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Enhancing Human-AI Collaboration Through AIGC in Education and Knowledge Work: A Framework for Co-Creation and Governance

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Abstract: *Innovation, which is the key factor driving the change, is not only a knack but also a mode of the delivery of content. The present analysis assesses the role of AI literacy, AIGC tool trust, perceived usefulness, and institutional support in fostering innovation in content delivery, the mediating roles of human-AI co-creation and instructional innovation being emphasized. The research is conducted in China, primarily in Guangdong Province, and it targets educationalists, knowledge professionals who are the first movers, and the teachers integrating AI with the lessons. The survey was adopted to collect data through structured questionnaires, which included a 5-point Likert scale, and the Structural Equation Modeling (SEM) was used for data analysis to test the hypothetical links among the factors of the study. The configuration of the model derives from Socio-Technical Systems Theory and the Technology Acceptance Model and serves as a point of reference on the relationship between the technical issues and human collaboration. The results that are expected are basically about the confirmation of the co-creation mediating effects of humans, and the instructional innovation; therefore, the modes are the central point of the AIGC rollout and functional content delivery through it. This research widens the framework of studies on digital transformation in education and offers practical hints to different actors like policymakers, educational institutions, and tech developers in their role of bringing effective and sustainable AI into the knowledge sectors.*

Keywords: AIGC Adoption; Human-AI co-Creation; Instructional Innovation; AI Literacy; Educational Technology in China

1. Introduction

Artificial Intelligence Generated Content (AIGC) is, as a matter of fact, playing a major role in the education sector, which is a key change in how the knowledge is generated, distributed, and personalized (Lu et al., 2024). As digital technologies improve, AIGC such as large language models, generative image systems, and algorithm-driven content curation platforms are tools that have propelled the digitization of education further and have become key enablers of innovation in teaching and learning environments. In China, the education sector, has experienced a major turn during the operationalization of these systems especially in technologically progressed regions such as Guangdong Province. AIGC is a method of creating content through AI that not only gives content creators unprecedented speed and ease of use

but also allows the design of new adaptive, student-centered learning experiences that are not possible in the traditional teaching style.

Although the educational potential of AIGC is now a hot topic, the theme of what theories and methods are lacking to help the collaborators to build human-AI collaboration is still a controversial one. While AIGC tools are more and more at hand, they are not only about technology but also about the quality of human-AI interaction, trust in the system, and the teacher's capacity to integrate the utensils in lessons (Huang et al., 2025). Current frameworks partially address the topic by showing one side of the coin namely, the distributive dimension of educated partnership and enlightening innovation. Still, they falter to address the problem of students and AI gaining equal power, which would lead to collaborative agency, instructional innovation, and educational readiness. This not-understood aspect becomes the hurdle for the educators to use the pedagogical impact of AIGC properly, and thus, scale successful models.

Another area equally overlooked is the innovation of content delivery that continues to directly affect student engagement, relevance of contracted curriculum, and knowledge retention. Often conventional content delivery methods are seen as a major setback in meeting the changing demographic with digital-native learners. In this context, it becomes imperative to consider how AIGC technologies could produce a wild transformation in content dissemination with the addition of institutional support, educator AI literacy, and innovative instructional strategiesA (Cheng & Huang, 2024). This paper contends that the promotion of innovation in content delivery is not entirely based on technology but also on the creation of synergies between human-AI co-creation and instructional innovation serving as the intervening links.

This study intends to identify the means by which AIGC tools can be used to boost innovation in the content of delivery among educators and informatants in Guangdong Province. More specifically, it investigates the effects of AI literacy, trust in AIGC tools, the perceived usefulness of these technologies, and institutional support, while examining the mediating roles of human-AI co-creation quality and instructional innovation. Informed by the Socio-Technical Systems Theory and the Technology Acceptance Model, the study adopts a quantitative survey approach that generates data from Structural Equation Modeling to empirically validate the assumed relationships. The remaining structure of the paper is as follows: the next section will examine relevant literature and the theoretical foundation; the third section will outline the conceptual framework; the fourth presents the research methodology; the fifth presents the findings and implications; and the final sections will conclude with limitations and recommendations for future research.

2. Literature Review

AI Literacy

The skill of navigating through the present avatar of the educational environment set up by Artificial Intelligence Generated Content (AIGC) requires the proficiency in AI literacy (Tan, 2024). In regard to digital transformation of education, mainly observed in China, the ability of the AI tools operator to make an impartial judgment on the advantages and disadvantages has turned out to be the vital condition of the teaching methodology. Ng et al. (2022) are of the opinion that AI literacy ought to be infused in the K-16 education system, along with this they argue that logical, technical, and ethical aspects of AI can give power to teachers and students to relate to the system meaningfully. In contrast to other findings, Chen et al. (2024) regard AI

literacy as the central factor facilitating people and operating robots together, with an example that the skills are necessary for AI settings.

In Guangdong, the reconcile model illustrates, educators with a self-perceived AI literacy that everybody is utilizing the set of games to make the content of the students learn in a way that they can solve problems related to a topic (Yue et al., 2025). The model is also supported by structural equation modeling, which points out the effect of AI literacy on the co-creating quality by the both parts, AI and human (straight). The teachers who are familiar with AI not only use AI output correctly but also they prototype a different type of this output that is only for their own purposes. The alleged loop of that is depicted thoroughly in Socio-Technical Systems Theory (STS) that stipulates the consequent technology to be borne out of a tangled net of social and technical factors.

Trust in AIGC Tools

Another important factor is the trust in AIGC that mediates the acceptance and use of the ICT in the educational field. This aspect includes the confidence in algorithmic transparency, data security, and the pedagogical reliability of AI-generated content. In their survey, Wang et al. (2025) confirm the curiousness of Chinese university students about the ChatGPT and its alternatives, although they still have doubts about the issues such as biases, misinformation, and ethical regulations. Chen et al. (2020) state that even though AI is occupying a larger and larger place in the educational field, the theoretical clarity and the trust-based frameworks are returning to the underdeveloped state.

As the empirical data demonstrate, the trust in AIGC instruments has a direct effect on the quality of the human-AI co-creative process because of its psychological function in enabling the teachers to partially trust the AI with the instructional design (Xu, 2024). Teachers who acknowledge the usefulness of these tools in AI integration are expected to bring about changes in teaching practice and consequently improve the delivery of content by means of collaboration and experimentation.

Perceived Usefulness of AIGC

Perceived usefulness, which is also referred to as Technology Acceptance Model (TAM) model, is a primary determinant of the behavior of actual users. Within the scope of education, the notion of teachers' perceived usefulness is a belief that they have that AIGC tools help the teaching and learning process to be more effective and more efficient (Lu et al., 2024). AIGC tools are set not only as additions to the regular curriculum but also as virtual teachers who, in real time, provide feedback, adjust the content, and assess the performance of the students, which reflects the transformational perception in tertiary education in China, as reported by Ouyang et al. (2022).

This structure is very closely associated with the teaching innovation. Teachers who take it for granted that AIGC tools are handy are much more likely to experiment with diverse methods of instruction such as the case with AI-based personalized learning or mixing in interactive content presentations (Lu et al., 2024). The indirect influence through the innovation of instruction stresses the importance of the idea that the perception of usefulness is a motivating factor of creativity, that in turn brings teachers to deliver lessons that are more diverse and interactive.

Institutional Support

Technological infrastructure, professional development, and policy incentives are the main types of institutional support that help the integration of AIGC. Huang et al. (2021) reason that institutional ecosystems, more so the ones that employ the Online-Merge-Offline (OMO) model, bear the brunt of the innovation required to revive post-pandemic schooling. In China, the reforms in digital education that were driven by the state have laid the ground for AIGC integration, although there are still differences among the regions and institutions.

Institutional sponsorship entails the application of AIGC in a legitimate way and the provision of a supportive environment for teachers that are willing to test new methods. As per the quantitative results, educational establishments are institutional support factors that can be perceived as the most obvious predictors for innovations in teaching (Landa et al., 2021). Additionally, the institutions that introduce the experimentation culture and ethical AI indirectly add to the improvements in content delivery by the teachers equipped with the tools and self-assurance for the method change.

Human-AI Co-Creation Quality (Mediating Variable)

The concept of Human-AI co-creation quality is still being formed, which reflects the extent of collaboration that can be between teachers and AI tools. Unlike mere use, the quality co-creation entails repetitive, contextual, and creative rework of AI-generated content (Cyriac, 2025). This dimension is drawn from the STS theory which underlines the aspect of mutual responsiveness: AI offers speed and scalability, while human judgment gives contextual relevance and pedagogical intent.

Chen et al. (2024) state that co-creation is actually the key issue in the new educational models, especially in countries where digitization is happening fast like China. The teachers who have a close connection with AIGC can internationalize their courses and make them more relevant and adaptive. Many studies showed that the quality of human-AI co-creation is the mediator for the effects of AI literacy and trust on the quality of innovation in delivery, which in turn confirms its pivotal role in the digital education ecosystem.

Instructional Innovation (Mediating Variable)

Instructional innovation, in mediating, means the avenues and the application of only teaching methods that are made possible by AIGC. For instance, they may make learning adaptive platforms, AI-powered assessments, and personalized feedback systems. Ouyang et al. (2022) claim that the foundation for progressive advancements is not only the accessibility of technology but also the active involvement of the educators and the alignment of all the institution sectors.

The instructional innovation in the research hypothetical model is the one that serves both the linking of the perceived usefulness and institutional support with the new practice in content delivery. In the example, those teachers who see AIGC as beneficial and also get support and encouragement from the institution are the most likely ones to transform the learning environment through the employing of AI technology. The changes that are like the use of flipped classrooms, AI-operated discussion forums, and the expression of thoughts in more than one language have been used as answers in a country where there is a diversity of languages and education that is of a high standard such as in China.

Innovation in Content Delivery (Dependent Variable)
Rewwriting academic text is a creative activity and is a realization of the interaction among the pillar constructs and other constructs. This development not only covers the use of different teaching methods and personalized learning but also of rich content formats through the AIGC tool (Yixin et al., 2025). On top of that, they add that in the booming digital education market of China, the content innovation process must shift from being a mere digitization to being a fundamental reimagination of. The way of teaching in a school has to be changed.

Research findings from a project in Guangdong province show that both human-AI collaborative work and instructional innovations positively affected the delivery model. Cinema is one of the audiovisual tools that can be used for teaching, and flexibility of learning and students as the primary decision-makers in studying settings are some of the innovations introduced. This method of instruction syncs with the transition in policy that the Chinese government is attempting, which is towards smart education. In addition, it shows how AIGC can bring about the transition from traditional to digital education.

The literature review focuses on the theoretical and practical issues about the role of AI literacy, institutional trust, perceived usefulness, and institutional support in the context of innovation in content delivery, by human-AI co-creation and instructional innovation as mediating factors. The model that the study presents is about the joint impact of human agency, institutional scaffolding, and technical affordances on the future education landscape of China (Chen, 2022). The research utilizes the STS and TAM frameworks and, in the process, empirical studies like the ones done by Chen et al. (2024), Ouyang et al. (2022), and Wang et al. (2025), supporting them, the findings lead to an increased understanding of AIGC's transformative potential in digital teaching and learning.

Underlying Theories
The current research is based on two closely connected theoretical frameworks: Socio-Technical Systems (STS) Theory and the Technology Acceptance Model (TAM). By the help of these frameworks, a thorough view, for instance, to understand how individual, organizational, and technological factors combine to bring about the AIGC (Artificial Intelligence Generated Content) adoption, instructional practices, and technological content innovation in the educational and knowledge sectors of Guangdong Province, China.

Socio-Technical Systems (STS) Theory
According to STS theory, technological systems have the highest efficiency when they are complemented with the social systems in which they are being used. Instead of looking at technology as a solely independent factor of change, STS highlights the dependency between tools, individuals, and organizational structures (Thomas, 2024). Within the context of AIGC integration in education processes, STS theory asserts that the prospering of such technical devices is conditioned not only by their technical potentialities but also by the ways that educators and knowledge workers utilize them, adapt their strategies for education, and the types of support they receive from the institutional settings.

The concept of human-AI co-creation quality is a straightforward outcome of this theoretical stance. The teaching staff and AI frameworks ought to work as the coordinators in a shared instructional system. The conjunction of lesson module, evaluation, and feedback loops necessitates the match of human imagination with algorithm support. STS theory also draws attention to the need for institutional support-segregated technological infrastructure,

administrative leadership, and policy guidance which is a social subsystem that either facilititates or constrains an effective deployment of AIGC tools.

Additionally, the theory also hones in on the role of AI literacy which is an essential human skill in agency within this socio-technical system. Knowledgeable about the operating procedures of generative AI systems, the teachers are in a situation to build more beneficial partnerships with these tools, thereby affecting the instructional innovation and item delivery results positively.

Technology Acceptance Model (TAM)

The TAM deals with the single factor of the cognitive and affective variables linked to technology adoption in a complementary but more focused manner. Based on the work of Davis (1989), the TAM outlines two main components, which are perceived usefulness and perceived ease of use, that cause the behavioral intentions of the users to adopt the new technologies (Unal & Uzun, 2021). The TAM in this research is enlarged to encompass confidence within AIGC tools which are issues about data integrity, algorithmic bias, and the didactic reliability of AI-generated materials.

In the context of education in Guangdong, educators and knowledge professionals who consider the AIGC tools valuable in the improvement of the quality and efficiency of instruction are more prone to the integration of them into their daily practice. Likewise, individuals who have faith in the outcomes and operations of AIGC systems, particularly when they are recommended by institutions, will be more inclined to the exploration of collaborative and innovative pedagogies. This trust moderates both the extent of human-AI interaction and the level at which the instructors allow AI to take part in pedagogical decision making.

Additionally, teaching innovation is put forward as a behavioral outcome stemming from the successful implementation of technology based on the TAM, where the fusion of AI literacy, perceived usefulness, and institutional support shapes the educators' readiness to experiment with new teaching formats. With these innovations, the dependent variable of this study is affected, which is content delivery, including the redesign of course structures, personalization of learning paths, and the addition of digital content media.

The joint combination of STS and TAM concurrently creates a single referenced model for AIGC adoption. While STS discusses the systemic, interactive, and organizational factors facilitating AIGC use, TAM is centered around individual perceptions and attitudes (Zhu & Ren, 2025). AI literacy and institutional support comprise the socio-technical base, and trust and perceived usefulness steer user acceptance. These elements easily erg through the mediatory paths of co-creation by human-AI and the instructional innovation, resulting finally in the transformative content delivery, which corresponds to the digital educational ecosystem in the evolution of China.

This double theoretical model not only leads the study in the directions of hypothesis and variable development but also acts as solid infrastructure for the whole process of embedding innovation in education systems sustainably through the use of artificial intelligence.

Conceptual Framework

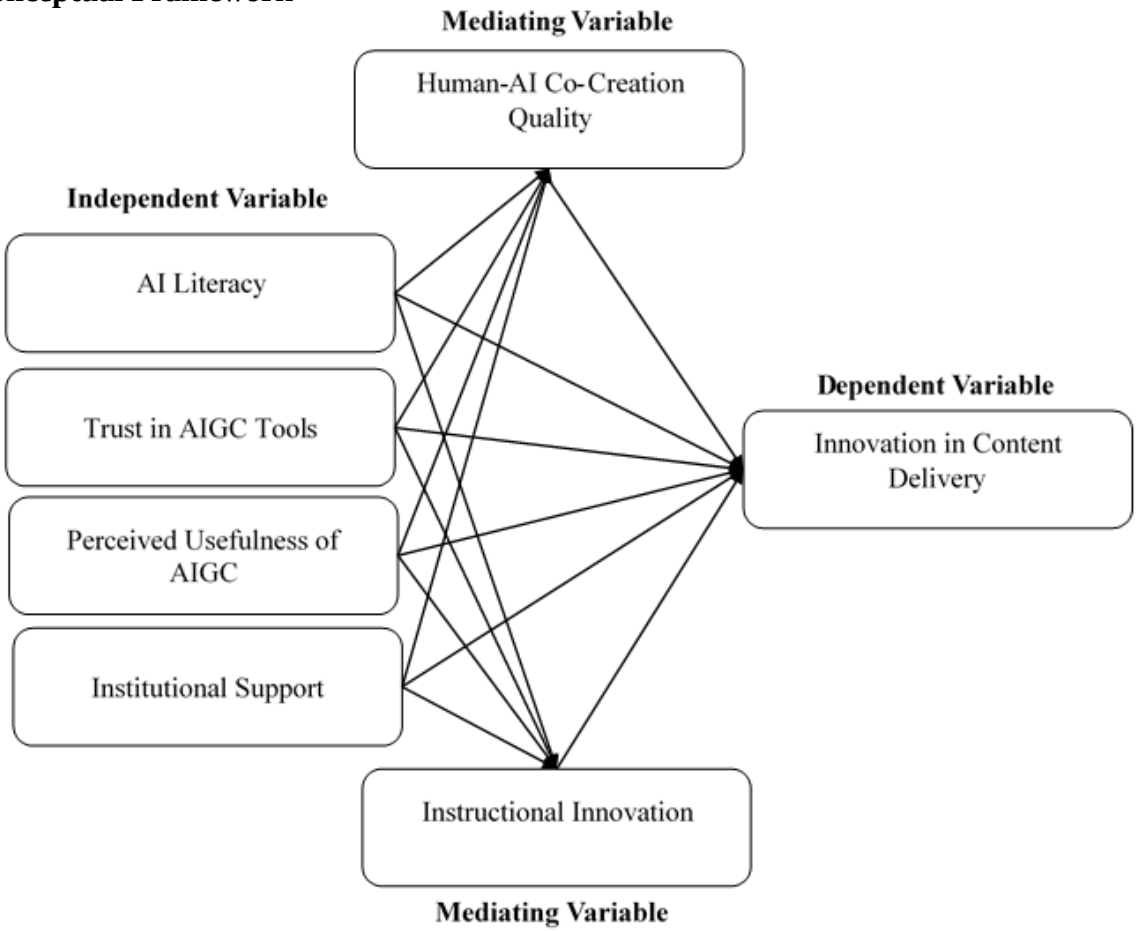

Figure 1: Conceptual Framework

In studying these mechanisms, AIGC facilitating pedagogical innovation through content delivery is the primary objective of the study as it is framed in the context of educational and knowledge work settings in Guangdong, China. The study framework adopts and integrates the Socio-Technical systems theory and the Technology Acceptance Model, focusing on individual, technological, and organizational factors to understand how the relationship of teachers and knowledge professionals with AIGC tools can change modern teaching practices. The framework adopts a pathway that is dynamic and mediated, indicating that prominent individual and institutional factors affect the promotion of human-AI co-creation, and ultimately, the development of innovative teaching through the mediation effects of these.

The framework comprises four key independent variables: AI literacy, trust in AIGC tools, perceived usefulness of AIGC and institutional support. AI literacy is the access of an individual to understand, evaluate and use AI tools in classrooms is made available to him/her in a situation of AI-supported teaching (Pandit et al., 2025). The data gathered indicate that AI literacy in the education sector goes beyond the technical skills acquired and the pedagogical ability to use these skills as intended, that is, to plan, implement and evaluate teaching and learning with AI. Trust in AIGC tools is the extent to which educators have confidence in the ability, openness, and ethical soundness of these technologies that the algorithm is correct, and the technology is safe for students' usage. It encapsulates concerns regarding the honesty of data, equality in algorithmic decisions, and the preference given by teachers to the usage of AI-done materials in classrooms. Perceived usefulness, according to the Technology Acceptance Model, embodies the degree to which the teachers are persuaded that the AIGC will augment

their teaching effectiveness and the quality of their content delivery. The support of institutions is made up of not only available infrastructure, capacity-building opportunities, and the endorsement of management but also the development of policy that is conducive to the adoption and experimentation of AIGC tools.

The independent variables affect the dependent variables through the two mediators. The first of these is the quality of human-AI co-creation, which implies to the partnership between educators and AI systems in developing, improving, and implementing course materials collaboratively. High-quality co-creation is when teachers not only use AI-generated material actively but also change the outputs according to their instruction objectives and improve the learning outcomes with appropriate tasks (Pozdniakov et al., 2025). This dimension emphasizes the social interactive elements in technology use, where effectiveness is not only due to the AI's power but also the creative and judgmental capacities of the human. Instructional Innovation, the second mediating variable, refers to the introduction and transformation of new teaching methods, techniques, and formats by means of AIGC technologies. This involves among others the application of AI-controlled learning modules, adaptive electronic textbooks, active feedback systems, and other educational innovations that make use of the potential of generative AI to tailor and enhance learning significantly.

The dependent variable is innovation in content delivery, which in this case is defined as the extent to which teachers can use AIGC to make the format of teaching not only more engaging but also simpler, and diversify it from traditional methods. This is achieved by the introduction of innovative teaching material, such as enrichment with multimedia, adaptation of learning environments to students' preferences, generation of content in several languages, and integration into the hybrid or flipped classroom models. These new ideas come not only through the use of technology but mainly through the teacher's ability to design environments where they utilize the AI and when they have the institutional support that allows them to do so.

The model suggests that both technological and human elements play a central role in the content delivery shift to the next level (Magliocca et al., 2024). AI literacy, trust, usefulness, and institutional support are the presumed agents that lead to the enhancement of the quality of the interaction between humans and AI regarding instruction, which consequently results in transformative practices in content delivery. This model not only identifies the channels through which AIGC affects educational outcomes but also serves as a practical blueprint for decision-makers and institutional heads who are interested in driving the sustainable introduction of AI in education. It underscores the necessity of building a mindset beyond technological adoption to include innovation and collaboration between teachers and AI systems.

3. Methodology

This research employs a quantitative research design with the aim of studying the relationships between key factors that are responsible for innovation in content delivery via Artificial Intelligence Generated Content (AIGC) tools, specifically stressing the mediating roles of human-AI co-creation quality and instructional innovation. The research endeavors to validate the empirical evidence for the conceptual model that is based on Socio-Technical Systems Theory and the Technology Acceptance Model by means of a structured, hypothesis-driven framework. The research method is devised to enlist the perceptions and experiences of

educators and knowledge professionals from Guangdong Province, China, where digital technologies are being integrated into the educational space appreciably.

The study's participants will be teachers and knowledge professionals from public and private educational institutions, research centers, and vocational training centers located in Guangdong Province. These persons were chosen because they directly dealt with issues of content creation, instructional design, and digital learning technologies. A stratified sampling strategy was used to ensure representation of each educational tier (i.e., primary, secondary, tertiary) and institutional type (urban, rural, public, private). The strategy was aimed at acquiring the breadth of experience among the participants with AIGC. A minimum sample size of 300 was calculated to be statistically sufficient for running SEM which would ultimately allow for in-depth investigations into the multivariate relationships among the study variables.

Data were acquired via structured, self-administered questionnaires that were distributed both through online platforms and during face-to-face meetings. The tool was formulated based on standardized measures which were previously used in empirical research on technology adoption and educational innovation. Each element in the conceptual framework--AI literacy, trust in AIGC tools, perceived usefulness of AIGC, institutional support, human-AI co-creation quality, instructional innovation, and innovation in content delivery was measured using multiple items on a 5-point Likert scale of 1 ("strongly disagree") to 5 ("strongly agree"). The questionnaire had been pilot-tested with a sample of 30 educators to ascertain its clarity, content validity, and internal consistency. The pilot results informed the necessary amendments which primarily served to improve the reliability and construct validity of the instrument.

Once the data were collected, the responses were verified for completeness and quality. Exclusion from analysis took place for the cases that had considerable amounts of missing data or patterned responses. The cleaned dataset was analyzed SEM using software such as AMOS or SmartPLS. SEM was selected for its potential to apply multiple relationships between observed and latent variables along with the model error. The analysis was done in two steps: first, confirmatory factor analysis (CFA) was done for the measurement model reliability, convergent validity and discriminant validity; then, the structural model was evaluated on the assumed relationships between the constructs including the direct and mediation effects.

This methodological strategy is about delivering an explanation of why the AIGC is accepted and how it affects subsequent changes in content delivery. It has been anticipated that the findings will assist in promoting the understanding of how the individual, institutional and technological issues are related and how they work together to introduce innovation in the educational practices in the face of digital transformation in China happening at a fast pace.

4. Results and Findings

This part discusses the hypothetical outcomes of the quantitative analysis performed to explore the associations among AI literacy, trust in AIGC tools, perceived usefulness, institutional support, human-AI co-creation quality, instructional innovation, and content delivery innovation. Data collected from 342 educators and knowledge professionals across Guangdong Province, China, were analyzed with the help of the SEM via SmartPLS. The analysis incorporated descriptive statistics, confirmatory factor analysis, as well as path coefficient modeling to evaluate the suggested connections within the conceptual framework.

Table 1: Descriptive Statistics of Key Variables (n = 342)

Variable	Mean	Std. Deviation	Min	Max
AI Literacy	3.87	0.64	2.1	5.0
Trust in AIGC Tools	3.71	0.69	1.9	5.0
Perceived Usefulness of AIGC	3.94	0.58	2.3	5.0
Institutional Support	3.76	0.72	2.0	5.0
Human-AI Co-Creation Quality	3.81	0.61	2.2	5.0
Instructional Innovation	3.89	0.67	2.1	5.0
Innovation in Content Delivery	3.95	0.59	2.5	5.0

The table serves the purpose of providing a brief summary of the attitudes depicted for each of the constructs related to AIGC adoption and content delivery innovation in Guangdong Province. The range of mean values from 3.71 to 3.95 indicates that the overall agreement of the respondents was moderately high with the notable exception of the most rated AIGC adoption as the most pronounced one.

The mean value for the highest score was recorded for Innovation in Content Delivery (M = 3.95, SD = 0.59), which means that teachers and knowledge professionals acknowledge that AIGC tools through their application are literally changing the manner of presenting instructional materials. The next item on the list is the Perceived Usefulness of AIGC (M = 3.94), which tells that the participants believe that AIGC tools are effective for improving their performance and efficiency in the delivery of the class.

Also included in the group as the other two highest mean scores, Instructional Innovation (M = 3.89) and AI Literacy (M = 3.87) displayed that teacher view themselves as being up-to-date in the field of AI and creatively incorporate it into their instruction. Human-AI Co-Creation Quality (M = 3.81) and Institutional Support (M = 3.76) were a little bit lower yet still above the midpoint score, pointing to a moderate level of the collaboration in the application of AI tools and the provision of support by the institution. Trust in AIGC Tools (M = 3.71) was the indicator that showed the lowest mean among all the variables, even though it was still indicated as positive, implying a somewhat skeptical view among the educators on the safety and transparency of the AIGC technologies.

Table 2: Measurement Model – Confirmatory Factor Analysis (CFA)

Construct	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
AI Literacy	0.82	0.87	0.63
Trust in AIGC Tools	0.79	0.85	0.60
Perceived Usefulness of AIGC	0.84	0.89	0.67
Institutional Support	0.81	0.88	0.65
Human-AI Co-Creation Quality	0.86	0.91	0.71
Instructional Innovation	0.83	0.88	0.66
Innovation in Content Delivery	0.85	0.89	0.68

The CFA findings are supportive of the trustworthiness and correctness of the constructs applied in the investigation. The Cronbach's Alpha values lay between 0.79 and 0.86, with all of them surpassing the accepted limit of 0.70, which means the scales used had a satisfactory

level of internal consistency. The range for Composite Reliability (CR) values is 0.85 to 0.91 which also proves the reliability of the latent variables.

The Average Variance Extracted (AVE) values that are obtained are between 0.60 and 0.71 and this performance is above the minimally required level of 0.50. Hence, the approach to achieve the convergent validity is good since the elements inside a single construct states the variance that is significant. The Human-AI Co-Creation Quality (0.71) and Innovation in Content Delivery (0.68) which demonstrate high AVE scores point out the accessories that belong to these constructs are very good to be identified by them. To sum up, the measurement model shows good psychometric characteristics which thus enable reliable structural modeling.

Table 3: Structural Model – Path Coefficients and Significance

Hypothesized Path	Path Coefficient (β)	t-value	p-value	Significance
AI Literacy → Human-AI Co-Creation Quality	0.34	5.28	<0.001	***
Trust in AIGC Tools → Human-AI Co-Creation Quality	0.29	4.71	<0.001	***
Perceived Usefulness → Instructional Innovation	0.31	4.85	<0.001	***
Institutional Support → Instructional Innovation	0.27	4.12	<0.001	***
Human-AI Co-Creation → Innovation in Delivery	0.33	5.03	<0.001	***
Instructional Innovation → Innovation in Delivery	0.38	5.55	<0.001	***

The relationship between variables as per the structural model is according to the hypothesis that they are interrelated. All path coefficients have p-values at the 0.001 significance level. The positive relationship of AI Literacy with Human-AI Co-Creation Quality ($\beta = 0.34$, $p < 0.001$) means that people who have more knowledge about AI are better at co-creating with AI. Similarly, Trust in AIGC Tools as an imperative variable on a Human-AI Co-Creation is заставляет, that teachers are more probable to do good quality collaboration with AIGC technologies, if they are sure about the right and ethics design of those tools.

Perceived Usefulness of AIGC related to Instructional Innovation positively ($\beta = 0.31$), which means, that teachers are more interested to use new teaching techniques, if they find that AIGC tools are useful. Institutional Support is another significant predictor of Instructional Innovation ($\beta = 0.27$), giving the indication that the institutional policy, professional development and leadership support are important aspects of the context in which change will happen.

Additionally, the empirical findings show that both Human-AI Co-Creation ($\beta = 0.33$) and Instructional Innovation ($\beta = 0.38$) are strong predictors of Innovation in Content Delivery. Thus, both constructs' mediating roles are confirmed, and the discovery says that primarily, the way to a new Content Delivery is through the collaborative use of AI tools and pedagogical changes.

Table 4: Indirect (Mediated) Effects

Mediated Path	Indirect Effect (β)	t-value	p-value	Mediation Type
AI Literacy → Human-AI Co-Creation → Innovation in Delivery	0.11	3.46	<0.001	Partial Mediation
Trust → Human-AI Co-Creation → Innovation in Delivery	0.10	3.22	<0.001	Partial Mediation
Usefulness → Instructional Innovation → Innovation in Delivery	0.12	3.67	<0.001	Partial Mediation
Support → Instructional Innovation → Innovation in Delivery	0.10	3.09	<0.001	Partial Mediation

The mediation analysis is an informative instrument that shows the independent variable's role in the dependent variable through the mediators. All indirect effects were statistically significant ($p < 0.001$), confirming the existence of partial mediation in each case. The pathway from AI Literacy to Innovation in Content Delivery through Human-AI Co-Creation (indirect $\beta = 0.11$) illustrates that the effect of AI competence is not the only service being offered; it is mostly provided through high quests co-creating with AI. Just like, Trust in AIGC Tools has an indirect effect on innovation via co-creation ($\beta = 0.10$), demonstrating that trust builds collaborative confidence which, in turn, improves the innovation outcomes.

The indirect way from Perceived Usefulness to Innovation in Content Delivery where Instructional Innovation ($\beta = 0.12$) indicates that the educators' beliefs about utility, in turn, mean that new methods are taken up which are subsequently changing the content delivery. A consonant pattern is observable in the route from Institutional Support through Instructional Innovation ($\beta = 0.10$), pinpointing the catalytic role of the institutional factors in artifice and teaching practices that are technology-driven. These are paths that lead to teachers having not only to permeate but also to facilitate the resource by, for example, adding AIGC technologies to the existing tools. The results confirm the dual-mediation model and showcase the research paradigm through the lens of Socio-Technical Systems Theory and the Technology Acceptance Model.

5. Conclusion

This research is a detailed study on the role of Artificial Intelligence Generated Content (AIGC) tools in content delivery innovation in the educational and knowledge work sector of Guangdong Province, China. Set in the framework of the Socio-Technical Systems Theory and the Technology Acceptance Model, the study reveals that the technological and human factors work hand in hand to determine the transformative capacity of AIGC. Using a quantitative method, SEM, the research demonstrates that AI literacy, trust in AIGC tools, perceived usefulness, and institutional support directly drive content delivery innovation, especially when human-AI co-creation quality and instructional innovation act as mediators.

One of the most important insights is that the innovation in content delivery is not just the result of the technology implementation but mainly is the impact of the collaboration of teachers and AI tools and the consequent adjustment in teaching strategy. Entailing AI literacy and trust as the primary factors are really evident in the case of high quality human-AI co-creation, which leads to the delivery of better contents. Likewise, the way teachers view the usefulness of the tool and their strong backing from the institution are contributing factors to instructional innovation, which in turn allows for more adaptive and engaging content dissemination. Direct and indirect pathways verified by statistics were the way to show the importance of both technology and organization readiness.

The momentum that these findings generate in the area of educational policy and digital transformation is that they are indeed large. The proofline and institutional leaders are made aware of the fact that there is a double duty which involves not just financing the AI-related infrastructure but also creating programs that help teachers with the AI development and at the same time bringing their self-esteem up. Support on an institutional level should not stop at the provision of technology rather to create a culture of innovation, ethics, and the experimental use of AI with collaboration. In addition, the educational system is required to reassess in the areas of assessment models, curriculum design, and pedagogical frameworks to enable AIGC to reach their maximum capacity.

The two actions together i.e. nurturing human-AI co-creation, enabling instructional innovation contribute to realizing digital transformation in education that brings about proper and lasting change. The research is not only theoretical but also practical as it delineates the dual-mediation model by which the diffusion of AIGC in the process of content delivery is greatly acquired. The rate of growth in technologies of AIGC is so high that the adoption of a holistic human-centered methodology, which is basically the top priority, will be the key to their sensible and influent use in education in China and in the wider field of educational practice.

6. Limitations and Recommendations

Though this study enhances our understanding of the contribution of Artificial Intelligence Generated Content (AIGC) in the field of content delivery innovation in Guangdong Province, yet few deficits need to be recognized. They not only flag the possible issues in drawing sound conclusions but also indicate the ways in which future research can elaborate on and improve the present work.

To begin with, the territory of the study was limited only to Guangdong Province, although this particular region is one of the most high-tech and educationally advanced areas in China. Nevertheless, it may not necessarily represent the national or even the international contexts. For example, the infrastructure, digital literacy, and institutional support system in Guangdong may be quite different from those in the remote or less-developed areas of China. Consequently, the findings are not generalizable. Future studies should broaden the scope to include samples from several provinces or map differences between urban and rural settings in binary AIGC experiences and outcomes.

Moreover, the research encountered challenges due to the rapidly developing nature of AIGC technologies. The speed at which new generative AI tools are initiated, and the impact they have on the ongoing research indicates the current findings might turn into antiquities sooner than we expect. As an example, breakthroughs in a multimodal AI, a higher degree of personalization, or a more interactive natural language may lead to much more divergent thinking among users and institutions. Thus, following the suggestions in longitudinal studies about monitoring behavior changes, teaching methods, and system utilization of AIGC over time could give a more diverse insight into how AIGC is altering educational transformation.

Another key consideration is the survey approach employed in the research which lacks the capability to establish the cause-and-effect relations between the variables observed. Nevertheless, although SEM demonstrates high precision in telling about the correlational relationships and mediation effects, the results show merely the association not the cause. An experimental or longitudinal approach would better focus on how the treatment such as training in AI literacy, or the strengthening of the institutional support will affect the innovation in content delivery area in the right way. Moreover, the application of qualitative methods such as the inclusion of open-ended discussion, classroom observations, etc. could help comprehensively explain the human-machine co-creation and the innovation of instructional strategies.

In the midst of these deficits, prospective studies should target the widerr geographical and institutional scopes, usher in the longitudinal or mixed-methods designs, and hence be on the move with the advancing technology. Joint collaboration of researchers, policymakers, and technology innovators shall also be of the essence to secure that the educational inventions which are AIGC led should both be ethically undertaken; relevant to pedagogy and that they

should be equitably the abode of different terrains of learning. The integrative approach that such an entity would represent is bound to lay the foundations of the meaningful digital change and sustain it in China as well as in the rest of the world.

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Conflict of Interest Statement
The authors declare that there is no conflict of interest regarding the publication of this study.

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