International Journal of Knowledge Processing Studies
(KPS)

ORIGINAL RESEARCH ARTICLE

Visualization of Social Capital Knowledge Based on a Pathology in the Education System Using a Fuzzy Approach

Saeed Abdolzadeh[1], Yadollah Abbaszadeh Sohroun[2*], Peyman Yarmohammadzadeh[3]

[1] *PhD student in Educational Management, Islamic Azad University, Marand branch, Iran. abdolzadeh.sd@gmail.com*
[2] *Assistant Professor, Department of Governmental management, Islamic Azad University, Khoy Branch, Iran. (Corresponding Author) marandya@yahoo.com, 0000-0003-1094-4833*
[3] *Associate Professor of Educational Administration, Department of Education, Faculty of Education and Psychology, Azarbaijan Shahid Madani University. dr.peyman.ymz@gmail.com, 0000-0003-2976-1009*

ARTICLE INFO

ABSTRACT

This research aims to depict the knowledge of social capital based on pathology in the education system using a fuzzy approach. In terms of approach, it is mixed research, and in terms of method, it used theme analysis and fuzzy analysis. The study population was university professors and managers in the general education departments. Through purposeful sampling, based on criteria, the target sample was selected and sampling continued until the theoretical saturation of the data was reached. Therefore, the participants in the research included 12 professors and administrators. The data collection tool in this research is a semi-structured interview. In the fuzzy part, a researcher-made paired questionnaire was also used. In this research, the questionnaire of paired comparisons with a spectrum of 1-9 hours was used. Nvivo software was used in the thematic analysis. In fuzzy analysis, the hierarchical technique was used in MATLAB software. 70 sub-categories and 13 core categories were identified, each of which was located in different classes. Individual factors, structural factors, educational factors, managerial factors, solidarity and cohesion, social and family factors, institutional factors, collaborative factors, educational, cultural, and ideological policies, network relations, job satisfaction, and valuing social status as categories. ©**authors**

Introduction

The transfer of information and knowledge at the micro and macro level between individuals and organizations depends on the people who make this transfer easy and fast (Boadi et al., 2022). As a result, all the factors that encourage interpersonal communication or hinder it will also affect people's information exchange (Coppe et al., 2022). For this reason, the importance of trust-based communication and interaction between people in the development and application of knowledge has been emphasized (Vâlsan et al., 2023). If an organization can increase the effective interaction among its employees within organizational groups and units, it can ensure the effectiveness of information exchanges between its people and, as a result, the effective management of organizational knowledge (Shiell et al., 2020).

Therefore, creating and expanding the culture and atmosphere in the organization that encourages this type of communication and interaction is one of the necessities of knowledge management. Based on this, researchers have decided to test and explain the relationship between social capital and various dimensions, processes, and activities of knowledge management in the organization (Qiao et al., 2022). Experimental studies that have examined and studied the relationship between social capital and various activities of knowledge management are not very extensive (März et al., 2020). Adler &. Kwon (2002), in his research, showed that there is a significant relationship between social capital and knowledge transfer. Lesser (2009), believes that there are at least two preliminary motivations in today's business environment that require individuals, organizations, and governments to pay attention to the effects of social capital and its impact on economic growth and organizational success: 1- Importance of organization based on knowledge; 2- The growth of the networked economy (Baker-Doyle et al., 2020).

Education, which is a major social institution, due to its relationship with other social institutions, requires an extensive analysis from a sociological point of view (Son, 2020) and provide ways to solve them (Taylor, Fleisch, & Shindler, 2019). In various service organizations, failure to strengthen social capital and promote it causes alienation from work among employees (Rastegarhhaled, Kaveh and Mohammadi, 2013), on the other hand, with the decline and decline of social capital, we witness discrimination, inequality, immigration, There will be a lack of public trust, a decrease in social participation, the decline of charity, an increase in deviations and addictions, and the collapse of the family and the gap between generations, which will require a detailed social research to investigate the importance and impact of each of these variables (Thomas et al., 2019).

Rapid changes in the competitive environment and customer needs have turned attention to the knowledge creation process into one of the necessities of commercial organizations, but this does not mean that governmental and non-commercial organizations need to pay attention to this issue. Attention and emphasis on the creation and sharing of knowledge in government organizations can help these organizations in performing their duties and responding as best as possible to the demands of stakeholders and public needs (Claridge, 2018).

One of the important organizational capabilities that can greatly help organizations in creating and sharing knowledge and create a sustainable organizational advantage for them in comparison with other organizations is social capital (Au, 2019). This is a relatively new and important point of view about the theory of organization, which is currently presented by several other experts. Social capital is one of the important capabilities and assets of an organization that can greatly help organizations in creating and sharing knowledge (Alfano, 2022).

Bollinger & Smith (2001), believed that if social knowledge is defined as a way to work with knowledge situations among people in communication structures and trust and dialogue, then social knowledge management can be applied to management methods in particular Social knowledge among people by

considering the radius of trust and special connections among them or even among institutions by considering mutual relations with consensus and compliance with the rules of knowledge. Kim et al. (2013), social capital and knowledge are very necessary for economic entrepreneurship in the future. The existence of social capital towards the exchange and learning of skills and techniques causes an increase in the knowledge process among companies in different societies and reduces the risk of vital information leaving the organization for exploitation by competitors. In practice, it is these societies that are responsible for the connection of social capital and knowledge, and it is this knowledge flows that are the best and fastest, and it is this social capital that also supports the knowledge flows in education, so based on the information-oriented structure of education this research seeks an answer to this question that what is the visualization of social capital knowledge based on pathology in the education system?

Literature Review

According to Putnam, social capital is those features of social organization that facilitate coordination and cooperation for mutual benefit. These characteristics include networks, norms of reciprocity, and social trust (Putnam, 2004). The ability of actors to secure advantages and benefits through membership in social networks or other social structures, in turn, leads to the internalization of a certain set of values and norms that others can enjoy their privileges and benefits. (Skeffert, 2020). Social capital, unlike other life capitals, is not physically obvious, but rather results from the group and social interactions and norms, which, if this type of capital is not given priority, the level of social and personal life costs will increase. (Moghimi et al., 2021).

Weerakoon & McMurray (2020) stated in their study that mistrust has an effective and reducing effect on social relationships and social bonding, and this provides a good basis for the social isolation of people. With the increase in the level of social relations, social despair, feelings of helplessness, and loneliness decrease, and in contrast to social

tolerance, the main difference of this type of capital (social capital) is its intangibility, which is the reason why social capital cannot be directly measured (Prasetyo et al., 2020). Collective or social problems are associated with the concept of social harm, which refers to any kind of individual and collective behavior and actions that do not fall within the framework of collective rules and face legal and customary prohibitions. Prevention and elimination of social damage depend on social planning and scientific knowledge of characteristics and behaviors. It should be noted that social harm is closely related to the quality of social relations, therefore, the concept of social capital is used to examine the quality of social relations (Asquith, 2019).

Since mental well-being includes people's emotional and cognitive evaluation of their quality of life and plays an important role in mental health, its decrease causes mental and social disorders and the overall decrease in quality of life. Connecting to support and communication factors can lead to maintaining health and increasing mental well-being, improving mental well-being can be a result of attraction towards appropriate interactions in people's desire to join the community and avoid isolation and loneliness, and as a result benefit from The benefits of collective life that bring flourishing creativity, and individual growth, followed by social development, should be an effective factor (Adelinejad et al., 2021).

Spillane (2020) conducted a research titled "School Principal and Social Capital Development in Primary Schools: The Formative Years". Based on data analysis from a longitudinal study of 35 principals, school principals perceive the challenge of social capital in two ways: first, developing their relationships with key stakeholders such as teachers, parents, and students. Second, efforts to create and improve relationships between stakeholders, both within stakeholder groups and among stakeholder groups (for example, among teachers, between teachers and students). In addition, school principals use a combination of three strategies to make them feel They overcome the challenge of social capital - being visible and accessible to stakeholders. Creating an

infrastructure to foster relationships with, within, and between stakeholders. And by focusing on the nature and/or content of these interactions, they carry out their relationships within and between the interested groups.

Amiri et al. (2020) in their research entitled "A flow of Iran's social capital and its factors. Social development and welfare programs" concluded that with the development of endogenous growth models, human and social capital as factors The main is economic growth. In this regard, social capital, which is one of the main components of trust, has found a prominent place in growth studies. In this study, the relationship between growth and social capital in Iran has been examined according to the theoretical foundations of economic growth models. The results show that social capital, together with other factors of production, had a significant effect on economic growth. In order to predict and plan for the future improvement of social capital, the social capital model has been measured. Among the factors affecting social capital, age and employment in agriculture, suburbanization, income inequality, and migration have a significant and negative effect on social capital, while education, women's labor force participation, employment in industry and services, home ownership and family formation has a positive effect on social capital.

Daly, Liou & Der-Martirosian (2020) in a research entitled "Examination of the relationship between human and social capital and student progress in schools" concluded that teachers' human and social capital each have a positive relationship with student progress. In addition, both the human and social capital of teachers together have a stronger effect on student achievement than either human or social capital alone. Stephany (2019) in research entitled "Like a shelf deepens: educational mobility and social capital in Germany" using the German Socioeconomic Panel Survey from 1984 to 2014, various analyzes were achieved on the relationship between social capital and educational success. Social capital, which is beneficial for educational and social success, clearly depends on the educational background of the family. This indirect link

has been neglected in past contributions. Alternative forms of education, such as comprehensive and full-time education, as well as delaying the decision to enter higher education, can help ameliorate the inheritance of unequal social capital.

Considering that a lot of research has been done in the field of social capital, the obstacles and problems of this type of vital capital in the education system have been less addressed. Also, little research has been done on the consequences that the lack of appropriate social capital will have for society and solutions to solve these problems. The present study has taken into consideration the damage caused by the lack of quality of social capital in an important part of society, namely education. In addition to these basic effects that pay little attention to society and culture, this study is the main concern.

Methodology

This research used a mixed methodology including thematic and fuzzy analysis. The study population was university professors and managers in the general education departments. Through purposeful sampling, based on criteria, the target sample was selected and sampling continued until the theoretical saturation of the data was reached. Therefore, the participants in the research included 12 professors and administrators.

The data collection tool for the qualitative partcomprised a semi-structured interview. In the fuzzy part, a researcher-made paired questionnaire was used. In this research, the questionnaire of paired comparisons with a spectrum of 1-9 hours was used. Considering its importance in the theme analysis approach, the process of analyzing the data obtained from the text of the interviews were done at the same time as the data was collected through three stages of open coding and they were classified in the form of themes and subcategories. Nvivo software was used for the thematic analysis. In fuzzy analysis, the hierarchical technique was used in MATLAB software.

Guba and Lincoln's (1980) method was used to ensure validity and reliability. They counted four criteria "reliability, transferability, reliability, and verifiability" in

order to evaluate the scientific accuracy of the research. With respect to credibility, the participant control method was used.

After collecting the information using the FAHP method, the weight of the indicators and options will be determined, since the main component in this field is decision-making by simultaneously considering multiple considerations, therefore, multi-criteria decision-making techniques (MCDM) was used. The data analysis was performed in three steps, which are:

1- Making pairwise comparisons between the main criteria in the model

2- Carrying out paired comparisons between the sub-criteria of each of the main criteria

3- Carrying out pairwise comparisons between the effective factors for each of the sub-criteria in the research model.

Findings

Table 1 shows the demographic information of the interviewees. In thematic analysis, coding and analysis are done at the same time as collecting information. With open coding, many themes were obtained, and during the process of going back and forth, the primary qualitative data set was reduced to fewer categories. In this stage, using raw data, preliminary categories related to social capital were extracted through comparison and analysis of phenomena.

Table 1. Demographic information

Code	Age	Education	Gender
1	37	MA	Male
2	42	P.H.D	Male
3	44	P.H.D	Female
4	46	P.H.D	Male
5	39	MA	Male
6	51	P.H.D	Male
7	47	P.H.D	Female
8	48	P.H.D	Male
9	51	P.H.D	Male
10	48	P.H.D	Male
11	39	MA	Male
12	52	P.H.D	Man

Based on qualitative data analysis and open coding, the general categories of the research were extracted from the main body of the interviews and were placed in one main line, which can be seen in Table 2. In the stage of

open coding and by coding based on a paragraph, the researcher extracted 70 primary concepts, these primary codes are shown in Table 2.

Table 2. Identified codes

| Categories	Subcategories
Cultural and social damage	Dogmatism in social consciousness
	social wear
	The strictness of social obligation
	The decline of social knowledge
Environmental and organizational damage	Organizational conflicts with collective capital
	Erosion of organizational principles
	The decline of cognitive capital
Structural and content damage	Underdevelopment of thoughts in environmental relations
	Structural conflicts in the heart of the organization
	Erosion of social structure
	Effectiveness of behavioral abnormalities
Interactive and communication damage	Cognitive behavioral petrification
	The reluctance of collective partnership
	The decline of trust and resilience
	The dominance of behavioral abnormalities
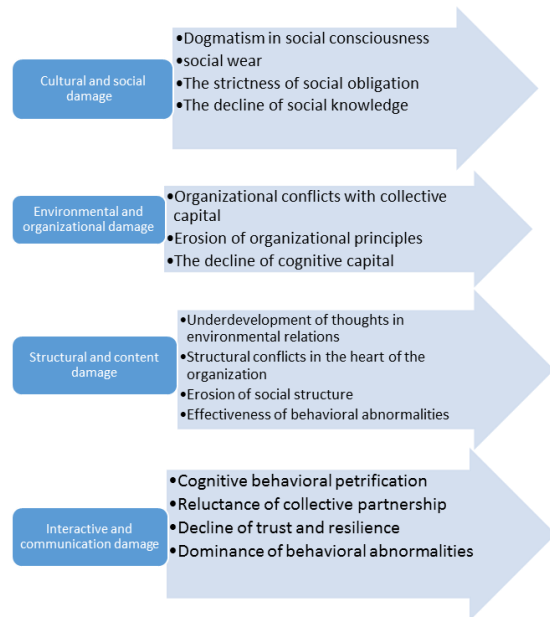
Figure 1. *The final pattern of pathology of social capital*

The Kappa index to confirm the validity of the identified factors was 0.87.

A nine-point scale was used for pairwise comparison of elements. The nine-point scale was presented by Thomas Saaty, the author of the theory of hierarchical analysis. Also, in this study, the fuzzy approach was used to quantify the values. For this purpose, Saaty's phase spectrum was used.

Table 3. Equivalent phase spectrum of Saaty's nine-point scale in AHP technique

Verbal comparative of i respect to j	Fuzzy equivalent	Inverse fuzzy equivalent
Preferred Equally	(1, 1, 1)	(1,1,1)
moderate	(1, 2, 3)	$\left(\frac{1}{3},\frac{1}{2},1\right)$
Preferred moderately	(2, 3, 4)	$\left(\frac{1}{4},\frac{1}{3},\frac{1}{2}\right)$
moderate	(3, 4, 5)	$\left(\frac{1}{5},\frac{1}{4},\frac{1}{3}\right)$
Preferred Strongly	(4, 5, 6)	$\left(\frac{1}{6},\frac{1}{5},\frac{1}{4}\right)$
moderate	(5, 6, 7)	$\left(\frac{1}{7},\frac{1}{6},\frac{1}{5}\right)$
very strongly Preferred	(6, 7, 8)	$\left(\frac{1}{8},\frac{1}{7},\frac{1}{6}\right)$
moderate	(7, 8, 9)	$\left(\frac{1}{9},\frac{1}{8},\frac{1}{7}\right)$
Extremely Preferred	(9, 9, 9)	$\left(\frac{1}{9},\frac{1}{9},\frac{1}{9}\right)$

In the first step, the main criteria based on the goal have been compared in pairs. Pairwise comparison is very simple and all the elements of each cluster must be compared in pairs. Therefore, if there are *n* elements in a cluster, $\frac{n(n-1)}{2}$ comparisons will be made. Because there are five criteria, so the number of comparisons is equal to:

$$\frac{n(n-1)}{2} = \frac{4(4-1)}{2} = 6$$

Therefore, 6 pairwise comparisons have been made from the point of view of a group of experts. The opinion of the experts was quantified using a fuzzy scale. Compilation of the opinion of experts has been compiled with a spectrum of nine hourly degrees. Fuzzification of the experts' point of view is based on Table 4. To summarize the opinion of experts, it is better to use the geometric mean of each of the three triangular fuzzy numbers.

(1)
$$F_{AGR} = \left(\prod(l), \prod(m), \prod(u)\right)$$

Using the fuzzy geometric mean of the experts' point of view, the pairwise comparison matrix is shown in Table 4.

Table 4. Pairwise comparison matrix of main criteria

C4	C3	C2	C1	
(0.38, 0.46, 0.55)	(0.65, 0.79, 0.97)	(0.58, 0.7, 0.85)	(1, 1, 1)	**C1**
(0.58, 0.66, 0.78)	(1.46, 1.9, 2.38)	(1, 1, 1)	(1.17, 1.44, 1.73)	**C2**
(0.66, 0.82, 1.03)	(1, 1, 1)	(0.42, 0.53, 0.68)	(1.03, 1.27, 1.55)	**C3**
(1, 1, 1)	(0.97, 1.23, 1.52)	(1.28, 1.5, 1.74)	(1.83, 2.19, 2.63)	**C4**

After forming the matrix of pairwise comparisons, the eigenvector was calculated. First, the fuzzy expansion of each line was calculated. Each row of the pairwise comparison matrix $\tilde{X}$ is represented as $\tilde{x}_{ij}$. The fuzzy expansion of each row is also represented by the symbol $\tilde{S}_i$. Therefore, the fuzzy expansion of each line will be calculated as follows:

(2)
$$\tilde{S}_i = \sum_{j=1}^{n} x_{ij}$$

Therefore, the fuzzy expansion of the elements of each row will be as follows:

(1, 1, 1) ⊕ (0.58, 0.7, 0.85) ⊕ (0.65, 0.79, 0.97) ⊕ (0.38, 0.46, 0.55) ⊕ (0.56, 0.68, 0.87) = (3.16, 3.63, 4.24)

(1.17, 1.44, 1.73) ⊕ (1, 1, 1) ⊕ (1.46, 1.9, 2.38) ⊕ (0.58, 0.66, 0.78) ⊕ (1.54, 1.89, 2.29) = (5.75, 6.9, 8.18)

(1.03, 1.27, 1.55) ⊕ (0.42, 0.53, 0.68) ⊕ (1, 1, 1) ⊕ (0.66, 0.82, 1.03) ⊕ (1.09, 1.36, 1.71) = (4.2, 4.97, 5.97)

(1.83, 2.19, 2.63) ⊕ (1.28, 1.5, 1.74) ⊕ (0.97, 1.23, 1.52) ⊕ (1, 1, 1) ⊕ (2.04, 2.46, 2.95) = (7.12, 8.38, 9.83

Therefore, the fuzzy expansion of the preferences of each of the main criteria will be as follows:

$$\sum_{j=1}^{5} x_{1j} = (3.16, 3.63, 4.24)$$

$$\sum_{j=1}^{5} x_{2j} = (5.75, 6.9, 8.18)$$

$$\sum_{j=1}^{5} x_{3j} = (4.2, 4.97, 5.97)$$

$$\sum_{j=1}^{5} x_{4j} = \quad (7.12, 8.38, 9.83)$$

Then the fuzzy sum of the total elements of the preferences column is calculated:

(3)
$$\sum \tilde{S}_i = \sum_{i=1}^{n} \sum_{j=1}^{n} x_{ij}$$

The sum of the elements of the preferences column of the main criteria will be as follows:

$$\sum_{i=1}^{5} \sum_{j=1}^{5} x_{ij} = (23.9, 28.01, 33.07)$$

To normalize the preferences of each criterion, the sum of values of that criterion must be divided by the sum of all preferences (elements of the column). Because the values are fuzzy, the fuzzy sum of each row is multiplied by the inverse of the sum. The inverse of the sum must be calculated.

(4)
$$if \; \tilde{F} = (l, m, u) \; then \; \tilde{F}^{-1} = \left(\frac{1}{u}, \frac{1}{m}, \frac{1}{l} \right)$$

Therefore, based on relation 4, we will have:

$$\left(\sum_{i=1}^{n} \sum_{j=1}^{n} x_{ij} \right)^{-1} = (0.03, 0.036, 0.042)$$

$$S_k = \sum_{i=1}^{n} M * \left(\sum_{i=1}^{n} \sum_{j=1}^{n} M_g^j \right)^{-1}$$

Therefore, the results of normalizing the obtained values will be as follows:

$$\widetilde{W}_{C1} = \quad (0.1, 0.13, 0.18)$$

$$\widetilde{W}_{C2} = \quad (0.17, 0.25, 0.34)$$

$$\widetilde{W}_{C3} = \quad (0.13, 0.18, 0.25)$$

$$\widetilde{W}_{C4} = \quad (0.22, 0.3, 0.41)$$

Each of the obtained fuzzy and normalized weight values are related to the main criteria. De-fuzzification of values: There are several methods such as Chang's degree of feasibility method, surface center method and

Minkowski method for de-fuzzification. In this study, for de-fuzzification of the center of gravity method by George Bojadziev & Maria Bojadziev (2007) was used.

(5)
$$x_{max}^1 = \frac{l + m + u}{3} \; ; \quad x_{max}^2 = \frac{l + 2m + u}{4} \; ;$$

$$x_{max}^3 = \frac{l + 4m + u}{6}$$

Crisp number $= Z^* = \max \{ x_{max}^1, x_{max}^2, x_{max}^3 \}$

It should be noted that the calculated weights are non-phase, but should be normalized.

Table 5. *De-fuzzification of the final weight values of the main criteria*

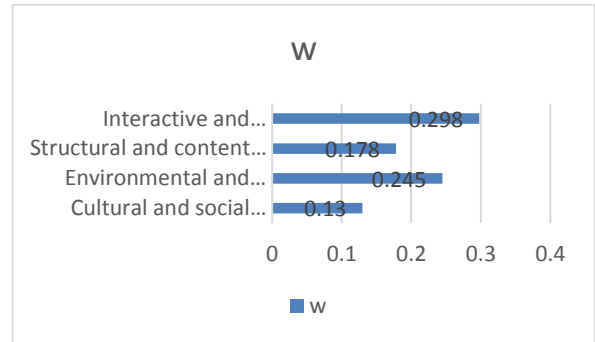|	X1max	X2max	X3max	Deffuzy	Normal
Cultural and social damage	0.134	0.133	0.132	0.134	0.130
Environmental and organizational damage	0.254	0.252	0.250	0.254	0.245
Structural and content damage	0.185	0.183	0.181	0.185	0.178
Interactive and communication damage	0.309	0.306	0.304	0.309	0.298

Figure 2: The weight chart of the investigated indicators

Based on this, the special priority vector of the main criteria will be W1. Based on the obtained special vector, interactive and communication injuries with a normal weight of 0.298 have the highest priority. The inconsistency rate of the comparisons made was found to be 0.020, which is smaller than 0.1, and therefore the comparisons made can be trusted.

Discussion

Improving the knowledge of social capital is a time-consuming and long-term thing, and it is impossible or at least difficult to improve it in the short term. Intervention policies in social capital should be sustainable based on this feature. This means that the equipment and conditions of their implementation should be considered in a wide time frame. This is especially important when social capital is viewed not as a tool but as a positive and beneficial goal in nature.

The educational system is one of the main and fundamental sources of socialization for a person. In addition to transferring human capital to society, educational environments also transfer social capital in the form of social rules and norms such as cooperation (Salehi Amiri and Amir Entekhabi, 2013). By examining the different opinions and views of experts about social capital, 70 sub-categories and 13 core categories were identified, each of which was located in different classes. Individual factors, structural factors, educational factors, managerial factors, solidarity and cohesion, social and family factors, institutional factors, collaborative factors, educational, cultural, and ideological policies, network relations, job satisfaction, and valuing social status as categories. It was shown that different shortcomings affect the education system from different aspects.

According to Putnam, partnership networks are one of the main and individual forms of social capital, and if the networks become denser in society and especially in education, the possibility of cooperation among those involved in the education system for collective and mutual benefits will increase (Matlabi et al., 2019). According to the theory of social disorganization, some communities will not have the ability to effective self-regulation because they are disturbed in the formal and informal processes of social control. Therefore, this will cause a disruption in the organizational structure and will lead to results such as the weakening of interpersonal ties towards the community. For the purpose of social control, social capital is the primary basis, and since unorganized communities cannot promote social capital, they will suffer damage in the field of social capital (Roseclair, 1998). As a result of the reduction of social capital and the lack of social ties in the education system based on the theory of pressure, people will not be able to overcome it when faced with sources of pressure, and this will cause negative and annoying feelings in people.

An important damage in the field of social capital is its erosion, which leads to relationship disorder. The meaning of relationship disorder is defined by five main factors. Relational disorder refers to the low density of social relations, the scarcity of social relations, the multiplicity of social relations, the intensity of social relations, and the diversity of groups and identities in social relations (Chalabi, 2004). Therefore, by examining the educational system, if the affiliation and commitment to the organization is weakened, the amount of social trust and normative order and interpersonal and individual commitments will be weakened. The weakness of social capital increases the cost of social relations and makes a peaceful resolution of conflicts, interpersonal differences, and social conflicts not easily possible (Bagheri Zenouz and Elami, 2018). Also, organizational learning, empowering employees, improving the skills of employees, and continuous emphasis on education as an educational factor can affect the improvement of social capital.

According to Portes's opinion and his classification of social capital into relational and structural and the theoretical need of the current research to show the effect of macro structures on social capital, it is necessary that social capital is rooted in the internal organization of education and its relationship with those involved in the field. Education should be considered. Therefore, the construction of regular and stable management without mental and strategic conflicts will lead to positive consequences in creating a stable and dynamic organization (Morshedi Estehbanati et al., 2018). Based on the results of this research, it is suggested that in order to improve the structural factors, the education organization should plan to reduce hierarchical control and supervision, continuous improvement and stable organizational advantages, and create flexible

groups. Among the employees of education and training, social responsibilities that are specific to the organization can promote job satisfaction and organizational trust. Managers and planners in the field of education should establish the underlying process and principles of solidarity, coordination, and cooperation among employees. According to Seal (2007), the transformation of social capital into multicultural, multi-ethnic, and multi-racial may disrupt collective communication to some extent, mutual communication or dialogue between different people causes a lack of quality communication and dialogue and leads to a decrease in participation. which in turn negatively affects academic success.

Practical research suggestions

1. Accurate needs assessment of members of higher education and the country's education system in all components of curriculum planning and special emphasis on goals in advancing the cognitive component of social capital.

2. Paying attention to the alignments and understanding of some curriculum patterns, especially the content and materials, and educational methods in the development of social capital, according to the views of the members of higher education.

3. Using different strategies of curriculum models to reduce the gap between the current situation and the desired situation in the higher education system by using different quantitative and qualitative models for the development of social capital

4. In-service training should be held in order to create initiative and innovation among employees, and in order to create a positive communication environment, virtual networks consisting of employees and managers should be created in the organization.

5. The principle of paying attention to educational research and its link with education planning: according to global educators, educational planning and reforms should rely solely on the absolute will and taste of the administrative hierarchy and with the culture of society, the level of specific development and progress, and the state and region. And in general, if the needs of the country are not completely related, it cannot provide a new way and method of rethinking the educational system.

6. Paying attention to comprehensiveness in education programs: all available educational resources and facilities using satellites, publications and press, radio and television educational programs, cinema, libraries, etc., in order to complete and to be used for the education of the members of the society.

7. Correct judgment based on the data results of each researcher in the current situation approach of curriculum evaluation for the development of higher education social capital communication.

Declaration of Competing Interest

The author declares that he has no competing financial interests or known personal relationships that would influence the report presented in this article.

References

Adelinejad, F., Mousavi, M., & Mohseni Tabrizi, A. (2021). Sociological Explanation of the Effect of Social Capital on Social Support Mediated by Perceived Mental well-being (Case Study-Science and Research Branch of Islamic Azad University and University of Tehran). *Sociological studies*, *14*(52), 45-64. https://doi.org/10.2307/4134367

Adler, P. S., & Kwon, S. W. (2002). Social capital: Prospects for a new concept. *Academy of management review*, *27*(1), 17-40.

Alfano, V. (2022). Does social capital enforce social distancing? The role of bridging and bonding social capital in the evolution of the pandemic. *Economia Politica*, *39*(3), 839-859. https://doi.org/10.1007/s40888-021-00255-3

Amiri, H., Najafinejad, M., Mousavi, M. & Hasni, M. (2020). A flow of social capital and factors affecting it in Iran. Welfare Planning and Social Development, 12(43), 124-89. [in Persian].

Asquith, L., & Asquith, L. (2019). Bourdieu and Social Capital. *Rebuilding Lives After Genocide: Migration, Adaptation and Acculturation*, 27-45. https://doi.org/10.1007/978-3-030-14074-8_2

Au, A. (2019). The embodiment of social capital at individual and communal levels: action, rewards, inequality, and new directions. *International Journal of Sociology and Social Policy*, *39*(9/10), 812-830. https://doi.org/10.1108/IJSSP-04-2019-0078

Bagheri Zonouz, B., & Elmi, M. (2010). Social Capital, Social Trust, pathological Symptoms of Social Relations in Iran. *Sociological studies*, *2*(5), 125-138. [in Persian].

Baker-Doyle, K. J., & Yoon, S. A. (2020). The social side of teacher education: Implications of social network research for the design of professional development. *International Journal of Educational Research*, *101*, 101563. https://doi.org/10.1016/j.ijer.2020.101563

Boadi, I., Abekah, J., Okoe Amartey, A., Dziwornu, R. K., Anim-Wright, K., & Mensah, S. (2022). Social capital and knowledge creation: a higher education institution networks. *Cogent Education*, *9*(1), 2107313. https://doi.org/10.1080/2331186X.2022.2107313

Bojadziev, G., & Bojadziev, M. (2007). *Fuzzy logic for business, finance, and management* (Vol. 23). World Scientific. https://doi.org/10.1142/6451

Bollinger, A. S., & Smith, R. D. (2001). Managing organizational knowledge as a strategic asset. *Journal of knowledge management*, 5(1). 8-18. https://doi.org/10.1108/13673270110384365

Chalabi, M. & Mubaraki, M. (2007). Analyzing the relationship between social capital and crime at micro and macro levels. Iranian Journal of Sociology. The sixth period. Number 2. [in Persian].

Claridge, T. (2018, January 28). Explanation of different levels of social capital. *Institute for Social Capital*.

Coppe, T., Thomas, L., Pantić, N., Froehlich, D. E., Sarazin, M., & Raemdonck, I. (2022). The use of social capital in teacher research: a necessary clarification. *Frontiers in Psychology*, 2703. https://doi.org/10.3389/fpsyg.2022.866571

Daly, A. J., Liou, Y. H., & Der-Martirosian, C. (2021). A capital idea: Exploring the relationship between human and social capital and student achievement in schools. *Journal of Professional Capital and Community*, *6*(1), 7-28. https://doi.org/10.1108/JPCC-10-2020-0082

Lesser, E. L. (2009). Leveraging social capital in organizations. In *Knowledge and social capital: Foundations and applications* (pp. 3-16). Routledge. https://doi.org/10.1016/B978-0-7506-7222-1.50004-0

März, V., & Kelchtermans, G. (2020). The networking teacher in action: A qualitative analysis of early career teachers' induction process. *Teaching and Teacher Education*, *87*(102933), 1-15. https://doi.org/10.1016/j.tate.2019.102933

Matlabi, M., Hyderabadi, A., Rahmani Firouzjah, A. & Abbasi E. (2019). Sociological investigation of the relationship between social capital and social health (a case study of students in Panj district of Tehran). *Sociological studies*. 12 (47), 70-59. [in Persian]

Morshedi Estahbanati, S. M., Seyfollahi, S., & Vosoughi, M. (2019). Investigating the Components of Social Capital of the Residents of Tehran. *Sociological studies*, *12*(42), 125-146.

Prasetyo, P. E., Setyadharma, A., & Kistanti, N. R. (2020). Social Capital: The main determinant of MSME entrepreneurship competitiveness. *International Journal of Scientific & Technology Research*, *9*(3), 6627-6637.

Putnam, R. (2004, March). Education, diversity, social cohesion and "social capital". In *meeting of OECD Education Ministers* (pp. 2-7).

Qiao, S., Li, Z., Zhang, J., Sun, X., Garrett, C., & Li, X. (2022). Social capital, urbanization level, and COVID-19 vaccination uptake in the United States: A national level analysis. *Vaccines*, *10*(4), 625. https://doi.org/10.3390/vaccines10040625

Rastegarkhaled, A., Kaveh, M., & Mohammadi, M. (2014). Social capital and alienation from Work (case study of primary education Teachers in Tehran). *Quarterly Journal of Welfare Planning and Social Development*, *6*(19), 203-251.

Salehi Amiri, & Amir Chokhi, S. (2011). Strategies for improving social capital in the country according to the twenty-year vision document of the system. *Strategy Research Quarterly*. 22 (66) 84-61. [in Persian]

Scheffert, D. R., Horntvedt, J., & Chazdon, S. (2020). Social capital and our community.

Shiell, A., Hawe, P., & Kavanagh, S. (2020). Evidence suggests a need to rethink social capital and social capital interventions. *Social science & medicine*, *257*, 111930. https://doi.org/10.1016/j.socscimed.2018.09.006

Spillane, J. P., & Sun, J. M. (2022). The school principal and the development of social capital in primary schools: the formative years. *School Leadership & Management*, *42*(1), 4-23. https://doi.org/10.1080/13632434.2020.1832981

Taylor, N., Fleisch, B., & Shindler, J. (2019). Education scenarios for 2019. *key driving forces scenarios*, 11-12.

Terry Kim, T., Lee, G., Paek, S., & Lee, S. (2013). Social capital, knowledge sharing and organizational performance: what structural relationship do they have in hotels?. *International journal of contemporary hospitality management*, *25*(5), 683-704. https://doi.org/10.1108/IJCHM-Jan-2012-0010

Thomas, L., Tuytens, M., Devos, G., Kelchtermans, G., & Vanderlinde, R. (2019). Beginning teachers' professional support: A mixed methods social network study. *Teaching and Teacher education*, *83*, 134-147. https://doi.org/10.1016/j.tate.2019.04.008

Vâlsan, C., Goschin, Z., & Druică, E. (2023). The Measurement of Social Capital in America: A Reassessment. *Social Indicators Research*, *165*(1), 135-161. https://doi.org/10.1007/s11205-022-03007-3

Weerakoon, C., McMurray, A. J., Rametse, N. M., & Arenius, P. M. (2019). Social capital and innovativeness of social enterprises: opportunity-motivation-ability and knowledge creation as mediators. *Knowledge management research & practice*.

https://doi.org/10.1080/14778238.2019.1590138