Student Interpersonal Intelligence in the Age of Science and Technology: Bibliometric Analysis

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ARTICLE INFO	ABSTRACT
	The purpose of this research is to analyze students' interpersonal intelligence in the era of science and technology with the VOSviewer application. In addition to VOSviewer, Publish or Perish method is also employed in this study. The keywords used are "interpersonal intelligence" and "Era of science and technology" on the search which resulted in 1000 relevant articles published from 2018-2022. Based on the research results, the number of published articles on interpersonal intelligence has increased from 2018 to 2021, but there has been a very drastic decrease in 2022. In more detail, the article findings can be described as follows: in 2018, there were 189 articles found; in 2019 there were 191 articles; 202 articles in 2020; 195 articles in 2021; and 138 articles in 2022. This research is intended to assist researchers who will conduct and determine research on the same theme.

1. Introduction

Interpersonal intelligence is one of the different types of intelligence in the theory of multiple intelligences [1]. Interpersonal intelligence involves the ability to understand, respond, and communicate with others, as well as the ability to read the feelings, intentions, and motivations of others. This intelligence focuses on an individual's ability to interact, communicate, and relate to others effectively [2-5]. Intelligence consists of the capacity for differentiation and positive social interaction [6]. In addition, intelligence is the capacity to not only learn from one's experience but also to generate new issues and to produce or provide something of value to a cultural community [2,6-12]. Further, intelligence is divided into eight categories, namely: 1) linguistic intelligence; 2) logical-mathematical intelligence; 3) spatial intelligence; 4) musical intelligence; 5) kinesthetic intelligence; 6) interpersonal intelligence; 7) intrapersonal intelligence; and 8) naturalist intelligence.

Interpersonal intelligence, which is defined as the ability to perceive intentions, inner content, and the intelligence of other people's thoughts and ideas, is one of the eight aforementioned

intelligences that must be cultivated in child development [13]. Interpersonal intelligence is the ability to recognize and influence the mental state, behavior, and decisions of the people around him. Children who have good interpersonal intelligence are more likely to be friendly and charismatic thanks to their ability to persuade others, and are able to value things like peace, harmony, cooperation, and also tend to avoid confrontation [14]. It relates to social skills [15-30].

Social intelligence, or the ability to form and maintain meaningful relationships with others, is a key component of successful interpersonal interactions [31]. Interpersonal competence is defined as "the capacity to build and maintain effective interactions with others" [32]. Interpersonal skills allow a child to understand and empathize with feelings, thoughts, and motivations of the people around them. Interpersonal intelligence remains relevant and important in the era of modern science and technology. Although technological developments have changed many aspects of people's lives, the ability to interact with others effectively remains a key skill in a variety of contexts.

The purpose of this research is to analyze student interpersonal intelligence in the era of science and technology using the VOSviewer application. Detailed examples on previous studies on bibliometric are presented in Table 1.

Table 1
Previous studies on bibliometric

No	Title	Ref.
1	Involving particle technology in computational fluid dynamics research: A bibliometric analysis	[33]
2	Bibliometric computational mapping analysis of trend metaverse in education using VOSviewer	[34]
3	The use of information technology and lifestyle: An evaluation of digital technology intervention for improving physical activity and eating behavior	[35]
4	Strategies in language education to improve science student understanding during practicum in laboratory: Review and computational bibliometric analysis	[36]
5	How language and technology can improve student learning quality in engineering? definition, factors for enhancing students' comprehension, and computational bibliometric analysis	[37]
6	Mapping of nanotechnology research in animal science: Scientometric analysis	[38]
7	Scientific research trends of flooding stress in plant science and agriculture subject areas (1962-2021)	[39]
8	Introducing ASEAN Journal of Science and Engineering: A bibliometric analysis study	[40]
9	A bibliometric analysis of chemical engineering research using VOSviewer and its correlation with Covid-19 pandemic condition	[41]
10	A bibliometric analysis of materials research in Indonesian journal using VOSviewer	[42]
11	Bibliometric analysis of engineering research using Vosviewer indexed by google scholar	[43]
12	Bibliometric computational mapping analysis of publications on mechanical engineering education using VOSviewer	[44]
13	Research trend on the use of mercury in gold mining: Literature review and bibliometric analysis	[45]
14	Domestic waste (eggshells and banana peels particles) as sustainable and renewable resources for improving resin-based brakepad performance: Bibliometric literature review, techno-economic analysis, dual-sized reinforcing experiments, to comparison with commercial product	[46]
15	Bibliometric analysis of educational research in 2017 to 2021 using VOSviewer: Google scholar indexed research	[47]
16	Corncob-derived sulfonated magnetic solid catalyst synthesis as heterogeneous catalyst in the esterification of waste cooking oil and bibliometric analysis.	[48]
17	The compleat lextutor application tool for academic and technological lexical learning: Review and bibliometric approach.	[49]
18	Use of blockchain technology for the exchange and secure transmission of medical images in the cloud: Systematic review with bibliometric analysis.	[50]

No	Title	Ref.
19	Computational bibliometric analysis of research on science and Islam with VOSviewer: Scopus database in 2012 to 2022.	[51]
20	Digital transformation in special needs education: Computational bibliometrics.	[52]

2. Methodology

The article data used in this research was research data from articles published in journals that have been indexed by Google Scholar. The Google Scholar database was used because it could be accessed for free. The database obtained from Google Scholar was then processed through the Publish or Perish 7 application for data management. Information about VOSviewer and search centers had been described in the research conducted [53]. The keyword used in searching for articles was "interpersonal intelligence". Each article must be indexed by Google Scholar in journal article format according to the theme needed in this research. The collected articles were then saved in *.ris format. Later the data was visualized and analyzed in the form of a bibliometric map. Data from database sources that had been prepared were then mapped in three forms: namely network visualization, overlay visualization, and density visualization. Detailed information for the use of VOSViewer, google scholar, and publish or perish is presented in previous studies [54].

3. Results
3.1 Publication Dara Search Results

Based on data searches through Publish or Perish reference management applications in the Google Scholar database, 200 data articles that met the research criteria were obtained. The data gathered was in the form of article metadata consisting of author name, title, year, journal name, publisher, number of citations, article links, and related URLs. Table 2 shows some one of published data used in the VOSviewer analysis from this study. The data samples taken were the 20 best articles that had the highest number of citations. The number of citations from all articles used in this study was 748.60, the number of citations per year was 149.72, the number of citations per article was 37.43, the average author in the articles used was 2.75, and all articles had an average h-index of 10 as well as the g-index 15.

Table 2
Interpersonal intelligence publication data

No	Authors	Title	Year	Cities	Refs
1	Santika	Character education in online learning.	2020	527	[55]
2	Li	A positive psychology perspective on Chinese EFL students' trait emotional intelligence, foreign language enjoyment and EFL learning achievement.	2020	210	[56]
3	Sener and Çokçaliskan	An investigation between multiple intelligences and learning styles.	2018	171	[57]
4	Papoutsi, *et al.,*	Emotional intelligence as an important asset for HR in organizations: Attitudes and working variables.	2019	144	[58]
5	Naseem	Job stress, happiness and life satisfaction: The moderating role of emotional intelligence empirical study in telecommunication sector Pakistan.	2018	136	[59]
6	Fiori and Vesely	Emotional intelligence as an ability: Theory, challenges, and new directions.	2018	132	[60]

7	Pekaar, *et al.,*	Self-and other-focused emotional intelligence: Development and validation of the Rotterdam Emotional Intelligence Scale (REIS).	2018	129	[61]
8	Atrizka and Pratama	The Influence of organizational leadership and coaches on Indonesian athletes' adversity quotient (intelligence).	2022	114	[62]
9	Martín, *et al.,*	Understanding online interaction in language MOOCs through learning analytics.	2018	107	[63]
10	Suleman, *et al.,*	Association between emotional intelligence and academic success among undergraduates: a cross-sectional study in KUST, Pakistan.	2019	100	[64]
11	Riley	Theoretical perspectives	2020	91	[65]
12	Quiliano and Miryam	Inteligencia emocional y estrés académico en estudiantes de enfermería	2020	90	[66]
13	Winarti*, et al.,*	The Effectiveness of multiple intelligences based teaching strategy in enhancing the multiple intelligences and science process skills of junior high school	2019	86	[67]
14	Wang and Brookshire	Exploration of digital competency requirements within the fashion supply chain with an anticipation of industry 4.0	2018	78	[68]
15	Wu	Nonlinear information data mining based on time series for fractional differential operators	2019	74	[69]
16	Kanesan and Fauzan	Models Of Emotional Intelligence: A Review.	2019	72	[70]
17	Shearer	A detailed neuroscientific framework for the multiple intelligences: describing the neural components for specific skill units within each intelligence	2019	71	[71]
18	Hajhashemi, *et al.,*	Multiple intelligences, motivations and learning experience regarding video-assisted subjects in a rural university	2018	66	[72]
19	Giulia, *et al.,*	Emotional intelligence, empathy and alexithymia: a cross-sectional survey on emotional competence in a group of nursing students	2019	65	[73]
20	Gentina, *et al.,*	Does Gen Z's emotional intelligence promote iCheating (cheating with iPhone) yet curb iCheating through reduced nomophobia?	2018	59	[74]

3.2 Research Development in the Field of Interpersonal Intelligence

Table 3 shows the development of research in the field of interpersonal intelligence published in Google Scholar-indexed journals. Based on the data shown in Table 2, it can be seen that the number of studies in this field was 915 articles from 2018-2022. In 2018, there were 189 articles. In 2019, there were 191 articles. In 2020, there were 202 articles. In 2021, there were 195 articles, and in 2022 there were 138 articles. According to the number of publications, it can be seen that research on interpersonal intelligence is still relatively rare, particularly in the recent five years (2018-2022). Its development is likewise highly volatile as illustrated in Figure 1.

Figure 1 shows the development of interpersonal intelligence research over the recent five years from 2018 to 2022. Based on the graph, the progress of research related to interpersonal intelligence has experienced a very significant decrease in 2022. This decrease can be observed in the number of publications in the year which was only 138. The development of interpersonal intelligence research fluctuated from 2018 to 2021, before finally experiencing a dramatic fall in the last year, with as many as 138 papers published in 2022. The data shows that the popularity of research on interpersonal intelligence tends to be unstable and interest in interpersonal intelligence research has recently decreased.

Table 3
Development of interpersonal intelligence

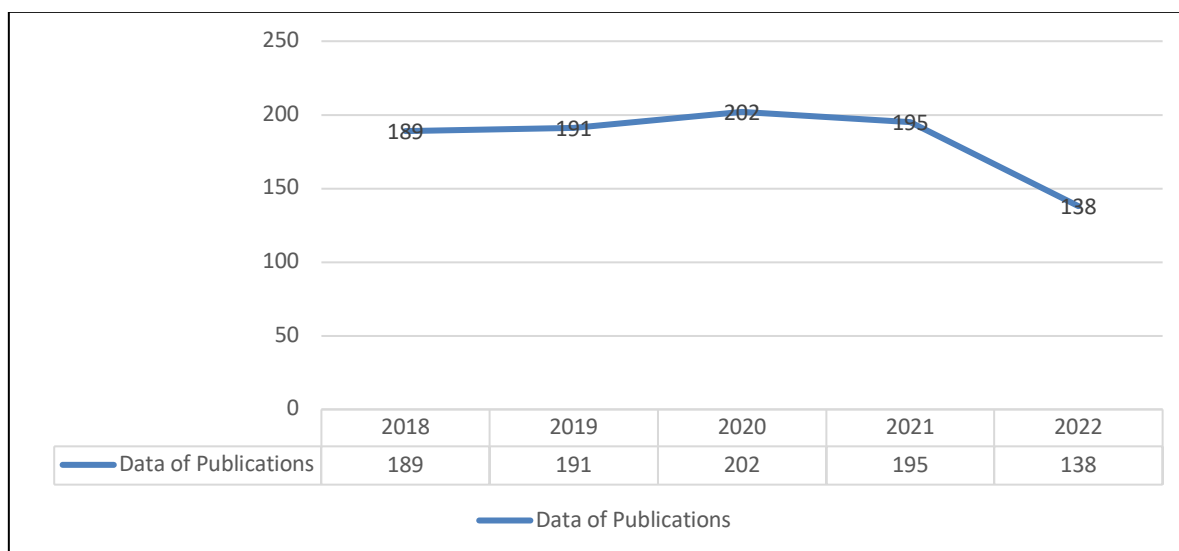| Years of Publications	Data of Publications
2018	189
2019	191
2020	202
2021	195
2022	138
Average	183

Fig. 1. Level of development in interpersonal intelligence research

3.3 Visualization Interpersonal Intelligence Topic Area using VOSviewer

Computational mapping was performed on the article data. VOSviewer was used in the computational mapping. 51 items were discovered as a result of the computational mapping. Each item found to be related to interpersonal intelligence in the mapping data was grouped into 5 clusters, namely:

    i.   Cluster 1 has 18 items marked in red. The 18 items are application, English, Howard Gardner, implementation, importance, learner, multiple intelligences, multiple intelligence that, order, paper, present study, research, school, social intelligence, student interpersonal intelligences, teaching, and theory.

    ii.   Cluster 2 has 13 items and is marked in green. These 3 items are capacity, emotion, emotional intelligence, empathy, feeling, individual, intention, intrapersonal intelligence, mood, motivation, person, self, and understanding.

    iii.   Cluster 3 has 8 items marked in blue. The 8 items are early childhood, high interpersonal intelligence, influence, intrapersonal, low interpersonal intelligence, mathematics, model, and outcome.

    iv.   Cluster 4 has 7 items and is marked in yellow. These 7 items are child, children, example, gender, term, and use.

    v.   Cluster 5 has 5 items marked purple. These 5 items are linguistic intelligence, logical mathematical intelligence, multiple intelligence, musical intelligence, and spatial intelligence.

The relationship between one term and another is shown in each existing cluster. Each term is labelled with a colored circle. The size of the circle for each term varies depending on how frequent the term occurs [33]. The circle label size shows a positive correlation with the appearance of the term in the title and abstract [33]. The larger the label size, the more frequently the term is encountered [12]. The mapping visualization analyzed in this study is divided into three parts, namely network visualization (see Figure 2), density visualization (see Figure 3), and overlay visualization (see Figure 4) [34].
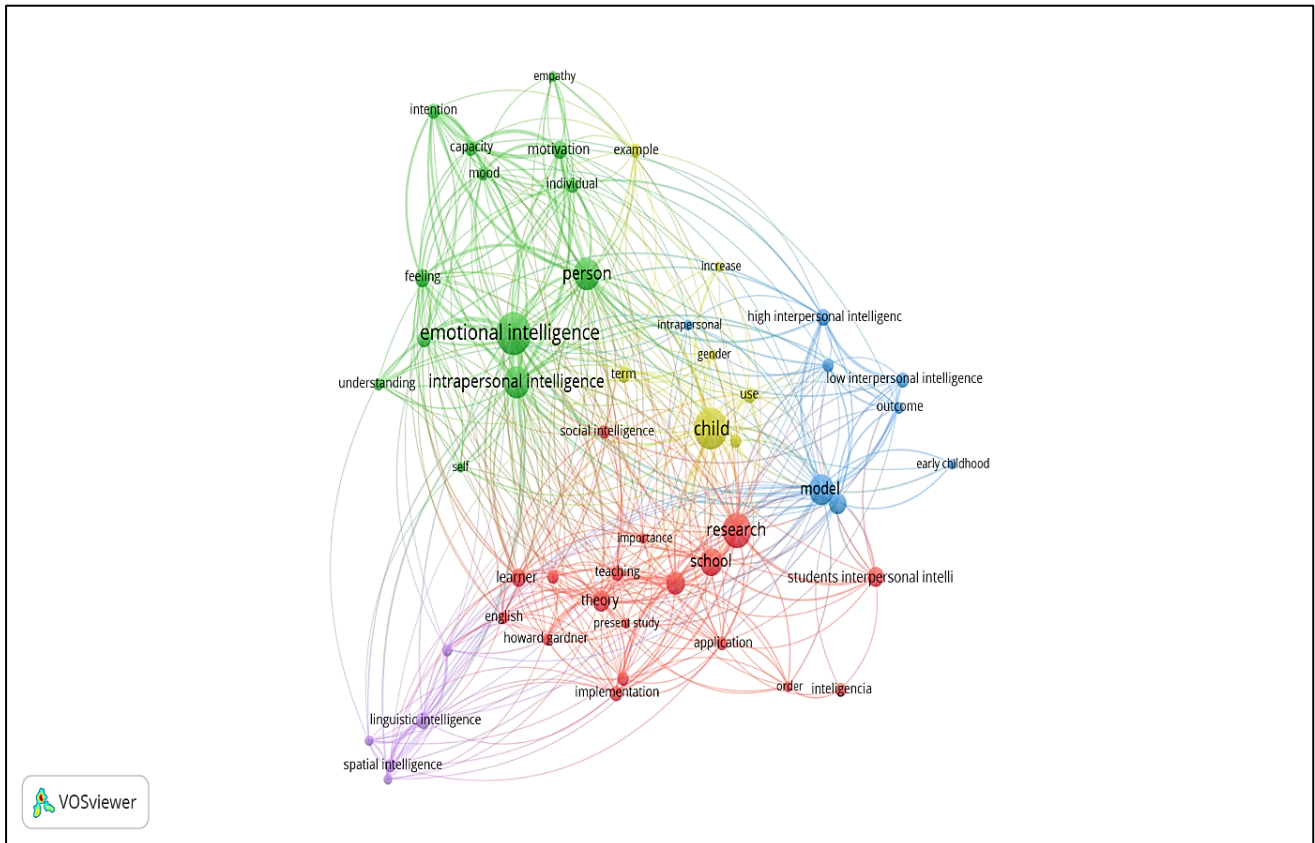

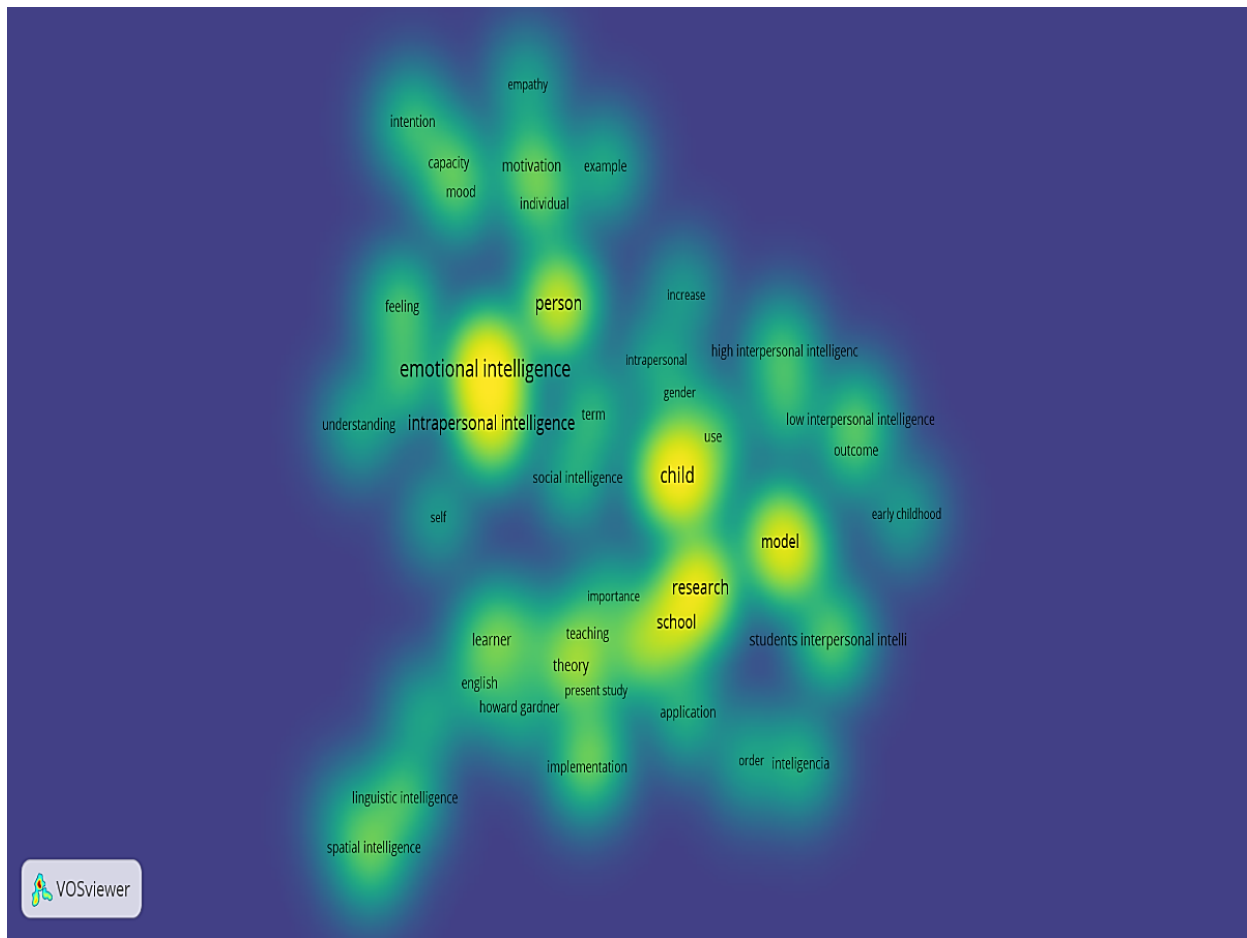**Fig. 2.** Network visualization of interpersonal intelligence keyword

Fig. 3. Density visualization of interpersonal intelligence keyword
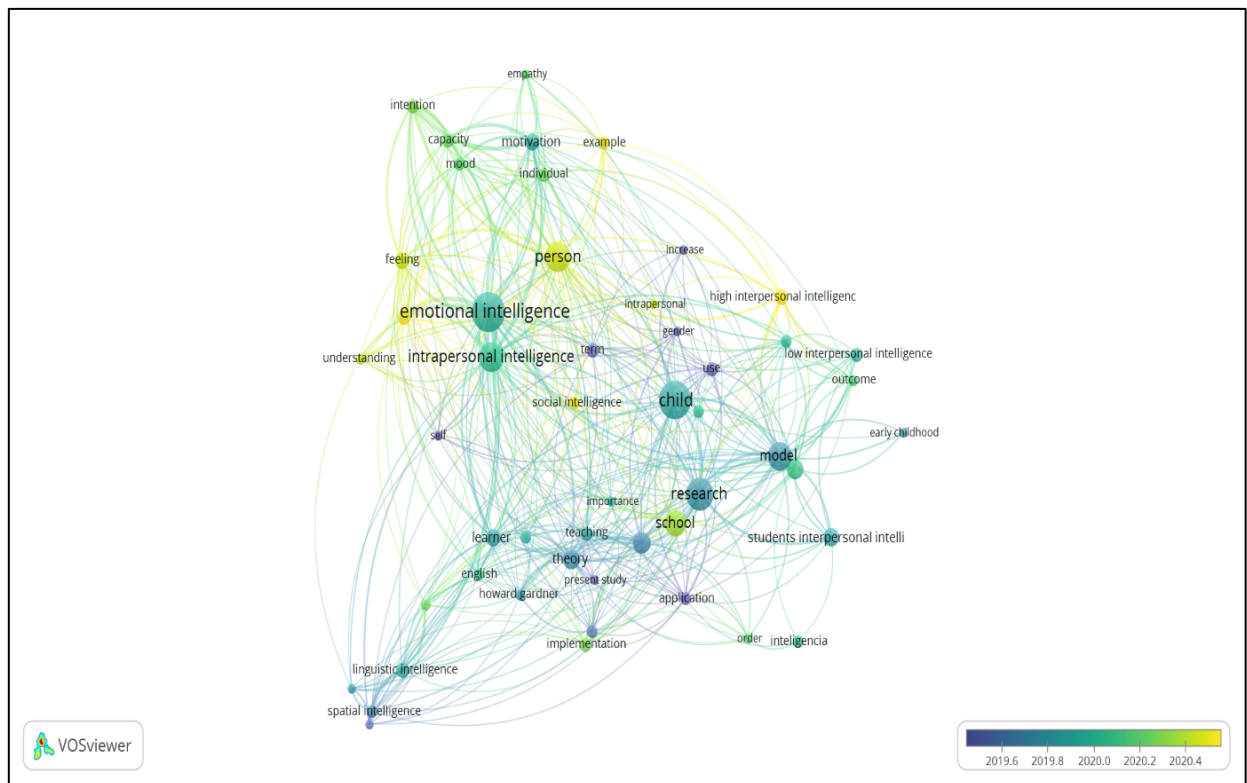

Fig. 4. Overlay visualization of interpersonal intelligence keyword

4. Conclusions

The results of the study show that the opportunity to conduct research on interpersonal intelligence has a fairly high chance. Research on interpersonal intelligence is very important to do in the current era of science and technology to describe and develop children's interpersonal intelligence so that every child can explore their potential to the fullest and achieve success in social interaction and interpersonal relationships.

References

[1] Al-Qatawneh, Sami Sulieman, Najeh Rajeh Alsalhi, Mohd Elmagzoub Eltahir, and Omar Ahmed Siddig. "The representation of multiple intelligences in an intermediate Arabic-language textbook, and teachers' awareness of them in Jordanian schools." *Heliyon* 7, no. 5 (2021). https://doi.org/10.1016/j.heliyon.2021.e07004

[2] Pelau, Corina, Dan-Cristian Dabija, and Irina Ene. "What makes an AI device human-like? The role of interaction quality, empathy and perceived psychological anthropomorphic characteristics in the acceptance of artificial intelligence in the service industry." *Computers in Human Behavior* 122 (2021): 106855. https://doi.org/10.1016/j.chb.2021.106855

[3] Estrellan, Joselyn C., and Rebecca L. Loja. "Emotional intelligence and leadership behavior of secondary schools principals of the division of Sultan Kudarat, the Philippines." *Indonesian Journal of Community and Special Needs Education* 1, no. 2 (2021): 71-76. https://doi.org/10.17509/ijcsne.v1i1.33369

[4] Adio, Abdulmutalib Opeyemi, and Adekola Kamil Lasisi. "Emotional intelligence as a predictor of academic stress management among undergraduate students." *Indonesian Journal of Community and Special Needs Education* 3, no. 2: 147-154. https://doi.org/10.17509/ijcsne.v3i2.57912

[5] Afolashade, Ishola Semiat, Audu M. Jimoh, Naseem Akorede Raji, Bamidele Joke Fowowe-Ogunmilugba, Olayemi Zainab Oduola, and Habeeb Omoponle Adewuyi. "Emotional intelligence, job satisfaction, reward system and organizational commitment among workers." *ASEAN Journal of Economic and Economic Education* 3, no. 1 (2024): 45-60.

[6] Salsabilla, Sidqi, and Ashif Az Zafi. "Kecerdasan interpersonal peserta didik sekolah dasar." *Terampil: Jurnal Pendidikan Dan Pembelajaran Dasar* 7, no. 1 (2020): 35-42. http://dx.doi.org/10.24042/terampil.v7i1.6240

[7] Millatina, Silmi Nabilah, Rina Maryanti, and Verra Wulandary. "Strengthening literacy of cultural arts and crafts in the material of sculpture for 6th-grade elementary school students through learning video media." *Indonesian Journal of Educational Research and Technology* 2, no. 3 (2022): 189-194. https://doi.org/10.17509/ijert.v2i3.38675

[8] Herdian, Kharisma Indah Dwi Putri, and Rina Maryanti. "Titi Laras Damina Educational Learning for Senior High School Students as a Form of Cultural Preservation." *Indonesian Journal of Educational Research and Technology* 3, no. 3 (2023): 179-186. https://doi.org/10.17509/ijert.v3i3.50142

[9] Muliawati, Ema Siti, and Rina Maryanti. "Lyrics of kawih tanah sunda by koko koswara as a media for learning cultural literacy for students in junior high school." *ASEAN Journal of Educational Research and Technology* 1, no. 2 (2022): 133-138.

[10] Adeoye, Moses Adeleke, Hassanat Abdullateef Jimoh, and Habibat Bolanle Abdulkareem. "Leadership and organizational cultural roles in promoting sustainable performance appraisal and job satisfaction among academic staff." *ASEAN Journal of Economic and Economic Education* 2, no. 2 (2023): 115-124.

[11] Abd Latif, Nor Kamilah, and Abu Yazid Abu Bakar. "The Application of Multicultural Counseling to Help Mental Health Problems During the Covid-19 Pandemic in Malaysia." *ASEAN Journal of Community and Special Needs Education* 2, no. 2 (2023): 61-68.

[12] Organia, Elmer G., Corazon B. de la Peña, Samuel F. Migallos, Sarah Bernadette L. Baleña, Elsie A. Tee, Jose C. Dagoc Jr, Mark Ryan Y. Contaoi, Richard Deo Rox R. Alave, and Melody A. Zaragoza. "The study of Muslim culture: basis for culturally congruent nursing education." *ASEAN Journal of Religion, Education, and Society* 2, no. 1 (2023): 33-58.

[13] Sutarna, Nana. "Penerapan Pedekatan Sosial untuk Meningkatkan Kecerdasan Interpersonal Siswa Sekolah Dasar." *Indonesian Journal of Primary Education* 2, no. 2 (2019): 61. https://doi.org/10.17509/ijpe.v2i2.15102

[14] Wahyudi, Deddy. "Pembelajaran ips berbasis kecerdasan intrapersonal interpersonal dan eksistensial." *Jurnal Pendidikan Ilmu Sosial Edisi Khusus,(1)* (2011).

[15] Buraimoh, Oluwaseun Funmilola, Charity HM Boor, and Gboyega Ayodeji Aladesusi. "Examining facilitating condition and social influence as determinants of secondary school teachers' behavioural intention to use mobile technologies for instruction." *Indonesian Journal of Educational Research and Technology* 3, no. 1 (2023): 25-34. https://doi.org/10.17509/ijert.v3i1.44720

[16] Borling, Kimberline, Quezveen Bleau Lagdamen, Jerick Fegarido, and Adonis Besa. "Implementation of work immersion and its effects on the social development of senior high school graduates." *Indonesian Journal of Educational Research and Technology* 3, no. 3 (2023): 167-172. https://doi.org/10.17509/ijert.v3i3.50086

[17] Wahyuni, Fitri Ayu, Nenden Rani Rinekasari, Yoyoh Jubaedah, and Sutthiporn Boonsong. "Designing home-based childcare program for stimulating social-emotional development in early childhood." *Indonesian Journal of Multidiciplinary Research* 1, no. 1 (2021): 113-116. https://doi.org/10.17509/ijomr.v1i1.33790

[18] Yusuf, Suleiman, Habibat Bolanle Abdulkareem, and Balqis Olabisi Popoola. "The Impact of Quality Early Childhood Education Centers On Pre-schoolers' Social Interaction." *Indonesian Journal of Multidiciplinary Research* 3, no. 2: 181-190. https://doi.org/10.17509/ijomr.v3i1.52518

[19] Al Husaeni, Dwi Fitria, and Asep Bayu Dani Nandiyanto. "Animation for Educating, Socializing, and Giving Understanding Characteristics of Malnourished Children." *Indonesian Journal of Teaching in Science* 2, no. 2: 147-154. https://doi.org/10.17509/ijotis.v2i2.49548

[20] Firman, Taufik, and Asep Bayu Dani Nandiyanto. "Effectiveness of socialization through PowerPoint media to understanding nutrition of adolescents." *ASEAN Journal of Science and Engineering Education* 3, no. 3 (2023): 211-220. https://doi.org/10.17509/ajsee.v3i3.49796

[21] Khamsah, Shinta Zahra Zahriyatul, and Asep Bayu Dani Nandiyanto. "The effect of educational socialization using poster media on understanding the proportion of calories for children." *ASEAN Journal of Science and Engineering Education* 4, no. 1 (2024): 1-8. https://doi.org/10.17509/ajsee.v4i1.49774

[22] Deximo, R. T., and Enaguas G. Lucero. "Perceived social responsibility and vaccine hesitancy among parents of grade 12 student in laboratory high school." *Indonesian Journal of Community and Special Needs Education* 1, no. 1 (2021): 25-30. https://doi.org/10.17509/ijcsne.v1i1.33366

[23] Billano, Generose C., Jester John P. Cogollo, Eljan Michael C. Dela Cruz, Monica Lauren P. Manahan, Seith Nathaniel D. Romualdo, Tonette Jye T. Rizaldo, Hassanal P. Abusma, and Mark F. Onia. "Preference of generation z towards social interaction." *Indonesian Journal of Community and Special Needs Education* 1, no. 1 (2021): 41-46. https://doi.org/10.17509/ijcsne.v1i1.33399

[24] Azizah, Nur, Adhit Cahyo Prasetyo, Nur Dini, Vera Wulandari, and Maisarah Kruesa. "Social inclusive education project (SIEP) as a community for handling children with special needs in rural areas." *Indonesian Journal of Community and Special Needs Education* 2, no. 2 (2022): 89-98. https://doi.org/10.17509/ijcsne.v2i2.37988

[25] Hidayat, Aulia Zahrotunnida, and Asep Bayu Dani Nandiyanto. "Socialization of digital literacy in compiling a balanced healthy menu to members of POKJA III the PKK Movement Team of Purwakarta Regency." *ASEAN Journal of Community Service and Education* 1, no. 1 (2022): 77-82.

[26] Jibril, Ayuba Olaniyi, Usman Adisa Issa, and Sanusi Ramat Abidemi. "Unveiling Social Consequences: Examining effects of tricycle transportation's riders (Keke Napep) growth from a community service perspective." *ASEAN Journal of Community Service and Education* 2, no. 2 (2023): 117-126.

[27] Minghat, A. D., and M. R. Arpentieva. "Anticipation and understanding of events and mental stresses as the effect of changes and transformations in human and social life: An education perspective." *ASEAN Journal of Community and Special Needs Education* 2, no. 1 (2023): 27-34.

[28] Hassan, Abdulhafis Adeyinka, and Habibat Bolanle Abdulkareem. "Common 21st-century social vices among the youth." *ASEAN Journal of Community and Special Needs Education* 2, no. 1 (2023): 35-44.

[29] Sulyman, Hafees Tosin, and Lawal Kaosarat Yetunde. "Effect of rhymes on social skill acquisition of children with special needs." ASEAN Journal of Community and Special Needs Education 2, no. 2 (2023): 69-80.

[30] Saadu, Usman Tunde. "Teachers' knowledge and use of multiple disciplinary measures in curbing pupils' antisocial behaviour." *ASEAN Journal of Community and Special Needs Education* 3, no. 1 (2024): 29-40.

[31] Madaniah, Hafifah, and Rina Maryanti. "The Influence of Socialization on Talent Interests and Extracurricular in Schools." *Indonesian Journal of Multidiciplinary Research* 3, no. 1 (2023): 83-90. https://doi.org/10.17509/ijomr.v3i1.49880

[32] Aprilia, Fitria. "Hubungan antara kecerdasan interpersonal dengan perilaku kenakalan remaja pada siswa SMA N 1 Grobogan." *Journal of Social and Industrial Psychology* 2, no. 1 (2013). https://10.15294/SIP.V2I1.2140

[33] Nandiyanto, Asep Bayu Dani, Risti Ragadhita, and Muhammad Aziz. "Involving particle technology in computational fluid dynamics research: A bibliometric analysis." *CFD Letters* 15, no. 11 (2023): 92-109. https://doi.org/10.37934/cfdl.15.11.92109

[34] Muktiarni, M., Nur Indri Rahayu, Affero Ismail, and Amalia Kusuma Wardani. "Bibliometric computational mapping analysis of trend metaverse in education using vosviewer." *Journal of Advanced Research in Applied Sciences and Engineering Technology* 32, no. 2 (2023): 95-106. https://doi.org/10.37934/araset.32.2.95106

[35] Rahayu, Nur Indri, Adang Suherman, and M. Muktiarni. "The use of information technology and lifestyle: An evaluation of digital technology intervention for improving physical activity and eating behavior." *Journal of Advanced Research in Applied Sciences and Engineering Technology* 32, no. 1 (2023): 303-314. https://doi.org/10.37934/araset.32.1.303314

[36] Fauziah, Siti Pupu, Irman Suherman, Mega Febriani Sya, Martin Roestamy, Amirullah Abduh, and Asep Bayu Dani Nandiyanto. "Strategies in language education to improve science student understanding during practicum in laboratory: Review and computational bibliometric analysis." *International Journal of Language Education* 5, no. 4 (2021). https://doi.org/10.26858/ijole.v5i4.53579

[37] Al Husaeni, D. F., D. N. Al Husaeni, R. Ragadhita, M. R. Bilad, A. S. M. Al-Obaidi, A. Abduh, and A. B. D. Nandiyanto. "How language and technology can improve student learning quality in engineering? Definition, factors for enhancing students comprehension, and computational bibliometric analysis." *International Journal of Language Education* 6, no. 4 (2022): 445-476. https://doi.org/10.26858/ijole.v6i4.53587

[38] Kumar, Kutty. "Mapping of nanotechnology research in animal science: Scientometric anlaysis." *Kumar (22021) Mapping of Nanotechnology Research in Animal Science: Scientometric Analysis. ASEAN Journal of Science and Engineering* 1, no. 2 (2021): 111-126. http://dx.doi.org/10.2139/ssrn.3606005

[39] Nurrahma, Arinal Haq Izzawati, Hana Haruna Putri, and Ray March Syahadat. "Scientific research trends of flooding stress in plant science and agriculture subject areas (1962-2021)." *ASEAN Journal of Science and Engineering* 3, no. 2 (2023): 163-178. https://doi.org/10.17509/ajse.v3i2.46148

[40] Nandiyanto, Asep Bayu Dani, Dwi Novia Al Husaeni, and Dwi Fitria Al Husaeni. "Introducing ASEAN journal of science and engineering: A bibliometric analysis study." *Journal of Advanced Research in Applied Sciences and Engineering Technology* 31, no. 3 (2023): 173-190. https://doi.org/10.37934/araset.31.3.173190

[41] Nandiyanto, Asep Bayu Dani, D. N. Al Husaeni, and D. F. Al Husaeni. "A bibliometric analysis of chemical engineering research using vosviewer and its correlation with covid-19 pandemic condition." *Journal of Engineering Science and Technology* 16, no. 6 (2021): 4414-4422.

[42] Nandiyanto, Asep Bayu Dani, and Dwi Fitria Al Husaeni. "A bibliometric analysis of materials research in Indonesian journal using VOSviewer." *Journal of Engineering Research* (2021). https://doi.org/10.36909/jer.ASSEEE.16037

[43] Nandiyanto, Asep Bayu Dani, and Dwi Fitria Al Husaeni. "Bibliometric analysis of engineering research using vosviewer indexed by google scholar." *Journal of Engineering Science and Technology* 17, no. 2 (2022): 883-894.

[44] Al Husaeni, Dwi Fitria, and Asep Bayu Dani Nandiyanto. "Bibliometric computational mapping analysis of publications on mechanical engineering education using vosviewer." *Journal of Engineering Science and Technology* 17, no. 2 (2022): 1135-1149.

[45] Nandiyanto, A. B. D., R. Ragadhita, D. N. Al Husaeni, and W. C. Nugraha. "Research trend on the use of mercury in gold mining: Literature review and bibliometric analysis." *Moroccan Journal of Chemistry* 11, no. 1 (2023): 11-1. https://doi.org/10.48317/IMIST.PRSM/morjchem-v11i1.36576

[46] Nandiyanto, Asep Bayu Dani, Risti Ragadhita, Meli Fiandini, Dwi Fitria Al Husaeni, Dwi Novia Al Husaeni, and Farid Fadhillah. "Domestic waste (eggshells and banana peels particles) as sustainable and renewable resources for improving resin-based brakepad performance: Bibliometric literature review, techno-economic analysis, dual-sized reinforcing experiments, to comparison..." *Communications in Science and Technology* 7, no. 1 (2022): 50-61. https://doi.org/10.21924/cst.7.1.2022.757

[47] Al Husaeni, Dwi Fitria, Asep Bayu Dani Nandiyanto, and Rina Maryanti. "Bibliometric analysis of educational research in 2017 to 2021 using VOSviewer: Google scholar indexed research." *Indonesian Journal of Teaching in Science* 3, no. 1 (2023): 1-8. https://doi.org/10.17509/ijotis.v3i1.43182

[48] Hidayat, Arif, Winarto Kurniawan, and Hirofumi Hinode. "Sugarcane bagasse biochar as a solid catalyst: From literature review of heterogeneous catalysts for esterifications to the experiments for biodiesel synthesis from palm

oil industry waste residue." *Indonesian Journal of Science and Technology* 6, no. 2 (2021): 337-352. https://doi.org/10.17509/ijost.v6i2.34498

[49] Abduh, Amirullah, Ade Mulianah, Besse Darmawati, Fairul Zabadi, Umar Sidik, Wuri Handoko, Karta Jayadi, and Rosmaladewi Rosmaladewi. "The Compleat Lextutor Application Tool for Academic and Technological Lexical Learning: Review and Bibliometric Approach." *Indonesian Journal of Science and Technology* 8, no. 3 (2023): 539-560. https://doi.org/10.17509/ijost.v8i3.63539

[50] Luckyardi, Senny, Ratih Jurriyati, D. Disman, and Puspo Dewi Dirgantari. "A systematic review of the IoT in smart university: Model and contribution." *Indonesian Journal of Science and Technology* 7, no. 3 (2022): 529-550. https://doi.org/10.17509/ijost.v7i3.51476

[51] Al Husaeni, Dwi Fitria, and Dwi Novia Al Husaeni. "Computational bibliometric analysis of research on science and Islam with VOSviewer: Scopus database in 2012 to 2022." *ASEAN Journal of Religion, Education, and Society* 1, no. 1 (2022): 39-48.

[52] Ragadhita, Risti, Asep Bayu Dani Nandiyanto, Rina Maryanti, Dwi Fitria Al Husaeni, Dwi Novia Al Husaeni, Meli Fiandini, Ahmad Mudzakir, Achmad Hufad, and Alias Masek. "Best practice in distance learning with experimental demonstration on the concept of the automotive brake pad fabrication from domestic waste to vocational students for supporting education for sustainable development." *Journal of Technical Education and Training* 15, no. 1 (2023): 40-54. https://doi.org/10.30880/jtet.2023.15.01.005

[53] Al Husaeni, Dwi Fitria, and Asep Bayu Dani Nandiyanto. "Bibliometric using Vosviewer with Publish or Perish (using google scholar data): From step-by-step processing for users to the practical examples in the analysis of digital learning articles in pre and post Covid-19 pandemic." *ASEAN Journal of Science and Engineering* 2, no. 1 (2022): 19-46. https://doi.org/10.17509/ajse.v2i1.37368

[54] Azizah, Nissa Nur, Rina Maryanti, and Asep Bayu Dani Nandiyanto. "How to search and manage references with a specific referencing style using google scholar: From step-by-step processing for users to the practical examples in the referencing education." *Indonesian Journal of Multidiciplinary Research* 1, no. 2 (2021): 267-294. https://doi.org/10.17509/ijomr.v1i2.37694

[55] Santika, I. Wayan Eka. "Pendidikan karakter pada pembelajaran daring." *Indonesian Values and Character Education Journal* 3, no. 1 (2020): 8-19. https://doi.org/10.23887/ivcej.v3i1.27830

[56] Li, Chengchen. "A positive psychology perspective on Chinese EFL students' trait emotional intelligence, foreign language enjoyment and EFL learning achievement." *Journal of Multilingual and Multicultural Development* 41, no. 3 (2020): 246-263. https://doi.org/10.1080/01434632.2019.1614187

[57] Sener, Sabriye, and Ayten Çokçaliskan. "An investigation between multiple intelligences and learning styles." *Journal of Education and Training Studies* 6, no. 2 (2018): 125-132. https://10.11114/jets.v6i2.2643

[58] Papoutsi, Chara, Athanasios Drigas, and Charalabos Skianis. "Emotional intelligence as an important asset for HR in organizations: Attitudes and working variables." *International Journal of Advanced Corporate Learning* 12, no. 2 (2019): 21. https://doi.org/10.3991/ijac.v12i2.9620

[59] Naseem, Khalida. "Job stress, happiness and life satisfaction: The moderating role of emotional intelligence empirical study in telecommunication sector Pakistan." *Journal of Social Sciences and Humanity Studies* 4, no. 1 (2018): 7-14.

[60] Fiori, Marina, and Ashley K. Vesely-Maillefer. "Emotional intelligence as an ability: Theory, challenges, and new directions." *Emotional intelligence in education: Integrating research with practice* (2018): 23-47. https://10.1007/978-3-319-90633-1_2

[61] Pekaar, Keri A., Arnold B. Bakker, Dimitri van der Linden, and Marise Ph Born. "Self-and other-focused emotional intelligence: Development and validation of the Rotterdam Emotional Intelligence Scale (REIS)." *Personality and Individual Differences* 120 (2018): 222-233. https://doi.org/10.1016/j.paid.2017.08.045

[62] Atrizka, Diny, and Ikbar Pratama. "The Influence of Organizational Leadership and Coaches on Indonesian Athletes' Adversity Quotient (Intelligence)." *Revista de Psicología del Deporte (Journal of Sport Psychology)* 31, no. 1 (2022): 88-97.

[63] Martín-Monje, Elena, María Dolores Castrillo, and Jorge Mañana-Rodríguez. "Understanding online interaction in language MOOCs through learning analytics." *Computer Assisted Language Learning* 31, no. 3 (2018): 251-272. https://doi.org/10.1080/09588221.2017.1378237

[64] Suleman, Qaiser, Ishtiaq Hussain, Makhdoom Ali Syed, Rashida Parveen, Ishrat Siddiqa Lodhi, and Ziarab Mahmood. "Association between emotional intelligence and academic success among undergraduates: a cross-sectional study in KUST, Pakistan." *PloS one* 14, no. 7 (2019): e0219468. https://doi.org/10.1371/journal.pone.0219468

[65] Riley, Gina. *Unschooling: Exploring learning beyond the classroom*. Springer Nature, 2020. https://10.1007/978-3-030-49292-2_3

[66] Quiliano Navarro, Mónica, and Miryam Quiliano Navarro. "Inteligencia emocional y estrés académico en estudiantes de enfermería." *Ciencia y enfermería* 26 (2020). http://dx.doi.org/10.4067/s0717-95532020000100203

[67] Winarti, Atiek, Leny Yuanita, and Moh Nur. "The effectiveness of multiple intelligences based teaching strategy in enhancing the multiple intelligences and science process skills of junior high school students." *Journal of Technology and Science Education* 9, no. 2 (2019): 122-135. https://doi.org/10.3926/jotse.404

[68] Wang, Baolu, and Jung E. Ha-Brookshire. "Exploration of digital competency requirements within the fashion supply chain with an anticipation of industry 4.0." *International Journal of Fashion Design, Technology and Education* 11, no. 3 (2018): 333-342. https://doi.org/10.1080/17543266.2018.1448459

[69] Wu, Shaofei. "Nonlinear information data mining based on time series for fractional differential operators." *Chaos: An Interdisciplinary Journal of Nonlinear Science* 29, no. 1 (2019). https://doi.org/10.1063/1.5085430

[70] Kanesan, Pavitra, and Norsiah Fauzan. "Models of emotional intelligence: A review." *e-BANGI Journal* 16, no. 7 (2019).

[71] Shearer, C. Branton. "A detailed neuroscientific framework for the multiple intelligences: describing the neural components for specific skill units within each intelligence." *International journal of psychological studies* 11, no. 3 (2019): 1-26. https://doi.org/10.5539/ijps.v11n3p1

[72] Hajhashemi, Karim, Nerina Caltabiano, Neil Anderson, and Seyed Asadollah Tabibzadeh. "Multiple intelligences, motivations and learning experience regarding video-assisted subjects in a rural university." *International Journal of Instruction* 11 (2018): 167-182. https://10.12973/iji.2018.11112a

[73] Giulia, Venturelli, Spiga Giulia, and Ferri Paola. "Emotional intelligence, empathy and alexithymia: a cross-sectional survey on emotional competence in a group of nursing students." *Acta Bio Medica: Atenei Parmensis* 90, no. Suppl 4 (2019): 32. https://10.23750/abm.v90i4-S.8273

[74] Gentina, Elodie, Thomas Li-Ping Tang, and Pierre-François Dancoine. "Does Gen Z's emotional intelligence promote iCheating (cheating with iPhone) yet curb iCheating through reduced nomophobia?." *Computers & Education* 126 (2018): 231-247. https://doi.org/10.1016/j.compedu.2018.07.011