Original Article

The Relationship of Personal and Social Responsibility Perceptions with The Intrinsic Motivation in Physical Education

FADILAH KHAIRUNISA¹, YUDY HENDRAYANA¹, RESHANDI NUGRAHA¹

Physical Education Health and Recreation Study Program, Universitas Pendidikan Indonesia, INDONESIA

Published online: April 30, 2022

(Accepted for publication April 15, 2022) DOI: https://doi.org/10.17509/jpess.v1i2

Abstract

Introduction: Perception is a human cognitive aspect of a person's assessment or assumption of an object or experience that appears after a person receives a stimulus that has been experienced previously to be used as a reference in acting. Purpose: The purpose of this study was to examine whether there is a relationship between perceptions of personal and social responsibility with the intrinsic motivation of grade XI students in physical education at SMAN 1 Cikampek. **Methods:** This study uses quantitative methods with the type of correlation research. The sampling technique used is Simple Random Sampling with a sample of 196 students in class XI. The data collection technique used a Personal and Social Responsibility Questionnaire (PSRQ) to measure personal and social responsibility perceptions and Behavioral Regulation in Exercise Questionnaire (BREQ-2) to measure intrinsic motivation. Results: The results showed that: 1) there was a relationship between perceptions of personal and social responsibility with the intrinsic motivation of class XI students in physical education at SMAN 1 Cikampek. With a Sig value of 0.00 < 0.05, it can be said that the variable (X1) and the variable (X2) have a relationship with the variable (Y). 2) From the table results, the coefficient number is 0.491, meaning that the level of strength of the correlation/relationship is in the Strong Enough category, and based on the table, the number of correlation coefficients is positive, namely 0.491, the direction of the relationship between the variables is positive, which means the higher the variable (X1) and (X2), the higher the variable (Y), the same is valid if the lower the variable (X1) and (X2), the lower the variable (Y). Conclusions: There is a positive relationship between the perception of social responsibility and the perception of personal responsibility with the intrinsic motivation variable with a Sig value of 0.00 < 0.05.

KeyWords: Perception, Personal and Social Responsibility, Intrinsic Motivation

Introduction

The process of learning and learning are two things that are interconnected in educational activities. Learning is essentially a change in students due to learning activities and individual interactions with their environment that are continuous, functional, cheerful, active, and directed. While learning is a teacher's interaction with students with teaching materials, learning methods and strategies, and learning resources (Pane & Darwis Dasopang, 2017). The success of a learning process cannot be separated from the role of a teacher as a teacher, a mentor who directs, trains, assesses, and evaluates. However, it should be realized that the teacher is not the only factor that influences the success or failure of the learning process because the success of the learning process is influenced by various related factors (Fadillah, 2018). One factor that influences a learning process is the intrinsic factor that comes from within the student. Like responsibility, responsibility is divided into personal responsibility and social responsibility. Personal responsibility is a behavior that requires students to be responsible for their welfare by engaging in self-development such as motivation and setting goals in life, while social responsibility is contributing to the welfare of others by caring for and respecting the rights and feelings of others (Parker & Hellison, 2001).

In addition to responsibility, motivation is also an intrinsic factor that affects the student's learning

process. Motivation is defined as energy that can cause a will to carry out an activity; an individual's motivation determines the quality of the behavior displayed. The intention that comes from within the individual without any external influence is intrinsic motivation (Siti Suprihatin, 2019). Intrinsic motivation is closely related to one's feelings without being influenced by external factors such as comfort, satisfaction, pleasure, interest, and joy (Lutfi Nur et al., 2020). Currently, many students lack a sense of responsibility when participating in the physical education learning process—such as students who choose not to take physical education lessons, lack of respect between students and students or students and teachers, decreased empathy, less growth in mutual help, less sensitive to other students and selfish (Surahman & Mukminan, 2017). Li Weidong et al. l. (2008) explained that students who show a higher level of personal and social responsibility tend to be more enthusiastic about participating in physical education learning. However, students' lack of personal and social responsibility results in a lack of enthusiasm for participating in physical education learning, which affects not achieving learning objectives (Ardiansyah et al., 2016). Furthermore, many students are less enthusiastic about learning physical education because of the lack of motivation that encourages students to learn (Sadirman 1986), the reason is significant to achieve teaching goals. Because students who have high learning motivation tend to participate in the learning process well. On the other hand, students with low learning motivation tend to participate less in the learning process (Hendri & Aziz, 2020). Therefore, the attitude of responsibility and student motivation should be paid more attention to maximize learning outcomes.

Recent clinical trial research sponsored by the National Institutes of Health (NIH) has been conducted for over 25 years. This shows that the main concern that is most paid attention to in considering teaching and curriculum testing is students' perceptions of effective teaching and curriculum changes because educators are very aware of the role of students in shaping interest and motivation to facilitate and enable learning. (Ennis, 2014). In addition to reason, perception is also an intrinsic factor for students. Perception is defined as a positive or negative response to the information received. Perception has been formed from the beginning of students getting to know a subject at school. (Marupa, 2017). Perception is a human cognitive aspect of a person's assessment or assumption of an object or experience that appears after a person receives a stimulus that has been experienced previously to be used as a reference in acting. Perception can appear consciously or unconsciously, but perception plays an essential role in realizing a smooth learning process (Satria 2017). A previous study entitled Measuring Students' Perceptions of Personal and Social Responsibility and the Relationship to Intrinsic Motivation in Urban Physical Education shows the relationship between personal and social responsibility and intrinsic motivation in physical education in urban areas, personal responsibility was positively related to perceived social responsibility, r(230) = 0.64, p < .0001, and intrinsic motivation, r(244) = 0.39, p < .0001. Perception of social responsibility is also positively related to intrinsic motivation, r(236) = 0.33, p < .0001. Participants who work hard and have clear goals in physical education tend to respect their peers and teachers and care for them. Those who show higher personal and social responsibility levels tend to enjoy physical education more.

A previous study entitled Measuring Students' Perceptions of Personal and Social Responsibility and the Relationship to Intrinsic Motivation in Urban Physical Education shows the relationship between personal and social responsibility and intrinsic motivation in physical education in urban areas. personal responsibility was positively related to perceived social responsibility, r(230) = 0.64, p < .0001, and intrinsic motivation, r(244) = 0.39, p < .0001. Perception of social responsibility is also positively related to intrinsic motivation, r(236) = 0.33, p < .0001. Participants who work hard and have clear goals in physical education tend to respect their peers and teachers and care for them. Those who show higher personal and social responsibility levels tend to enjoy physical education more. Based on the background that has been described. The author is interested in conducting an assessment specified in the form of research. To perform a re-examination of the relationship between personal and social responsibility perceptions with intrinsic motivation in physical education. The analysis will be studied under The Relationship Of Personal And Social Responsibility Perceptions With The Intrinsic Motivation In Physical Education.

Material & methods

This study uses a descriptive quantitative approach with the research method used is correlational research. Correlational research is intended to determine whether there is a relationship between two or several variables.

Participants

The population in this study were all students of grade XI at SMAN 1 Cikampek, as many as 385. The sample was taken using the Slovin formula; the Simple Random Sampling using the Ms formula. Excel is =RAND. The sample chosen is IPA 1 as many as 35 respondents, IPA 2 as many as 36 respondents, IPA 3 as

many as 35 respondents, IPA 4 as many as 35 respondents, IPA 5 as many as 35 respondents, IPA 6 as many as 36 respondents, IPA 7 as many as 35 respondents, IPS 1 as many as 35 respondents, IPS 2 as many as 33 respondents, IPS 3 as many as 35 respondents.

Instruments

The questionnaire instrument in this study was adopted from a journal entitled Measuring Students' Perceptions of Personal and Social Responsibility and the Relationship to Intrinsic Motivation in Urban Physical Education written by Weidong Li et al. Namely the PSRQ (Personal and Social Responsibility Questionnaire) questionnaire to examine the relationship between perceptions of personal and social responsibility and the Behavioral Regulation in Exercise Questionnaire (BREQ-2) questionnaire of intrinsic motivation in physical education. After testing the validity and reliability of the sport motivation scale instrument, which has 28 items, the reliability and validity test results can be declared valid, namely as many as 25 items, and only three items are invalid.

Statistical analysis

Descriptive analysis is an analysis conducted to assess the characteristics of data. According to Sugiyono (2013), Descriptive analysis is a problem formulation related to independent variables, either only on one or more variables (independent variables are independent variables, not independent variables, because independent variables are always paired with dependent variables. Descriptive research tends to describe a phenomenon by examining it regularly, prioritizing objectivity, and being carried out carefully (Furchan, 2013). After the data from tests with instruments that have been designed, the next step is to process and analyze the data statistically using the SPSS application. (Statistical Package for the Social Science) According to Sugiyono (2013), data analysis is an activity after data from all respondents, or other data sources have been collected.

Results

Tabel 1 contains the demographics of respondents in this study, including gender, age, weight, height, and BMI (Body Mass Index). While Tabel 2. contains the frequency distribution of gender respondents, consisting of 143 women or 73%, and the frequency of male respondents, as many as 53 people or 27% of the total 196 respondents—all information regarding research results and research information obtained from the distribution of research questionnaires.

Tabel 1. Demographics of the participants

	N	Minimum	Maximum	Mean	Std. Deviation
Age	196	15	19	16,35	,547
Weight (Kg)	196	30	92	51,90	10,620
Height (Cm)	196	133	187	161,88	7,696
IMT	196	10,38	30,80	19,7301	3,23998
Valid N (listwise)	196				

Tabel 2. Gender Frequency

		Frequency	Percent	Valid Percent	Cumulative Percent
	Woman	143	73,0	73,0	73,0
Valid	Men	53	27,0	27,0	100,0
-	Total	196	100,0	100,0	

The data used to analyze the results of this study were the Perceptions of Personal and Social Responsibility questionnaire and the Intrinsic Motivation questionnaire. The following is a descriptive analysis table. Perception of social responsibility (X1), Perception of Personal Responsibility (X2), and Intrinsic Motivation (Y). Table 4.3 shows that the variable (X1) has a minimum value of 27 and a maximum value of 42, a range value of 15 with an average value of 35.94, a standard deviation of 3.623, and a variance value 13.124. While the variable (X2) has a minimum value of 21 and a maximum value of 42, a range value of 21

with an average value of 33.78, a standard deviation of 3.944, and a variance value of 15.557. While the variable (Y) has a minimum value of 4 and a maximum value of 24, a range value of 20 with an average value of 19.87, a standard deviation of 3.361, and a variance value of 11.295.

Tabel 3. Descriptive statistics

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
X.1	196	15	27	42	35,94	3,623	13,124
X.2	196	21	21	42	33,78	3,944	15,557
Y	196	20	4	24	19,87	3,361	11,295
Valid N (listwise)	196						

Tabel 4. contains perceptions of social responsibility with details: 21 students in the low category, 138 students in the medium category, and 37 students in the high category.

Tabel 4. Social Responsibility Frequency Table

		Frequency	Percent	Valid Percent	Cumulative Percent
	Low	21	10,7	10,7	10,7
17.1:J	Medium	138	70,4	70,4	81,1
Valid	High	37	18,9	18,9	100,0
	Total	196	100,0	100,0	

Tabel 5. contains perceptions of personal responsibility, namely 30 students in the low category, 136 students in the medium category, and 30 students in the high category.

Tabel 5. Personal Liability Frequency Table

		Frequency	Percent	Valid Percent	Cumulative Percent
	Low	30	15,3	15,3	15,3
X7-1: 1	Medium	136	69,4	69,4	84,7
Valid	High	30	15,3	15,3	100,0
	Total	196	100,0	100,0	

Tabel 6. contains intrinsic motivation with a distribution of 34 students in the low category, 113 in the medium category, and 49 students in the high category

Tabel 6. Intrinsic Motivation Frequency Table

		Frequency	Percent	Valid Percent	Cumulative Percent
	Low	34	17,3	17,3	17,3
Me Me	Medium	113	57,7	57,7	75,0
Valid	High	49	25,0	25,0	100,0
	Total	196	100,0	100,0	

Tabel 7. on the simple correlation test shows the results; social responsibility has a relationship with personal responsibility with a Sig value of 0.00 < 0.05 and a correlation coefficient value of 0.636 with a positive direction, indicating that the relationship is included in the strong category. It can also be seen that the results of the correlation test between social responsibility and intrinsic motivation show a Sig value of 0.00 < 0.05, which means that social responsibility has a relationship with inherent reason with a correlation coefficient value of 0.459 in a positive direction, which shows the level of strength of the relationship which is included in the category of quite strong. And there is a positive relationship between personal

responsibility and intrinsic motivation showing a Sig value of 0.00 < 0.05, which means that personal responsibility has a relationship with inherent reason with a correlation coefficient value of 0.426, which is included in the reasonably strong category.

Tabel 7. Pearson Correlation Test

		X.1	X.2	Y
	Pearson Correlation	1	,636**	,459**
X.1	Sig. (2-tailed)		,000	,000
	N	196	196	196
	Pearson Correlation	,636**	1	,426**
X.2	Sig. (2-tailed)	,000		,000
	N	196	196	196
	Pearson Correlation	,459**	,426**	1
Y	Sig. (2-tailed)	,000	,000	
	N	196	196	196

^{**.} Correlation is significant at the 0.01 level (2-tailed).

Tabel 8. shows the results of the Multiple Correlation Test with a Sig value of 0.000 < 0.05, and it can be said that social responsibility and personal responsibility have a relationship with intrinsic motivation. The coefficient number obtained is 0.491, which means the level of correlation strength, the relationship is in the category of Strong enough, and based on the table, the number of correlation coefficients is positive, namely 0.491, the direction of the variable relationship is positive, which means that the higher social responsibility and personal responsibility, the higher as well as intrinsic motivation, the same is true if the lower the variables of social responsibility and personal responsibility, the lower the intrinsic motivation.

Tabel 8. Multiple Correlation Test

	R		Adjusted R	Std. Error	Change Statistics				
Model	R	Square	Square	of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	,491ª	,241	,233	2,943	,241	30,613	2	193	,000

a. Predictors: (Constant), X.2, X.1

Discussion

Based on the results of data processing and analysis of research results obtained through measurements of kinesthetic intelligence and motor ability on futsal playing skills, the authors can conclude as follows.

- 1) A kinesthetic intelligence contribution of 2.89% to futsal playing skills in the Men's Futsal Student Activity Unit (UKM) at Universitas siliwangi.
- 2) There is a motor ability contribution of 77.44% to the results of futsal playing skills in the Men's Futsal Student Activity Unit (UKM) at Universitas siliwangi.
- 3) There is a joint contribution of kinesthetic intelligence and motor ability of 77% to the results of futsal playing skills at the Men's Futsal Student Activity Unit (UKM) at Universitas siliwangi. Still, Motor Ability contributes more to the effects of futsal playing skills.

Based on the research results that the authors got, the authors suggest that every futsal coach train together in a programmed, systematic, and regular manner to improve kinesthetic intelligence and motor abilities to be more effective and efficient. Planning for strengthening character education is integrated with learning planning for physical education in sports and health. The objectives of character education values are listed in core competence one and core competence 2. However, the learning implementation program does not detail planning steps for strengthening character education.

Conclusions

b. Dependent Variable: Y

Furthermore, to find out which of the two test items contributed the most to the results of futsal playing skills, the authors carried out data processing and analysis using the multiple correlation formula. From the three test items, it can be concluded that Kinesthetic Intelligence and Motor Ability strongly contribute to Futsal Playing Skills.

Conflicts of interest. The authors have no conflicts of interest with the content of this review.

References:

Abduljabar, B. (2011). Pengertian pendidikan jasmani. Ilmu Pendidikan, 1991, 36. http://file.upi.edu/Direktori/FPOK/JUR._PEND._OLAHRAGA/196509091991021-BAMBANG ABDULJABAR/Pengertian Penjas.pdf

Abdullah, P. M. (2015). Living in the world that is fit for habitation: CCI's ecumenical and religious relationships. In Aswaia Pressindo.

Al Muchtar, & dkk. (2007). Strategi pembelajaran. 1.3.

Alimazar. (2016). Teori Belajar dan Pembelajaran: Implementasi dalam Bimbingan Kelompok Belajar di Perguruan Tinggi. 1–245.

Andria, Y., Haris, I. N., & Riyanto, P. (2018). Pengaruh Pendekatan Taktis Terhadap Hasil Belajar Bola Voli Pada Siswa SMAN 1 Pagaden. BIORMATIKA: Jurnal Ilmiah FKIP Universitas Subang, 4(2), 2461–3961.

Ardiansyah, A., Suherman, A., & Saptani, E. (2016). Pengaruh Model Pembelajaran Hellison Dalam Penjas Terhadap Sikap Tanggung Jawab Siswa Di Sekolah Dasar. SpoRTIVE, 1(1), 1–10.

Arikunto, S. (2005). Manajemen Penelitian. Rineke Cipta.

Bangun, S. Y. (2016). Peran Pendidikan Jasmani Dan Olahraga Pada Lembaga Pendidikandi Indonesia. Publikasi Pendidikan, 6(3). https://doi.org/10.26858/publikan.v6i3.2270

Biddle, SJH, & Mutrie, N. (2001). Psikologi aktivitas fisik: Determinan, kesejahteraan, dan intervensi. Routladge.

Biddle, & Mutrie. (2001). Psikologi aktivitas fisik: Determinan, kesejahteraan, dan intervensi. Journal of Teaching in Physical Education, 27(2), 167–178. https://doi.org/10.1123/jtpe.27.2.167

Carlson, T. B. (2016). We Hate Gym: Student Alienation from Physical Education. Journal of Teaching in Physical Education, 14(4), 467–477. https://doi.org/10.1123/jtpe.14.4.467

Depdiknas. (2001). Kamus Besar Bahasa Indonesia. Balai Pustaka.

Ennis, C. D. (2014). The role of students and content in teacher effectiveness. Research Quarterly for Exercise and Sport, 85(1), 6–13. https://doi.org/10.1080/02701367.2014.872979

Fadillah, A. (2018). Pengembangan Media Belajar Komik Terhadap Motivasi Belajar Siswa. JTAM | Jurnal Teori Dan Aplikasi Matematika, 2(1), 36. https://doi.org/10.31764/jtam.v2i1.259

Hanafy, M. S. (2014). Konsep Belajar Dan Pembelajaran. Lentera Pendidikan: Jurnal Ilmu Tarbiyah Dan Keguruan, 17(1), 66–79. https://doi.org/10.24252/lp.2014v17n1a5

Hartono. (2013). Pendidikan Jasmani.

Hendri, G., & Aziz, I. (2020). Motivasi Siswa Dalam Proses Pembelajaran Pendidikan Jasmani Olahraga Kesehatan. Jurnal Patriot, 2(1), 171–181. http://patriot.ppj.unp.ac.id/index.php/patriot/article/view/533

Lutfi Nur, Suherman, A., Subarjah, H., & Budiana, D. (2020). Physical Education Learning Motivation: A Gender Analysis. 5(2), 134–142.

Meng, X. (2013). Scalable simple random sampling and stratified sampling. International Conference on Machine Learning.

Marupa P, Dima. "Hubungan antara persepsi gaya mengajar guru dalam pembelajaran fisika dengan motivasi belajar siswa Kelas XI IPA di SMA Negeri 7 Medan." (2017).

Nurmalita, S. (2019). Hakikat Pendidikan dan Landasan Pendidikan.

Pane, A., & Darwis Dasopang, M. (2017). Belajar Dan Pembelajaran. FITRAH:Jurnal Kajian Ilmu-Ilmu Keislaman, 3(2), 333. https://doi.org/10.24952/fitrah.v3i2.945

Parker, M., & Hellison, D. (2001). Teaching Responsibility in Physical Education: Standards, Outcomes, and Beyond. Journal of Physical Education, Recreation & Dance, 72(9), 25–27. https://doi.org/10.1080/07303084.2001.10605863

Salmawati, Rahayu, T., & Lestari, W. (2017). Kontribusi Kompetensi Pedagogik, Kompetensi Profesional dan Motivasi Kerja terhadap Kinerja Guru Penjasorkes SMP di Kabupaten Pati. Journal of Physical Education and Sports, 6(18), 198–204.

Satria. (2017a). Persepsi Siswa Kelas X Terhadap Tujuan Pendidikan Jasmani Di SMK Muhamadiyah 2 Muntilan Tahun Pelajaran 2016/2017. Pendidikan Jasmani Dan Kesehatan.

Setyosari, P. (2017). Menciptakan Pembelajaran Yang Efektif Dan Berkualitas. JINOTEP (Jurnal Inovasi Dan

- Teknologi Pembelajaran) Kajian Dan Riset Dalam Teknologi Pembelajaran, 1(5), 20–30. https://doi.org/10.17977/um031v1i12014p020
- Siti Suprihatin. (2019). Upaya Meningkatkan Motivasi Belajar Siswa. G-Couns: Jurnal Bimbingan Dan Konseling, 3(1), 73–82. https://doi.org/10.31316/g.couns.v3i1.89
- Slameto. (2010). Belajar dan Faktor-faktor yang Mempengaruhi.
- Sugiyono. (2017). Metode Penelitian Pendidikan: Pendekatan Kuantitatif, Kualitatif, dan R&D (Alfabeta (ed.)). Alfabeta.
- Sujana, I. (2019). Fungsi dan Tujuan Pendidikan Indonesia.
- Surahman, Edy, and M. Mukminan. "Peran guru IPS sebagai pendidik dan pengajar dalam meningkatkan sikap sosial dan tanggung jawab sosial siswa SMP." Harmoni Sosial: Jurnal Pendidikan IPS 4.1 (2017): 1-13.
- Triwiyanto, T. (2021). Pengantar Pendidikan. Bumi Askara.
- Wibowo, Tri. "Survei Motivasi Belajar Siswa Dalam Mengikuti Pembelajaran Jasmani, Olahraga Dan Kesehatan Pada Siswa Sma/Ma/Smk Negeri Kelas Xi Se-Kecamatan Kota Ponorogo." Jurnal Pendidikan Olahraga dan Kesehatan 5.1 (2017).
- Sugiyono. (2018). Metode Penelitian Kuantitatif, Kualitatif dan R&A. Bandung: Alfabeta
- Sugiyono. (2011). Metode Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif, dan R&D. Bandung: Alfabeta.
- Sugiyono. (2009). Metode Penelitian Kuantitatif, Kualitatif, dan R&D. Bandung: Alfabeta.
- Hewitt, D. (2008). Undertanding Effective Learning. Strategies for The Classroom. NY: McGraw-Hill Education, Open University Press.
- Pane, Aprida, and Muhammad Darwis Dasopang. "Belajar dan pembelajaran." Fitrah: Jurnal Kajian Ilmu-Ilmu Keislaman 3.2 (2017): 333-352.
- Kurniasih, Ika Yuni, Miskalena Miskalena, and Ifwandi Ifwandi. "Persepsi Siswa Terhadap Upaya Guru Pendidikan Jasmani Olahraga Dan Kesehatan Dalam Memodifikasi Media Pembelajaran Permainan Bola Besar." Jurnal Ilmiah Mahasiswa Pendidikan Jasmani, Kesehatan dan Rekreasi 3.3 (2017).
- Taovan, Rio. "Persepsi Siswa Kelas VIII Terhadap Pembelajaran Pendidikan Jasmani di SMP N 2 Tempel Daerah Istimewa Yogyakarta." Pendidikan Jasmani Kesehatan Dan Rekreasi 7.12 (2018).
- Wijianto, Syaherdillah. Survei Persepsi Siswa Terhadap Pendidikan Jasmani Di Ite College East Singapore Tahun 2018. Diss. UNNES, 2019.
- Arikunto, S. (2005). Manajemen Penelitian. Jakarta. PT. Rineke Cipta.
- Wati, Widya. "Makalah Strategi Pembelajaran Teori Belajar dan Pembelajaran." Program Pascasarjana Universitas Negeri Padang (2010).
- Li, Weidong, et al. "Measuring students' perceptions of personal and social responsibility and the relationship to intrinsic motivation in urban physical education." Journal of teaching in Physical Education 27.2 (2008): 167-178.
- Masgumelar, Ndaru Kukuh, and Pinton Setya Mustafa. "Teori Belajar Konstruktivisme dan Implikasinya dalam Pendidikan dan Pembelajaran." GHAITSA: Islamic Education Journal 2.1 (2021): 49-57.
- Woolfolk, A, (2004). Educational psychology, 9th ed. Boston: Allyn & Bacon.
- Jonassen, D.H. 1996. Handbook of Research for Educational Communications and Technology. New York: Simon and Shuster Macmillan.
- Suparno, Paul. "Filsafat konstruktivisme dalam pendidikan." Yogyakarta: Kanisius (1997): 12-16.
- Sugiyono, dan Susanto, A. 2015. Cara Mudah Belajar SPSS & Lisrel. Bandung: Alfabeta
- Chomeya, Rungson. "Quality of psychology test between Likert scale 5 and 6 points." Journal of Social Sciences 6.3 (2010): 399-403.
- Chang, Lei. "A psychometric evaluation of 4-point and 6-point Likert-type scales in relation to reliability and validity." Applied psychological measurement 18.3 (1994): 205-215.
- Gay, Lorraine R., Geoffrey E. Mills, and Peter W. Airasian. Educational research: Competencies for analysis and applications. Pearson Higher Ed, 2011.
- Darajat, Jajat, and B. Abduljabar. "Aplikasi Statistika Dalam Penjas." Bandung: CV. Bintang Warliartika (2014).
- Sappaile, Baso Intang. "Hubungan kemampuan penalaran dalam matematika dan motivasi berprestasi terhadap prestasi belajar matematika." Jurnal pendidikan dan kebudayaan 13.69 (2007): 985-1003.