

The Establishment of Career Development and Employment Guidance Course Evaluation System based on CIPP Model

Liu Shu^{1,2*}, Zu Yanbin^{1,2}, Chen Ka^{1,2}, Zakariah, Siti Hajar², Md Ali, Nornashima² & Sukardi³

¹Zhumadian Vocational and Technical College, Zhumadian, 463000, CHINA

²Faculty of Technical and Vocational Education, Universiti Tun Hussein Onn, Batu Pahat, 86400, MALAYSIA

³Universitas Negeri Padang, Padang, 25131 West Sumatera, INDONESIA

*Corresponding author email: zzyliushu@gmail.com

Available online 26 May 2023

Abstract: The establishment of an evaluation system that is suitable for career development and employment guidance courses in colleges and universities is of great significance to effectively improve college students' professional literacy and employability, improve the quality of practical teaching, and improve the deficiencies in courses construction. In the process of constructing a career development and employment guidance course teaching evaluation system, the principles of science, orientation and relevance should be followed. This research introduces the CIPP evaluation model into the evaluation system construction of career development and employment guidance courses in universities, combines the CIPP evaluation concept and theoretical content with the teaching of college career development and employment guidance courses, and focuses on context evaluation, input evaluation, process evaluation, product evaluation considers the index content of college career development and employment guidance evaluation system. In the evaluation process, we attach great importance to a diverse evaluation process and strive to build a lifelong evaluation system.

Keywords: CIPP, career development and employment guidance; course evaluation

1. Introduction

Since the late twentieth century implementation of China's university expansion policy, there has been an increase in the number of fresh graduates from Chinese universities yearly. In 1995, there were 805,000 general undergraduate graduates; this figure reached 7.585 million by 2019 (Jiang et al., 2021). Moreover, the Ministry of Education predicts that the number could reach 11.58 million by 2023, illustrating a rising number of job seekers. The successful employment of college graduates is crucial not only for personal development and prospects but also for the quality of talent development in schools. Hence, the government has rolled out several policies to promote and stabilize employment. One of the prominent initiatives towards achieving this goal involves the continuous promotion of career development and employment guidance courses in colleges and universities. Zhao et al. (2021) notes that school environments are vital for children's growth and gaining experience, while the courses serves as a key element in education and talent cultivation. As such, career development and guidance courses play a critical role in promoting career coaching and helping students plan their careers and develop employability skills. They present valuable tools for universities to assist students in improving their personal career planning and finding successful employment opportunities.

There's an increasing emphasis on career development and employment guidance courses in universities (Du, 2022). In 2007, China's Ministry of Education formally released Teaching Requirements for Career Development and Employment Guidance Courses for College Students. This added career development and employment guidance courses as standalone programs in the talent training curricula in colleges and universities. As per national policy guidelines, several higher institutions have initiated career development and employment guidance education for their students.

These courses are now available from the freshman to junior years of university education. Career guidance courses have become an integral and systematic part of college education, resulting in successful results for courses development (Peng, 2020). The aims of this research is to test and judge the effectiveness of career development and career guidance courses based on this model to promote course reform and course construction.

2. Literature Review

Compared to developed countries abroad (Hennings et al., 2022; Folsom & Reardon, 2003), career development and employment guidance courses in China started relatively late. The teaching and learning processes often encounter numerous shortcomings and difficulties. Since the inception of the course, some construction issues have been detected. A lot of colleges and universities have veered away from the guiding principles of the course and emphasized policies, techniques, and information to boost their employment statistics (Zhu et al., 2020). The course content relies principally on theoretical knowledge, with practical skills cultivation being overlooked (Okolie et al., 2020). According to Zhang et al. (2020), career guidance courses in Chinese colleges and universities primarily depend on transferring classroom knowledge and lack the involvement of industry professionals or internship programs. An ideal course system could be established by using the flipped classroom approach. Other common issues include few full-time teachers, adopting obsolete teaching methods, and weaker practical skillsets (Leung, 2022; Fu, 2019; Meijers et al., 2017).

Take Zhumadian Vocational and Technical College, where the researcher is based, as an example. For the past few years, the college has emphasized the establishment of career development and employment guidance courses. They have enhanced institutional settings by launching departments for career development and employment since September 2018, while establishing a teaching and research body dedicated to career guidance. The college has formed high-quality teams of full-time and part-time teachers, and this course also included in the compulsory public courses. However, during actual instruction activities, certain instructors may not update their teaching concepts. They deem career development and employment guidance courses merely as supplementary programs rather than mainstays, resulting in lax requirements and less serious lectures (Wan et al., 2016). Meanwhile, most students believe that the major courses are more critical while ignoring career development and employment guidance courses. Such perceptions lead to high absenteeism or tardiness rates of the courses.

The college invested more than 3 million yuan in constructing an entrepreneurship park equipped with numerous full-time and part-time teaching personnel. However, the investment mainly revolves around hardware facilities, whereas that of teacher training is still insufficient. Career development and employment guidance courses are comprehensive programs. Teachers should not only have knowledge about career planning and policies but also possess proficiency in psychology, education, sociology, among other related fields, and enrich classes with practical experience. Unfortunately, teacher training in career development and employment guidance courses is relatively light, with limited opportunities for teachers to receive further education and training (Magee et al., 2022).

The college has implemented a complete course of career development and employment guidance education intended for freshmen to junior students, with corresponding class schedules set for each academic year. Currently, the College adopts a "2+1" education model, where students spend two years in school and one year in an internship. Students need to fulfill 40 courses (or around 130 credits) within two years to graduate. Hence, there's a tight teaching schedule. Concerning the teaching of career development and employment guidance courses, instructors usually only inculcates theoretical knowledge in the classroom (Zheng et al., 2020). However, most freshmen may not feel interested in the classes; whereas graduates find them too formal and impractical, rendering the lessons ineffective. The college and teachers have not organized or guided students to participate in social activities or conduct career research, contributing to the disconnection between classroom instruction and practical application (Raynor, 2019). Moreover, cooperation between institutions and businesses for carrying out practical teaching only exists on paper.

Therefore, there are many issues with the current career development and employment guidance course in China, and there is an urgent need for course reform. In China, Taylor's goal model is the most widely used and influential evaluation model and still dominates today, i.e., evaluating course based on the ultimate degree of achievement of classroom goals. However, an evaluation model limited to objectives alone no longer meets the needs of process-oriented and competency-based course evaluation (Xu & Cohen, 2021; Berz, 1997). The CIPP model was proposed by Stufflebeam and his colleagues in 1983 and includes four evaluation stages: context evaluation, input evaluation, process evaluation, and product evaluation. Stufflebeam believes that course evaluation should not be limited to achievement of objectives, but should be a process, and the most important purpose of evaluation is to improve rather than to prove (Kellaghan & Stufflebeam, 2012). The CIPP model is considered to be an effective method for assessing the quality of courses (Agustina & Mukhtaruddin, 2019).

3. Methodology

The CIPP model is an applicable tool for evaluating career development and guidance courses in colleges and universities. The model satisfies the needs of reform and construction of courses by improving assessment and facilitating course design (Aziz et al., 2018). Based on the four-step evaluation process, the proposed system includes context evaluation, input evaluation, process evaluation, and product evaluation.

Context evaluation involves assessing course development, orientation, and objectives. Input evaluation aims to determine whether course content, structure, and resources are feasible and well-constructed (Fitzpatrick, 2014). Process evaluation evaluates the course implementation, which is the core of the system, and the whole process of teachers' and students' participation in the implementation of the course is evaluated formatively (Backett-Milburn & Wilson, 2000). Finally, product evaluation examines the effectiveness of the course by conducting summative evaluations of students' and teachers' experiences, gains, results, and feedback (Li et al., 2015).

The theoretical evaluation model supports phased assessment, where the four evaluation phases (course development, course program, course implementation, and course results) can be implemented simultaneously or selectively and separately. The system consists of 4 first-level indices, 11 secondary indices, and 37 tertiary indices, with each link in the evaluation criteria being expressed in a graded rubric set. The rubric scale includes five grades: A-excellent, B-good, C-medium, D-qualified, and E-failed.

In conclusion, the proposed course evaluation system enables comprehensive and detailed assessments of career development and placement guidance courses in colleges and universities, identifying areas for improvement and enhancing overall course quality. The course evaluation system is designed as show in Fig. 1.

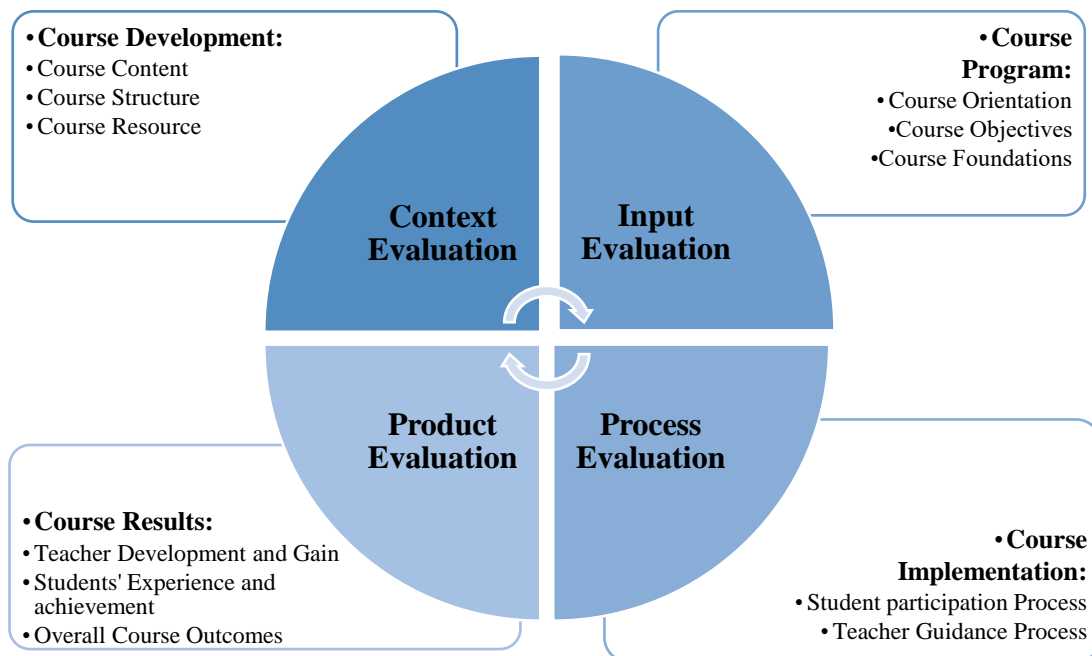


Fig. 1: Career development and placement guidance course evaluation based on CIPP model

4. Results and Discussion

4.1 Context Evaluation: Evaluating the Development of a Career Development and Career Guidance Program

Course development evaluation corresponds to the contextual evaluation segment whose main goal is to analyze and judge course necessity based on evaluation targets' needs and diagnose course purposes and objectives. This evaluation encompasses defining the course's environment, identifying learners' needs and learning base, diagnosing learners' learning difficulties, and judging course objectives' adequacy (Alturkistani et al., 2020). In context evaluation index design focuses on the context of course development and objectives.

Context evaluation of course development evaluates the role and positioning of the course within the overall system and assesses the knowledge base and practical ability of the target participants through investigation and analysis. Evaluation of course objectives mainly examines the reasonability, clarity, and comprehensiveness of the course objective design (Nielsen & Kreiner, 2017). Overall, course development evaluation aims to ensure courses meet evaluation targets' needs and improve course quality, contributing to effective teaching and student outcomes. Table 1 show detailed course context evaluation indicators based on the CIPP model.

Table 1: Course context evaluation indicators based on the CIPP model

Tier 1 index	Secondary index	Tertiary index	Opinion rating				
			A	B	C	D	E
A1: Course development	B1: Course content	C1: Reasonably positioned and is a required course for the college C2: It is set side by side with other subject courses, and there is a complementary, progressive or extended relationship between them C3: The objectives are reasonable, reflecting the educational goals of the college and the general objectives of the course					
	B2: Course structure	C4: The objectives are specific, clear, and easy to operate C5: The objectives are comprehensive and reflect the cultivation of students' awareness and ability in value recognition, responsibility, problem solving, and creative materialization					
	B3: Course resource	C6: Students and teachers are interested in career planning and career guidance activities C7: Students have some experience in career planning and career guidance					

4.2 Input Evaluation: Evaluating Programs for Career Development and Career Guidance Course

Input evaluation aims to help course developers make objective decisions about organizing activity content and selecting approaches and strategies. Its primary purpose is to evaluate the rationality, feasibility, and usefulness of the course program in preparation for implementation (Umam & Saripah, 2018). This part of evaluation includes three secondary indicators: course content, course structure, and course resources.

Course content evaluation examines whether it meets students' life and developmental needs, respects independent choice, reflects comprehensive knowledge application, and considers the experiences and strengths of teachers. Course structure evaluation assesses whether content arrangement, combination, and presentation match student age and personality characteristics, focus on students' relationship with nature, others, society, and themselves, are comprehensive and open, appropriate in weight, and moderate in difficulty (Mazloomi Mahmoudabad & Moradi, 2018). Course resource evaluation examines whether practice sites, facilities, and equipment meet activity needs. Questionnaires, interviews, and other methods are applied. Overall, input evaluation ensures activity program design aligns with students' needs, enhances course quality, and contributes to effective teaching and student outcomes. Table 2 show the specific evaluation indices.

Table 2: Course input evaluation indicators based on the CIPP model

Tier 1 index	Secondary index	Tertiary index	Opinion rating				
			A	B	C	D	E
A2: Course program	B4: Course orientation	C8: Close to students' life reality and development needs C9: Respect students' independent choice C10: Integrate knowledge from various disciplines around the theme of the activity C11: The teaching objectives are scientific and clearly planned to meet the needs of students' professional development C12: Meet the age and personality characteristics of students' development					
		C13: Focus on students' relationships with nature, with others and society, and with themselves C14: Integrated and open, appropriate in weight, and moderate in difficulty C15: Class size and student-teacher ratio are moderate					
A2: Course program	B5: Course objectives	C16: Examination of practice sites, facilities and equipment to meet the needs of the activity and have security C17: Instructors have professional quality and ability C18: The course resources are rich and selective					
	B6: Course foundations						

4.3 Process Evaluation: Evaluating the Implementation of the Career Development and Career Guidance Course

Process evaluation evaluates course implementation by tracking and dynamically assessing its execution, recording, monitoring, and checking all aspects to obtain feedback on activity implementation. This part of evaluation provides a foundation for revising and developing the course program. Students and teachers are the most direct participants and perceivers, making their participation and guidance pivotal to this study's focus on evaluating the student participation process and teacher guidance process (Finney, 2019).

"Student participation process" indicators include students' emotional attitude, participation process, style, cooperation, and communication. "Teacher guidance process" indicators encompass course organization, creating a conducive atmosphere, proper procedures, and effective guidance methods. Overall, Process evaluation ensures effective activity execution, improves course design and implementation, and contributes to enhancing teaching outcomes. Table 3 show the specific evaluation indices.

Table 3: Course process evaluation indicators based on the CIPP model

Tier 1 index	Secondary index	Tertiary index	Opinion rating				
			A	B	C	D	E
A3: Course implementation	B7: Student participation process	C19: Be disciplined and participate in activities in a disciplined manner					
		C20: Actively use their brains, mouths, and hands					
C21: Observe and investigate carefully, take the initiative to identify and ask questions and think about designing feasible activity plans							
C22: Actively integrate multidisciplinary knowledge, integrate multidisciplinary methods to collect and process information, and participate in problem analysis and solution							
C23: Communicate and cooperate effectively with teachers and peers							
C24: Actively and positively experience the activity process							
C25: Students will be guided to conduct career exploration practices that combine extracurricular research and in-class sharing on career choices, career values, the actual supply and demand of campus recruitment, and the recruitment requirements and status of recruitment for the profession							
	B8: Teacher guidance process	C26: Organize off-campus career practice activities for students and conduct off-campus visits for internship training in conjunction with their majors					
		C27: Invite famous experts and scholars in the field of career guidance, career counselors and human resources experts from outside the school to conduct various forms of training, lectures and group counseling					
		C28: Give timely and appropriate feedback on students' performance					

4.4 Product Evaluation: Evaluate the Effects of Career Development and Employment Guidance Course

Product evaluation assesses the effectiveness of course implementation by analyzing the extent to which course objectives have been achieved through comparing and analyzing expected versus actual outcomes. This part of evaluation provides a foundation for improving the course program and implementation. Evaluating course impact involves students' self-evaluation, mutual evaluation, instructor evaluations, and industry experts' assessments (Ebtesam & Foster, 2019). Students and teachers are key implementers of activity courses, necessitating an emphasis on evaluating student experience and achievement and teacher development and gain during this stage.

"Students' experience and achievement" focuses on boosting students' awareness and competence in value recognition, responsibility, problem-solving, and creativity through engaging in investigation activities. "Teacher development and gain" centers on evaluating instructors' effectiveness in facilitating learning gains during activity courses. Additionally, the evaluation system includes innovation, replicability, and overall satisfaction as three-level indicators for assessing the course's overall effectiveness. Overall, product evaluation helps measure activity program success, improves course design and implementation, and enhances teaching outcomes. Table 4 show the specific evaluation indices.

Table 4: Course product evaluation indicators based on the CIPP model

Tier 1 index	Secondary index	Tertiary index	Opinion rating				
			A	B	C	D	E
A4: Course results	B9: Teacher development and gain	C29: Start to understand themselves objectively, pay attention to the influence of the external world on their self-planning, gradually clarify their motivation for learning, increase their awareness of the cultivation of comprehensive quality, and become more rational in their career goal orientation					
		C30: Enhance career identity and self-confidence, clarify self-development goals, find a career position and make a personal development plan and act and work for it, and practice their own job-seeking skills in practice					
	C31: Professional skills, vocational literacy and employability are gradually improved to achieve their own career development goals and high-quality employment						
	B10: Students' experience and achievement	C32: Through teaching practice, expand the content of course teaching and their own knowledge reserves, improve teaching methods, explore new ideas of course education and teaching reform, and improve their own teaching and research level					
		C33: Re-evaluate their own career development, adjust and guide their own career development.					
	B11: Overall course outcomes	C34: Activity themes and methods are somewhat innovative					
		C35: Activity themes, programs, and methods are replicable					
		C36: The participation, cooperation and support of parents, social institutions and their personnel are promoted					
		C37: Course satisfaction is increased					

5. Conclusion

The career development and employment guidance education courses in colleges and universities are characterized by strong practicality, diverse teaching methods, and emphasis on students' participation and experience. To improve the effectiveness of these courses, we propose combining course syllabi and teaching processes, adopting diverse evaluation methods, and integrating diagnostic, formative, and summative evaluations.

Diagnostic evaluation is conducted before opening career courses for lower-grade students, while formative evaluations are ongoing during career development and skill improvement. Finally, summative evaluation occurs at the end of the course and can be divided into five stages: pre-course, mid-course, post-course, pre-graduation, and post-graduation. Horizontal analysis is used to compare course teaching across various majors and teachers, while vertical analysis compares teaching performance by the same teacher or major over different stages. This comprehensive evaluation system provides a basis to extract more comprehensive feedback and promotes sustainable development of the course.

Additionally, course evaluation must consider students' lifelong learning, realizing personal values, continuous career development, and the needs of enterprises to improve core competitiveness and maximize individual talents and creativity. Pre-graduation evaluations measure student employability, while post-graduation evaluations assess employer

satisfaction, and social evaluations should also be considered. The ultimate goal is to create a lifelong evaluation system that supports further improvements in career development and employment guidance education, laying an effective foundation for achieving teaching objectives and improving graduates' career quality and employability.

In conclusion, the CIPP evaluation model focusing on process rather than result aligns with the goals of career development and guidance education in colleges and universities. By using background evaluation, input evaluation, process evaluation, and outcome evaluation, this model provides theoretical support to improve these courses and significantly improves college graduates' career quality and employability.

References

- Agustina, N. Q., & Mukhtaruddin, F. (2019). The CIPP Model-Based Evaluation on Integrated English Learning (IEL) Program at Language Center. *English Language Teaching Educational Journal*, 2(1), 22-31. Scribbr. <https://eric.ed.gov/?id=EJ1282902>
- Alturkistani, A., Lam, C., Foley, K., Stenfors, T., Blum, E. R., Van Velthoven, M. H., & Meinert, E. (2020). Massive open online course evaluation methods: Systematic review. *Journal of Medical Internet Research*, 22(4), 1-14. <https://doi.org/10.2196/13851>
- Aziz, S., Mahmood, M., & Rehman, Z. (2018). Implementation of CIPP Model for Quality Evaluation at School Level: A Case Study. *Journal of Education and Educational Development*, 5(1), 189-206. Scribbr. <https://eric.ed.gov/?id=EJ1180614>
- Backett-Milburn, K., & Wilson, S. (2000). Understanding peer education: insights from a process evaluation. *Health Education Research*, 15(1), 85-96. <https://doi.org/10.1093/her/15.1.85>
- Berz, M. (1997, April). From Taylor series to Taylor models. In *AIP Conference Proceedings CONF-961208, American Institute of Physics*, 405(1), 1-23. <https://doi.org/10.1063/1.53493>
- Du, H. (2022, May). Research on the data driven intelligent employment information service system for college students. In *International Conference on Computer Application and Information Security (ICCAIS 2021)*, 12260, 638-643. SPIE. <https://doi.org/10.1117/12.2637662>
- Ebtesam, E., & Foster, S. (2019). Implementation of CIPP model for quality evaluation at Zawia University. *International Journal of Applied Linguistics and English Literature*, 8(5), 106-115. <http://dx.doi.org/10.7575/aiac.ijalel.v.8n.5p.106>
- Finney, T. L. (2019). Confirmative evaluation: new CIPP evaluation model. *Journal of Modern Applied Statistical Methods*, 18(2), 1-24. <https://doi.org/10.56801/10.56801/v18.i.1065>
- Fitzpatrick, J. L. (2012). An introduction to context and its role in evaluation practice. *New Directions for Evaluation*, 135, 7-24. <https://doi.org/10.1002/ev.20024>
- Folsom, B., & Reardon, R. (2003). College career courses: Design and accountability. *Journal of Career Assessment*, 11(4), 421-450. <https://doi.org/10.1177/1069072703255875>
- Fu, M. (2019, August). Research on the Reform Path of College Career Guidance Curriculum under the New Situation. In *1st International Symposium on Innovation and Education, Law and Social Sciences (IELSS 2019)*, 342, 73-76. Atlantis Press. <https://doi.org/10.2991/ielss-19.2019.15>
- Hennings, M., Zhu, Y., & van der Veen, R. (2022). Developing the capacity for a proactively self-managed career: an analysis of aspiring new-generation employees in Japan. *Asia Pacific Journal of Human Resources*, 60(3), 682-699. <https://doi.org/10.1111/1744-7941.12296>
- Jiang, J., & Ke, G. (2021). China's move to mass higher education since 1998: Analysis of higher education expansion policies. *Higher Education Quarterly*, 75(3), 418-437. <https://doi.org/10.1111/hequ.12313>
- Kellaghan, T., & Stufflebeam, D. L. (Eds.). (2012). *International Handbook of Educational Evaluation: Part One: Perspectives/Part Two: Practice*, Springer Science & Business Media, 9, 9-125.
- Leung, S. A. (2022). New frontiers in computer-assisted career guidance systems (CACGS): Implications from career construction theory. *Frontiers in Psychology*, 13, 1-21. <https://doi.org/10.3389/fpsyg.2022.786232>
- Li, X. E., Jervis, S. M., & Drake, M. A. (2015). Examining extrinsic factors that influence product acceptance: a review. *Journal of Food Science*, 80(5), R901-R909. <https://doi.org/10.1111/1750-3841.12852>
- Magee, M., Kuijpers, M., & Runhaar, P. (2022). How vocational education teachers and managers make sense of career guidance. *British Journal of Guidance & Counselling*, 50(2), 273-289. <https://doi.org/10.1080/03069885.2021.1948970>

- Mazloomi Mahmoudabad, S. S., & Moradi, L. (2018). Evaluation of Externship curriculum for public health Course in Yazd University of Medical Sciences using CIPP model. *Education Strategies in Medical Sciences*, 11(3), 28-36. <http://edcbmj.ir/article-1-1294-en.html>
- Meijers, F., Lengelle, R., Winters, A., & Kuijpers, M. (2017). A dialogue worth having: Vocational competence, career identity and a learning environment for twenty-first century success at work. *Enhancing teaching and learning in the Dutch vocational education system: Reforms Enacted*, 18, 139-155. https://doi.org/10.1007/978-3-319-50734-7_7
- Nielsen, T., & Kreiner, S. (2017). Course evaluation for the purpose of development: what can learning styles contribute? *Studies in Educational Evaluation*, 54, 58-70. <https://doi.org/10.1016/j.stueduc.2016.10.004>
- Peng, X. (2020). Study on the Innovation of College Career Planning Education From the Perspective of “Integration of Innovation & Entrepreneurship and Specialty Education”. *Advances in Educational Technology and Psychology*, 4(1), 141-148. <https://doi.org/10.23977/aetp.2020.41021>
- Okolie, U. C., Nwajiuba, C. A., Binuomote, M. O., Ehiobuche, C., Igu, N. C. N., & Ajoke, O. S. (2020). Career training with mentoring programs in higher education: facilitating career development and employability of graduates. *Education+ Training*, 62(3), 214-234. <https://doi.org/10.1108/ET-04-2019-0071>
- Raynor, K. (2019). Participatory action research and early career researchers: The structural barriers to engagement and why we should do it anyway. *Planning Theory & Practice*, 20(1), 130-136. <https://doi.org/10.1080/14649357.2018.1556501>
- Umam, K. A., & Sariyah, I. (2018). Using the Context, Input, Process and Product (CIPP) model in the evaluation of training programs. *International Journal of Pedagogy and Teacher Education*, 2, 19-183. <https://doi.org/10.20961/ijpte.v2i0.26086>
- Wan, Z., Liu, S., Li, J., & Wang, F. (2016, December). Research on the Strategic Development of the Reform and Transformation of Independent College to Application-Oriented College-Deepen the reform of the system and mechanism of application-oriented college. In *2016 International Seminar on Education Innovation and Economic Management (SEIEM 2016)*, 75, 368-371. Atlantis Press. <https://doi.org/10.2991/seiem-16.2016.94>
- Xu, M., & Cohen, J. E. (2021). Spatial and temporal autocorrelations affect Taylor's law for US county populations: Descriptive and predictive models. *Plos One*, 16(1), 1-21. <https://doi.org/10.1371/journal.pone.0245062>
- Zhang, J., Yuen, M., & Chen, G. (2020). Supporting the career development of technical education students in China: the roles played by teachers. *International Journal for Educational and Vocational Guidance*, 20(1), 169-190. <https://doi.org/10.1007/s10775-019-09398-z>
- Zhao, H., O'Connor, G., Wu, J., & Lumpkin, G. T. (2021). Age and entrepreneurial career success: A review and a meta-analysis. *Journal of Business Venturing*, 36(1), 106007. <https://doi.org/10.1016/j.jbusvent.2020.106007>
- Zheng, S. Y., Jiang, S. P., Yue, X. G., Pu, R., & Li, B. Q. (2019). Application Research of an Innovative Online Education Model in Big Data Environment. *International Journal of Emerging Technologies in Learning*, 14(8), 125-138. <https://doi.org/10.3991/ijet.v14i08.10404>
- Zhu, Y., Zhang, J. H., Au, W., & Yates, G. (2020). University students' online learning attitudes and continuous intention to undertake online courses: A self-regulated learning perspective. *Educational Technology Research and Development*, 68, 1485-1519. <https://doi.org/10.1007/s11423-020-09753-w>