Literature Analysis of Teacher Happiness Research Based on VOSviewer

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Abstract. Happiness, especially career happiness, has increasingly become an important topic of concern. Research on teacher happiness has also developed over the past three decades. This paper uses VOSviewer to analyze the literature on teacher happiness in WoS database, carries out some quantitative and qualitative discussions, and puts forward some suggestions on strengthening international communication, paying attention to organizational behavior, and paying attention to disciplinary integration.

Keywords: VOSviewer, Teacher, Happiness

1   Introduction

Happiness is the evaluation of both affective and cognitive states of emotion felt in the sum aspect of the individual's life[1]. Individuals spent most of their time in their workplace which raises the concern that such need to feel happy at one's workplace is also deemed to be very important[2]. Historically, employees have been given more demands for greater results. Many of their demands are ignored, and their feelings or developments are not given the attention. Employee's satisfaction or happiness is seen as a less necessary factor,and the notion of employee's happiness in the management field has not received due attention[3]. Companies and schools have both this problem.But now, there is a growing awareness that an employee's workplace happiness has an important impact on the organization as a whole, and that ignoring it can lead to great trouble. The results also found that the constructs of work happiness have negative relationships with both intention to leave the organization and the career[4], organisations are expected to be able to focus on keeping their employees happy in order to retain them and to ensure high performance[5]. The abovementioned findings project the idea of workplace happiness to be one of the significant contributors of organisational success[6]. Joan[7]put forward indicators and specific models to test happiness at work. The IO-OI model[8] and Positive Organizational Behavior[9] have also been proposed as an important way to cultivate occupational happiness, which provides help for us to understand and study occupational happiness.

Happiness and well-being at work has been an increasingly popular topic in the past two decades in academic and business contexts alike, along with positive psychology, through which organizations aim to find out what makes working environments engaging and motivating. Few studies have focused on education, however, especially from a solution-

focused perspective, even though it is a sector where employees are highly exposed to stress and burnout[10].Therefore, this paper attempts to introduce the structure and quantitative information of the field through visual analysis of the research literature on teacher happiness, outline the general framework of the research in this field, and show the research focus, development trend and suggestions for the future in this field.

2 Methods and materials

VOSviewer is a bibliometrical analysis software developed by Nees Jan van Eck and Ludo Waltman of Leiden University in the Netherlands in 2009 to draw the map of scientific knowledge, which can effectively view and analyze the problems in a certain research field through label view, density view, cluster density view, scattered attempt, etc[11]. In this paper, it will be used to conduct several types of analysis: time, journal, author, country analysis, keyword analysis, cluster analysis, research frontier analysis.

Based on Web Science (WoS) publications, which contain a large number of peer-recognized journals and papers, or its authority and breadth, this paper uses the literature collected by WoS as research data. The specific method is as follows: taking "happiness" and "teacher" as the main topics in WoS, the search time is unlimited (the literature search time is November 2023), and the non-research contents such as materials and books are removed, then a total of 472 literatures are retrieved. TXT format text is exported from WoS and imported into VOSviewer for statistical analysis. The research structure is as follows(Table 1):

Table 1. Bibliometric review structure methodology chart.

Procedure	Content
Step 1	Collect literature from wos
Step 2	Download all documents obtained after cleaning the literature (TXT)
Step 3	Export the downloaded document to the VOSviewer software
Step 4	Bibliographic atlas analysis
Step 5	Build tables and charts and discuss them

3 Data analysis

3.1 Publication time

Figure 1 shows the publication trend of research literature on teacher happiness. Although the study of happiness has begun long ago, the attention of teachers is relatively late, and only 30 years will elapsed from the first research paper in 1993 to 2023. Moreover, in the first decade of the 21st century, the development was also very slow, with an annual average of 3.8 articles, and the annual peak was only 6. From 2010 to 2014, the number of literatures began to increase gradually, with an annual average of 19. At the beginning of 2015, rapid growth reached an average annual rate of 37.4 articles, explosive growth reached 51 articles in 2019, and peaked at 64 articles in 2022. This trend has been influenced by the development of the positive psychology movement since 2000, and is closely related to the increasing emphasis on education and teachers in the current society. And there is no clear sign of a decline.
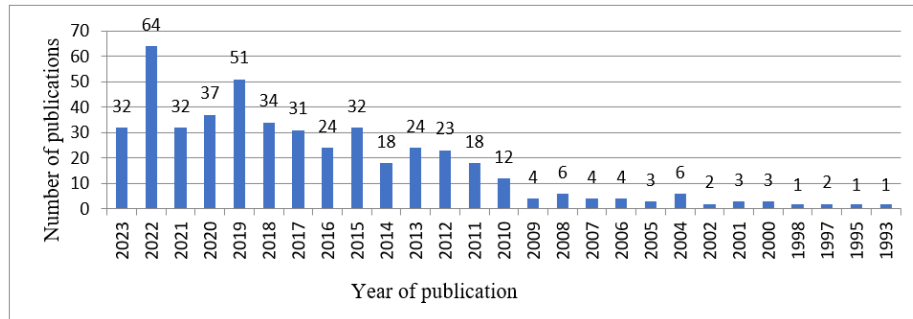
Figure 1. Time distribution of literature publication.

3.2 Journals for publication

472 articles were published in 351 journals. Among them, 275 journals published only one article, and 76 journals published two or more articles. Table 2 shows the top 10 publications in terms of publication volume, as well as the number of publications, the proportion, the earliest and latest publication time, the maximum publication time and the number of publications. "FRONTIERS IN PSYCHOLOGY" has the largest number of publications, reaching 33, accounting for 6.99% of the total number of publications. The second is "PROCEDIA SOCIAL AND BEHAVIORAL SCIENCES", with 16 papers, accounting for 3.39%; Only four journals published more than 10 articles. The data show that the research is relatively scattered and started late, most of the papers were published after 2014, and the largest number of papers was concentrated after 2018, which is consistent with the overall development trend of related research.

Table 2. Information about the top10 publications and the volume of publications.

Journal Name	Article	Percentage	First Article	Last Article	Maximum publication year/ Maximum number of publications
FRONTIERS IN PSYCHOLOGY	33	6.99%	2014	2023	2022/16
PROCEDIA SOCIAL AND BEHAVIORAL SCIENCES	16	3.39%	2010	2016	2011,2015/4
INTED PROCEEDINGS	11	2.33%	2014	2020	2019/4
EDULEARN PROCEEDINGS	10	2.12%	2010	2019	2018,2019/3
JOURNAL OF HAPPINESS STUDIES	9	1.91%	2008	2021	2013/3
PSYCHOLOGY IN THE SCHOOLS	8	1.70%	2004	2023	2004,2023/2
SUSTAINABILITY	8	1.70%	2018	2022	2022/5
ADVANCES IN SOCIAL SCIENCE EDUCATION AND HUMANITIES RESEARCH	6	1.27%	2015	2018	2015,2017,2018/2

ICERI PROCEEDINGS	6	1.27%	2015	2019	2019/2
CHILD INDICATORS R ESEARCH	5	1.06%	2017	2023	2017,2019,2020,2022,2023/1

3.3 Author Analysis

The distribution of major research forces can be understood by analyzing the authors. Table 3 shows the ranking of countries with more than 10 publications, reflecting the number of publications in different countries or regions. It can be seen that China paid the most attention to this field and published the most papers, reaching 104, accounting for 22.034%; This was followed by 87 articles from the United States (18.432%). On the whole, Europe and Asia pay more attention to this area, which also describes the trend of the gradual spread of research in this field from Europe to other parts of the world.

Table 3. Information on the top10 countries and volume of publications.

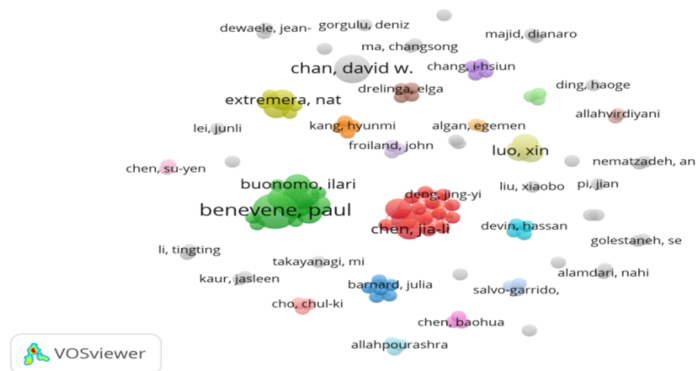| Country	Article	Percentage	Country	Article	Percentage
CHINA	104	22.034	IRAN	18	3.814
USA	87	18.432	CANADA	17	3.602
ENGLAND	38	8.051	ITALY	14	2.966
SPAIN	38	8.051	INDONESIA	11	2.331
AUSTRALIA	21	4.449	NETHERLANDS	11	2.331
TURKEY	20	4.237	PORTUGAL	10	2.119

Figure 2. Co-occurrence map of authors.

VOSviewer was used to conduct co-occurrence analysis of authors, as shown in Figure 2. Each color represents a different cluster, the size of the circle indicates the number of published articles, and the larger each author circle, the more articles published. The relationship between each node represents the closeness of the author. It can be seen that several large author groups have been formed, and the relationship between them is relatively close. However, from the perspective of author attributes, author clusters are mostly collections within their own countries, especially in China and the United States. On the one hand, this proves the dominant position of Chinese and American research in this field, as well as the extensive contacts among internal authors. But at the same time, it also shows that on

the whole, no solid international relations have been established, there are few research links between different countries, and international cooperation needs to be further strengthened.

3.4 Keyword co-occurrence and cluster analysis

The co-occurrence analysis of keywords was carried out, and the results were shown in Figure 3. The size of each circle represents the frequency of keyword occurrence, and the distance of the circle represents the relevance of the keyword. The color of the circle distinguishes different clusters, and the same color belongs to the same cluster, and its correlation is closer. The results showed that in addition to words such as "teacher""happiness" and "work","burnout""subjective""stress""behavior""interventions""model""chinese""metaanalysi s""healthstatus""knowledge""sharing""selfefficacy""education""personality""achievement""sa tisfaction""lifeimpact""scale""adultlearner""awareness""preschool""mentalhealth""customersa tis""currentsituation""effectiveince" are very prominent, and also indicate that the frequency of occurrence as a keyword is very high, which is the focus of attention in the field.
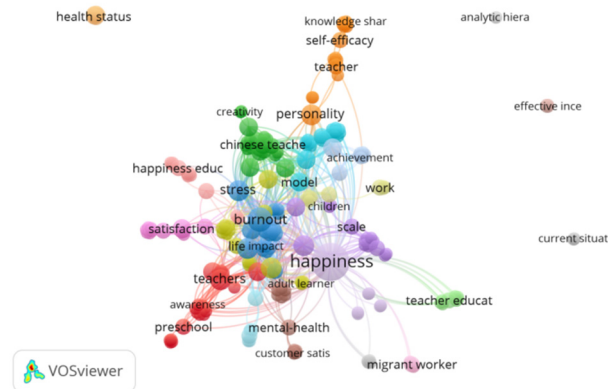

Figure 3. Keyword co-occurrence map.

According to the co-occurrence of keywords, cluster statistics are carried out on the keywords, and seven important and obvious clusters are found, as shown in Table 4. For example, the first cluster focuses on "awareness", "interventions" and "metaanalysis", which mainly involves the analysis and intervention of happiness; The second cluster takes "subjective well-being", "validation" and gratitude "as its core, which involves analyzing and verifying happiness from positive psychology, focusing on gratitude awareness and teachers' personal feelings. The third cluster focuses on "burnout", "stress" and "positive emotions", focusing on the internal factors affecting teachers' happiness, especially occupational stress. The fourth cluster focuses on "support", the fifth cluster focuses on the behavior of different groups, the sixth cluster focuses on "intrinsic motivation" and "life satisfaction", and the seventh cluster focuses on "bias". On the whole, this field focuses on the nature and stage of teachers' school, teacher-student relationship, self-perception and self-identity, external pressure and social support, etc., including the concept definition of happiness, influencing factors, intervention measures, evaluation methods, verification means and other contents, and the research content is rich.

Table 4. Keyword clustering statistical table.

Cluster	Keyword
Cluster 1	awareness,conceptual framework,distributed leadership,early-childhood,emotional intelligence,interventions,kindergarten,mediating role,metaanalysis,mindfulness,organizational happiness,perceived stress,play ,quality of work life ,skills,social and emotional
Cluster 2	character strengths,chinese teachers,counting blessings,creativity,directions,discriminant,efficacy,forgiveness ,gratitude,gratitude intervention,hong kong,human strength ,intervention ,meaning ,pleasure,orientations to happiness,positive psychology,school teachers,strength,subjective well-being,validation
Cluster 3	burnout,compassion,coping styles, early-childhood teacher,impact,italian early childhood,job-satisfaction,person-organization,positive emotions, proactive strategies,school context,self-regulation,stress,student-teachers,subjective happiness,work engagement
Cluster 4	adjustment,adult learner,depression,externalizing behavior,ogratitude disposition,lifelong education,participate motivation,peer conflict resolution,pre-service early chldhood teacher,school emotional experiences,secondary school students,self-determination,self-esteem,social support,success,teacher support
Cluster 5	adulthood,behavior,children,chinese adolescents,education,elementary-school,gender,health,initial teacher training,management,people happier,prosocialness ,scale,school climate ,self-efficacy beliefs, teacher's role,teaching
Cluster 6	adolescents,african-american,autonomy,autonomy support,competition,course-taking ,intrinsic motivation ,learning-goals ,model,life satisfaction,motivational style,physical education ,psychological needs ,subjective vitality ,teacher-student relation
Cluster 7	bias,chaotic circumstances,creativity,self-efficacy,hapiness,helping behavior,knowledge sharing,models,personality,preschool teachers,professional self-identity,psychology,recommendations,self-efficacy,singapore,sustainable happiness,teacher,vocational happiness

Table 5. Ranking of research areas.

Research Areas	Record Count	Percentage	Research Areas	Record Count	Percentage
Education Research	185	39.195	Environmental Sciences Ecology	15	3.178
Psychology	164	34.746	Linguistics	14	2.966
Social Sciences Other Topics	63	13.347	Psychiatry	13	2.754
Public Environmental Occupational Health	26	5.508	Family Studies	12	2.542
Science Technology Other Topics	20	4.237	Sociology	12	2.542
Business Economics	18	3.814	Pediatrics	10	2.119
Computer Science	15	3.178	Rehabilitation	10	2.119

Table 5 shows the ranking of research areas in this field according to the volume of literature published. Pedagogy is the main research direction, followed by psychology and sociology, business economics, computer science, environmental science, linguistics, psychiatry and so on are also involved. Combined with the keyword clustering in Table 4, it can be seen that the research focus of this field is pedagogy and psychology, but it involves relatively rich disciplines and directions, and diversified research methods, which increasingly highlights the characteristics of interdisciplinary.

3.5 Research trend analysis

Figure 4 shows the results of visual analysis of keyword coverage in the field of teacher happiness research over the past 20 years. The color of the corresponding node represents the time when the keywords appear, which can clearly see the evolution process of the research progress in this field. From the perspective of long-term development, it reflects some trends and characteristics. After entering the 21st century, studies on teacher happiness in China began to appear and increase rapidly, focusing on the orientation, discrimination, meaning and other aspects of teacher happiness, especially the clarification of concepts. After entering the second decade, subjective well-being, job burnout, external pressure, self-perception, life satisfaction and personality have become one of the focuses of attention, highlighting the internal emotional expression of teachers. After 2015, the increase in the content of school environment, behavior, social support, proactive strategies, job satisfaction, and intervention can be seen as the result of the further application of organizational behavior in this field. More attention is paid to the important influence of organizational behavior on happiness. After 2020, key words such as knowledge contribution, helping behavior, sustainable happiness and emotional labor appear, which initially reflects the change of the influence and regulating factors of teachers' happiness from satisfying life and work to realizing value recognition.
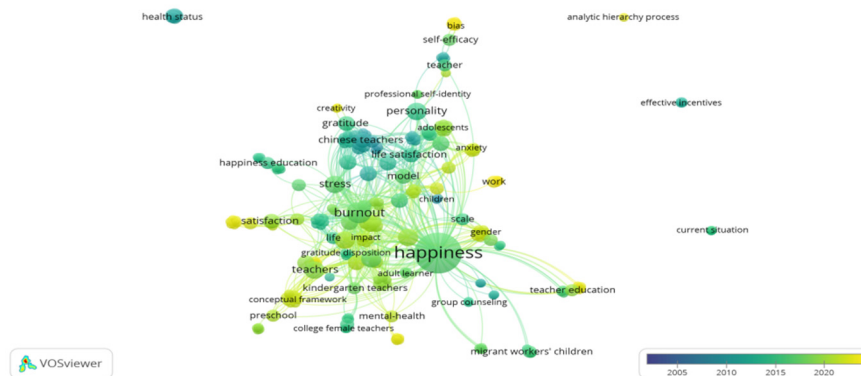

Figure 4. Visual analysis diagram of keyword coverage.

4 Conclusion

This paper uses VOSviewer to analyze the research literature in the field of teacher happiness in WoS database, focusing on publication time, publication, author relationship, keywords and cluster analysis. The relevant data reveal some characteristics of the research in the field of teacher happiness.

The richness and scope of research results are global, but the degree of international exchange and cooperative research is relatively low. From the time point of view, it started late but developed rapidly, especially in the last decade has made great progress, stable in a high trend. From the perspective of author distribution, China, the United States and other places have the

most extensive researchers, forming some closely related research groups, but there are still few international connections.

The diversification of research concerns and the influencing factors of happiness have always been the focus issues. From the perspective of attention groups, Chinese teachers and young teachers have received more attention, possibly because there are more researchers in China and young teachers face greater difficulties in adapting to their professional identity. From the perspective of research methods, focusing on pedagogy and psychology, it provides a theoretical or methodological basis for the study of teacher happiness. Moreover, the cross-disciplinary research and empirical research are more prominent. From the perspective of research content, keyword clustering shows that the concept definition of happiness, influencing factors, intervention measures, evaluation methods and verification means are key research areas.

Trends and suggestions of teacher happiness in research. Teachers' happiness is closely related to teachers' professional identity and professional characteristics. With the increasing application of organizational behavior, it has become an important trend to pay more attention to the relationship between organizational behavior and teachers' happiness. At the same time, based on scholars' criticism of the arbitrariness of happiness measurement, more perfect and accurate measurement theories and models should be built on the basis of organizational behavior. In view of the importance of happiness to organizational trust, sense of belonging, job performance and personal accomplishment, more attention should be paid to the intervention and cultivation of teachers' happiness. Relevant theories of sociology and ecology will provide good reference. At the same time, more extensive international cooperation can be attempted, such as comparative research, to understand the differences in teachers' happiness under different cultural psychology, social environment and institutional norms.

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