

A Mixed Model Approach for Identifying the Impact of Soft Productivity Factors on Employee Turnover among Information Technology Employees in Sri Lanka

**D.M.K.N. Seneviratna^{1,*} , L.L.G. Chathuranga² ,
W.M.C.J.T. Kithulwatta³ , and R.M.K.T. Rathnayaka⁴ **

¹Department of Interdisciplinary Studies, Faculty of Engineering, University of Ruhuna, Sri Lanka.

²Department of Computer Science, Faculty of Sciences, University of Ruhuna, Sri Lanka

³Faculty of Technological Studies, Uva Wellassa University, Sri Lanka

⁴Research Centre for Grey Systems and Uncertainty Analysis, Department of Physical Sciences and Technology, Faculty of Applied Sciences, Sabaragamuwa University, Sri Lanka

*Corresponding author: seneviratna@is.ruh.ac.lk

Received: 10th November 2023 / Revised: 1st May 2024 / Published: 10th July 2024

©IAppstat-SL2024

ABSTRACT

Employee turnover has become one of the major issues in the IT industry today; especially the productivity of an organization is deeply related to the employee turnover rate. The objectives of the current study are to investigate the basic factors that affect employee turnover, examine the relationships between selected soft productivity factors with employee turnover, and suggest ways of minimizing employee turnover rates in IT companies. Initially, eleven soft productivity factors are considered. The selected factors are categorized into two different categories workplace environment and employee capability and experience. In the first phase of analysis, the descriptive research approach was followed and data was collected from 150 IT professionals currently employed in IT companies in Sri Lanka, using a structured questionnaire. According to the results, a strong positive relationship can be seen between (0.676) working environment, (0.789) employees' capabilities

and experience, (0.881) collaboration among employees, (0.891) career development opportunities, and (0.774) learning opportunities concerning employee turnover. Further, lack of sufficient telecommunication facilities, tools, and development resources, the friendly working environment also effects on retaining of employees.

Keywords: Employee turnover, IT industry, working environment, Employee capabilities

1 Introduction

In the modern world, Information Technology (IT) has become one of the most competitive industries that have moved to utilize modern technologies to improve their business processes; especially industries in the IT sector have been rapidly changing with the innovation of technologies, customer requirements, and business environments to sustain proper quality under real-world circumstances (Chowdhury et al., 2017).

Several factors have been directly affecting the productivity of an organization. Among them, employee turnover is a significant factor that is considered to be a major challenging issue in the modern world today (Boxall et al., 2018). According to the definition, employee turnover is a comparison ratio of the number of employees an organization should replace in a given period (Tambunan, 2017). However, due to local as well as global demand for high-skill professionals, employee turnover has created a major issue in the IT industry today (Chiu and Francesco, 2023); especially, many employees after being well-trained and having rich top-level knowledge of the particular skills, leave the company with the intention of having better opportunities, which creates one of the major issues in the IT industry today (Lambert et al., 2021).

Theoretically, the high turnover rate of the company may be harmful to its productivity if skilled employees leave frequently and the worker population contains a high percentage of novice employees (Lee and Mitchell, 2016; Lambert et al., 2021; Zhao et al., 2022; Shahzad et al., 2018) state that the high rate of turnover positively influences to decrease in the productivity of the company (Zhao et al., 2022).

The experience levels and skills of employees are some of the major factors which are considered. According to the literature, very few studies have been done related to examining employee turnover and related matters in the IT industry in Sri Lanka. By representing small, medium, and large IT industries, the workforce survey done by the Information and Communication Technology Agency of Sri Lanka (ICTA) found that the ICT workforce in Sri Lanka is relatively young and aged nearly 20-30. Furthermore, they have emphasized that workforce with 67% of employees have five or less number of years of experience (ICTA, 2020). Indeed, the finding identified that

58% of the workforce need a high necessity of improving the complementary soft skills of ICT workers along with core knowledge and technical skills, communication skills, teamwork, and creative thinking abilities (ICTA, 2020). Furthermore, they have described that most employers have expressed their willingness to recruit fresh graduates who are graduating from local and international Universities to ICT companies has been increasing the attrition of work from 9.9% to 14% respectively from 2013 to 2022 (ICTA, 2020).

The youth literacy level of Sri Lanka has reached over 98% level (ICTA, 2020). Currently, most students are attentive to pursue their higher studies in this globalized, innovative subject. Indeed, both government and private universities are continuously producing new IT-qualified graduates. Furthermore, IT companies have been building a knowledgeable workforce by absorbing qualified employees. However, employee experience level is the most significant factor in the industry to maintain a great demand and sustain good positions.

The main objective of this study is to identify the most significant factors that affect employee turnover in the IT industry in Sri Lanka. We believe that pinpointing the factors contributing to employee resignations will significantly enhance industry development. Therefore the main purpose is to identify the actual reasons behind turnover and its damaging effects on the productivity of the IT industry in Sri Lanka. This can have a wide range of causes.

The other objectives are as follows.

- To identify the factors affecting the employee turnover of the IT industry in Sri Lanka
- To identify how they will impact the employee turnover of the IT industry in Sri Lanka
- To identify how should the effective factors be handled to decrease turnover retention

This paper is organized as follows. The first chapter is the introduction part that presents the overview of the study, statement of the problem, turnover and productivity, hypothesis and research model, objectives, research problems, and limitations of the study. The second chapter comes up discusses the research method, research design, data collection method, and tools. The results of the study and a discussion of the results are presented in chapter three. Finally, chapter four presents the conclusion and recommendations.

2 Methodology

This research study is going to investigate the relationships between selected soft productivity factors that affect employee turnover in the IT industry in

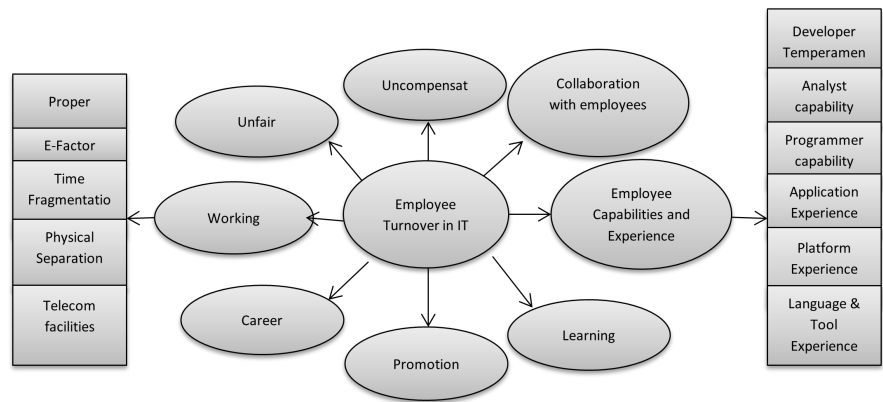


Fig. 1: Research Model

Sri Lanka. Nevertheless, the repetitive nature of the company’s tasks seems to prompt workers to seek turnover from their positions. So, this study explores how organizational management can mitigate the impact of these factors to attain optimal organizational performance.

2.1 Research Model

The research model is essential to make sure of the objectives of the study and to build the most relevant hypotheses for the study. As a practice, all the significant factors under the study are reviewed (Muchinsky and Tuttle, 2019; Rathnayaka, 2014; Mobley, 1997; Steel and Ovalle, 1984).

The framework in Figure 1 shows the model of the research and the relationships between selected variables. Eight major factors were considered in the study and six out of them were considered as basic factors of employee turnover. Those are; Working Environment, Employee Capabilities and Experience, Unfair Management, Uncompensated Salary, Collaboration with Employees, Career Development, Promotion Mechanism, and Learning Opportunities. Working Environment and Employee Capability and Experience are further divided into sub-factors.

2.2 Requirement Analysis: Study Population

In this study, data was collected from Sri Lankan employees who are working in IT organizations without considering their employee capacity sizes such as small, medium, or large. The major data collection method used in the study was a questionnaire survey. The data collection was mainly carried out through questionnaires and surveys developed through internet-based online questionnaires. Questionnaires were distributed through email and social media networks.

Table 1: Results of Reliability Tests

Reliability Statistics		
Variable	Cronbach's Alpha	Accept/Reject/Moderate
Basic Factors (BF)	0.656	Accepted
Proper workplace (PW)	0.63	Accepted
E- factor (EF)	0.242	Moderately Accepted
Time fragmentation (TF)	0.552	Moderately Accepted
Physical separation (PS)	0.254	Moderately Accepted
Telecommunication facilities (TF)	0.651	Accepted
Personal factors (PF)	0.641	Accepted
Developer temperaments (DT)	0.567	Moderately Accepted
Analyst capabilities (AC)	0.905	Accepted
Programmer capabilities (PC)	0.775	Accepted
Experience level (EL)	0.738	Accepted
Manager Capability (MC)	0.765	Accepted

To collect data on employees' intentions to depart from their respective organizations, a sample of 150 respondents from top-level IT companies in Sri Lanka participated in a self-administered questionnaire. This sample included systems designers, senior systems analysts, systems analysts, IT coordinators, and IT managers. The participants were selected based on the stratified sampling approach.

3 Results and Discussion

3.1 Reliability Testing

Before the questionnaires were distributed, it was very critical to ensure the validity and reliability of the questions to get the most relevant and accurate data from the respondents. Therefore reliability is tested before collecting the data to filter the most valid questionnaire. Cronbach's Alpha serves as an indicator of internal consistency, gauging the degree to which a set of items are interrelated as a cohesive unit. Additionally, it is widely recognized as a measure of scale reliability. Table 1 shows the result of Cronbach's Alpha test and shows that the selected dimensions have relatively high internal consistency.

3.2 Data Presentation: Demographic Background of the Respondents

Out of all the respondents who participated in the questionnaire, most of them were male respondents (81%). According to the questionnaire, Employees' age was grouped into five categories as; below 25, between 25-35, between 36-45, between 46-50, and above 50. However, all the respondent's ages were below 45 and most of them (81.9%) were below 25. Furthermore, 94 of the respondents were single and it is nearly 89.5% out of all.

To ascertain the academic qualifications of employees, the qualification was categorized into five parts. Out of the data gathered, the majority of respondents, 132 (88.6%) were degree holders, 12 (8.1%) were diploma holders, 4 (2.6%) were Master holders and 2 (1.3%) of all respondent's highest education level was Advanced Level. Responses from the employees indicated that the majority of the employees were software engineers and it was 82 (54.3%) out of 150 respondents. The second highest position of the employees as the responses indicated was Quality Assurance Engineers and there were 22 (14.6%) Quality Assurance Engineers and 7 Business Analysts, 6.7% as a percentage out of all.

Employees' experience level is also considered in the study and responses were asked to indicate their experience time period in the industry. Experience of employees is categorized into five categories as; less than one year, between 1-2 years, between 3-5 years, between 6-10 years, and more than 10 years. Among them, 42.9% of employees had indicated their experience level as less than one year and 32.4% had 1-2 years of experience in the industry.

3.3 Behavioral Analysis and Interpretation

The questions contained in this section were related to the basic factors that were assumed to affect employee turnover. The questions are selected based on the eight basic factors that were assumed to affect employee turnover. The results gained from the Chi-square test, related to eight basic factors are shown below in Table 2. The Hypotheses that were built for correlation testing are tested to check the association between considering variables.

According to Table 2 results gained from chi-square tests, selected all hypotheses are accepted under the 0.05 level of significance. According to the results, a strong positive relationship can be seen between (0.676) working environment, (0.789) employees' capabilities and experience, (0.881) collaboration among employees, (0.891) career development opportunities, and (0.774) learning opportunities concerning employee turnover.

3.4 Organizational Factors Affecting employee turnover

The conclusion summarizes the major results that can be drawn from the information presented in the article. It answers the questions raised by the original research problem or objectives of the study. When drawing conclusions, first state the main conclusion, and then any other conclusions in decreasing

Table 2: Results of chi-square test related to the basic factors of employee turnover

Hypothesis	Chi-square Value	df	Asymp. Sig. (2-sided)	Results	Influence Correlation
H1: Working Environment has a significant influence on employee turnover in IT sector	42.866	16	.000	Accepted	0.676
H2: Employee Capabilities and Experience has a significant influence on employee turnover in IT sector.	43.98	16	.0012	Accepted	0.789
H3: Unfair Management has a significant influence on employee turnover in IT sector	51.414	16	.000	Accepted	-0.865
H4: Uncompensated Salary has a significant influence on employee turnover in IT sector	35.512	16	.003	Accepted	-0.763
H5: Collaboration with employees has a significant influence on employee turnover in IT sector	30.658	16	.015	Accepted	0.881
H6: Career Development has a significant influence on employee turnover in IT sector	65.641	16	.000	Accepted	0.891
H7: Promotion Mechanism has a significant influence on employee turnover in IT sector	62.093	16	.000	Accepted	0.802
H8: Learning opportunities has a significant influence on employee turnover in IT sector	30.729	16	.015	Accepted	0.774

Table 3: Results of chi-square test related to organizational factors affecting employee turnover

Hypothesis	Chi-square Value	df	Asymp. Sig. (2-sided)	Results	Influence Correlation
H9: Workplace Condition has a significant influence on employee turnover in IT sector	32.727	16	.008	-	0.768
H10: E-Factor has a significant influence on employee turnover in IT sector	30.483	16	.016	Accepted	0.897
H11: Time Fragmentation a significant influence on employee turnover in IT sector	30.522	16	.015	Accepted	0.761
H12: Physical Separation a significant influence on employee turnover in IT sector	29.733	16	.019	Accepted	-0.752
H13: Telecommunication Facilities significant influence on employee turnover in IT sector	34.751	16	.004	Accepted	0.871

order of importance. You can also present first the positive conclusions and then the negative conclusions. Conclusions must be based on the findings of your re- search, and do not subjectively make statements related to the re- search. State the limitations and advantages of your research, and finally give a reasoned and justifiable statement on the importance of your findings.

According to the chi-square tests, all hypotheses are significant at level 0.05, which means all the factors considered are strongly supported by employee turnover. The empirical results reveal that, a strong positive relationship between (0.768) workplace conditions, (0.897) E-factor, (0.761) time fragmentation, and (0.871) telecommunication facilities concerning employee turnover.

3.5 Structural Equation Modeling (SEM) Approach

As the next step, Structural Equation Modeling (SEM) was used to examine the impact of soft productivity factors affecting on employee turnover in the IT industry. The SEM is generally run under the six basic steps of model

Table 4: Model fit indices for the selected model in Figure 2

Fit indices	Perfect fit	Accepted fit	Model fit results
x^2/df	$x^2/df < 3$	$3 < x^2/df < 5$	1.993
RMSEA	$0 < \text{RMSEA} < 0.05$	$0.05 < \text{RMSEA} < 0.08$	0.046
IFI	$0.95 < \text{IFI} < 1$	$0.09 < \text{IFI} < 0.95$	0.932
NNFI	$0.97 < \text{NNFI} < 1$	$0.095 < \text{NNFI} < 0.97$	0.965
AGFI	$0.90 < \text{AGFI} < 1$	$0.85 < \text{AGFI} < 0.9$	0.892

specifications. They are; evaluation model identification, selection of the measures and collection, preparation and screening data, and model estimation (Zhang and Zhang, 2022). The implemented structural relationship diagram is given in Figure 2.

In the second phase of the analysis, confirmatory factor analysis (CFA) was carried out to determine the appropriateness and goodness-of-fit of the proposed model.

According to the goodness of fit results in Table 4, significantly less value of chi-square ($P < 0.05$), great values of RMSEA ($0.05 < 0.0465 < 0.08$), AGFI ($0.85 < 0.892 < 0.9$), IFI ($0.09 < \text{IFI} < 0.932$) and NNFI ($0.095 < 0.965 < 0.97$) suggested that the estimated model is a good fit for estimating decisions. The goodness of fit results in Table 5 revealed that the selected indices significantly exceeded their acceptance levels and reached perfect fit levels. So as a next step, standardized coefficients were calculated for the proposed model.

The result given in Table 6 shows that the coefficients of all selected observed variables had a significant positive influence on employee turnover in the IT industry in Sri Lanka.

The Pearson correlation coefficient matrix was prepared to examine the relations between selected variables. Table 6 results suggested that the working environment ($r = 0.94$, $p < 0.01$) and Personal factors ($r = 0.828$, $p < 0.01$) are strongly correlated as hypothesized. These findings are consistent with the theoretical and empirical contribution of previous studies done by Premadasa et al. (2019) based on various cultural frameworks.

4 Conclusion

The impact of soft productivity factors on employee turnover among Information Technology (IT) professionals in Sri Lanka is a subject of considerable interest and concern. Soft productivity factors encompass various intangible elements such as job satisfaction, work-life balance, organizational culture, and interpersonal relationships, which significantly influence employees' decisions to stay or leave their positions. Understanding the relationship between these factors and employee turnover is vital for IT companies in Sri Lanka,

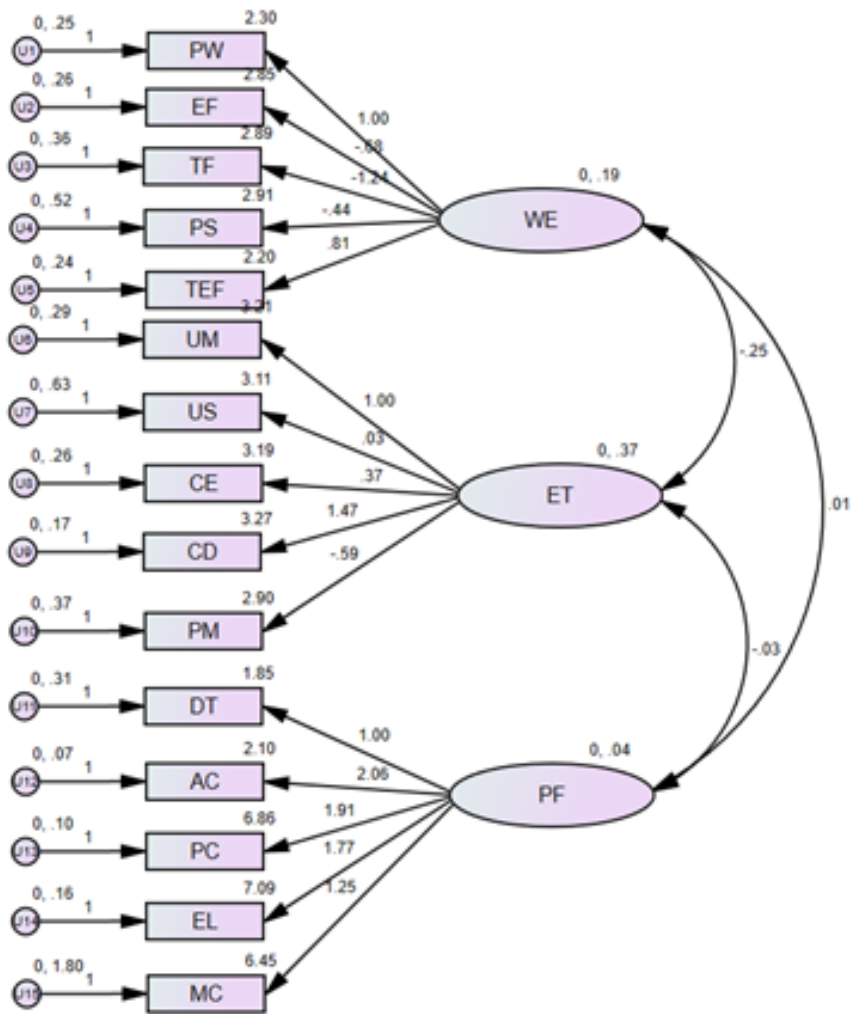


Fig. 2: SEM Model

Table 5: Maximum Likelihood Estimates for Regression Weights

			Estimate	S.E.	C.R.	P
PW	<—	WE	1.000			
EF	<—	WE	-.684	.152	-4.508	***
TF	<—	WE	-1.236	.215	-5.756	***
PS	<—	WE	-.435	.184	-2.367	.018
TEF	<—	WE	.815	.157	5.190	***
UM	<—	ET	1.000			
US	<—	ET	.027	.136	.195	.845
CE	<—	ET	.368	.093	3.940	***
CD	<—	ET	1.466	.168	8.717	***
PM	<—	ET	-.589	.118	-4.996	***
DT	<—	PF	1.000			
AC	<—	PF	2.061	.689	2.994	.003
PC	<—	PF	1.914	.643	2.977	.003
EL	<—	PF	1.769	.611	2.896	.004
MC	<—	PF	1.249	.859	1.455	.146

Table 6: Relationships Between Variables

			Estimate
WE	<—>	ET	-.940
PF	<—>	ET	-.828
PF	<—>	WE	.074

given the competitive nature of the industry and the challenges associated with talent retention (Rathnayaka and Wang, 2012). By investigating the impact of soft productivity factors on employee turnover, organizations can identify strategies to enhance employee satisfaction, improve retention rates, and ultimately foster a more stable and productive workforce within the IT sector of Sri Lanka.

The study was conducted through a sampling survey using employees who were working in IT companies and there was no specification of companies to select the employees for the survey. The general objective of the study is to understand the basic factors for employee turnover in the IT industry in Sri Lanka. Furthermore, the specific objectives of the study are to understand how selected soft productivity factors affect employee turnover in the IT industry

and to measure the degree to which soft productivity factors contribute to employee turnover.

According to the results obtained 73.3% of respondents accepted that they are totally satisfied with their workplace and It seems that most employees are happy with their current workplace. 32.3% of total respondents accepted that they were not happy with their management and 36.2% of them were dissatisfied with their uncompensated salary. 70.4% of respondents completely agreed that they had good relationships with team members. Out of 105 respondents in order 54.2%, 51.4%, and 55.2% agreed that there are sufficient career development programs, promotion mechanisms, and better learning opportunities in their workplace.

As results show improper work environment, uncompensated salary, and unfair management cause employee dissatisfaction with the workplace (Rathnayaka and Wang, 2012, 2014). Further, it shows that good relationships between team members is a critical factor that makes employee retained. Furthermore, the results indicate a strong relationship between the working environment and employee turnover. Working conditions, E-factor, time fragmentation, physical separation of team members, and telecommunication facilities are significant factors in the working environment factor which impact employee intention to leave. Most employees are distributed in the same building, provided with sufficient telecommunication facilities, have good skills, and contain teams that are enriched of different skilled team members.

References

- Boxall, P., Macky, K. and Rasmussen, E., (2018) Labour turnover and retention in New Zealand; the causes and consequences of leaving and staying with employers, *Asia Pacific Journal of Human Resources*, 41 (2): 196-214.
- Chiu, C.K. and Francesco, M.A., (2023) Dispositional traits and turnover intention: Examining the mediating role of job satisfaction and affective commitment, *International Journal of Manpower*, 24(1): 284-298.
- Chowdhury, A., Mamun, M. and Hasan N., (2017) Factors affecting employee turnover and sound retention strategies in business organization: a conceptual view, *Problems and Perspectives in Management*, 15 (1): 63-71.
- Information and Communication Technology Agency of Sri Lanka, 2020 Annual Reports.
- Lambert, E.G., Hogan, N. and Barton, S.M., (2021) The impact of job satisfaction on turnover intent: a test of a structural assessment model sample of workers, *The Social Science Journal*, 38 (02): 233-250.
- Lee, T.W. and Mitchell, T.R., (2016) An alternative approach: The unfolding model of voluntary employee turnover, *Academy of Management Review*, 19(1): 51-89.

- Mobley, W.H., (1997) Intermediate linkages in the relationship between job and satisfaction and employee turnover. *Journal of Applied Psychology*, 62(1): 237-240.
- Muchinsky, P.M. and Tuttle, M.L., (2019) Employee Turnover an Empirical and Methodological Assessment, *Journal of Vocational Behavior*, 14(1): 43-47.
- Rathnayaka, R. M. K. T., (2014) Cross Cultural Dimensions of Business Communication Evidence from Sri Lanka, *International Review of Management and Business Research*, 3(3) 1579-1587.
- Rathnayaka, R. M. K. T. and Wang Z., (2012) Influence of Family Status on the Dietary Patterns and Nutritional Levels of Children, *Food and Nutrition Sciences*, 3(8) : 1055-1059. doi: 10.4236/fns.2012.38140.
- Rathnayaka, R. M. K. T. and Wang Z., (2014) Prevalence and Effect of Personal Hygiene on Transmission of Helminthes Infection among Primary School Children Living in Slums, *International Journal of Multidisciplinary Research*, 2(7): 1-13.
- Premadasa, H.K., Rathnayaka, R.M.K.T. and Thiranagama, W., (2019) Re-modeling the educational usage of Facebook in smart-mobile age. *Educ Inf Technol*, 24(1): 41–61 <https://doi.org/10.1007/s10639-018-9759-6>.
- Shahzad, K., Bashir, S. and Ramay, M.I., (2018) Impact of HR practices on the perceived performance of University teachers in Pakistan. *International Business Review*, 4(2): 110-123.
- Steel, R.P. and Ovalle, N.K., (1984) A review and meta-analysis of research on the relationship between behavioral intentions and employee turnover. *Journal of Applied Psychology*, 69(1); 673-686.
- Tambunan, T., (2017) Entrepreneurship development: SMEs in Indonesia. *Journal of Developmental Entrepreneurship*, 12 (1): 95-118.
- Zhang, M. and Zhang, D., (2022) A Study on the Factors Influencing Voluntary Turnover in IT Companies, *China Soft Science*, 5 (1): 76-80.
- Zhao, X.P., Liu, L. and Zhang, C.Z., (2022) A Multi-Variable Analysis on Factors Influencing Employee's Turnover Intention, *China Soft Science*, 3(1); 71-74.