The Effect of Teaching Model and Students' Personalities on Students' Learning Achievement

Leo Charli[✉] **Moch. Sukardjo,**[1] **Suyitno Muslim**[1]

[1] Postgraduate Program, Department of Educational Technology, Universitas Negeri Jakarta, Jakarta, Indonesia

Abstrak

Artikel ini bertujuan untuk menggambarkan bagaimana pengaruh kepribadian siswa (introvert dan ekstrovert) terhadap hasil belajar mata pelajaran Kimia di antara dua model pembelajaran, yaitu *inside-outside circle* dan *snowball throwing*. Penelitian ini berpendekatan kuantitatif dan menggunakan kuasi eksperimen semu. Hasil penelitian ini menunjukkan bahwa hasil belajar Kimia dari siswa dengan kepribadian ekstrovert ketika menggunakan model pembelajaran *inside-outside circle* lebih tinggi dibanding ketika menggunakan model pembelajaran *snowball throwing*. Di sisi lain, siswa yang berkepribadian introvert ketika menggunakan model pembelajaran *snowball throwing* hasil belajarnya lebih tinggi dibandingkan ketika menggunakan model pembelajaran *inside-outside circle*. Temuan yang menunjukkan perbedaan hasil belajar dilihat dari faktor kepribadian ini menarik sebagai pertimbangan guru dalam memilih dan mengembangkan pembelajaran di kelas agar hasil belajarnya lebih optimal.

Abstract

This article aimed at illustrating how students' personalities (introvert and extrovert) affects their learning outcomes of chemistry subject when the teacher employs two learning models, i.e. inside-outside circle and snowball throwing. This research uses quantitative approach, particularly quasi experiment. The result of the research showed that the learning outcomes of chemistry by extrovert students were higher when using inside-outside circle learning model compared to snowball throwing. On the other hand, the learning outcomes of introvert students who studied chemistry were higher when using snowball throwing learning model compared to inside-outside circle. The finding of this research that shows the learning outcomes differences regarding students' personalities are interesting to be considered by the teachers in selecting and developing learning activities in classroom to improve the students' learning outcomes optimally.

[✉] Corresponding author :
Address: Universitas Negeri Jakarta, Jakarta, Indonesia
E-mail: leocharli48@yahoo.com

INTRODUCTION

The massive goal of education today is to prepare students to contribute to the world of work and social life. This goal is one of the greatest challenges of this century, even more than all other major problems such as global warming, curing disease, and ending poverty (Trilling & Fadel, 2009). Therefore, continuous improvement and development is needed to create education that is able to develop students' potential. So that students have the knowledge and skills to face and solve problems in everyday life. According to Joyce, Weil and Calhoun, the way teachers apply a learning model will have a major effect on students' ability to educate themselves (Joyce, Weil, & Calhoun, 2009).

Several research results, including research by McCormick, Clark and Raines (2015) and by Killian and Bastas (2015) show that learning that actively involves students can increase 1) motivation and interest in learning, 2) interaction between teachers and students, 3) ability to think critically and solve the problems, and 4) student performance. The results of the above research indicate that the teaching model that involves students actively in learning will be able to foster the ability to think, work and behave scientifically and communicate as an important aspect of life skills so that it is possible for students to communicate the results of scientific work in a scientific manner as well as be able to make the learning process more qualified.

In order to bring chemistry materials more interesting and meaningful, a cooperative learning model is used, which is a teaching model that involves forming groups that aim at achieving better learning outcomes, fostering social skills created in cooperation with members of the group. Cooperative learning is carried out to develop the ability to work together, think critically, and develop students' social attitudes which are shown by helping each other in solving problems with mutual respect between them. It is possible that cooperative learning can assist students to understand the lesson, because students can play an active role in learning. In addition, cooperative learning also involves the affective aspects of students so that lessons are not boring and make students easier to concentrate more with a longer time on ongoing learning. Learning through group collaboration, which is also known as cooperative learning arises from the concept that students will find it easier to find and understand difficult concepts

if they discuss each other with peers. Students regularly work in groups to help each other solving complex problems.

All this time, classroom-based learning has been dominated by the understanding of Behaviorism which aims to make students recall information, then memorize it. Learning with the snowball throwing model is different (Qomariah, 2016). In this case, students are given the freedom to build or create knowledge by trying to give the meaning to the knowledge they ever experienced. Students are given the understanding that science is unstable and is only a record. Science is the construction of humans experiencing new experiences that cause knowledge to continue to evolve according to the times. The learning principle with the snowball throwing teaching model is contained in the principles of the cooperative learning model, which is based on five principles, namely the principles of active student learning, cooperative learning, participatory learning, reactive teaching, and joyful learning. Learning through group collaboration, which is also known as cooperative learning, arises from the concept that students will find it easier to find and understand difficult concepts if they discuss each other with their friends. Students routinely work in groups to help each other to solve the complex problems.

The results of research conducted by Qomariah (2016) concluded that students with extrovert personality have a relational understanding when they are reading and exploring problems, making plans/strategies in solving the problems, the subject has a relational understanding, as well as in implementing plans to solve subject problems, extroverts have a relational understanding. However, when looking back and reflecting on the results obtained, extroverts have instrumental understanding. The results of the description of the introverted subject when reading and exploring the problem, the introvert subject has a relational understanding. At the stage of making plans/strategies to solve problems, introverts have a relational understanding. It is at the stage of implementing a plan to solve the problem that the introverts have a relational understanding. Meanwhile, at the stage of flashback and reflection, introverts have a relational understanding. This research used qualitative approach and the result shown that problem-based learning model has been used widely and has attracted many first high school students to improve their competencies. Therefore, teachers need to create such innovations based on prob-

lem-based learning (Faqiroh, 2020).

The research conducted by Raguwon et al. (2014) concluded that learning outcomes with Snowball Throwing cooperative learning model were higher than conventional learning with tcalculation being in the area of Ho's rejection. The t score is 5.65 and t table 1.671 at a significant level of 5% and dk = 58 so that the hypothesis can be accepted at the 95% confidence level. Thus, it indicates that the Snowball Throwing cooperative learning model has a positive effect on students' learning achievement on molecular form material in class XI IPA SMAN 1 Pasangkayu. Next, research conducted by Andhika et al. (2013) also concluded that there are significant differences in social studies learning outcomes of students who are taught with the Inside Outside Circle cooperative learning model based on audio visual animation media with conventional learning, so it can be recommended that the cooperative learning model Inside Outside Circle type based on audio visual animation media can be used as an alternative learning model in social studies subjects in elementary schools.

In this context, the initial observation regarding to propose this research on chemistry teacher at senior public high school 5 Lubuklinggau showed that the average score for daily chemistry tests of odd semester students of class XI IPA in academic year 2015-2016 is 54.56. This score comes from 144 students and 64 people who get a score ≥ 76 (44.44%). The score has not reached the passing grade (KKM) set by the teacher and school. The school passing grade is 80% of students have reached score of ≥ 76. Based on the results of observations made by researchers to determine the activity of chemistry learning at SMA Negeri 5 Lubuklinggau, learning tended to be teacher-centered. Students' activities are more listening and note-taking the material provided by the teacher, so that students become passive, unfocused and feel bored. Whereas teachers must be able to motivate students, express ideas, use learning media, choose appropriate learning approaches and models, make material concepts that are easy to understand and meaningful. Teachers also should be able to choose a suitable teaching model, be able to plan and implement it to allow students to be actively involved in the learning process.

According to the previous research (i.e. Qomariah, 2016) there are interesting fact that students' personality influences their academic achievement, on the other hand many research also reveal that teaching models have huge impact on student academic achievement. These two phenomena are interesting to be confirmed what if these two variables measured their effect on student learning achievement? First, there is now previous research focusing on this topic comprehensively. Secondly, it will contribute to the wide discourse on the relation between teaching model, student personality, and student achievement, especially in Indonesian context. In so doing there will be clear illustration on how teaching model and students' personality affect their learning achievement, and the learning processes at senior public high school 5 Lubuklinggau is appropriate as the focus or context of the research because the learning approaches conducted by the majority of the teachers still underpinned by teacher centred paradigm that leads the student to be more passive. This article illustrates the effect of teaching model and students' personality on student achievement, particularly on chemistry subject as the case study of this research. This study contributes to the field of educational technology and curriculum studies, especially on its methodological side on how to implement the curriculum using appropriate learning methods.

METHOD

This study used a quantitative approach with quasi-experimental method. The target population in this research were all SMA N 5 Lubuklinggau students registered in the 2019/2020 year. The population in this research were students of class XI IPA SMA N 5 Lubuklinggau which consisted of 4 class totalling 144 students. The sample in this research totalling 75 students. The class that became the study sample was given a different treatment. While the students who are the sample are given personality instruments. The method in this research with treatment by factorial 2x2 design. It is based on the treatment. The data on chemistry learning outcomes in this research are primary data, which is obtained by using a written test technique. The instrument used was an objective test. Chemistry learning outcomes test is carried out when the learning model has been completed. Data collection techniques to obtain students personality data were carried out by using questionnaires. Through this technique, students' personality data are primary data. The results of student personality questionnaires are numerical data, then processed to categorize students

into extrovert personality groups and introverted personalities. Student personality data collection is carried out before the learning model treatment. The design of treatment by level 2x2 is presented in the following table.

Table 1 Design of treatment of the research

Students' personalities	Teaching model	
Ekstrovert Personality (B_1)	$A_1 B_1$ [X, Y]$_{11}$K K = 1,2,....,N$_{11}$	$A_2 B_1$ [X, Y]$_{21}$k K = 1,2,....,n$_{21}$
Introvert Personality (B_2)	$A_1 B_2$ [X, Y]$_{12}$k K = 1,2,....,n$_{12}$	$A_2 B_2$ [X, Y]$_{22}$k K = 1,2,....,n$_{22}$

RESULT AND DISCUSSION

Based on the research results, this section explains (1) the differences in chemistry learning achievement among groups of students being taught using the inside-outside circle teaching model and groups of students being taught using the teaching model snowball throwing, (2) the effect of the interaction between learning models and student personalities on chemistry learning achievement, (3) the differences in chemistry learning achievement between groups of students taught using the inside-outside circle learning model and those taught using the snowball throwing teaching model, for students who have an extrovert personality, and (4) the differences in chemistry learning outcomes between groups of students who are taught using the inside outside circle learning model and those taught using the snowball throwing learning model, for students who have an introverted personality.

A. The Average Score of Students' Chemistry Learning Achievement

The followings are the results and discussion of the gamelan learning media development. Following Alessi and Trolip, the explanation of the development results is divided into 3 parts, namely planning, design, and development.

The results of the Tukey test in groups A1 and A2 showed that the score of Qcalculation = 3.01 was higher than Qtable (0.05; 2: 20) = 2.95. This means that there are differences in the scores of students' chemistry learning achievement taught using inside outside circle model

and those taught using the snowball throwing model. Thus, it can be concluded that the average score of students' chemistry learning achievement taught using inside outside circle was 29.95 higher than those taught using snowball throwing of 27.15.

The research conducted by Tobing et al. (2018) concluded that the use of Inside Outside Circle model can effectively improve students' mathematical communication skills. This can be seen from the obtained score of 0.76 which is in the high category. This means that inside outside circle is effectively used and can improve the mathematical communication skills of students at SMP Negeri 1 Tantom Angkola. The research conducted by Sahuleka et al. (2020) concluded that the application of the inside outside circle of cooperative learning model to the concept of the human excretion system can improve students' learning achievement by achieving predetermined KKM score.

The research conducted by Prihatin et al. (2017) concluded that the application of inside outside circle can increase motivation and science learning achievement of class VIII E MTS Negeri Sleman Yogyakarta City. This can be seen from the results of students' motivation to learn science starting from pre-cycle, cycle I and cycle II have increased. In the pre-cycle, the average percentage of the students' motivation questionnaire was 63.3% with moderate classification. From pre cycle to cycle I increased by 10% from 63.3% to 73.3% with moderate classification. Then, from cycle I to cycle II, it was increased by 5.4% from 73.3% to 78.7% with high classification. In the pre-action stage, the teacher used the average score of students in the Final Exam of Semester one 59. In the first cycle, the average students' score increased to 72 with the percentage of KKM achievement of 50%. In the second cycle, the average score of students' increased to 79 with the percentage of KKM achievement of 79.41%. The application of learning using the Inside Outside Circle cooperative learning model in learning can be used as an alternative to improve students' learning motivation and science learning achievement.

The research by Gani et al. (2017) concluded that snowball throwing model can improve English reading skill. It is showed by the t-test result which is higher than the critical value 2,00. The tcalculation of post-test between experiment class and control class was 3,38 and significant score was 0,61 (α = 0.05). The research con-

ducted by Setyawati et al. (2014) concluded that the snowball throwing can improve students' reading skills in understanding general texts. This is shown by the results of the average score in each cycle where there is an improvement on students' reading ability, in cycle I (51.36), cycle 2 (63.63), and cycle 3 (72.27). In the third cycle, the students' average score had reached the research target. Based on the results of the research that has been carried out and the results of research conducted by previous researchers, it can be concluded that inside outside circle teaching model and snowball throwing can influence and improve students' learning achievement. However, the students' learning achievement by using the inside outside circle was higher than those who use snowball throwing.

B. The Effect of Interaction between Teaching Model and Students' Personality

The results of the two-way analysis of variance on the A * B interaction line found that the interaction of Fcalculation of 85.755 is higher than Ftable (0.05; 2: 54) = 3.17 with a probability score (Sig.) Of 0.000 lower than the significant level (0, 05). This means that there is a significant interaction effect between the teaching model and personality on students' chemistry learning achievement. Because there was a significant interaction effect, the Tukey test was continued for the six cells of the experimental design.

The research conducted by Habibi (2016) concluded that there are differences in mathematic learning achievement of junior high school students with extrovert and introvert personalities on the subject of linear equation systems. This can be shown from the results obtained in this study, namely the amount of t-test is 5.082 and t table is 2.045, it appears that at the 5% significance level t-test> t table so that Ha is accepted and Ho is rejected. The conclusion that can be drawn from the results of this study is that there are differences in mathematic learning achievement of junior high school students with extrovert and introvert personalities about linear equations systems.

The research conducted by Yanti et al. (2018) concluded that PBL has a very big role during the learning process because it supports introvert students to be active in solving contextual problems given, so that in at the end of learning the students' mathematic critical thinking skills can be improved. This is shown by the data collected through tests, observations, and interviews. Furthermore, the data collected were analysed based on two major conditions during the research process, namely analysis during conditions and between conditions. The whilst-condition analysis included the components of the condition length (interval length), direction trend, level of stability, rate of change, data trail, and range. Analysis between conditions includes the number of variables that are changed, changes in trend direction and their effects, changes in stability and their effects, changes in data levels, and data overlaps. The conclusion of this study is that students with introvert personalities can solve the problems given in the form of Pythagorean Theorem by using PBL model. The results of the evaluation in pre and post treatment showed a significant improvement of mathematic critical thinking skill so that the treatment given could improve their mathematic critical thinking skills.

The research conducted by Hakim (2019) concluded that the use of cooperative learning methods can be a solution for speaking class which is dominated by introverted students. In this study, researchers observed and interviewed five English teachers at the Bengkulu English Academy who had experience teaching English, including speaking lessons for more than 5 years. Observations were made for 15 meetings in 5 different speaking classes. In having observations, the researchers focused on how the situation and activities before class begins, during the class, what problems introvert students seem to face and what the teachers do next. Related to the activities in some of these speaking classes, the researchers analyzed that introverted students would really feel comfortable if the teachers gave them more opportunities to interact between students, because in fact they really need such things.

Furthermore, these actions will be important for them to improve their speaking skills. But the main problem is that they often feel reluctant to respond to the topic discussed directly so that the intensity of their speaking in the teaching and learning process is less sufficient. These students also had time to explain to the author that the material being taught must contain more activities such as games that are up to date which aim to increase interaction between fellow students in a fun way. On the other hand, these introverted students much prefer learning through activities rather than just studying a theory in the speaking class. Therefore, the teaching materials must also represent cooperati-

ve learning competencies as suggested by the teachers. Based on the results of the research that has been conducted as well as the results previous researcher, it can be concluded that there is a significant interaction effect between teaching models and personality on students' chemistry learning achievement.

C. The Difference of Chemistry Learning Achievement between Students (1)

The results of the Tukey test in the A1B1 and A2B1 groups showed that the score of Qcount = 8.63 was higher than Qtable (0.05; 4: 10) = 4.33. This means that there are differences in the scores of students' chemistry learning achievement taught using inside outside circle and those taught using snowball throwing for groups of students who have extroverted personalities. Thus, it can be concluded that the average score of students' chemistry learning outcomes with extrovert personality, in the group of students taught using the inside outside circle was 38.70 higher than the group of students taught using the snowball throwing of 27.40.

The research conducted by Nuraeni et al. (2017) concluded that the inside outside circle can increase learning activities through Lesson Study (LS) activities. The implementation of IOC learning is important in maximizing student learning activities during the learning process. The data collection method in this study used LS combined with Classroom Action Research (PTK). LS activities were held at SDI Surya Buana for students in class VA with a total of 24 students. The data taken were data from observations of students learning activities during the learning process. The results showed that (1) students' activities could be more optimal with IOC with more mature planning and preparation and (2) LS activities could contribute to teachers in developing better learning activities.

The research conducted by Aditya et al. (2020) concluded that the snowball throwing learning model can improve English learning outcomes in descriptive writing. This study shows an increase in the results of observations, there is an increase in activity from the first meeting to the second meeting. In addition, there is also an increase in students' learning outcomes in descriptive writing after being taught using the snowball throwing learning model. Another research conducted by Atnur et al. (2019) concluded that students with extrovert personalities have a positive influence on biology learning

achievement. The research was conducted on 29 students as samples. The results obtained were the average questionnaire score of 54.62 with an average value of 76.21. With the coefficient of determination (r2) = 0.1849 and the percentage obtained is 18.49%. The linear regression equation for extrovert personality y = 33.03 + 21.95x.

Based on the results of research that has been done and the results of studies conducted by previous researchers, it can be concluded that the inside outside circle and the Snowball Throwing can influence and improve student learning achievement. However, the students learning outcomes using the inside outside circle learning model were higher than the learning outcomes using the snowball throwing learning model for students who had extroverted personalities.

D. The Difference of Chemistry Learning Achievement between Students (2)

The results of the Tukey test in the A1B2 and A2B2 groups showed that the value of Qcount = 4.35 was greater than Qtable (0.05; 4: 10) = 4.33. This means that there are differences in the scores of students' chemistry learning outcomes taught using the inside outside circle learning model and those taught using the snowball throwing learning model for groups of students who have introverted personalities. Thus, it can be concluded that the average score of chemistry learning outcomes of students who have an introverted personality, in the group of students taught using the inside outside circle learning model is 21.20 lower than the group of students taught using the snowball throwing learning model of 26.90.

Research conducted by Maulida et al. (2013) concluded that the use of an inside outside circle learning model in teaching English can help students improve their speaking skills. This learning model trains students, especially junior high school students to think critically and work together to interact with each other and be more confident without feeling afraid to speak. Not only that, through this learning model, students are also more accustomed to expressing opinions or ideas related to the topic to be discussed so that students will find it easier to convey their ideas and opinions.

The research conducted by Nurhidayati et al. (2019) concluded that the application of the snowball throwing can improve social studies learning achievement of eighth grade students.

Data collection techniques used in this study were observation, interviews, tests, and documentation. The data analysis used was descriptive qualitative analysis. The results of the study were shown in the learning achievement of students before and after applying the snowball throwing, namely the learning achievement of students who got the KKM score increased from 38.09% to 52.38% in the first cycle and increased to 86.70% in the second cycle. Based on the results of this study, it can be concluded that the application of the Snowball Throwing Cooperative learning model can improve learning achievement in social studies of geography for students in class VIII C of SMP Muhammadiyah 1 Sukoharjo in the 2017/2018 academic year.

The research conducted by Piliani et al. (2019) concluded that there was an effect of information services on introvertity among grade VIII students at SMPN 2 Praya Timur, Central Lombok Regency, 2015/2016 academic year. Data analysis was carried out by using t-test analysis. It was obtained that t-test score was higher than t-table at significance level of 5% with db = 30-1 people, the score of tcalculation was 8.152> t-table 2.045 which means that the results of this study are significant, meaning that the null hypothesis (Ho) is rejected and Ha accepted.

The research conducted by (Warjono, Pri Agung., Sultani., & Anisah, 2020) concluded that individual counselling services with a gestalt approach can improve students' self-confidence with introvert personality. The results showed that confidence in introvert students at class VII at SMP Negeri 2 Martapura in the results of data analysis with Wilcoxon with a sig score of 0.109, thus the analysis was rejected because basically the Wilcoxon taking was> 0.05 if the result was higher than the results which has been determined then (Ho) rejected. It can be said that if the sample of 3 students can significantly influence the results of students' self-confidence in providing individual counselling services with the gestalt approach.

Based on the results of the research that has been conducted as well as the results of previous research, it can be concluded that snowball throwing teaching model and inside outside circle teaching model can influence and improve students' learning achievement. However, the students' learning achievement using snowball throwing was higher than that using inside outside circle for introvert students.

CONCLUSION

Based on the research results and the discussion, the following conclusions are stated: (1) Inside outside circle has higher students' learning achievement compared to snowball throwing; (2) The teaching model with students' personality has an interaction with chemistry learning achievement; (3) Inside outside circle has higher students' learning achievement than snowball throwing for extrovert students; (4) Inside outside circle has lower students' learning achievement compared to those taught using snowball throwing for introvert students. Furthermore, the result of this study carries several important implications as an effort to improve planning and development of appropriate learning models and achieve the expected goals. For instance, choosing a learning model that is done appropriately will have an impact on increasing student enthusiasm for learning.

Based on the research results, it shows that the inside outside circle learning model is better than the snowball throwing learning model and students who feel happy with the learning process will indirectly encourage students to always learn all the time. Therefore, the results of this study provide an alternative for teachers in choosing the right learning model in classroom learning. This study also shows that student personality is one thing that teachers must consider in choosing a learning model. So that the teacher must pay attention to and understand the personality of students in applying such learning models.

REFERENCES

Aditya, M. Y., & Ridwan, A. (2020). Snowball Throwing: An english learning method to teach descriptive writing. *English Teaching Journal: A Journal of English Literature, Linguistics, and Education, 8*(1), 14–18.

Andhika, I. M. E., Suardika, I. W. R., & Wiyasa, I. K. N. (2013). Pengaruh Model Pembelajaran Kooperatif Tipe Inside Outside Circle berbasis Media Audio Visual Animation terhadap Hasil Belajar IPS. *Mimbar PGSD Undiksha, 1*(1), 1–10.

Atnur, W. N., Srimulat, F. E., & Syafriyeti, R. (2019). Hubungan Kepribadian Ekstrovert terhadap Hasil Belajar Mahasiswa Biologi Universitas Al Washliyah labutan Batu Periode 2016/2017. *Jurnal Edu-Bio-Bio Education & Biology, 1*(1), 15–20.

Faqiroh, B. (2020). Problem Based Learning Model for Junior High School in Indonesia (2010-2019).

Indonesian Journal of Curriculum and Educational Technology Studies, 8(1), 42–48.

Gani, S. A., Yusuf, Y. Q., & Erwina, R. (2017). The Effectiveness of Snowball Throwing Technique in Teaching Reading Comprehension. *Proceedings of The 1st National Conference on Teachers' Professional Development, 18–28.*

Habibi, A. (2016). Perbedaan Hasil Belajar Matematika Siswa SMP yang Berkepribadian Extrovert dan Introvert pada Pokok Bahasan Sistem Persamaan Linier. *Educazione, 4*(1), 61–71.

Hakim, M. A. R. (2019). Strategi Pengajaran Speaking bagi Para Pembelajar Bahasa Inggris Berkarakteristik Introvert. *Jurnal Pendidikan, 4*(1), 49–58.

Joyce, B., Weil, M. & Calhoun, E. (2009). *Models of Teaching.* Pearson.

Killian, M & Bastas, H. (2015). The Effects of an Active Learning Strategy on Students' Attitudes and Students' Performances in Introductory Sociology Classes. *Journal of the Scholarship of Teaching and Learning, 15*(3), 53–67.

Maulida, D., & Narius, D. (2013). Teaching Speaking to Junior High School Students Through Inside-Outside Circle (IOC) Strategy. J*ournal of English Language Teaching, 1*(2), 114–119.

McCormick, N., J Clark, L., M & Raines, J., M. (2015). Engaging Students in Critical Thinking and Problem Solving: A Brief Review of the Literature. *Journal of Studies in Education, 5*(4), 100-113.

Nuraeni, D., Utaya, S., & Akbar, S. (2017). Aktivitas Belajar dalam Pembelajaran Inside-Outside Circle Melalui Lesson Study pada Kelas V SD. *Jurnal Pendidikan: Teori, Penelitian, dan Pengembangan, 2*(9), 1175–1181.

Nurhidayati, A., Sudargono, A., & Rohsulina, P. (2019). Application of Snowball Throwing to Improve the Learning Outcomes of Social Science (IPS) Geography of Students in Grade Viii C Muhammadiyah 1 Junior High School Sukoharjo In The Academic Year 2017/2018. *Journal of Geography Science and Education, 1*(1), 1–15.

Piliani, M., & Endriani, A., M. (2019). Pengaruh Layanan Informasi terhadap Sifat Introvert pada Siswa Kelas VIII SMPN 2 Praya Timur Kabupaten Lombok Tengah. *Jurnal Transformasi, 5*(2), 106–116.

Prihatin, A., & Wijayanti, A. (2017). Peningkatan Motivasi dan Hasil Belajar IPA dengan Model Pembelajaran Kooperatif Tipe Inside Outside Circle Siswa Kelas VIII E MTs Negeri Sleman Kota Yogyakarta. *Natural, 4*(2), 1–12.

Qomariah, N. (2016). Profil Pemahaman Siswa SMA dalam Memecahkan Masalah Persamaan Kuadrat ditinjau dari Perbedaan Kepribadian Extrovert dan Introvert. *Jurnal Apotema, 2*(1), 87–95.

Raguwan, G., Siang, T., & Sabang, S. M. (2014). Pengaruh Model Pembelajaran Kooperatif Tipe Snowball Throwing terhadap Hasil Belajar Siswa pada Materi Bentuk Molekul Kelas XI IPA SMA Negeri 1 Pasangkayu. *Jurnal Akademika Kimia, 3*(1), 1–7.

Sahuleka, R. J., Awan, A., & Melay, S. (2020). Model Pembelajaran Inside Outside Circle dalam Meningkatkan Hasil Belajar Siswa SMA Negeri 7 Ambon. *Biopendix, 6*(2), 101–108.

Styawati, P. S., Rizal, S. (2014). Teaching Reading Comprehension Through Snowball Throwing Teaching Technique. *Al-Ta'lim, Vol. 13*, No. 2, Juli 2014, 13(2), 275–300.

Tobing, D. P. V. L., Siregar, Y. P., & Siregar, N. A. (2018). Efektivitas Penggunaan Model Pembelajaran Inside Outside Circle terhadap Kemampuan Komunikasi Matematis Siswa SMP Negeri 1 Tantom Angkola. *Jurnal MathEdu (Mathematic Education Journal), 1*(1), 32–41.

Trilling, B & Fadel, C. (2009). *21st century skills: learning for life in our times*. Jossey-Bass.

Warjono, P. A., Sultani., & Anisah, L. (2020). Layanan Konseling Individual dengan Pendekatan Gestalt untuk Meningkatkan Kepercayaan Diri Siswa Introvert pada Kelas VII Di SMP Negeri 2 Martapura. *Jurnal Bimbingan dan Konseling Ar-Rahman, 6*(1), 50–54.

Yanti, O. F., Prahmana, R. C., & Fitriyah, I. (2018). Single subject research: Pembelajaran Phytagoras pada siswa introvert kelas VIII. *Beta: Jurnal Tadris Matematika, 11*(1), 37–49.