Development of STEAM-Based Physical Education Learning Model to Improve Physical Fitness of Elementary School Students

by Iyakrus Iyakrus

Submission date: 17-Jan-2023 09:26PM (UTC+0700)
Submission ID: 1994134111
File name: Artikel_2022_Iyakrus.Unsri.pdf (268.28K)
Word count: 4105
Character count: 23083

Development of STEAM-Based Physical Education Learning Model to Improve Physical Fitness of Elementary School Students

1st Iyakrus
Department of physical education and health
Sriwijaya University
Palembang, Indonesia
iyakrus@fkip.unsri.ac.id

2nd Arizky Ramadhan
Department of physical education and health
Sriwijaya University
Palembang, Indonesia

***Abstract*— The purpose of this study was to produce a valid, practical, and effective STEAM (Science, Technology, Engineering, Arts, and Math) -based physical education learning model to improve the physical fitness of elementary school students. The development model adopted from Plomp and Nieveen consists of three stages, namely (1) preliminary research, (2) prototyping phase, (3) assessment phase. The test subjects in this study were 62 elementary school students in Palembang. Data analysis was carried out descriptively qualitatively and quantitatively. This study resulted in a Steam-based physical education learning model to improve the physical fitness of elementary school students with a valid category with a value of 3.94, practical with a positive category with a value of 3.62 and effective with an average increase in the physical fitness component of 3.18%. It is recommended for physical education teachers to use this model as an alternative in improving the physical fitness of elementary school students.**

Keywords—STEAM, physical education, physical fitness

I. INTRODUCTION

The 21st century educational paradigm requires a different learning approach to be applied by placing students at the center with a curriculum, teaching and assessment that helps students engage in learning and develop analytical, collaborative and communication skills [1]. Students in Elementary School are in the age range of 6-12 years which is a time when a child experiences many changes, both physically and psychologically. The characteristics are the development of self-concept, egocentric, curiosity, imagination, feeling, internal control, thinking, language skills, behavior and learning environment [2]. When children enter formal school, they will be faced with the context of the physical environment, processes, types of interactions, social groups and even rules, which are different from their previous experiences [3].

Through learning Physical and Health education in schools has an effect on several aspects of life, including being able to support students' abilities in various things, for example in learning several branches of sports, and encouraging students to be independent, so they can solve all the problems they face [4]. Based on the situation in the field at the time of learning, most students just sit in class because they are not interested in physical learning and health itself. Another problem is that students who participate in class at the beginning and in the middle of learning lose interest, after that they just sit in class and become indifferent to class activities. Various teaching methods have been applied to solve problems related to teacher-directed learning. One of them is by using the STEAM approach.

STEAM is part of a learning approach that develops children's creativity and focuses on collaboration, creativity, verbal and non-verbal communication, problem solving and critical thinking. Children's learning activities in elementary schools through STEAM include play activities, where children are given the opportunity to freely explore their abilities [5]. Teachers can encourage exploration of STEAM during play and social interactions.

Through this learning approach, children are taught not only smart in academic aspects but also in social and emotional aspects [6]. The characteristic of the STEAM approach is that it emphasizes teaching a subject by grafting five disciplines in an integrated-planned manner [7]. Applying the STEAM approach in the Physical Education learning process in elementary schools is expected to develop students' physical fitness.

The purpose of this study is to produce a valid, practical, and effective STEAM-based physical education learning model to improve the physical fitness of elementary school students.

II. LITERATUR REVIEW

A. Physical Fitness in Elementary School Students

Elementary School Education is a coaching effort aimed at children through the provision of educational stimuli to help physical and spiritual growth and development so that children have readiness to enter further education. At this time is the golden age, namely the growth and development of a child needs the right stimuli to achieve perfect maturity [8]. Physical fitness in primary school settings is very important in reducing the health risks associated with obese and overweight children [9]. The development of a child from the very beginning largely depends on the quality of the expressed movements. Children love to play and move freely without any obstacles. When children are allowed to move freely, the child's cognitive and affective domains will increase greatly [10]. Getting

involved in sporting activities is their only way of exploring, experimenting, and discovering the countless wonders of life. Exercise is also part of the method that contributes to a good quality of life. Sports can help students to increase social bonds and improve student personality characteristics [11].

One of the sports that can be applied to children, especially students in elementary schools, is playing. Playing is a very fun activity for children. By playing, children will learn various things that happen around them [12]. Children play is very fun, because they can express various feelings and ideas that they are thinking [13]. In the usual learning process, children will feel bored with learning that just sits and do what the teacher tells them to do.

Early childhood plays an important role in the growth and development of children. During this period, children experience many significant changes, such as posture, brain, language skills, motor skills, and emotions. A child's brain develops up to 75% of an adult's brain by 3 years of age and up to 90% by 6 years of age [14]. In addition, myelin development is mostly completed at the end of childhood which makes the transmission of nerve impulses faster. This process allows children to respond to stimuli better than before, because early childhood conditions are the best period to provide various skills and exercises to children [15].

B. STEAM in the Learning Process

The term STEAM emerged in the 1990s by the National Science Foundation (NSF) in the United States. STEAM is considered a supportive approach that emphasizes a multidisciplinary approach aimed at preparing students to compete in the global economy [16]. Teaching and learning activities must be able to equip students with life skills that are in accordance with the environment and students' needs [17]. The learning process in STEAM has four disciplines, [18] namely: a) Science; is a lesson that relates to the natural sciences. b) Technology; which relates technology to science which is usually associated with today's modern technology. c) Engineering; It operates or designs with correct procedures that can solve problems and benefit humans. d) Mathematics; can increase innovation from technology and can produce exact language of science in science, technology and engineering.

The STEAM approach is a type of collaborative learning that leads to motivation and innovation that can shape creative individuals, which not only strengthens learning in scientific disciplines [19]. The STEAM approach provides opportunities for students to explore between science, technology, engineering, art, and mathematics by utilizing existing facilities in their environment. Learning using STEAM aims to provide the competencies, knowledge, and interdisciplinary perspectives that students need [20]. The STEAM approach integrates related disciplines into a single lesson allowing children to apply their theoretical knowledge into practice, products and innovative inventions [21]. The essence of the STEAM approach is interdisciplinary. STEAM which consists of several fields of science, technology, engineering, and mathematics. In the real world, science, technology, engineering, and mathematics are indispensable and interrelated. This requires teachers not to focus on specific subjects in the STEAM educational process, emphasizing the use of multidisciplinary relationships to enhance student skills needed in the 21st century [22].

C. Development of STEAM-Based Physical Education

The application of STEAM in physical education learning helps increase student involvement in the learning process and improve student academic achievement. The following are the components of STEAM in their application to physical learning on physical fitness material in elementary schools:

1) Science: Students learn the theoretical concepts of running, jumping and throwing in everyday life.

2) Technology: In learning with physical fitness materials students perform good running techniques, jumping techniques and throwing techniques to improve physical fitness.

3) Math: The mathematical component in STEAM-based physical learning in the physical fitness material in this activity students learn the elements of multiplication, addition and division in a sports activity that includes running, jumping and throwing.

4) Arts: At the end of the learning activity, students perform physical cooling movements by performing gymnastic movements to the rhythm of Indonesian folk songs.

It is hoped that STEAM-based physical learning in elementary schools can develop critical thinking, communication, collaboration, problem solving and digital literacy in students. This is in accordance with the opinion of Becker and Park [23] that by utilizing STEAM learning, students will be better trained in terms of psychomotor, cognitive and affective.

III. RESEARCH METHOD

This research is a Research and Development research adopting the development model of Plom and Nieveen [24] consists of three main stages, namely preliminary research, prototyping phase, and assessment phase. The research subjects were 62 elementary school students in Palembang, South Sumatra, Indonesia.

A. Preliminary Research

Preliminary research aims to (1) find out the process of implementing the learning that has been carried out so far, (2) find out the obstacles faced during the learning process, (3) find out the profile of students' physical fitness, 4) analysis of learning support devices. After the needs analysis was carried out, it was followed by a literature study aimed at examining learning theories that support the development of STEAM-based physical education learning that will be used in the learning process.

B. Prototyping Phase

The prototyping phase aims to compile, develop, and evaluate the product. Prototype I is the result of the preparation and development of products that are equipped

with learning support devices. Prototype I was evaluated by one expert in the field of education, especially in learning strategies, one expert on the material, and one practicing teacher in the field. The level of validity and category of product validation developed adopted from Supartini [25]. The evaluation was followed by a limited trial conducted over three meetings to identify problems that occurred during implementation. Prototype II is the result of a product revision from the validator and a limited trial, which will then be implemented on a large scale in the assessment phase.

C. Assessment Phase

The assessment phase aims to determine the practicality and effectiveness of the products developed. Practical data were obtained from the consistency of learning implementation and student response questionnaires after participating in STEAM-based Physical Education learning. Effectiveness data obtained from the initial test scores and the final physical fitness test of students were analyzed using a normalized gain formula to obtain an N-gain score. The N-gain score category was adopted from Erna [26]. Implementation of STEAM-based Physical Education learning using the pretest-posttest method of the experimental group (Physical Education + STEAM) which includes aspects of physical fitness including explosive power, speed, agility, flexibility and endurance. The pretest was conducted at the first meeting to test the students' physical fitness.

IV. RESULTS AND DISCUSSION

The results of the study consist of data on the validity, practicality and effectiveness of STEAM-based Physical Education learning. The validity data has eight aspects analyzed, more detail can be seen in Table 1 below.

TABLE I. VALIDATION RESULTS OF STEAM-BASED PHYSICAL EDUCATION LEARNING

No	Aspect	Mean	Criteria
1	STEAM-Based Physical Education Learning suitable with the needs of Elementary School students.	3.89	Valid
2	STEAM-Based Physical Education Learning suitable with learning materials in Elementary Schools.	4.00	Very Valid
3	Ease of accessing tools and facilities in STEAM-Based Physical Education Learning.	3.89	Valid
4	STEAM-Based Physical Education Learning that was developed effectively improves the physical fitness of Elementary School students.	4.00	Very Valid
5	STEAM-Based Physical Education Learning suitable with Physical Education learning stages.	4.00	Very Valid
6	Practicality of STEAM-Based Physical Education Learning developed in learning in Elementary Schools.	3.92	Valid
7	The STEAM-Based Physical Education Learning that was developed is easy to operate in the field.	3.81	Valid
8	The STEAM-Based Physical Education Learning that was developed contains aspects of science, technology, art and mathematics.	3.93	Valid
	Mean	3.93	Valid

In Table 1 it can be seen that the average value of learning validity is in the valid category. In the second, fourth and fifth got the highest score of 4.00 with a very valid category. Furthermore, the second high value is in the eighth aspect, and is followed by the sixth aspect. The smallest aspect in the validity test is found in the third aspect which gets a value of 3.89 with a valid category. The results obtained stated that the product can be continued to the product testing stage.

Practicality data in the form of student responses to STEAM-based Physical Education learning, more detail can be seen in Table 2. The results of the practicality analysis obtained that the highest aspect was in the eighth aspect, namely the applied learning could develop student discipline and confidence with a score of 3.82. The application of learning has an effect on student activity, this can be seen in the seventh aspect with the acquisition of an average score of 3.71 with a positive category. The effectiveness test showed that the physical component of explosive power increased by 4.94%. The physical component of speed has increased by 3.14%. The physical component of flexibility increased by 1.68%, while the physical component of endurance (VO2 Max) increased by 3.07%. More details can be seen in Table 3 below.

TABLE II. RESULTS OF STUDENT RESPONSES TO LEARNING

No	Aspect	Mean	Criteria
1	The develop learning is fun.	3.52	Positive
2	Learning is easy to follow.	3.72	Positive
3	Learning is useful in everyday life.	3.43	Positive
4	Learning is effective in improving physical fitness.	3.59	Positive
5	STEAM-Based Physical Education Learning suitable with Physical Education learning stages.	3.51	Positive
6	The developed learning can increase mathematical knowledge.	3.68	Positive
7	The developed learning contains elements of art and technology.	3.71	Positive
8	Learning can develop aspects of discipline and self-confidence.	3.82	Very Positive
	Mean	3.62	Positive

TABLE III. RESULTS OF EFFECTIVENESS ANALYSIS

No	Physical Components	Pretest		Posttest		% Enhancement
		Mean score	*Category*	*Mean score*	*Category*	
1	Explosive Power	50.5	Poor	55.5	Fair	4.49
2	Speed	3.9895	Poor	3.9581	Poor	3.14
3	Agility	12.452	Good	12.421	Good	3.10
4	Flexibility	17.05	Fair	18.91	Fair	1.68
5	Endurance (Vo2 Max)	31.11	Poor	31.33	Poor	3.07
		Mean				3.18

Based on the results of the analysis, it was found that STEAM-based physical education learning had an effect on improving the physical fitness of elementary school students. STEAM is very important because it can help teachers combine various disciplines. STEAM can also provide learning experiences that allow children to mentally train and practice innovative building skills [5].

Physical education learning based on STEAM is done by students doing physical activity material using several posts. Each post students are asked to do physical activities to solve the problems given. The STEAM-based physical education learning process is very beneficial for students. Students who engage in at least 60 minutes of physical activity each day are more successful in school [27]. Physical education teachers who actively incorporate the STEM approach into the learning process by incorporating physical movement into integrated STEAM lessons have an impact on students' retention and understanding of science and math concepts [28]. Learning using STEAM that utilizes the field of science outside the sports component has three components, namely goals, development, and instructional activities [29]. To achieve certain competencies in certain sports (goals), children develop through several levels of thinking, assisted by tasks and experiences of learning activities designed to build students' mentality [30].

Children who are in elementary school will learn well if their physical needs are met and feel comfortable in their environment [14]. Students will learn from building an understanding of something, exploring the environment, rediscovering a concept to being able to make something valuable [31]. Therefore, students will learn through social interaction with both adults and peers in their environment [32]. Education of students in Elementary School is an effort that is designed and implemented systematically to assist students in cultivating physical and mental fitness. Efforts made can be done by playing, by including traditional games in learning using the STEAM approach. Traditional games for children combine cultural knowledge, values and skills. Traditional games are closely related to people's lives by using the surrounding environment [33].

In Table 3 it can be seen that all components of the physical fitness test of elementary school students have increased. This happens because the STEAM approach can use a play approach for physical activities in every post activity, thus making elementary school students able to develop psychomotor skills, encourage collaborative learning for students, and provide social interaction so as to provide effective and permanent learning [34][35]. Physical Education integrated with the STEM approach will enhance the creativity, communication, and collaboration skills students need for lifelong learning [36].

V. CONCLUSIONS

This research produces a steam-based physical education learning model to improve the physical fitness of elementary school students that is valid and practical. The steam-based physical education learning model is effective in improving the physical fitness of elementary school students.

ACKNOWLEDGMENT

We would like to thank the validator lecturers, physical education teachers and all Elementary School students who were involved in this research.

REFERENCES

[1] S. S. Guzey, T. J. Moore, M. Harwell, and M. Moreno, "STEM Integration in Middle School Life Science: Student Learning and Attitudes," *J. Sci. Educ. Technol.*, vol. 25, no. 4, pp. 550–560, 2016, doi: 10.1007/s10956-016-9612-x.

[2] Hermahayu, S. Wimbarti, I. Paramastri, and R. Lumintuarso, "Physical Fitness and Executive Functions in Preschool Children," *J. Phys. Educ. Sport. Heal. Recreat.*, 2019.

[3] G. W. Ladd, S. L. Herald, and K. P. Kochel, "School readiness: Are there social prerequisites?," *Early Educ. Dev.*, vol. 17, no. 1, pp. 115–150, 2006, doi: 10.1207/s15566935eed1701_6.

[4] D. B. Dharmawan and B. Priyono, "Pengembangan Model Permainan SRD (Spider Run Dance) Dalam Pembelajaran Kebugaran Jasmani," *J. Phys. Educ. , Sport , Heal. Recreat.*, vol. 5, no. 2, pp. 92–101, 2016.

[5] N. K. DeJarnette, "Implementing STEAM in the Early Childhood Classroom," *Eur. J. STEM Educ.*, vol. 3, no. 3, pp. 1–9, 2018, doi: 10.20897/ejsteme/3878.

[6] A. Tabiin, "Implementation of STEAM Method (Science, Technology, Engineering, Arts And Mathematics) for Early Childhood Developing in Kindergarten Mutiara Paradise Pekalongan," *Early Child. Res. J.*, vol. 2, no. 2, pp. 36–49, 2020, doi: 10.23917/ecrj.v2i2.9903.

[7] R. Al-Haj Bedar and M. A. Al-Shboul, "The Effect of Using STEAM Approach on Developing Computational Thinking Skills among High School Students in Jordan," *Int. J. Interact. Mob. Technol.*, vol. 14, no. 14, p. 80, Aug. 2020, doi: 10.3991/ijim.v14i14.14719.

[8] M. Munawar, F. Roshayanti, and S. Sugiyanti, "IMPLEMENTATION OF STEAM (Science Technology Engineering Art Mathematics) - BASED EARLY CHILDHOOD EDUCATION LEARNING IN SEMARANG CITY," *CERIA (Cerdas Energik Responsif Inov. Adapt.*, vol. 2, no. 5, p. 276, 2019, doi: 10.22460/ceria.v2i5.p276-285.

[9] T. D. Bamitale and J. B. Gbenga, "Role of Physical Activity and Motor Learning in Child Development," *J. Niger. Assoc. Sport. Sci. Med.*, 2014.

[10] C. Boreham and C. Riddoch, "The physical activity, fitness and health of children," *J. Sports Sci.*, vol. 19, no. 12, pp. 915–929, 2001, doi: 10.1080/026404101317108426.

[11] W. R. Kurniawan, I. Setiawan, F. Rozi, A. Y. Rahman, and A. A. P. Shidiq, "Recording Studentsâ€™ Performance in Physical Education Using Mobile-Based Applications," *Act. J. Phys. Educ. Sport. Heal. Recreat.*, vol. 10, no. 1, pp. 35–42, Feb. 2021, doi: 10.15294/active.v10i1.45437.

[12] C. Felfe, M. Lechner, and A. Steinmayr, "Sports and child development," *PLoS One*, vol. 11, no. 5, pp. 1–23, 2016, doi: 10.1371/journal.pone.0151729.

[13] H. S. Choi, B. Johnson, and Y. K. Kim, "Children's Development Through Sports Competition: Derivative, Adjustive, Generative, and Maladaptive Approaches," *Quest*, vol. 66, no. 2, pp. 191–202, 2014, doi: 10.1080/00336297.2013.861757.

[14] N. Zeng, M. Ayyub, H. Sun, X. Wen, P. Xiang, and Z. Gao, "Effects of physical activity on motor skills and cognitive development in early childhood: A systematic review," *Biomed Res. Int.*, vol. 2017, 2017, doi: 10.1155/2017/2760716.

[15] R. A. Jones, A. Riethmuller, K. Hesketh, J. Trezise, M. Batterham, and A. D. Okely, "Promoting fundamental movement skill development and physical activity in early childhood settings: A cluster randomized controlled trial," *Pediatr. Exerc. Sci.*, 2011, doi: 10.1123/pes.23.4.600.

[16] E. A. Dare, J. A. Ellis, and G. H. Roehrig, "Understanding science

teachers' implementations of integrated STEM curricular units through a phenomenological multiple case study," *Int. J. STEM Educ.*, 2018, doi: 10.1186/s40594-018-0101-z.

[17] I. Artobatama, "Pembelajaran Stem Berbasis Outbound Permainan Tradisional," *Indones. J. Prim. Educ.*, vol. 2, no. 2, p. 40, 2019, doi: 10.17509/ijpe.v2i2.15099.

[18] T. Matsuura and D. Nakamura, "Trends in STEM/STEAM Education and Students' Perceptions in Japan," *Asia-Pacific Sci. Educ.*, vol. 7, no. 1, pp. 7–33, 2021, doi: 10.1163/23641177-bja10022.

[19] S. Wahyuningsih, A. R. Pudyaningtyas, R. Hafidah, M. M. Syamsuddin, N. E. Nurjanah, and U. E. E. Rasmani, "Efek Metode STEAM pada Kreatifitas Anak Usia 5-6 Tahun," *J. Obs. J. Pendidik. Anak Usia Dini*, vol. 4, no. 1, p. 305, 2019, doi: 10.31004/obsesi.v4i1.305.

[20] A. Ata Aktürk and O. Demircan, "A Review of Studies on STEM and STEAM Education in Early Childhood," *J. Kırşehir Educ. Fac.*, 2017.

[21] M. S. Corlu, R. M. Capraro Prof., and M. M. Capraro, "Introducing STEM education: Implications for educating our teachers for the age of innovation," *Egit. ve Bilim*, 2014.

[22] Y. Bai, D. Peng, and J. Yang, "Design of Virtual Physics Laboratory Based on STEAM Education," vol. 428, no. Iceeim 2019, pp. 18–21, 2020, doi: 10.2991/assehr.k.200401.006.

[23] K. H. Becker and K. Park, "Integrative Approaches among Science, Technology, Engineering and Mathematics (STEM) Subjects on Students' Learning: A Meta-Analysis," *J. STEM Educ.*, 2009.

[24] T. Plomp, "Introduction to Educational Design Research: An Introduction," *An Introd. to Educ. Des. Res. - Part A*, pp. 11–50, 2013, [Online]. Available: http://www.eric.ed.gov/ERICWebPortal/recordDetail?accno=EJ815766%0Ahttp://international.slo.nl/edr.

[25] T. Supartini, I. T. J. Weismann, H. Wijaya, and Helaluddin, "Development of learning methods through songs and movements to improve children's cognitive and psychomotor aspects," *Eur. J. Educ. Res.*, vol. 9, no. 4, pp. 1615–1633, 2020, doi: 10.12973/EU-JER.9.4.1615.

[26] M. Erna, Elfizar, and C. A. Dewi, "The Development of E-Worksheet Using Kvisoft Flipbook Maker Software Based on Lesson Study to Improve Teacher's Critical Thinking Ability," *Int. J. Interact. Mob. Technol.*, vol. 15, no. 1, pp. 39–55, 2021, doi: 10.3991/IJIM.V15I01.15679.

[27] J. Shin and J. Heo, "STEAM-X: An Exploratory Study Adding Interactive Physical Activity to the STEAM Model," 2020, doi: 10.1007/978-3-030-50513-4_14.

[28] D.-J. Lee, "The Effect of STEAM-Based Physical Education Classes on Middle School Students' Attitudes toward Physical Education Classes and Self-Directed Learning Abilities," *Iran. J. Public Health*, vol. 50, no. 5, pp. 938–948, 2021, doi: 10.18502/ijph.v50i5.6111.

[29] D. H. Clements, M. Vinh, C.-I. Lim, and J. Sarama, "STEM for Inclusive Excellence and Equity," *Early Educ. Dev.*, vol. 32, no. 1, pp. 148–171, Jan. 2021, doi: 10.1080/10409289.2020.1755776.

[30] M. L. Van Horn, E. O. Karlin, S. L. Ramey, J. Aldridge, and S. W. Snyder, "Effects of developmentally appropriate practices on children's development: A review of research and discussion of methodological and analytic issues," *Elem. Sch. J.*, 2005, doi: 10.1086/429946.

[31] T. Andriani, "Permainan Tradisional Dalam Membentuk Karakter Anak Usia Dini," *J. Sos. Budaya*, vol. 9, no. 1, pp. 121–136, 2012.

[32] J. R. Ruiz *et al.*, "Field-based fitness assessment in young people: The ALPHA health-related fitness test battery for children and adolescents," *Br. J. Sports Med.*, 2011, doi: 10.1136/bjsm.2010.075341.

[33] D. J. Paul and G. P. Nassis, "Testing strength and power in soccer players: The application of conventional and traditional methods of assessment," *Journal of Strength and Conditioning Research*. 2015, doi: 10.1519/JSC.0000000000000807.

[34] M. Uğraş and Z. Genç, "Pre-School Teacher Candidates' Views about STEM Education," *Bartın Üniversitesi Eğitim Fakültesi Derg.*, 2018, doi: 10.14686/buefad.408150.

[35] N. ÜLTAY and E. Ultay, "A Comparative Investigation of the Views of Preschool Teachers and Teacher Candidates about STEM," *J. Sci. Learn.*, vol. 3, no. 2, pp. 67–78, 2020, doi: 10.17509/jsl.v3i2.20796.

[36] G. Hacıömeroğlu and A. Bulut, "Integrative stem teaching intention questionnaire: A validity and relaibility study of the Turkish form," vol. 12, no. 3, pp. 654–669, 2016.

Development of STEAM-Based Physical Education Learning Model to Improve Physical Fitness of Elementary School Students

ORIGINALITY REPORT

1%	1%	0%	0%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	atrium.lib.uoguelph.ca Internet Source	1%

Exclude quotes	Off	Exclude matches	< 1%
Exclude bibliography	Off		