Hindawi

Retraction

Retracted: An Analysis of Computer-Aided Design Software Course Teaching in Visual Communication Design Major by Integrating Grey Variable Weight Clustering Evaluation Model

Advances in Multimedia

This article has been retracted by Hindawi following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of one or more of the following indicators of systematic manipulation of the publication process:

(1) Discrepancies in scope

(2) Discrepancies in the description of the research reported

(3) Discrepancies between the availability of data and the research described

(4) Inappropriate citations

(5) Incoherent, meaningless and/or irrelevant content included in the article

(6) Peer-review manipulation

The presence of these indicators undermines our confidence in the integrity of the article's content and we cannot, therefore, vouch for its reliability. Please note that this notice is intended solely to alert readers that the content of this article is unreliable. We have not investigated whether authors were aware of or involved in the systematic manipulation of the publication process.

Wiley and Hindawi regrets that the usual quality checks did not identify these issues before publication and have since put additional measures in place to safeguard research integrity.

We wish to credit our own Research Integrity and Research Publishing teams and anonymous and named external researchers and research integrity experts for contributing to this investigation.

The corresponding author, as the representative of all authors, has been given the opportunity to register their agreement or disagreement to this retraction. We have kept a record of any response received.

References

[1] H. Zhang and C. Wu, "An Analysis of Computer-Aided Design Software Course Teaching in Visual Communication Design Major by Integrating Grey Variable Weight Clustering Evaluation Model," *Advances in Multimedia*, vol. 2021, Article ID 6588734, 7 pages, 2021.

Research Article

An Analysis of Computer-Aided Design Software Course Teaching in Visual Communication Design Major by Integrating Grey Variable Weight Clustering Evaluation Model

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Computer-aided design software course has become a compulsory course for visual communication design specialty in many colleges and universities, but there are some problems in its development, such as boring classroom, lack of specialty, weak practice, and single assessment. Due to the inaccuracy of data in the teaching process of traditional CAD software course, this paper puts forward an innovative educational model of CAD software course in visual communication design major. Visual communication design major carries out the career planning of college students under the background of Internet +, comprehensively analyzes the employment situation of college students from the career planning introduction, on the basis of exploring the current situation of computer-aided design software course education in China, and analyzes the curriculum reform of this major students' career planning.

1. Introduction

In recent years, as used in the field of visual communication design in society and various others, media class colleges and universities of visual communication design education in China are also affected, and with the rapid development, at present, the national media institutions at various levels and of the arts department do not have such courses, and explore new teaching led to new ideas, new ideas emerge, the old teaching methods have begun to slowly become no. In order to meet the needs of social aesthetic creation, the continuous innovation in the development of visual communication design education will be the trend of the times while promoting the educational reform [1–3].

Based on the grey clustering algorithm, this paper constructs a variable weight visual teaching ability evaluation model, which can evaluate the visual communication teaching ability. At the same time, it gives the corresponding teaching resource allocation method and makes a quantitative planning and accurate evaluation of the visual communication teaching ability.

1.1. Grey Variable Weight Clustering Evaluation Model. The grey variable weight clustering evaluation model (GVWCEM) is a widely used method to retrieve new and interesting knowledge. The objective of the grey variable weight clustering evaluation model is to make the fuzzy system have asymptotic and graceful behavior [4–7]. Therefore, fuzzy sets and approximate reasoning are used to extend the symbol grey variable weight clustering evaluation model for tree construction and reasoning process. At the same time, the rich existing grey variable weight clustering evaluation model method is used to deal with incomplete knowledge, and the new information available in fuzzy representation is extended.

In particular, when ζ is a fuzzy set and the value x_i, $i = 1, 2, \cdots, n$, with membership degree is taken, then De Luca and Termini, respectively, defined their entropy as shown in the following formula:

$$E[\zeta] = \sum_{i=1}^{n} s(\zeta = x_i). \tag{1}$$

When $S(t) = -1 \ln t - (l - t)\ln(l - t)$, it is easy to verify that the function $S(t)$ is symmetric about $t = 0.5$, increases strictly at intervals [0, 0.5], decreases strictly at intervals [0.5, 1], and reaches its unique maximum value which is ln2 at $t = 0.5$.

The model (grey variable weight clustering evaluation model) of hierarchical visual communication design computer-aided design is constructed as shown in Figure 1. Input is hierarchical visual communication design computer-aided design, and output is the result of the hierarchical visual communication design computer-aided design model.

Computer-aided design (CAD) combines the relevant grey variable weight clustering evaluation model with the corresponding hierarchical CAD, which lays a foundation for the evaluation of the supporting relationship between the relevant grey variable weight clustering evaluation model and the corresponding visual communication design CAD. In the grey variable weight clustering evaluation model, r_i and fs are sentence; cad, st_i, and fs are ensemble CAD. Computer-aided design between words lays the foundation for generating semantic vectors and word order vectors. The formula for computer-aided design between words is shown in formula (2). Formula (2) is used to calculate the word CAD w_i and word w2. l and h, respectively, represent the shortest distance of w1 and w2 in the word network, and both of w1 and w2 exist in the word network. Computer-aided design between words can be evaluated in a better way by equation (2), where $\alpha = 0.2$ and $\beta = 0.45$.

$$S_w(w_1, w_2) = \begin{cases} e^{-at} \cdot \dfrac{e^{\beta h} - e^{-\beta h}}{e^{\beta h} + e^{\beta h}}, w_i \neq w_2 \\ \\ 1, w_1 \neq w_2 \end{cases}. \tag{2}$$

In formula (1), if $w_1 = 12$, its correlation can be regarded as external because the information in the designed word network cannot cover all words. So, if w_1 is otherwise w_2, it cannot be covered by the word net.; $S_w(w_1, w_2) = 0$.

In order to accurately evaluate the teaching ability of CAD software course for visual communication design majors, this paper combined the nonlinear information fusion method and time series analysis method to carry out statistical analysis on the educational ability of CAD software course for visual communication design majors. A differential equation was constructed to express the information flow model of the constraint parameters of the teaching ability of CAD software course for visual communication design major as follows:

$$x_n = x(t_0 + n\Delta t) = h[z(t_0 + n\Delta t)] + \omega_n. \tag{3}$$

In the formula, $H(\cdot)$ is the multivariate value function of the research on the teaching innovation mode of CAD software course for visual communication design major and ω_n evaluates the error measurement function. In the high-dimensional feature distribution space, the solution vector of educational innovation model research for CAD software course of visual transmission design major is calculated by the correlation fusion method, and the characteristic training subset of educational innovation model research is obtained $S_i (i = 1, 2, \ldots, L)$, which meets the following conditions:

(1) $\Sigma = \text{diag}(\delta_1, \delta_2, \ldots, \delta_r), \delta_i = \sqrt{\lambda_i}, \forall i \neq j$
(2) $\cup_{i=1}^{L} S_i = V - \nu_s$

Let $x_{n+1} = \mu x_n(1 - x_n)$ be the conjugate solution of the statistical information model of $x_{n+1} = \mu x_n(1 - x_n)$ visual communication design major computer-aided design software course teaching innovation mode research, satisfying the initial value eigendecomposition condition $U = \{u(t) \mid u(t) \in X, \|u\| \leq d, t \in I\}$, where $(I_i)_{i \in N} = \{x_1, x_2, \ldots, x_m\}$. The statistical characteristic distribution sequence $x(n)$ is used to construct the data information flow model of the teaching innovation model of the computer-aided design software course for visual transmission design majors.

$$\begin{aligned} c_{1x}(\tau) &= E\{x(n)\} = 0, \\ c_{2x}(\tau) &= E\{x(n)x(n + \tau)\} = r(\tau), \\ c_{kx}(\tau_1, \tau_2, \ldots, \tau_{k-1}) &\equiv 0, k \geq 3. \end{aligned} \tag{4}$$

In the case of $Q = 2$, the research on the educational innovation mode of CAD software course for visual communication design major satisfies the $(2 + 1)$ dimensional continuous function condition. That is, the research on the teaching innovation mode of computer-aided design software for visual communication design major has convergence solution and constraints:

$$\psi_x(\omega) = \ln \Phi_x(\omega) = -\frac{1}{2}\omega^2 \sigma^2. \tag{5}$$

Based on the visual transmission design constructed professional courses of computer-aided design software of the data flow model of innovative education model research, the scalar sample sequence component is used to construct the big data distribution model, and the teaching innovation model can provide accurate data information.

2. The Problem with CAD Software Courses

2.1. The Class Is Boring and Not Active Enough. At present, most universities in the computer-aided design software curriculum reform have not formed a sound course. In addition, most professional teachers teach computer-aided design software in the way of unilateral teaching [8–10]. The students also practiced one or two cases through the teacher's demonstration, and the teacher further explained
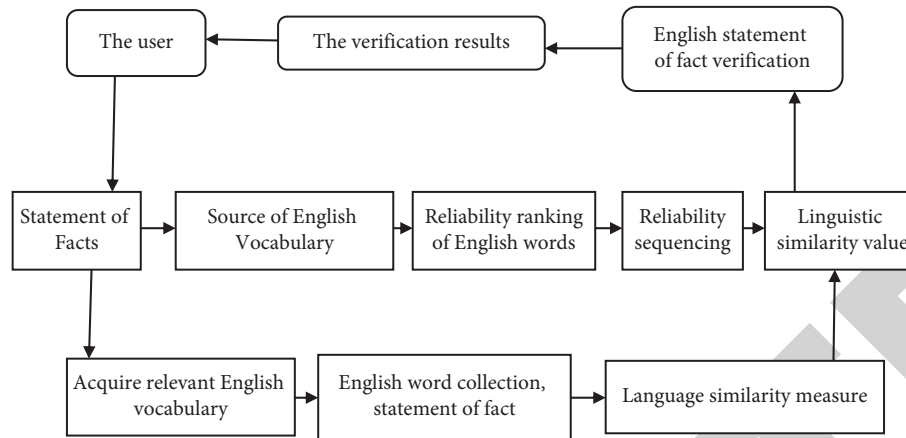
Figure 1: CAD model of visual communication design.

the problems in the practice. In this mode of education, students can only passively accept the knowledge and skills taught by teachers, but due to the lack of discussion and communication between students and students, it is difficult for students to give full play to their subjective initiative, and the learning atmosphere in the classroom is very low, and the activity and participation of subjects are insufficient.

2.2. Focus on Technology and Lack of Professionalism.

First of all, in terms of the selection of teaching materials, there are a variety of teaching materials for CAD software courses, most of which are edited by computer professional teachers. There are few software textbooks for visual communication design majors, which leads to the lack of professional correspondence of software course textbooks for computer-aided design. Second, in the case selection, most teachers still use the case in the textbook to explain, among which there are some old cases. In addition, because the professional correspondence is not strong, even in the case of visual communication design, teachers also focus on the explanation of tool use technology in class. The analysis of the design case is not too deep. Finally, in the training of students, the teacher's speech procedure and the specific steps of the textbook are practiced according to the imitation, but due to the lack of the cultivation of independent design ability, students' innovation consciousness is not strong.

2.3. Simulation Exercises and Lack of Practice.

On the other hand, some universities have insufficient software education facilities for visual communication design majors. Moreover, there are no machine rooms in high schools in remote areas. Firstly, the teacher conducts the teaching of software theory knowledge and the demonstration of software using technology through the projector. Students usually complete the case practice in the classroom, which leads to that students can only receive a lot of theoretical knowledge first but cannot carry out software practice training in time. In addition, it is difficult for students to avoid the phenomenon that some students hand in others' homework when they

complete the case practice in the classroom. On the other hand, most teachers generally use nearly 2/3 of the class hours for training software basic tools in CAD software classes. In the later period, 1/3 of the teaching time was used for comprehensive situation exercises. For example, visual communication design majors will choose simple design projects such as poster design and poster design for comprehensive training at the later stage of the course, but most of the projects are imaginary subjects, and the actual training of actual projects is insufficient.

The computer-aided design software course for visual communication design major uses the usual work score- + teaching practice score + computer test score to evaluate the final grade of students. In addition, students work on weekdays, and there is little difference in classroom practice. Most teachers focus on the test results and directly take the test results as the students' comprehensive results. They are still insufficient to evaluate the students' thinking ability and design concept.

3. Analysis of Computer-Aided Design Software Course Teaching

3.1. Change Teaching Mode and Improve Teaching Efficiency.

On the other hand, in the teaching mode, many teachers now generally use knowledge interpretation in the teaching of computer-aided design software. It is not conversational or interesting. The effect of class is not obvious. Teachers must change the teacher-centered one-way teaching style. The teaching mode of student preview, teacher explanation, student operation, and computer-aided evaluation takes students as the theme in the teaching process, gives full play to students' subjective initiative, and cultivates students' independent and innovative ability [11–13].

On the other hand, in case selection, teachers should not only take into account the typicality and professionalism of cases but also the interest and relevance of students. Teachers can find material from students' lives according to their interests. Students can choose their own life photos, button the characters, and change the background into the background image they are interested in, which can improve the

interest of the class. Moreover, the method of operation is a little different depending on the example that a student chooses. The problem is different. Students' ability to think is improved and independently explored. The teacher can also focus on a student's problem and teach according to the role.

3.2. Combine Technology and Art to Cultivate Innovative Thinking.

First of all, in the selection of teaching materials, teachers should choose the teaching materials according to the characteristics of visual transmission design, which not only reflects the technology of software but also reflects the artistic quality of the professional. You can choose textbooks written by visual communication design teachers and computer science teachers. Second, in the selection of examples, teachers choose typical design cases according to the needs of software tools and professional thinking. Teachers must strengthen the analytical power of design works; let students clear the creative thinking of design works, so as to insensibly train students to cultivate the awareness of the combination of software technology and design artistry. Finally decorating in the work review, the teacher task driven teaching method can be used to decorate open work, students can undertake creative design according to the materials provided by teachers, the related tasks are completed, so as to cultivate the students' creative thinking, and teachers can strengthen the ability of design review in the review and improve the students' creative thinking ability.

3.3. Combine Theory with Practice to Enhance Actual Combat Capability.

At present, most students are deficient in software technical ability and practical project design ability after completing CAD software course. The teacher used a three-stage teaching model to solve the problem. First of all, at the beginning of the class, teachers choose typical strong examples for students to conduct simulation exercises, focusing on cultivating students' software operation ability and help to improve students' creative thinking ability. Second, in the middle of the class, the teacher will choose the simulation project related to visual transmission design and let the students design it by themselves and focus on cultivating students' creative design ability and practical operation ability. Finally, at the end of the class, teachers can introduce real projects inside and outside the school to let students design actual combat according to the requirements of customers, focusing on cultivating students' actual combat ability and teamwork ability.

The computer-aided design software course of visual communication design major focuses on process evaluation, which can use the usual work score + stage practice score + survey report score + design plan. Grade + computer test score method is used to comprehensively evaluate students' teaching performance [14, 15]. It is not only necessary to examine whether students have mastered the theoretical knowledge and basic technology of software but also to confirm whether they can flexibly use software to complete the redesign of design works and actual project design. Students' teaching attitudes and research reporting capabilities, as well as whether they have the awareness of combining software technology and work artistry and whether the design and production concepts of actual projects comprehensively use relevant theoretical knowledge and technical capabilities, are reviewed.

3.4. Example and Result Analysis

(1) The structure and design of CAD software course for visual communication design major are shown in Figure 2.

(2) *Cover and Title Page Design.* Beautiful cover and cover guide simulation and navigation design are included here.

(3) *Design of Screen Interface.* Screen design mainly includes window, menu, icon, design button, dialog box, prompt bar, and status bar. The interface design should follow the following principles: (1) adaptation principle; (2) flexibility principle; (3) easy-to-learn and easy-to-use principle; and (4) clear navigation, strong learning goals, and focus.

(4) *Design of Interaction Mode.* The Internet is the life of the network. The general interaction mode is the interaction between people and manual interaction; the specific methods are: (1) button, hot word, hot area, condition judgment, text input, moving objects (object area), limit time, limit times, button, and so on. (2) Human interaction is as follows: one to one and one to many. Online mode is as follows: chat, discussion area. Offline mode is as follows: e-mail and discussion community.

(5) *Design of Navigation Strategy.* Node design: Node is the basic unit of information, that is, the basic unit of learning. It often includes more than one unit of content, educational strategies, and evaluation exercises. Selection of educational structure is as follows: sequential, circular, branching, index, and network format. Navigation design is as follows: mainly link to the related computer websites of visual communication design for more information.

Through the education experiment, the staff of the research group used SPSS17.0 to conduct independent sample T test on the premeasured and postmeasured educational scores and total scores of the experimental group and the comparison group, respectively, to check whether there were differences in related variables before and after the experiment and whether the differences were significant. The reasons were analyzed and discussed in combination with the results of the questionnaire survey. The computer education model of thinking map software in primary school has significantly improved the students' level of primary school computer education before and after the experiment. In this study, the results of independent sampling inspection on the composition scores of the experimental class and the comparative class are shown in Table 1.

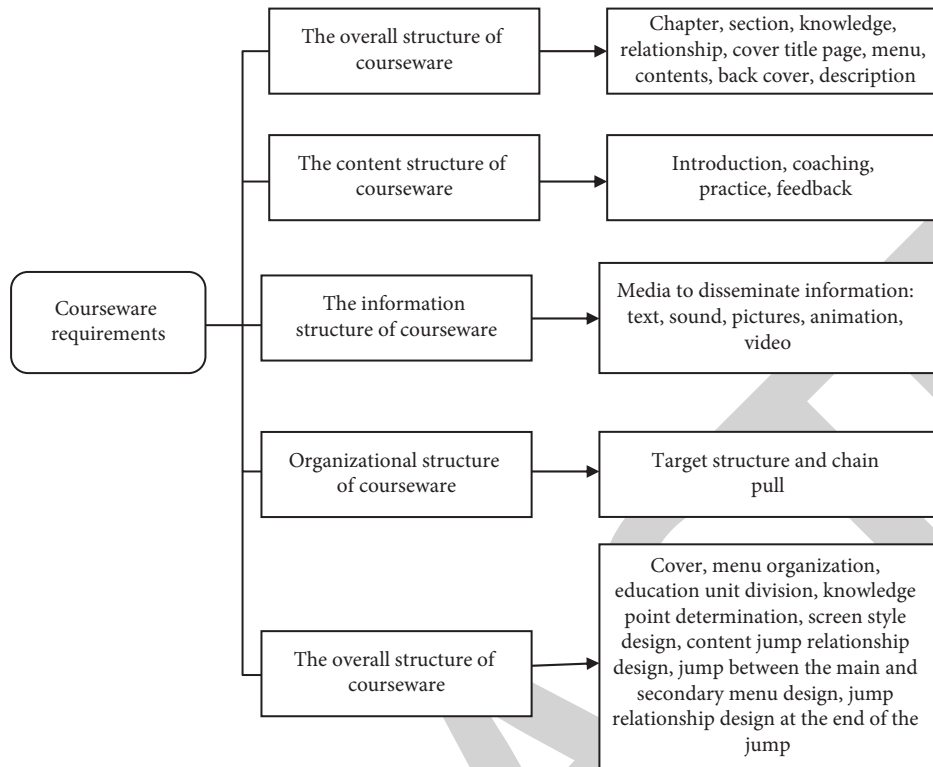| The overall structure of courseware | → | Chapter, section, knowledge, relationship, cover title page, menu, contents, back cover, description |
The content structure of courseware	→	Introduction, coaching, practice, feedback
The information structure of courseware	→	Media to disseminate information: text, sound, pictures, animation, video
Organizational structure of courseware	→	Target structure and chain pull
The overall structure of courseware	→	Cover, menu organization, education unit division, knowledge point determination, screen style design, content jump relationship design, jump between the main and secondary menu design, jump relationship design at the end of the jump

FIGURE 2: The structure and design program of CAD software course for visual communication design major.

Table 1 shows that in primary school computer teaching through mind mapping software, the average score of the experimental class is 10.74, while that of the comparative class is 9.70. The width is 2.21 and 1.14, respectively. The standard deviation of the experimental class decreased from 2.0477 to 1.293. The composition education level of the experimental class has improved as a whole. Through the independent sample examination of the pretest and post-test of the composition scores of the experimental class and the control class, the composition education level of the experimental class is obviously higher than that of the comparison class.

In order to make comparative analysis, the fuzzy algorithm model is compared with the grey variable weight clustering evaluation model. The FQ model is evaluated by search and grey variable weight clustering without adding feature algorithm. The ordered distribution of the grey variable weight clustering evaluation model is analyzed experimentally under the two models of FQ and grey variable weight clustering evaluation model. Figures 3 and 4, respectively, show the model construction mode of FQ and grey variable weight clustering evaluation model and the distribution of CBrank, CBGrank, CFrank, and CFGrank when the number of grey variable weight clustering evaluation models is 150 ($n = 150$). The abscissa represents the site of the grey variable weight clustering evaluation model in information collection, and the ordinate represents the average ranking of the grey variable weight clustering evaluation model in the corresponding site.

As can be seen from Figure 3, there is no obvious correlation between the order of the grey variable weight clustering evaluation model and the order of the information set of the grey variable weight clustering evaluation model of visual communication design where the fuzzy algorithm model is located. Compared with CBrank and CFrank, the ranking interval in CBGrank and CFGrank shows a larger span. It can be inferred from Figure 4 that the order of the grey variable weight clustering evaluation model conforms to the analysis of the trend in Figure 3, while under the model of FQ, the distribution of grey variable weight clustering evaluation model is more centralized.

From the above experiments, the following conclusions can be drawn: when the grade of the grey variable weight clustering evaluation model is CFGrank, the constructed model basically has high accuracy. Figure 4 describes the accuracy of the construction model. When the grey variable weight clustering evaluation model is FG and the model grade is CFGrank, the accuracy is determined by the relationship between n and δ.

Table 1: Composition score prediction and post-test group statistics of experimental class and comparison class.

	The number	The mean	The standard deviation	Mean standard error
Pretest the control class	65	8.66	1.89	0.23
Control class after test	65	9.71	1.22	0.16
Pretest the control class	65	8.53	2.04	0.26
Control class after test	65	10.74	1.29	0.16
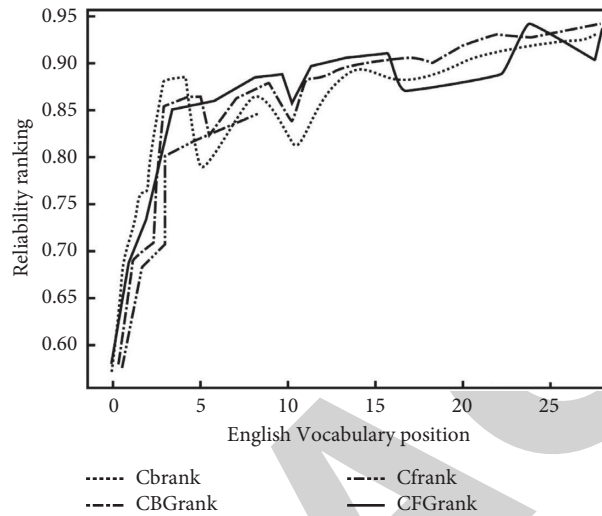
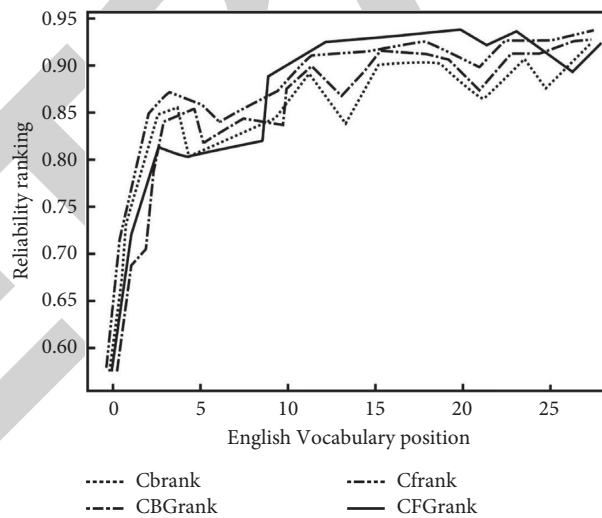Figure 3: Grey variable weight clustering evaluation model of the FQ model.

Figure 4: Grey variable weight clustering evaluation model.

4. Conclusions

The computer-aided design software course of visual communication design major is a practical course, and its teaching mode is different from other professional design basic courses. Teachers entering this course must change the traditional teaching model and review. This paper proposes a

teaching evaluation method of new innovation mode of visual communication design course based on new machine algorithm. It mainly analyzes the teaching model of new innovation mode of visual communication design course by constructing the research index model of new innovation mode of visual communication design course and uses the new machine algorithm to realize the teaching model

analysis of visual communication design innovation mode. Realize the data extraction of teaching quality evaluation of visual communication design specialty.

Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The authors declare that there are no conflicts of interest.

Acknowledgments

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