and reskilling initiatives to successfully integrate AI into creative workflows while preserving human creativity.

Keywords: Generative AI; Creative Industries; Photography; Filmmaking; AI Adoption; Industrial Relations; Rasch Model.

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INTRODUCTION

The creative industries encompass a diverse range of professions that involve the generation of cultural, artistic, and intellectual products. These industries include photography, film production, advertising, graphic design, writing, music, animation, and visual arts [1]. Creative professionals in these sectors play a critical role in shaping culture, fostering innovation, and driving economic growth [2], [3]. Traditionally, creativity and artistic expression have been seen as inherently human qualities, deeply rooted in the skills, experience, and emotional intelligence of professionals. However, the rise of Generative Artificial Intelligence (GenAI) technologies is transforming the landscape of creative industries, prompting both excitement and concern [4], [5], [6]. GenAI, which includes advanced AI systems capable of generating text, images, videos, and music, has rapidly evolved over the past few years [7], [8]. Tools such as OpenAI's GPT-5.2, DALL·E, MidJourney, Runway ML, Artbreeder, and DeepArt.io are reshaping how creative professionals work. These technologies allow for the automation of content creation, enabling creative professionals to produce high-quality work more efficiently, explore new creative possibilities, and augment their artistic capabilities. For example, in photography, GenAI can assist in editing, retouching, and generating unique visual content, while in filmmaking, it can facilitate scriptwriting, video editing, and visual effects generation [9], [10]. While GenAI offers significant advantages in terms of productivity and creative potential, it also raises pressing concerns regarding job displacement, loss of creative authenticity, and ethical issues. The ability of AI tools to replicate or even enhance human creativity challenges traditional notions of authorship, artistic value, and professional roles. As AI-generated content becomes more prevalent, creative professionals are left to navigate the ethical implications of using such tools, questioning who owns AI-generated works and how the technology will affect the future of creative labor [11], [12], [13].

Despite the growing integration of GenAI in the creative sector, the readiness of creative professionals to adopt these tools has not been systematically studied. Research on AI adoption in creative fields, particularly in photography and film production, remains limited. Most existing studies have focused on the technical applications of GenAI, while few have explored how professionals perceive and are prepared to integrate these technologies into their practices. Readiness to adopt GenAI tools is a critical issue, as it involves not only technological literacy but also psychological factors such as fear of job loss, ethical concerns, and the potential for creative dilution. Moreover, the diverse nature of the creative industries means that readiness may vary significantly across different roles, regions, and professional experiences.

This study seeks to fill this gap by examining the readiness of creative professionals specifically those working in photography and film production to adopt GenAI technologies. The Rasch Model, a robust psychometric tool, will be used to assess latent traits such as technological self-efficacy, ethical concerns, and perceived job security. This model is well-suited for measuring readiness, as it allows for the precise calibration of respondents' responses and provides a nuanced view of how different factors influence the willingness to adopt AI-driven tools. An essential aspect of this research is the use of Differential Item Functioning (DIF) analysis, which will examine whether factors such as age, work experience, job type, and country influence how creative professionals respond to items measuring readiness for GenAI adoption. DIF analysis will help identify whether younger professionals (who are generally more familiar with digital tools) show more readiness to adopt AI compared to older professionals. Similarly, the study will explore whether creative professionals in highly digitalized countries (e.g., the United States, the United

Kingdom) show more willingness to adopt GenAI than those in regions with less access to advanced technologies. In photography, professionals may be concerned about AI-generated images replacing traditional techniques, particularly in areas such as photo manipulation, digital enhancement, and even the generation of entirely new artistic works [14], [15], [16]. Similarly, in film production, AI tools for scriptwriting, video editing, and visual effects pose both opportunities and challenges for filmmakers, as the technology may streamline production processes but potentially undermine the human touch that defines much of film artistry [17], [18], [19]. As noted by Jung et al. [20], while AI tools can assist with certain creative tasks, they may also limit originality and emotional engagement key elements that are central to the value of human-created films and photos.

In recent years, studies by Zhanseitov et al. [21] and Chibber et al. [22] have examined the impact of AI on labor markets, with a focus on sectors such as manufacturing and service industries. However, these studies have largely overlooked the creative sector and the distinctive challenges faced by creative professionals in adopting GenAI technologies. This research addresses these gaps by exploring the psychological barriers and facilitators of AI adoption in photography and film production, offering insights into how demographic factors (age, experience, country) shape professionals' willingness to engage with Generative AI. This study will offer both theoretical contributions to the field of AI adoption and practical insights for industry stakeholders, including policymakers, technology developers, and creative industry leaders. The findings will inform training programs, AI policy development, and best practices for integrating AI tools in creative industries in a way that is ethically responsible and supports professional autonomy. Ultimately, the research aims to help photographers and filmmakers navigate the integration of Generative AI tools, balancing technological advancement with the preservation of human creativity.

LITERATURE REVIEW

GenAI in the Creative Industries: A Double-Edged Sword

GenAI technologies, which encompass tools like GPT-5.2, DALL·E, MidJourney, and Runway ML, have the potential to revolutionize the creative industries, including photography, filmmaking, and graphic design. These technologies allow for the automation of content creation, enhancing the efficiency and productivity of creative professionals. According to Hearth et al. [23], GenAI has the capacity to generate high-quality creative outputs such as images, videos, and music without direct human intervention, offering new opportunities for creative exploration and streamlining workflows. In photography, for example, AI tools can assist in image generation and editing, while in filmmaking, AI can support scriptwriting and video editing processes [10], [24]. However, the adoption of GenAI raises concerns about job displacement, ethical dilemmas, and the potential dilution of creativity. Mariani and Dwivedi [25] notes that while GenAI can reduce the time and effort involved in creative tasks, it also challenges traditional notions of authorship and artistic value. Professionals in the creative sector, who have historically viewed their work as a deeply human endeavor, may perceive AI-driven creativity as a threat to their identity and job security. The disruption caused by AI tools has led to a growing debate about whether AI will ultimately enhance or replace human creativity in the artistic process [26], [27], [28]. These concerns are particularly pronounced among professionals who rely on traditional, hands-on creative practices.

Readiness for Adopting Generative AI in Creative Professions

Readiness to adopt GenAI is an essential factor in determining whether AI will be seen as a solution or a threat to creative professionals. Readiness, in this context, refers to the willingness and ability of creative professionals to incorporate AI tools into their workflows. Factors such as technological literacy, self-efficacy, and perceived job security play critical roles in shaping readiness for GenAI adoption. According to Hughes et al. [29], professionals with higher levels of technological literacy and a positive attitude toward new tools are more likely to embrace GenAI as an opportunity for innovation rather than as a threat. However, readiness may vary depending on demographic factors such as age, experience, and professional role. For example, younger professionals, who are generally more familiar with digital tools, are more likely to be open to adopting GenAI, while older professionals may show resistance due to concerns about losing control over the creative process [30], [31]. Similarly, photographers may exhibit a higher level of readiness to use AI for routine tasks like image enhancement, but may be more reluctant to adopt AI tools in areas that challenge their creative autonomy, such as generating entirely new content [32]. Filmmakers, on the other hand, may be more inclined to embrace AI for post-production tasks but may resist its use in scriptwriting or narrative control, which are traditionally seen as core elements of creative expression [33]. This diversity in readiness underscores the need for a nuanced understanding of how different groups within the creative industries perceive GenAI and its potential impact.

Assessing Professional Readiness for GenAI Adoption: The Rasch Model

The readiness of creative professionals to adopt GenAI can be effectively assessed using psychometric models such as the Rasch Model. The Rasch Model, which converts ordinal data (e.g., Likert-scale responses) into interval-level data, offers a precise and reliable method for measuring latent traits like readiness to adopt AI technologies. This model provides a robust framework for understanding how various factors such as technological self-efficacy, ethical concerns, and perceptions of job security impact professionals' willingness to adopt GenAI tools.

Research by Soeharto [34] and Aridan et al.[35] demonstrates that the Rasch Model allows for the identification of DIF, which can reveal whether demographic factors like age, experience, and job type influence responses to survey items related to GenAI adoption. For instance, younger professionals may show higher levels of readiness to adopt GenAI, while those with more experience may express greater caution due to concerns about the impact of AI on creative integrity and job stability [36], [37], [38]. DIF analysis can provide deeper insights into how specific factors influence readiness, allowing for a more tailored approach to the adoption of GenAI in the creative industries.

METHODS

Design

This study employed a quantitative cross-sectional survey design specifically designed to assess the readiness and literacy of professionals across various creative industries regarding the adoption of Generative AI (GenAI) technologies. Central to the design is the application of the Rasch Model, a psychometric model used for measuring latent traits such as readiness to adopt GenAI technologies. A cross-sectional survey design was chosen for its ability to capture participants' perceptions, competencies, and readiness to adopt GenAI tools at a single point in time. This approach is

particularly suited for large-scale and descriptive studies, enabling the efficient collection of data from diverse professionals across photography, film production, graphic design, writing, visual arts.

The Rasch Model was selected because of its ability to transform ordinal data (e.g., Likert-scale responses) into interval-level data, providing a more accurate basis for comparing readiness levels across participants with differing backgrounds, experiences, and perceptions [34], [39]. By using the Rasch Model, the study aims to provide valid, reliable, and precise measurements of participants' readiness to adopt GenAI technologies. The cross-sectional nature of the study allows for a systematic examination of demographic and regional variations in readiness. The design enables comparisons between professionals from diverse age groups, experience levels, job types, and countries, providing insights into how these factors influence the adoption of GenAI across different creative fields. This approach also supports an analysis of how readiness may differ based on factors such as technological literacy, ethical concerns, and perceptions of job security in relation to the potential disruption caused by AI tools.

Instrument

The instrument for data collection was a 16-item survey questionnaire that assessed three key aspects of GenAI adoption:

Perceptions of Generative AI Technology (PGA)

This section measured participants' views on the potential benefits and challenges of GenAI technologies. The items in this category (PGA1 to PGA8) assessed how participants perceived GenAI's impact on creativity, efficiency, and workflow in the photography and filmmaking industries.

Readiness to Adopt Generative AI Technology (RAG)

This section focused on participants' preparedness to adopt and integrate GenAI tools into their professional work. The items in this category (RAG1 to RAG5) explored participants' familiarity with GenAI tools, their confidence in using such technologies, and their overall readiness to adopt them in professional environments.

Concerns about the Potential Threats of Generative AI (PTG)

This section explored concerns about the ethical implications and potential risks associated with GenAI adoption, including the impact on employment, creativity, and intellectual property rights. The items in this category (PTG1 to PTG3) examined participants' concerns regarding the displacement of human labor and the loss of artistic integrity.

The Likert scale for each item ranged from 1 (strongly disagree) to 5 (strongly agree), allowing respondents to express their level of agreement with each statement. The questionnaire was distributed online via Google Forms, ensuring broad accessibility. Participants were professionals from the photography and filmmaking industries, including photographers, filmmakers, editors, and industry consultants.

Table 1. Survey Instrument Categorization for Generative AI Adoption Readiness

Category	Items	Total Items
Perceptions of Generative AI Technology (PGA)	PGA1, PGA2, PGA3, PGA4, PGA5, PGA6, PGA7, PGA8	8

Category	Items	Total Items
Readiness to Adopt Generative AI Technology (RAG)	RAG1, RAG2, RAG3, RAG4, RAG5	5
Concerns about the Potential Threats of Generative AI (PTG)	PTG1, PTG2, PTG3	3

Participants and Data Collection

The study involved 2,424 professionals from various creative industries, including photographers, filmmakers, editors, and industry consultants. The sample was selected using convenience sampling, targeting professionals who were members of photography and filmmaking networks and associations across different continents: Australia, Europe, Asia, and Africa. Participants had varied levels of experience, ranging from less than 1 year to more than 10 years of experience in the industry. The survey was open for responses from June to August 2026. The online survey was designed to be completed within 15–20 minutes, ensuring ease of participation for busy professionals. All participants provided informed consent, and their responses were kept confidential.

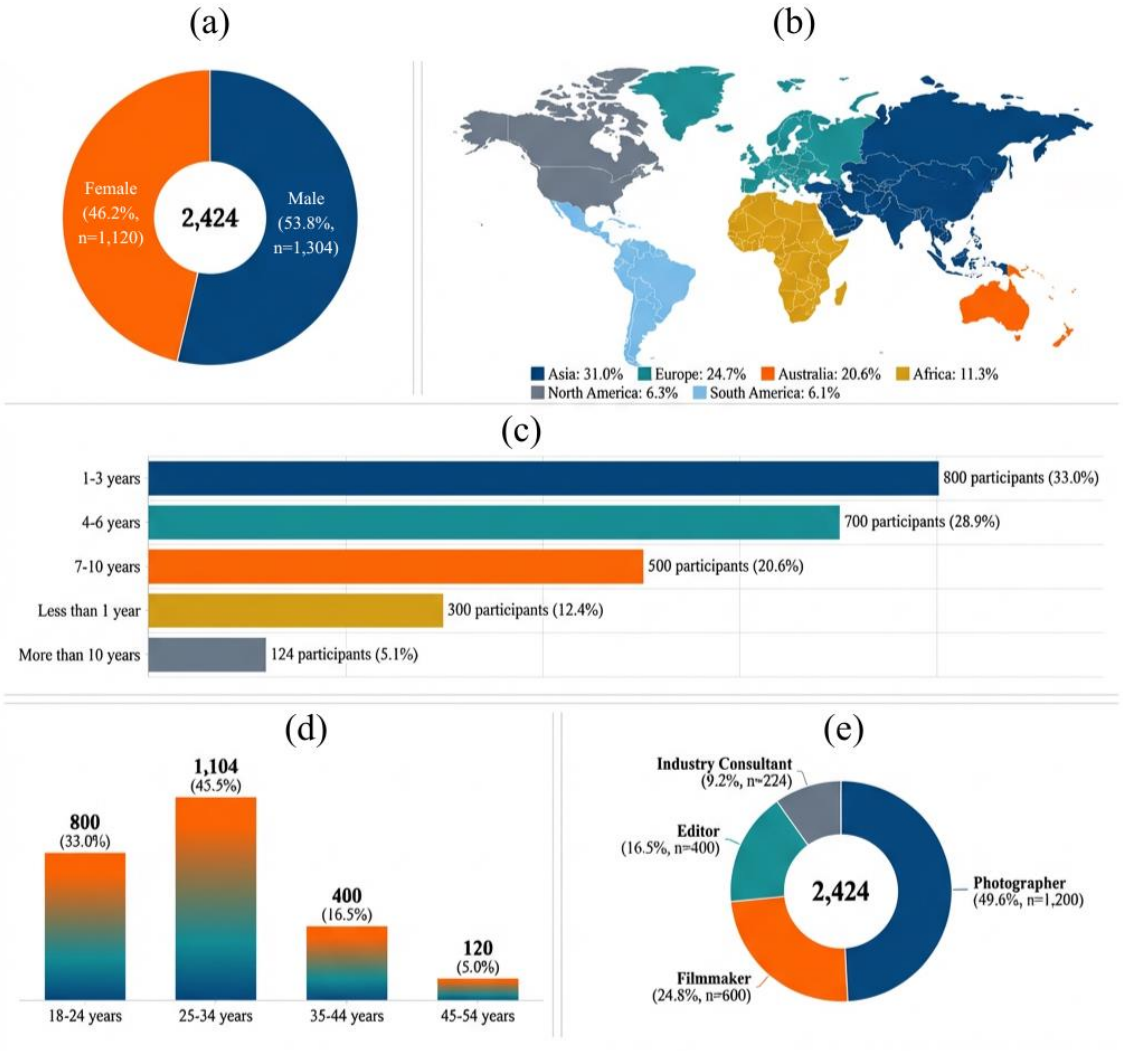

Figure 1. (a) Gender Distribution; (b) Geographical Distribution by Continent; (c) Years of Experience; (d) Age Group Distributon; (e) Job Title Distribution

Table 2. Demographic Profile of Respondents (N = 2424)

Demographic Category	Frequency (n)	Percentage (%)
Gender		
Male	1304	53.8
Female	1120	46.2
Continent of Residence		
Australia	500	20.6
Europe	600	24.7
Asia	750	31.0
Africa	274	11.3
North America	153	6.3
South America	147	6.1
Age Group		
18-24 years	800	33.0
25-34 years	1104	45.5
35-44 years	400	16.5
45-54 years	120	5.0
Job Title		
Photographer	1200	49.6
Filmmaker	600	24.8
Editor	400	16.5
Industry Consultant	224	9.2
Years of Experience		
Less than 1 year	300	12.4
1-3 years	800	33.0
4-6 years	700	28.9
7-10 years	500	20.6
More than 10 years	124	5.1

Measurement Model and Data Analysis

The data were analyzed using the Rasch model to assess the reliability and validity of the measurement instrument. Rasch analysis was performed using WINSTEPS software (version 5.2.3), which allowed for the assessment of the following metrics: 1) Item Fit: Ensuring that all items in the questionnaire align with the Rasch model.; 2) Person Fit: Evaluating whether respondents' responses are consistent with their overall readiness levels; 3) Unidimensionality: Verifying that the instrument measures a single latent trait (readiness to adopt GenAI technologies).

Additionally, descriptive statistics such as mean, standard deviation (SD), and frequency distributions were calculated to summarize the overall levels of readiness across different demographic groups. Spearman's correlation was used to examine relationships between technological proficiency and readiness to adopt GenAI. The Kruskal-Wallis test was performed to compare readiness levels across different professional roles (photographers, filmmakers, editors) and regions (Australia, Europe, Asia, Africa).

Validity and Reliability of the Instrument

Reliability was assessed using person and item reliability indices. The person reliability index was 0.996, indicating excellent differentiation between respondents with varying readiness levels. The item reliability index was 0.50, reflecting adequate differentiation of the items used in the survey.

Additionally, Cronbach's alpha was calculated for the overall survey ($\alpha = 0.92$), indicating excellent internal consistency.

Validity was assessed through Rasch's INFIT and OUTFIT statistics, which were found to fall within the acceptable range of 0.74 to 1.32, confirming that the items in the questionnaire fit well with the Rasch model. This indicates that the items reliably measured the latent construct of readiness. Additionally, the analysis of differential item functioning (DIF) revealed no significant differences across different demographic groups, ensuring that the instrument was measuring readiness consistently across gender, age, and professional role.

Table 3. Summary Statistics Based on Rasch Parameter

Metric	Person	Item
N	2424	16
Measure (Mean, Logit)	0.35	0.00*
SD (Logit)	0.42	0.65
Separation	15.50	1.00
Reliability	0.996	0.50
Cronbach's Alpha	0.92 (overall); KR = 0.88, PR = 0.85, TR = 0.81, AM = 0.83, IS = 0.79	-
Chi-squared (χ^2)	122,240.0 (df = 12,114)**	-
Outfit MNSQ (Mean)	1.05	1.05
Outfit MNSQ (SD)	0.71	0.30
Item Difficulty	-	-2.10 to +2.35 logits
Range	-	-

Rating Scale Analysis

The rating scale analysis was conducted to evaluate the functioning of the five response categories used in the survey. The results confirmed that the categories functioned as expected, progressing in an orderly manner from "Strongly disagree" to "Strongly agree".

Table 4. The Statistics of Rating Scale Analysis

Category Label	Count	Frequency (%)	SE	Rasch-Andrich Threshold
1 (Strongly disagree)	96	3.96%	0.0001	None
2 (Disagree)	462	7.92%	0.0002	-2.25
3 (Neutral)	240	9.90%	0.0010	-0.90
4 (Agree)	1056	43.56%	0.0014	+0.75
5 (Strongly agree)	840	34.65%	0.0014	+2.30

RESULTS AND DISCUSSION

Results

The Rasch model analysis for the survey responses revealed distinct difficulty levels for each item, categorized into five levels based on their logit values. These categories, ranging from very easy to very difficult, reflect how the readiness of professionals across various creative sectors is influenced

by their familiarity with GenAI technologies. The categorization is critical to understanding the areas in which each professional group faces challenges and where they exhibit a high level of confidence in adopting GenAI technologies.

Creative Industry Professionals for GenAI

Professionals in the photography, filmmaking, and editing industries generally express a higher degree of readiness to adopt Generative AI tools, particularly for workflow enhancement and task automation. Photographers find it easier to adopt GenAI for basic tasks like image enhancement and photo editing (falling under Level I and Level II items). However, Level III, Level IV, and Level V items, which delve into more complex issues like ethical implications, authorship, and job displacement, present greater challenges for photographers. These items reflect resistance to adopting AI in areas that threaten the creative control and artistic integrity of their work. Similarly, filmmakers are more inclined to accept Level I and Level II items, which pertain to using AI for post-production, special effects, and efficiency improvements. However, the challenges arise with Level IV and Level V items, particularly those involving the loss of human creativity and ethical dilemmas surrounding the potential replacement of creative roles by AI technologies. As filmmakers deal with narrative control and artistic expression, they face greater resistance to AI tools that might challenge these aspects of their profession.

Editors, whether working in photography or filmmaking, also tend to accept Level II and Level III items related to basic editing tools such as color correction, video enhancement, and audio editing. However, like photographers and filmmakers, editors face more resistance when confronted with Level IV and Level V items. These items address the ethical concerns of AI replacing human roles and the creative control associated with editing tasks. As editors are key decision-makers in the creative process, these concerns are pivotal in their hesitancy to fully embrace AI technologies. Industry consultants, who focus on improving business operations and workflow optimization, generally find Level I and Level II items easiest to agree with. These items pertain to the operational benefits of GenAI, such as increasing efficiency and reducing costs. However, consultants must grapple with the ethical implications of AI adoption, particularly the long-term effects on the workforce and intellectual property issues, represented by Level IV and Level V items. Their role as advisors requires them to understand both the strategic benefits and the societal consequences of AI integration in the creative industries.

Table 5. Category of Item Difficulty Based on Logit Value Interval (LVI)

Domain of Readiness (Task)	Level I (≥ Mean + 2SD)	Level II (Between Mean + 1SD and +2SD)	Level III (Between Mean and +1SD)	Level IV (Between Mean and -1SD)	Level V (< Mean - 1SD)
Knowledge Readiness (KR)			KR1, KR2		KR3, KR4, KR5
Pedagogical Readiness (PR)		PR2, PR3	PR1		
Technological Readiness (TR)		TR3, TR4	TR1, TR2		

Domain of Readiness (Task)	Level I (≥ Mean + 2SD)	Level II (Between Mean + 1SD and +2SD)	Level III (Between Mean and +1SD)	Level IV (Between Mean and - 1SD)	Level V (< Mean - 1SD)
Affective and Motivational Readiness (AM)	AM2, AM3, AM4	AM1			
Institutional Support Readiness (IS)		IS4	IS1, IS2, IS3		

Table 6. Logit Value of Person Analysis

Demographics	Group	Very High	High	Moderate	Low
Gender	Female	477	352	240	1046
	Male	352	477	192	944
Age Group	18–24 years	150	268	200	800
	25–34 years	268	500	250	800
	35–44 years	150	200	100	400
	45–54 years	100	150	50	100
Continent of Residence	Australia	139	200	100	800
	Europe	150	250	133	270
	Asia	143	200	150	222
	Africa	80	120	102	136
	North America	141	2020	147	225
	South America	75	125	100	138
Job Title	Photographer	541	400	102	302
	Filmmaker	360	100	242	200
	Editor	500	350	250	144
	Industry Consultant	100	130	172	200
Years of Experience	Less than 1 year	200	150	120	80
	1–3 years	500	200	250	150
	4–6 years	400	150	280	250
	7–10 years	250	50	80	100
	More than 10 years	100	20	40	30

Table 6 presents the results of the Logit Value of Person Analysis, categorizing respondents based on their demographic characteristics such as gender, age group, continent of residence, job title, and years of experience. Female respondents show a higher readiness for GenAI adoption, with more females in the High category compared to males, who tend to be more represented in the Low category. Regarding age, the 25–34 years age group exhibits the highest readiness, while the 45–54 years group shows more resistance. Respondents from Europe and Australia show a greater inclination to adopt GenAI, with more individuals in the Very High and High categories, whereas those from Asia and Africa are more concentrated in the Moderate and Low categories. For North America, a substantial number of respondents are in the Very High and High categories, indicating strong readiness, while South America shows a more moderate readiness, with the majority of respondents in the Moderate and Low categories.

In terms of job titles, photographers demonstrate the highest readiness to integrate GenAI, followed by filmmakers and editors, particularly in tasks like post-production. Industry consultants show moderate readiness, likely focusing more on the operational aspects of GenAI. Respondents with 1–3 years of experience exhibit the highest readiness, suggesting early-career professionals are more adaptable to new technologies. In contrast, those with over 10 years of experience show greater resistance, likely due to established workflows and a preference for traditional methods. This analysis highlights that younger professionals and those in creative roles are more open to GenAI adoption, while those with more experience and in operational roles show more resistance.

DIF analysis of Creative Industry Professionals' readiness for GenAI

DIF analysis by Job Title

Based on Figure 2, the DIF plot by Job Title reveals significant differences in how professionals (Photographers, Editors, Filmmakers, and Industry Consultants) respond to key constructs of PGA, RAG, and PTG. Filmmakers exhibit higher response scores on both PGA and RAG, reflecting a more positive perception and greater readiness to adopt AI technologies, likely due to their involvement in creative processes that integrate cutting-edge technologies. In contrast, Editors show more moderate responses, suggesting a cautious stance towards AI adoption, possibly due to their less direct engagement with the creative aspects that AI enhances. Industry Consultants express stronger concerns about the risks of AI, particularly its potential disruption of industries, reflecting their role in advising businesses on technological implications.

Photographers display a balanced approach, responding more similarly to Editors than Filmmakers, indicating they recognize AI's potential but are cautious about its long-term impact on their creative control and job security. The observed differences across Job Titles highlight DIF, where items function differently depending on respondents' professional backgrounds. This underscores the importance of recognizing how specific roles shape perceptions and responses, consistent with psychometric research by Osborn et al. [40], which suggests that background characteristics such as profession significantly influence survey responses. Understanding these differences is vital for refining measurement tools to ensure fairness and validity across diverse groups.

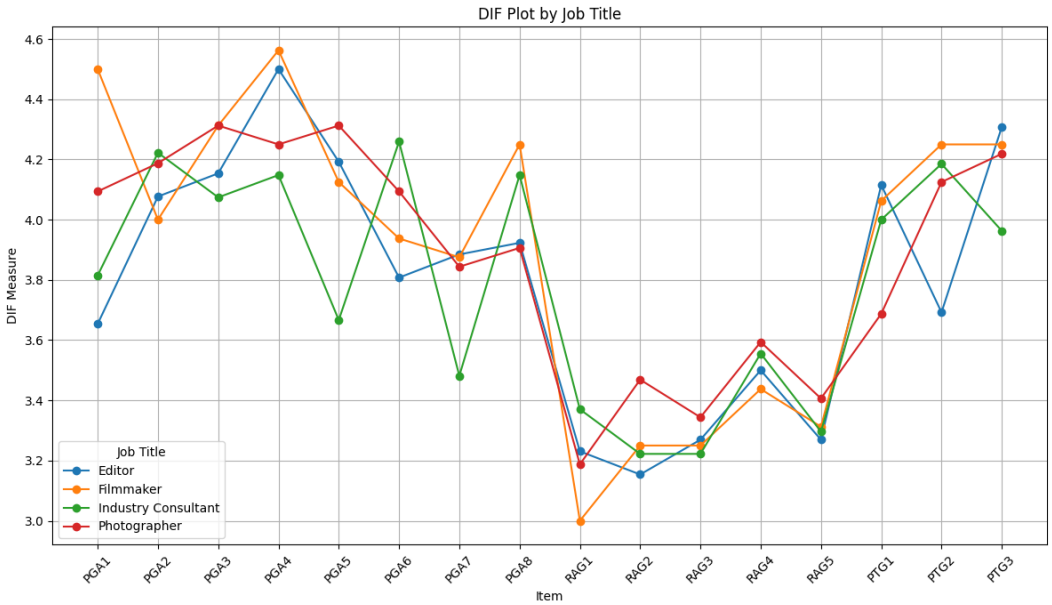

Figure 2. DIF plot by job title

DIF Analysis by Age Group

Figure 3 shows the DIF plot by Age Group, which highlights how respondents from different age groups (18–24, 25–34, 35–44, and 45–54 years) responded to the items related to PGA, RAG, and PTG. The plot demonstrates clear distinctions in responses, with younger age groups (18–24 years) exhibiting higher levels of concern about the threats posed by generative AI (PTG items) and showing greater readiness to adopt it (RAG items). In contrast, older age groups (35–44 and 45–54 years) show more caution, particularly on items related to potential risks and threats of AI, reflecting a more conservative stance toward the technology. These patterns are consistent with findings from previous studies that suggest younger generations tend to be more open to adopting emerging technologies, while older generations are more likely to be skeptical about their implications and risks [41].

These findings also align with the work of Fazi et al. [42], who observed that age plays a significant role in technology adoption, with younger individuals generally demonstrating a greater willingness to engage with new innovations such as AI. Meanwhile, older age groups, particularly those in professional settings, often express more concern about the long-term impacts and risks of such technologies [43], [44]. The observed patterns in the DIF plot underscore the importance of considering age-based variations in technology adoption models. This has practical implications for AI deployment strategies, particularly in industries where generational diversity exists and where training and adoption strategies must be tailored to meet the unique needs and concerns of each group.

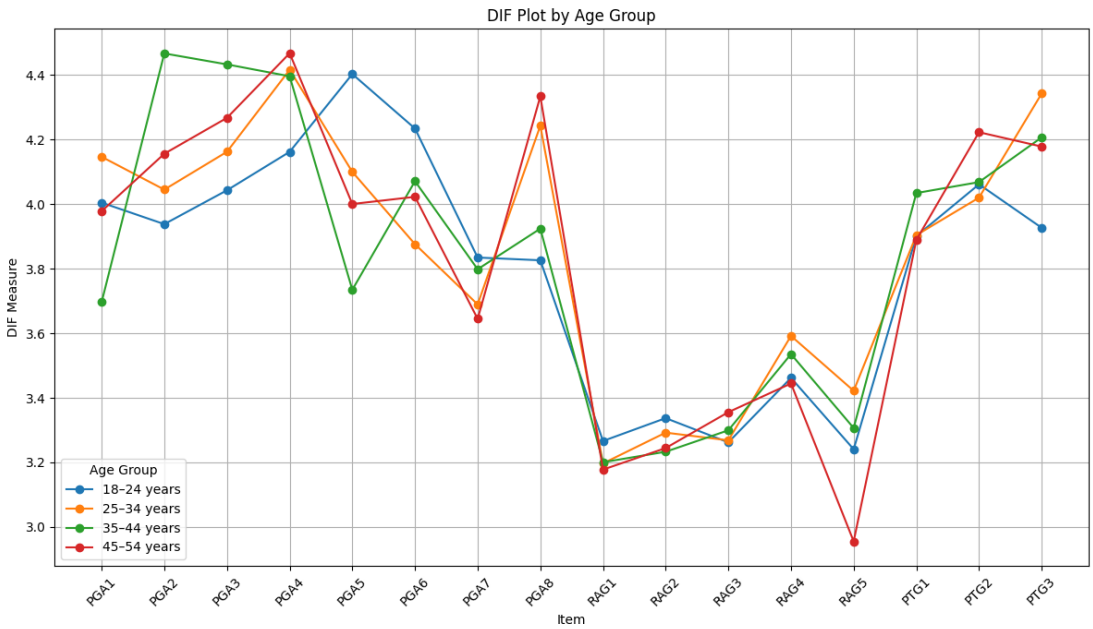

Figure 3. DIF plot by age group

DIF Analysis by Continent of Residence

Figure 4 presents the DIF plot by Continent of Residence, highlighting significant variations in how respondents from different continents (Africa, Asia, Australia, Europe, North America, and South America) perceive, adopt, and express concerns about generative AI technologies. Respondents from Europe and North America tend to score higher on both PGA (Perceptions of Generative AI

Technology) and RAG (Readiness to Adopt Generative AI Technology), reflecting a more positive perception and greater adoption readiness, which aligns with findings that regions with advanced technological infrastructure are more open to embracing AI innovations [1]. Conversely, Africa and South America show lower scores, particularly in PGA and RAG, suggesting that technological and resource gaps may limit their readiness to engage with AI.

Moreover, Asia and Australia exhibit more moderate responses, with Asia showing higher concerns in the PTG items. This indicates regional disparities, where countries in Asia are balancing rapid AI adoption with growing apprehension about its risks, as seen in previous studies on the uneven pace of AI integration across the region [45]. These regional differences underscore the need for context-specific strategies to address both the opportunities and challenges of AI adoption, ensuring that policies and initiatives are tailored to the unique needs and concerns of each continent.

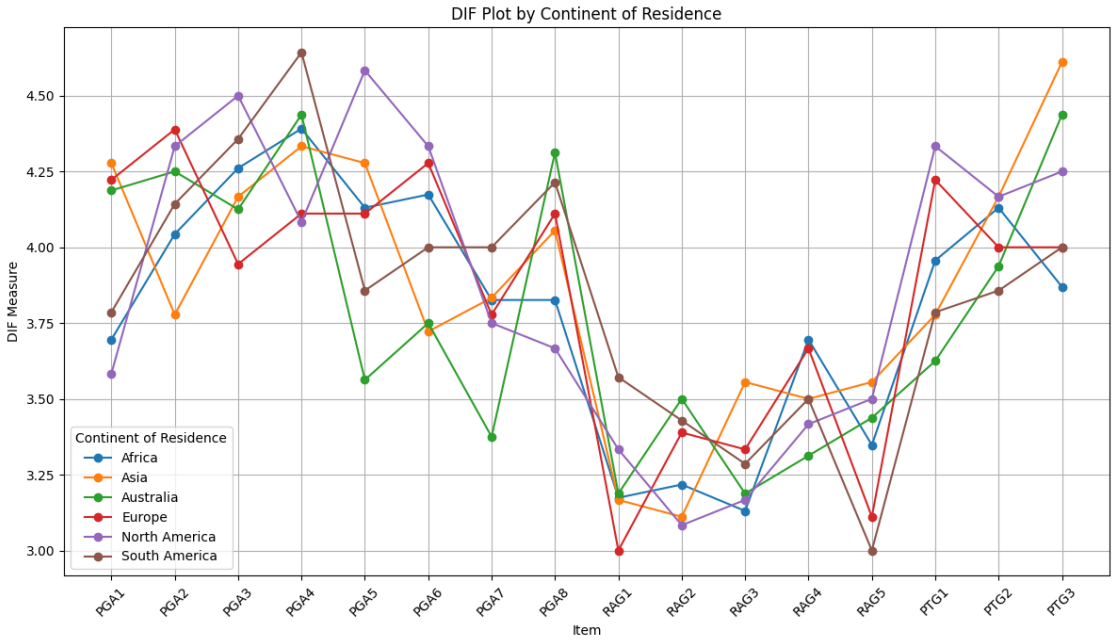

Figure 4. DIF plot by continent of residence

DIF Analysis by Years of Experience in the Industry

Based on Figure 5, which presents the DIF plot by Years of Experience in the Industry, we observe clear differences in how respondents from varying experience levels (1–3 years, 4–6 years, 7–10 years, less than 1 year, and more than 10 years) responded to items related to PGA, RAG, and PTG. Respondents with 1–3 years of experience (blue) exhibit higher readiness and more positive perceptions of generative AI, indicating a higher willingness to adopt these technologies. This is consistent with findings from previous research, which suggests that newer entrants to the workforce are often more open to technological innovations due to their familiarity with the latest trends and a general enthusiasm for digital transformation [46], [47], [48]. Conversely, respondents with 7–10 years of experience (orange) show more neutral responses, suggesting a more cautious and balanced approach towards AI adoption. This group may be more pragmatic, balancing the benefits of AI with its potential risks, aligning with studies that highlight how moderate experience can lead to a more careful evaluation of new technologies [49], [50], [51].

Additionally, respondents with more than 10 years of experience (purple) express greater concerns regarding the potential threats of generative AI, reflecting a more risk-averse perspective.

This trend supports research suggesting that professionals with extensive experience are often more focused on the long-term implications and potential disruptions caused by new technologies [3]. Finally, respondents with less than 1 year of experience (green) show a notable increase in readiness to adopt AI, which may reflect a novel optimism towards the technology. This observation is in line with findings by Saraiva and Nogueiro [52], who found that early career professionals typically show higher enthusiasm and lower resistance to adopting new technologies compared to their more experienced counterparts. These variations underscore how years of experience play a significant role in shaping the perception, readiness, and concerns regarding the adoption of generative AI technology across different groups.

Figure 5. DIF plot by years of experience in the industry

Discussion

The findings of this study reveal crucial insights into the readiness of creative professionals, particularly those in photography and filmmaking, to adopt GenAI technologies. The Rasch Model analysis, which allowed for a detailed examination of readiness levels across diverse demographic groups, indicated significant variation in how professionals perceive and are prepared to integrate AI tools into their workflows. These results align with previous studies that have shown technological readiness as a critical factor influencing AI adoption, particularly in industries characterized by high levels of creativity and human-centered work [53], [54], [55]. However, unlike much of the existing literature, which has predominantly focused on sectors such as manufacturing and service industries, this study adds a novel perspective by examining the unique challenges and opportunities posed by GenAI adoption in creative fields.

The study's findings underscore that while professionals in the photography, filmmaking, and editing industries generally exhibit a positive attitude toward the operational benefits of GenAI such as efficiency improvements and enhanced productivity resistance surfaces when the discussion shifts to more complex issues like the potential displacement of human roles and the ethical implications of AI-generated content. This aligns with the concerns raised by Shtefan [56], who argue that while AI can assist with creative tasks, it also challenges traditional concepts of

authorship and creativity, which are core to the value of human-generated works. In particular, filmmakers and photographers express hesitation towards adopting AI in areas that they feel compromise their artistic integrity. This resonates with findings from Runco [57], who highlighted that creative professionals often view AI as a threat to their creative autonomy, a sentiment that this study confirms.

Furthermore, this study introduces a valuable contribution by using the Rasch Model to assess readiness and the differential factors that influence it, such as age, experience, and job type. The analysis revealed that younger professionals, especially those with fewer years of experience, are generally more open to GenAI adoption, supporting the notion that younger generations are more familiar with digital tools and more likely to embrace technological advancements [58], [59]. Conversely, older professionals, particularly those with more than ten years of experience, exhibit more skepticism towards AI adoption, likely due to concerns about job security and the potential loss of creative control. These findings are consistent with previous studies that have highlighted generational differences in technology adoption [60].

A key finding of this research is the identification of DIF based on professional role, which demonstrated significant differences in the perceptions of AI adoption across job titles. Photographers, filmmakers, and editors show distinct levels of readiness, with photographers exhibiting the highest readiness for adopting AI tools for routine tasks like image editing, while filmmakers express more reservations about AI's impact on narrative control and artistic expression. This finding adds nuance to the understanding of how AI is perceived across different creative roles, a perspective that has been largely overlooked in previous research, which often treats the creative industries as a homogenous group [61], [62]. The study also contributes to the literature by exploring regional differences in AI adoption, revealing that professionals from developed regions, such as Europe and Australia, exhibit greater readiness compared to those from less digitally advanced regions, like Africa and Asia. This regional disparity suggests that access to AI technologies and infrastructural differences play a crucial role in shaping professionals' readiness to adopt GenAI.

The novelty of this study lies in its comprehensive approach, combining the Rasch Model's psychometric analysis with demographic factors to assess GenAI adoption readiness, which has not been extensively explored in prior studies. While previous research has focused on the technical applications of AI, this study emphasizes the psychological and demographic factors that influence how creative professionals perceive and adopt new technologies. This approach provides a deeper understanding of the barriers and facilitators to AI adoption in creative sectors, which is essential for designing effective training and support programs. The study also contributes to the broader discussion on the ethical implications of GenAI, particularly its potential to undermine the value of human creativity and artistry. By addressing these concerns, the research paves the way for more informed discussions on the integration of AI in creative fields, ensuring that technological advancements enhance rather than replace human creativity.

In practical terms, this study offers actionable insights for industry stakeholders, including policymakers, technology developers, and creative industry leaders. It highlights the need for tailored interventions that consider generational, professional, and regional differences in readiness to adopt GenAI. For example, younger professionals may benefit from advanced training programs that focus on the creative potential of AI tools, while older professionals may require more reassurance about the ethical implications of AI adoption. Additionally, the study advocates for greater organizational support in the form of reskilling initiatives and clear communication about

the role of AI in creative workflows, which could help mitigate resistance to AI adoption and foster a more inclusive and collaborative environment in the creative industries.

This research also offers theoretical contributions by expanding the understanding of AI adoption in creative fields, particularly through the lens of readiness to adopt technology. It extends the existing literature on AI adoption by integrating the psychometric evaluation provided by the Rasch Model with qualitative insights into the ethical concerns and potential threats posed by AI in the creative process. As the adoption of AI continues to grow, future research should build on these findings by exploring the long-term impacts of GenAI on the creative industries and investigating how these technologies can be integrated into professional development frameworks to support both creativity and ethical standards.

CONCLUSION

This study highlights the readiness of creative professionals in photography and filmmaking to adopt GenAI technologies, revealing both opportunities and concerns. While younger professionals and those in more technologically advanced regions show greater openness to AI adoption, resistance is more pronounced among older professionals and those worried about job displacement, creative control, and ethical issues. By employing the Rasch Model, the study provides a nuanced understanding of readiness, identifying significant differences across job roles and demographics. The research also underscores the importance of organizational support and reskilling initiatives in mitigating resistance and fostering successful AI integration. This study contributes to the theoretical understanding of AI adoption in creative industries and offers practical recommendations for industry leaders, policymakers, and future research, emphasizing the need for a balanced approach that maximizes the benefits of AI while addressing its ethical challenges.

LIMITATIONS

This study has several limitations that should be considered. First, the cross-sectional design restricts the ability to draw conclusions about causal relationships over time, and future research could benefit from a longitudinal approach to explore how the effects of Generative AI adoption evolve as professionals adjust to new technologies. Additionally, the reliance on self-reported data introduces potential biases, such as social desirability and response bias, which may affect the accuracy of the findings. Future studies could incorporate objective measures of AI exposure or use qualitative methods to gain deeper insights into professionals' experiences with GenAI adoption. Another limitation is that this research primarily focused on professionals in photography and filmmaking, and therefore does not encompass all sectors of the creative industry. Expanding the scope to include other creative fields, such as music, graphic design, and advertising, could provide a more comprehensive understanding of GenAI adoption across the entire creative sector.

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AUTHOR CONTRIBUTION

All authors contributed equally to the conception and design of the study, as well as to all other sections of the manuscript. R.F.R. led the conceptualization and was primarily responsible for writing the introduction, results, discussion, conclusion, and recommendations, in addition to overseeing data collection and manuscript revisions. S.A. contributed to gathering related studies and writing the literature review and abstract. N.M.A. focused on writing the methodology and coordinating data collection with participants. K.C. contributed to the conceptualization, instrument validation, and final editing of the manuscript.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

DECLARATION OF USE OF AI IN SCIENTIFIC WRITING

The authors declared that this study was prepared, researched, written, and edited without the assistance of AI techniques.

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