The Perspective of JD-R Theory on Internship Learning Outcomes of Vocational College Students in Wuxi City, China

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ABSTRACT

Based on the research results of applying the JD-R theory of behavioral psychology to workplace learning, a model of the interaction between the three elements of job characteristics (job demands, job resources, and job support) and the quality of internship learning was constructed. The effectiveness and explanatory power of the model were verified using quantitative research methods. The results showed that the job demands of the internship venue had no impact on the outcomes of internship learning; Work resources, especially work self-control, harm students' internship, and learning outcomes; Job support has a strong positive effect on internship learning outcomes. Based on the above research findings, opinions and suggestions for the design of vocational internship job positions have been proposed based on job demands, job resources, job support, and other factors.

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Keywords: internship, job characteristics, job demands, job resources, job support, internship learning outcomes

INTRODUCTION

Internships and practical training are the main forms of practical teaching in vocational schools. The purpose of an internship reflects the purpose of education, and from the perspective of students, it is the aim of the internship. Therefore, the setting of an internship reflects the students' need to improve their knowledge, skills, and learning abilities, and the requirements for the setting of internship positions will also correspondingly increase. There are similarities and differences in the workplace characteristics between interns and regular employees. Based on the homogeneity and heterogeneity of internships and formal work, this article uses the JD-R theory to explore the relationship between the characteristics of internship work and the effectiveness of internship learning.

LITERATURE REVIEWS

Bakker et al. (2010) proposed the JDR model. It can be seen that the study of workplace learning based on job characteristics has become a systematic approach, and the literature is also very rich. There is research on the impact of job characteristics on learning outcomes, such as the role and scope of job demands (such as stress, workload, and psychological needs) on learning outcomes, and the role and connotation of job resources (job autonomy, skill diversity, leadership, feedback, job support) on learning outcomes. Based on the JD-R theory mentioned above, this paper proposes a theoretical research model:

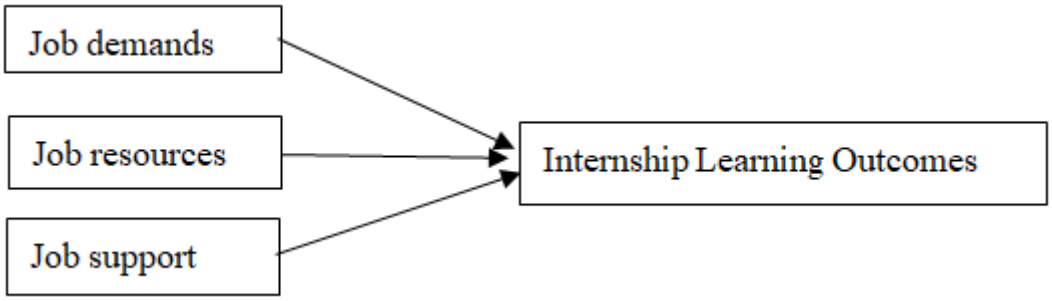

Figure 1 Research Model

Theoretical Assumptions and Research Foundations

The Relationship between Job Demands and Internship Learning Outcomes

The internship is a learning experience based on work. The quality of student internships is a product of joint action by enterprises, schools, and students. Through a survey and analysis of 2139 third-year students from vocational colleges in 10 provinces and cities across China, it was found that factors such as internship tasks, enterprise management, school resource investment, and the mechanism model of internship quality formed by enterprise supply have an impact on enterprise supply. The task design of internship positions, the investment of school-enterprise resources, and the active participation of students form the quality of student internships (Hussien et al., 2018). Research has found that job demands are related and important driving factors for students' co-regulation (such as requesting feedback), self-regulation (such as self-guided use of compiled information), effort to connect theory with practice (such as linking workplace experience with theoretical knowledge), and lack of avoidance learning (such as lack of adaptation to work situations), but not external regulation (such as seeking help to solve problems). However, if the job demand is too high, it may have a negative impact on job performance.

Therefore, the first research hypothesis of this article is proposed:

H1: Job demands have a significant negative impact on internship learning outcomes

The Relationship between Job Resources and Internship Learning Outcomes

Research on student learning has shown that resources can affect student satisfaction or learning outcomes. Multiple studies have demonstrated the impact of job resources on student internships. Feedback, autonomy, support from university mentors, academic preparation, flexible working hours, student self-motivation, location, and skill diversity are important factors that affect internship satisfaction (Hussien et al., 2018). Some research results indicate that the resource commitment of the host organization has a significant positive impact on the perception of internship success among interns. In internship research, it is related to other factors such as job demands, and psychological and behavioral factors. It is considered a positive factor that benefits the internship process. The resources jointly provided by schools and enterprises, such as practice management systems, school-enterprise relationships, teacher assignments, and project tasks, have a positive impact on internship learning outcomes (Zhu, 2021).

Therefore, the second research hypothesis of this study is proposed:

H2： Job resources have a significant impact on internship learning outcomes

The Relationship between Job Support and Internship Learning Outcomes

In the JD-R theory, work support is considered as a type of work resource. However, some studies mainly focus on job support, especially social relationship support. A study on medical student internships in Brazil found that seeking job support is not associated with burnout syndrome, and interns who participate in

community activities have a lower frequency of highly depersonalized individuals (Fontana et al., 2020); Alharbi et al., 2019).

Job support will form a good sharing organization. Job support has been found to be a relevant and important predictor of external and shared regulation (Goller et al., 2020). At the same time, regardless of internship compensation, supervisor support and guidance are important predictors of internship efficiency (McHugh, 2017). Thi Ngoc Ha and Dakich (2022) emphasized the crucial role of industry stakeholders, including the role of work supervisors throughout the entire internship process, as well as the key responsibility of universities in improving student internship experiences.

Work support is a positive factor that benefits the internship process. Discovered the relationship between job support and job requirements. That is to say, the support of colleagues actively moderates the relationship between interns' work pressure and work engagement (Azila Gbettor et al., 2022). Support not only helps to buffer the negative impact of demand but also benefits from the positive impact of work control. The relationship between job demands, job resources, and job support is complex.

Many studies have shown that work resources have a positive impact on workplace learning. Julian Decius et al. (2019) found that learning and feedback are positive factors for workplace learning. Decius et al. (2021) conducted a study on 702 blue-collar workers from small and medium-sized enterprises and found that organizational antecedents such as time pressure, supervisor support, colleague support, and error-related learning atmosphere have a direct impact on workplace learning. Therefore, promoting characteristics, behavioral traits, background and culture, cooperation and communication (feedback), knowledge and skills (acquiring knowledge) has established workplace learning in long-term care (Lierop V et al., 2022; Shien C, 2022； Bakker et al., 2021).

Based on the above research foundation, the third research hypothesis of this study is proposed:

H3： Job support has a significant positive impact on internship learning outcomes

METHODS

Samples

This study selected graduating interns from two vocational colleges in Wuxi city, China. Through cluster random sampling, select a class and invite all students in the class to participate in the survey, totaling 750 people. From February 10 to 20, 2024, 697 pieces of data were collected. The recovery rate is 92.93%. After data cleaning, 500 samples are used to the data analysis. The sample consists of 248 males (49.6%), 252 (50.4%) females. 45%, 9%, 13.2%, and 16.6% of the samples majored in engineering, business, art and design, and language, respectively, while 16.2% of the students majored in other majors.

Instrument

We have adopted widely used, reliable, and comprehensive scales. The job characteristics were measured using the JD-R scale developed by Scanlan and Still (2019). Job demands (5 items, such as "My job requires a high level of focus", alpha=0.857), job resources (4 items, such as "This job gives me the opportunity to exercise personal initiative or judgment in my work", alpha=0.913), job support (7 items, such as "My supervisor/manager motivates me to do my best", alpha=0.927). Classify the reactions from 1 (strongly disagree) to 5 (strongly agree), α=0.824。

While, internship learning outcomes include three dimensions, which are derived from Nghia, T.L.H., Duyen, N.T.M. (2019). Advance professional skills and knowledge (4 items, such as "Internship helped me develop soft skills required for my career", alpha=0.963). Consolidate professional skills and knowledge (4 items, such as "Internship helped me consolidate the knowledge I learned", alpha=0.975). Change Approach to learning (3 items, such as "Internship helped me recognize which subjects I should study harder." α=0.952). Classify the reactions from 1 (strongly disagree) to 5 (strongly agree), α=0.982。

RESULTS

Data Reliability Analysis

Reliability of test data. Cronbach's alpha coefficient is widely used. The higher the Cronbach's Alpha value, the higher the reliability and stability of the data questionnaire. If Cronbach's Alpha is higher than 0.7, it is acceptable. If it is higher than 0.8, the reliability is good (Sekaran et al., 2016). This study adopts 0.7 as the sufficient standard. The Cronbach's Alpha of the questionnaire is shown in the table below, and the results indicate good reliability of the scale.

Table 1 Reliability Test of Job Characteristics and Internship Learning Outcome Scale

Variables	Dimensions	Items	Cronbach's Alpha	
Job Characteristics	Job demand	5	0.857	0.824
	Job resource	4	0.913	
	Job support	7	0.927	
Internship learning outcomes	Advance professional skills and knowledge	4	0.963	0.969
	Consolidate professional skills and knowledge	4	0.975	
	Change Approach to learning	3	0.952	

Explanatory Factor Analysis Results

The data analysis results of the Job Characteristic Scale show that the KMO value of the Job Characteristic Scale is 0.882, which is higher than 0.8 and has a P-value of<0.001, reaching a very significant level. All of these indicate that the Job characteristics are suitable for factor analysis. Three factors were extracted through principal component analysis and the orthogonal rotation method. JD1-JD5 are extracted as a factor called job demand; JR1-JR4 have been extracted as work resources. JS1-JS7 was extracted as the third factor, which is job support. The load coefficients after rotation are all higher than 0.5. The eigenvalues of the three factors are 7.219, 2.919, and 1.266, all of which are greater than 1. The cumulative variance explained rate is 71.219%, indicating that these three factors have strong explanatory power. Therefore, the results indicate that the structural validity of the Job Characteristics Scale is good.

The KMO value of the Internship Learning Outcome Scale is 0.943, which is higher than 0.9 and has a P-value of<0.001, reaching a very significant level. All of these indicate that the results of internship learning are suitable for factor analysis. Three factors were extracted through principal component analysis and the orthogonal rotation method. ASK1, ASK3, and ASK4 are extracted as a factor called enhancing professional knowledge and skills; The factor loading of ASK2 is higher than 0.5 in both factors. Therefore, these projects will be deleted. CSK1-CSK4 was extracted as the second factor, which is to enhance professional knowledge and skills. CAL1-CAL4 was extracted into the third factor called "Change Approach to Learning". The load coefficients after rotation are all higher than 0.5. The eigenvalues of the three factors are 9.331, 0.441, and 0.345, respectively. The cumulative variance explanation rate is 91.965%, indicating that these three factors have strong explanatory power. Therefore, the results indicate that the construct validity of the Internship Learning Outcome Scale is good.

Results of Confirmatory Factor Analysis

In the fitting index, the smaller the value of X2/df, the better. When the sample size is large, the range of X2/df values is 2.0 to 5.0. They are considered acceptable between them. GFI and AGFI represent the goodness of fit index and adjusted goodness of fit, respectively. When the values of these two indices are higher than 0.9, they are generally considered to have good fitting performance, and the closer they are to 1, the better (Bagozzi et al., 1988). Due to the complex environment faced by research in fields such as psychology and sociology, it is difficult to achieve 0.9. Therefore, it is generally believed that as long as it exceeds 0.8, the model is considered acceptable (Bagozzi et al., 1988). When the RMSEA value is less than 0.1, it indicates a good fitting effect and can be applied. When the RMSEA value is less than 0.05, it indicates a good fitting effect, and when it is less than 0.01, it indicates an equivalent fitting effect. But it is difficult to appear in practical

applications. There are also related studies indicating that RMSEA values are usually lower than 0.085 or 0.08, indicating that the fitting effect is acceptable (Hooper et al., 2008). Judging from the fitting index, the fitting judgments of both scales are up to standard.

Table 2 Fitting Test of Job Characteristics and Internship Learning Outcomes

Job Characteristics				Internship learning outcomes			
Fitting index	Standard	T-values	Judgment	Fitting index	Standard	T-values	Judgment
X^2/df	1-5	2.876	Yes	1-5	4.29	4.29	Yes
SRMR	<0.08	0.067	Yes	<0.08	0.014	0.0137	Yes
GFI	>0.9	0.961	Yes	>0.9	0.967	0.967	Yes
AGFI	>0.9	0.937	Yes	>0.9	0.93	0.93	Yes
IFI	>0.9	0.983	Yes	>0.9	0,991	0.991	Yes
TLI	>0.9	0.977	Yes	>0.9	0.986	0.986	Yes
CFI	>0.9	0.983	Yes	>0.9	0.991	0.991	Yes
RMSEA	<0.08	0.061	Yes	<0.08	0.081	0.081	Yes

In addition, the adequacy of the results is measured by convergent validity and discriminant validity. The convergence effectiveness of the structure is measured using factor loading, average variance extraction (AVE), and composite reliability (CR) (Hair et al., 2022). The results showed that the factor load of job demand was (0.588-0.816), job resources was (0.594-0.999), and job support was (0.758-0.868), which were higher than the threshold of 0.60 and significant at p<0.001 (Chin, 2010). In addition, CR values (0.824-0.910) are above the 0.70 threshold, and AVE values (0.544-0.780) are above the 0.5 threshold (Fornell et al., 1981).

The CFA results and dimensions included in the internship outcome scale. It can be seen that the overall CR of the scale and all dimensions are greater than 0.7, the AVE is greater than 0.5, and the standardized load coefficients of each item in its latent variables are greater than 0.6, all of which have significant statistical significance under the condition of P<0.001. This indicates that the internship learning outcome scale in this study has a good combination of reliability and convergent validity, and the internal quality of the questionnaire designed in this study is outstanding.

The differential validity test of the other two scales meets the standard, The square root of AVE is greater than the correlation of potential dimensions, thus proving the effectiveness of discriminant validity.

As shown in Figure 2, the fitting degree of the theoretical model in this study meets the standard. In addition, both convergent validity and discriminant validity tests meet the standard.

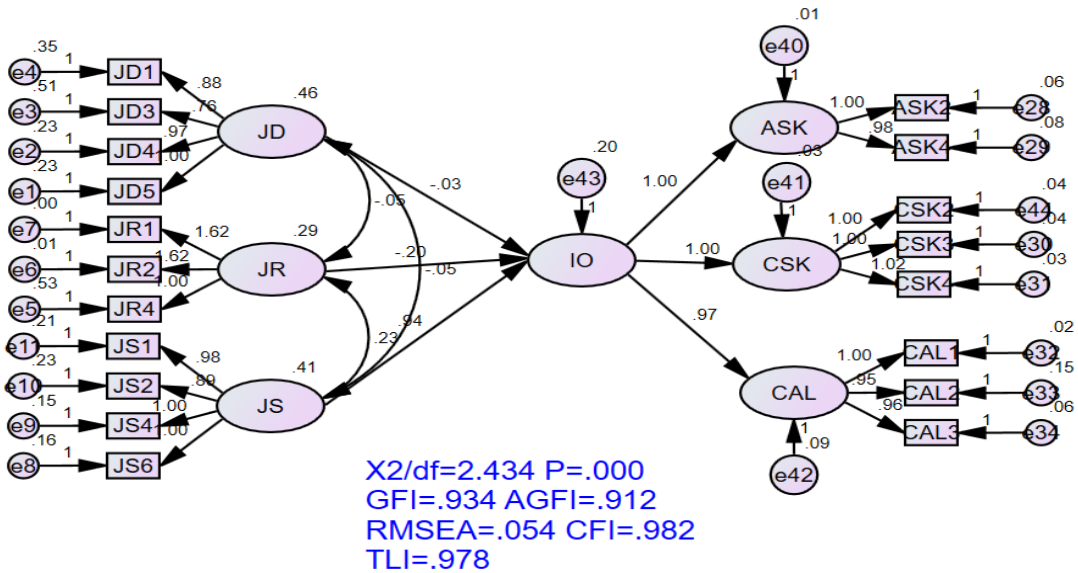

Figure 2 A Model Test for The Impact of Job Characteristics on the Internship Learning Outcomes

Hypothesis testing

Table 3 Hypothesis Test Results

Variable	Estimate	S.E.	C.R.	P	Judgment
JD-Job demands	-0.032	0.037	-0.861	0.389	Rejected
JR-Job Resources	-0.203	0.063	-3.225	0.001	Supported
JS-Job Support	0.941	0.061	15.452	***	Supported

Dependent variable: Internship Learning Outcomes- IO

These three hypotheses aim to discover whether the three dimensions of job characteristics have a significant impact on internship learning outcomes. According to the path parameters in Table 3. Work resources have a negative impact on internship learning outcomes ($P<0.05$); job support has a positive impact on internship learning outcomes ($P<0.001$). However, job demands did not affect the effectiveness of internship learning ($P>0.05$). This means that the characteristics of internship work have a significant impact on the overall learning outcomes of internships.

DISCUSSION

Job support has a positive effect on internship learning outcomes, which is in line with expectations. However, the role of job demands and job resources differs from expectations.

The results showed that there was no correlation between job demand and internship learning outcomes, which was the same as the findings of Lin et al. (2018). Therefore, it can be seen that for the intern, the job demands of the job design do not affect the intern's learning outcomes. Lin (2018) argues that job demands may not account for significant effects on learning. There are also studies that suggest that the impact of job demand on outcomes is not linear, but U-shaped, and even the impact of job demand is not singular and may be positive or negative (Song et al., 2023). A study conducted by Lin et al. (2023) found that the relationship between job demands and job control, as well as the relationship between job needs and social support from colleagues, was significantly associated with lifelong learning ($p<0.05$, $p<0.001$）。 Therefore, the role of job demand requires moderating variables, such as job resources (Song et al., 2023), job autonomy (van Ruyssefeldt et al., 2021) or work production (Lu et al., 2022), self-regulated learning (Lin et al., 2018), and work-related learning achievement needs (Loon et al., 2008). Raemdonck, I. et al. (2014) list a number of possible reasons why job demands have little impact on workplace learning and suggest that other factors will moderate this effect. For example, job autonomy or job control, which ultimately proposes a self-directed learning orientation. In a literature review by Park, Y et al. (2020), the factors influencing workplace learning were examined, and the results showed that informal learning enables employees to acquire job-related skills, which are often motivated by a desire to maintain employability. But internships are not the same, and the induction of interns may not be related to employability. A learning-oriented atmosphere and the provision of opportunities to integrate learning into the workplace are the main factors influencing the relationship between job demands and learning. Another article examining the role of JD-R (job demand, job control) in workplace learning uses job crafting as a mediating variable and also denies the impact of job demands (Decius et al., 2023).

The impact of job resources on internship learning outcomes is negative. It shows that the higher the job resources, the lower the internship learning outcomes. Although the results of this study were unexpected, they were the same as those of the JD-R theory predicting well-being, even in empirical studies of well-being, job performance, or job satisfaction. There are some examples where the impact of job resources on outcomes is negatively correlated or unrelated. Job autonomy is a key component of the measure dimension of job resources. According to Goner et al. (2020) survey of 118 engineering interns in Belgium, job control does not appear to be an important or positive factor affecting student learning. One possible explanation, he argues, is that students use external rules, especially if they work closely with their tutors. In this case, interns may feel low control over their work, but when confronted with questions and problems, they will only feel that there are few barriers to asking questions to their mentor rather than trying to solve them on their own.

This study once again demonstrates the direct impact of job support on internship learning outcomes. Job support has a significant impact on the work planning of interns. The beta value is 0.941. This result corresponds to the study by (Goner et al., 2020; Decius et al., 2021; Thi Ngoc Ha & Dakich, 2022). He used JDCS to study how work characteristics affect internship learning and found that job support, job demands, and job control have a much lower explanatory power on the learning experienced by engineering students during internships than they should. His research also indicates that job support has a significant impact on internship learning.

REFERENCES

1. Alharbi, A. R., & Alhosis, K. F. (2019). The challenges and difficulties of the nursing interns during their clinical internship in Qassim Region, Saudi Arabia. Saudi Journal for Health Sciences, 8(1), 6.
2. Azila-Gbettor, E. M., Atsu, E., & Quarshie, A. N. K. (2022). Job stress and job involvement among tertiary interns: the buffering role of perceived coworker support. Heliyon, 8(9), e10414.
3. Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation models. Journal of the Academy of Marketing Science, 16(1), 74–94. https://doi.org/10.1007/BF02723327
4. Bakker, A. B., & de Vries, J. D. (2021). Job Demands–Resources theory and self-regulation: new explanations and remedies for job burnout. Anxiety, Stress, & Coping, 34(1), 1-21. https://doi.org/10.1080/10615806.2020.1797695
5. Bakker, A. B., van Veldhoven, M., & Xanthopoulou, D. (2010). Beyond the Demand-Control Model Thriving on High Job Demands and Resources. JOURNAL OF PERSONNEL PSYCHOLOGY, 9(1), 3–16. https://doi.org/10.1027/1866-5888/a000006
6. Decius, J., Knappstein, M., Schaper, N., & Seifert, A. (2023). Investigating the multidimensionality of informal learning: Validation of a short measure for white-collar workers. Human Resource Development Quarterly, 34(1), 45–74. https://doi.org/10.1002/hrdq.21461
7. Decius, J., Schaper, N. & Seifert. (2021). A. Work Characteristics or Workers' Characteristics? An Input-Process-Output Perspective on Informal Workplace Learning of Blue-Collar Workers. Vocations and Learning ,14, 285–326. https://doi.org/10.1007/s12186-021-09265-5
8. Fontana, M. C. P., Generoso, I. P., Sizilio, A., & Bivanco-Lima, D. (2020). Burnout syndrome, extracurricular activities and social support among Brazilian internship medical students: a cross-sectional analysis. BMC medical education, 20(1), 1-9.
9. Fornell, C. and Larcker, D.F. (1981), "Evaluating structural equation models with unobservable variables and measurement error", Journal of Marketing Research, Vol. 18 No. 1, pp. 39-50.
10. Goller, M., Harteis, C., Gijbels, D., & Donche, V. (2020). Engineering students' learning during internships: Exploring the explanatory power of the job demands-control-support model. Journal of Engineering Education, 109(2), 307-324. https://doi.org/10.1002/jee.20308
11. Hooper, D., Coughlan, J., & Mullen, M. (2008, September). Evaluating model fit: a synthesis of the structural equation modelling literature. In 7th European Conference on research methodology for business and management studies (Vol. 2008, pp. 195-200).
12. Hussien, F. M., & La Lopa, M. (2018). The determinants of student satisfaction with internship programs in the hospitality industry: A case study in the USA. Journal of Human Resources in Hospitality & Tourism, 17(4), 502-527. https://doi.org/10.1080/15332845.2018.1486600
13. Julian Decius,Niclas Schaper,Andreas Seifert.（2019）.Informal workplace learning: Development and validation of a measure. Volume30, Issue4: 495-535. https://doi.org/10.1002/hrdq.21368
14. Lin, X.-F., Liang, J.-C., Tsai, C.-C., & Hu, Q. (2018). The moderating role of self-regulated learning in job characteristics and attitudes towards web-based continuing learning in the airlines workplace. Australasian Journal of Educational Technology, 34(1), Article 1. https://doi.org/10.14742/ajet.3198
15. Lin, Y. L., Chen, H. L., Chen, Y. Y., Cheng, S. Y., Chen, W. L., Chiu, Y. C., & Chiu, Y. L. (2023). The effects of job characteristics on physicians' orientation toward lifelong learning. Advances in Health Sciences Education, 1-19. DOI:10.1007/s10459-022-10202-x
16. Loon, M., & Casimir, G. (2008). Job-demand for learning and job-related learning: The moderating effect of need for achievement. JOURNAL OF MANAGERIAL PSYCHOLOGY, 23(1), 89–102. https://doi.org/10.1108/02683940810849684

17. Lu, W., Wu, H., Liu, S., Guo, Z., & He, X. (2022). Why customer mistreatment undermines hospitality employees' performance: The moderating role of job crafting. International Journal of Contemporary Hospitality Management, 34(10), 3588–3606. https://doi.org/10.1108/IJCHM-06-2021-0801
18. McHugh, P. P. (2017). The impact of compensation, supervision and work design on internship efficacy: implications for educators, employers and prospective interns. Journal of Education and Work, 30(4), 367-382.
19. Nghia, T.L.H., Duyen, N.T.M. (2019). Developing and validating a scale for evaluating internship-related learning outcomes. High Educ 77, 1–18. https://doi.org/10.1007/s10734-018-0251-4
20. Park, Y., Woo, H., Oh, M. R., & Park, S. (2020). The role and related variables of workplace learning in quantitative research. Industrial and Commercial Training, 53(1), 29-59.DOI 10.1108/ICT-02-2020-0023
21. Raemdonck, I., Gijbels, D., & Van Groen, W. (2014). The influence of job characteristics and self-directed learning orientation on workplace learning. International Journal of Training and Development, 18(3), 188-203.
22. Sekaran, U., & Bougie, R. (2016). Research Methods for Business: A Skill Building Approach. John Wiley & Sons.
23. Shien Chue, Roger Säljö, Yew-Jin Lee & Ethan Loke-Wee Pang (2022) Spills and thrills: internship challenges for learning in epistemic spaces, Journal of Education and Work, 35:2, 167-180, DOI: 10.1080/13639080.2021.2018410
24. Song, H., Gao, R., Zhang, Q., & Li, Y. (2023). The nonlinear effect of time pressure on innovation performance: New insights from a meta-analysis and an empirical study. FRONTIERS IN PSYCHOLOGY, 13, 1049174. https://doi.org/10.3389/fpsyg.2022.1049174
25. Thi Ngoc Ha, N., & Dakich, E. (2022). Student internship experiences: areas for improvement and student choices of internship practices. Education+ Training, 64 (4), 516-532.
26. Van Lierop, M.E.A., Meijers, J.M.M., van Rossum, E. et al. (2022). How to establish workplace learning in long-term care: results from a World Café dialogue. BMC Nurs 21, 241. https://doi.org/10.1186/s12912-022-00999-8
27. van Ruysseveldt, J., Van Wiggen-Valkenburg, T., & van Dam, K. (2021). The self-initiated work adjustment for learning scale: Development and validation. JOURNAL OF MANAGERIAL PSYCHOLOGY, 36(6), 491–504. https://doi.org/10.1108/JMP-04-2020-0198
28. Zhu, C. L., (2021). How to promote higher education internship to form higher quality--An empirical study based on "school-enterprise-student". China Higher Education Research,01,103-107.