



A STUDY OF GRADE LEVEL AND GENDER DIFFERENCES IN ATTITUDE TOWARDS NONLINEAR PEDAGOGY

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Authors' Contribution: A – Study design; B – Data collection; C – Statistical analysis; D – Manuscript Preparation; E – Funds Collection

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Accepted for Publication: October 25, 2022

Published: November 30, 2022

DOI: 10.17309/tmfv.2022.3s.17

Abstract

It is important to remember that learning outcomes are not the only thing students accomplish, but attitude is also a major learning output.

The study purpose was to investigate students' attitudes, especially regarding the attitude toward nonlinear pedagogy (ATNP), according to gender and grade level in Yogyakarta.

Materials and methods. The study involved 1,160 kids who were in fifth grade in primary schools and in eighth grade in secondary schools. A total of 18 schools from around the province were included in the study. The Test of Science Related Attitudes (TOSRA) was used to gather data. This questionnaire is effective for gathering descriptions of students' attitudes toward nonlinear pedagogy scores for a specific set of participants, since it uses the Likert scale.

Results. The study findings show students have quite different levels of excitement for nonlinear science learning. The male students in primary school have a higher positive attitude than the female students do, ($M = 36.75$; $p < 0.001$). The male students exhibit a more eager attitude than the female students do in junior high schools ($M = 35.78$; $p < 0.001$). The data revealed that the male students in secondary schools have more positive attitudes than the female students do (8.23 , $M > F$). According to the grade level of the school, the male students' ATNP at the elementary level is more positive than in junior high schools.

Conclusions. The statistics show that students' opinions toward nonlinear teaching are similar in elementary and secondary schools regardless of the grade level of the schools.

Even still, most secondary school students find physical education less enjoyable than it was in elementary school. This fact provides instructors of physical education with user input. This finding is encouraging for students looking for strategies to bridge the gender gap in classroom settings. The effects of nonlinear pedagogy are also explored.

Keywords: attitudes toward nonlinear pedagogy, grade levels, gender, primary and secondary school students.

Introduction

Several studies have shown that primary school students' attitudes toward science shift when they go to secondary school (DeWitt & Archer, 2015; Geesa et al., 2019). Scholars have found that the positive Attitude toward science diminishes between the ages of nine and fourteen, and that the positive attitude toward science decreases in the final couple of years of primary school (Barmby et al., 2008; Pell & Jarvis, 2001). Furthermore, according to Said et al. (2016), young-

sters are enthusiastic to investigate phenomena in the world around them; but, this enthusiasm fades once they approach junior high school, since students anticipate science classes to be more engaging (Pell & Jarvis, 2001). Likewise, there is a changing interest when learning physical education in primary school students chance when they enter secondary school (Bernstein et al., 2011; Sun, 2012; Sun et al., 2014). Phenomena that exist include the presence of that girls get older who do not participate and choose to do so because they simply lack interest in sport (Sun et al., 2014), they were girls clearly undermined them in PE classes (Hortigüela-Alcalá et al., 2021), even there is girl who said "she doesn't like P.E. She always think teachers and her peers made her fun of in P.E, because she looked stupid" (Olafson, 2002).

As a result, elementary and secondary school are the crucial grade levels for studying changes in children's attitudes toward science.

Differences in approach can be one of the problem factors in physical education learning (Sympas et al., 2017). There has been a shift in physical education teaching from the traditional teacher-centered approach to a student-centered approach. Teachers put a lot of emphasis on learning that focuses on structured technical skills, not paying attention to the environment and student desires. In a student-centered approach, the teacher is a facilitator, and students are challenged to critically solve problems through individual exploration (Lee et al., 2017; Yi, Chow Jia, Keith Davids, 2017; Yi Chow, 2021).

Although in the traditional teacher-centered approach mostly (usually 80% or more) students enjoy physical education subjects (Jaakkola et al., 2017; Rekaa et al., 2019; Silverman, 2017). Unlike many subjects and those taught in schools, physical education also includes a substantial component of active play, both in the form of individual sports and sports that have a strong appeal to young people. However, there are still useful children up to 20% of children do not enjoy physical education lessons are distracting lessons. In addition, there are indications that more and more students find physical education less relevant, less interest, and less enjoyable (Gard et al., 2013). Student-centered approach, especially in nonlinear pedagogy created a learning environment that facilitated perceived competence, autonomy, and relatedness, thereby potentially enhancing intrinsic motivation and enjoyment during practice (Lee et al., 2017).

Nonlinear pedagogy is a powerful paradigm for understanding human movement by designing effective learning, coaching, and training programs in sports, sports, and physical education. This type of pedagogy of complexity inherent in learning has a focus on the movement skills of learners, the learning environment, and the teacher or trainer as a complex interacting system (Yi, Chow Jia, Keith Davids, 2017). In this nonlinear pedagogy, the focus is on ecological dynamics. Ecological dynamics is a theoretical perspective that views skill behavior (psychomotor) from the interaction of constraints at the level of perceptual-motor interaction. From this perspective, the acquisition of expertise in individual and team sports is based on continuous interaction between individual learners and application in more specific sports (Davids, 2012).

Physical education is one of the subjects used in the 2013 curriculum in Indonesia which applies student centered learning. Physical education (P.E.) also an important part of the national education program, and it aims to improve physical fitness, movement skills, critical thinking skills, social skills, reasoning, emotional stability, moral action, a healthy lifestyle, and the introduction of a clean environment by providing learning experiences that are organized and carried out systematically based on the values of faith and devotion to God Almighty (Sutapa et al., 2020).

The principle of nonlinear pedagogy that leads to Social Skills is a skill taught through learning at school, which is useful for socializing with fellow students, the school environment and the students living. Learners during the learning process must practice in a setting representative of the performance environment to develop functional abilities (Representativeness) (Renshaw & Chow, 2019), In this case,

the child must be able to communicate and socialise to develop new movements. Learners can also practice together and communicate in the hope that it can be directed to the results of learning actions not only from their body movements (Attentional Focus) (Komar et al., 2019). A non-linear pedagogical also has perspective based on a student centre approach has the potential to increase intrinsic motivation and enjoyment during practice (Lee et al., 2017).

One of the skills that lead to the principle of nonlinear pedagogy in 21st-century learning, 4C, namely 1) Communication is an activity to transfer information both orally and in writing (Hidayatullah et al., 2021). Social skill is included in communication skills because good communication will also have a good social impact (Cronin et al., 2020). 2) Collaborative (collaboration) Is the ability to collaborate or work together, synergize with each other, adapt to various roles and responsibilities, work productively with others; put empathy in its place, and social skills (Social skills) are important to support the role in collaboration (Lee et al., 2014).

In general, each nation has its own set of traditions, cultures, and educational systems, all of which influence attitudes and behavior toward learning. Nonetheless, few Indonesian scholars are worried with students' attitudes, particularly in communication. In Yogyakarta, most teachers ignore the formation of a good attitude in favor of focusing on academic accomplishment. The attainment of these goals, however, does not imply a shift in students' attitudes about scientific study. As a result, the present research is keen to look at students' views toward science depending on their gender and the grade level of the schools they attend, as well as any interactions between the dimensions in terms of their opinions. In a nonlinear approach, the examination of this subject will yield data concerning the students' perception and confidence in science. Scholars and educators may be able to figure out changes in students' communication attitudes in Indonesia, particularly in Yogyakarta, now that the data are available. As a result, the research of communication attitudes in relation to the views of Indonesian students will add to the literature in the area of scientific education.

Materials and methods

Study participants

This research enlisted the participation of 1,160 students from nine elementary and junior high schools. The participants were chosen using the stratified random sampling approach. Students at elementary and junior high schools range in age from 11 to 14. The study was carried out in the Indonesian province of Yogyakarta. This province is located in the west of Indonesia. The distribution of samples is shown in Table 1 below.

Table 1. Distribution of the Sample Based on Gender and Grade of School

Gender	Grade of School		Total
	Elementary	Junior High School	
Male	253	268	521
Female	310	329	639
Total	563	597	N: 1160

Study organization

In this study, a quantitative research design was used. Students' opinions about nonlinear approach science were evaluated using a questionnaire, depending on two variables: gender and school grade. To reach the study's goal, the researchers used TOSRA (Test of Science Related Attitudes). Five scores describe diverse facets of attitudes toward nonlinear approach learning: career interest in sports science, leisure interest in sports science, attitude toward scientific inquiry, nonlinear science's social communication implications, and pleasure of nonlinear lessons. TOSRA offers independent scores to many different areas, according to Eccles (2007), making it simpler for educators and researchers to assess students' communication attitudes.

Instrumentation

The following was the basic process of the current study: selecting the pupils' attitudes, especially students' communication attitudes toward nonlinear science learning as the focus; reviewing relevant literature; identifying the research question; selecting appropriate measuring instruments for the study; selecting schools for the sample; selecting school grade levels for the sample; and selecting an area for the sample. The TOSRA was the equipment that was utilized to acquire the data. Kurniawan (2019) adapted the TOSRA questionnaire, which was originally devised by Fraser (1978). The questionnaire was used to find out how students felt about scientific classes. Fraser (1978) created a TOSRA questionnaire with 70 questions divided into seven scales with ten statements each. TOSRA is a well-designed questionnaire for ATS research (Navarro et al., 2016). This survey was created as a condensed version of the TOSRA. This study used five TOSRA scales that were relevant to the investigation. The societal consequences, especially communication attitudes of science, the normalcy of scientists, pleasure of nonlinear science classes, leisure interest in nonlinear science learning, and interest in a career in sport science are the measures that were chosen. The methods of selecting five chosen items were Squared Multiple Correlation and Alpha If Item Deleted. The alpha scale on these scales ranges from .76 to .89.

The researchers adapted Fraser's dimensions of attitudes toward science learning, which are: (a) communication attitude to nonlinear learning – students' preferences

regarding scientific inquiry in a nonlinear science learning; (b) students' career interests – a professional interest in the field of sport science; (c) leisure activity related to sport science – students are interested in being involved in nonlinear science learning-related activities outside of school in their spare time.

The Cronbach a coefficient was used to measure the internal consistency reliability of TOSRA scales. Cronbach's Alpha Reliability Coefficients for nonlinear scientific learning attitudes .82, enjoyment of nonlearning science lessons .75, leisure interest in nonlinear science .80, nonlinear science learning's social implications .83, and a desire to pursue a career in sport science .80. Students were asked to use the Likert scale to indicate whether they strongly agree (SA), agree (A), undecided or neutral (N), disagree (DA), or severely disagree (SD) with each statement of the instrument.

Students' Attitude Towards Nonlinear Pedagogy (ATNP) was determined via interviews. The questions were: Do you enjoy nonlinear science lessons in the classroom? Do you want to participate in nonlinear scientific learning activities outside of the classroom? Do you wish to work in the field of sport science in the future? Is there a beneficial impact of nonlinear scientific learning on society? Following the distribution of the questionnaire, 92 students (45 men and 47 females) were asked to participate in an interview session. They were chosen based on their attitude ratings, which were divided into three categories: low, medium, and high. Individual interviews lasted around 5-10 minutes. Their perspectives were utilized to back up the quantitative results.

Statistical analysis

Descriptive data analysis was conducted separately and collectively for each grade level and gender, as well as for the two aspects of attitude. The t-test and two-way ANOVA were used after the assumption tests, which included normality ($p > 0.05$) and homogeneity ($p > 0.05$). The t-test was used to see whether there was any correlation between students' ATNP and other characteristics of respondents, such as gender and school grades. The TOSRA questionnaire's mean scores were compared by gender and grade using the ANOVA method. The main impact of both gender and school grade level, as well as the interaction effect of those two factors, were investigated using a two-way ANOVA approach.

Table 2. Dimensions of the Test of Science Related Attitudes (TOSRA)

Dimensions	Description	Item
Communication attitude to nonlinear science learning	Students' preferences on the attitude of communicating with others	1, 2, 3, 4, 5
Social Implications of nonlinear science learning	The positive and negative attitudes regarding the impact of nonlinear science learning on society	6, 7, 8, 9, 10
Students' career interests	Students' future interest in sport science	11, 12, 13, 14, 15
Leisure activity related to sport science	Students want to participate in science-related activities outside of school in their leisure time	16, 17, 18, 19, 20
Enjoyment of nonlinear science learning lessons	The level of students' enjoyment of nonlinear science learning	21, 22, 23, 24, 25
Total		25 items

Results

Attitudes Toward Nonlinear Science Related to Gender

The researchers looked at gender-based disparities in students' ATNP using the statistical approach of t-test. Male and female pupils had statistically differing SATNP, according to the statistics. The sentiments of women were more favorable than those of men. Table 3 shows the differences in ATNP between male and female students. According to Cohen's criterion (1988), female attitudes (M = 3.79; SD = 0.47) were more favorable than male attitudes (M = 3.57; SD = 0.59) with a medium effect size (d = 0.54).

Table 3. t-test for ATNP Based on Gender

Gender	N	Mean	SD	Df	t-value	Effect size
Male	521	3.57	0.59	1041	14.75**	0.54
Female	639	3.79	0.47			

Note:**p < .001

Table 4 illustrates the students' ATNP on the five TOSRA scales depending on gender differences. Overall, the TOSRA scales demonstrate a significant difference between men and females (p 0.001) (Table 4).

The findings showed that the average score for social consequences of science was higher than that of the other categories. Male students' mean scores (M = 4.02; SD = 0.67) are higher than female students' mean scores (M = 3.96; SD = 0.54).

Communication attitude to nonlinear Science learning receives the lowest rating across all measures for both sexes. On that scale, the mean scores for female students are (M = 3.43; SD = 0.51) and for male students are (M = 3.36; SD = 0.82).

Table 4 demonstrates that men scored higher than women for career interest in sport science. On this scale, there is a considerable difference between men and females (M = 3.65; SD = 0.52; M = 3.25; SD = 0.36). This suggests that male students favor selecting a profession as a sport science. The

scale of leisure activity related in sport science also shows a significant difference between men (M = 4.02; SD = 0.67) and females (M = 3.64; SD = 0.43).

The students' Enjoyment of nonlinear science learning lessons makes up the third TOSRA rating in the questionnaire. The amount of science-related leisure activities also differs significantly between men and women on this measure. As a result, male students scored higher than female students (M = 3.69; SD = 0.70) (M = 3.55; SD = 0.80).

SATNP Related to Grade of School

The findings showed that the average score for social consequences of science was higher than that of the other categories. The average rating of Table 5 presents SATNP in elementary and junior high schools for the purpose of assessing SATNP in various grade levels. The data shows there is no discernible difference between the seventh grade of secondary school and the fifth grade of elementary school on the SATNP.

The statistics demonstrate that the mean attitude score of Elementary school students (M = 3.74; SD = 0.54) is more favorable than that of students in junior high school (M = 3.68; SD = 0.50), even if this result suggests that the difference was very insignificant.

Attitudes toward Nonlinear Pedagogy Related to Gender and The Grade of The School

The main impact and interaction of gender and grade level were statistically examined using the two-way ANOVA method. Table 7 displays the findings from the TOSRA survey on students' attitudes toward nonlinear pedagogy.

According to this research, men and women have quite different levels of excitement for nonlinear science learning. Boys in primary school have a higher positive attitude than females do, as seen in Table 7 (M = 36.75; p < 0.001). Boys exhibit a more eager attitude than Females do in junior high schools (M = 35.78; p < 0.001).

According to Table 8, male primary school pupils are more optimistic than female students. This state persisted

Table 4. Performance of ATNP Based on Gender for Each Scale

Scale	Male (N=521)		Female (N=639)		Mean Difference	t-test
	Mean	SD	Mean	SD		
Communication attitude to nonlinear Science learning	3.36	0.82	3.43	0.51	0.07	4.20**
Social Implications of nonlinear science learning	3.79	0.68	3.96	0.54	0.17	5.20**
Students' career interests	3.65	0.52	3.25	0.36	0.40	8.25**
Leisure activity related to sport science	4.02	0.67	3.64	0.53	0.38	8.06**
Enjoyment of nonlinear science learning lessons	3.69	0.70	3.55	0.80	0.14	4.88**

Table 5. Performance of SATNP Based on Different Grades of School

Level of School	N	Mean	SD	Df	t-value	Effect size
Elementary School (ES)	563	3.74	0.54	1031	1.90	0.14
Junior High School (JHS)	597	3.68	0.50			

Table 6. The Differences of SATNP Based on Grade for Each Scale

Scale	Elementary (N=563)		Junior High (N=597)		Mean Difference	t-test
	Mean	SD	Mean	SD		
Communication attitude to nonlinear Science learning	3.80	0.67	3.53	0.51	0.27	1.25
Social Implications of nonlinear science learning	3.75	0.70	3.72	0.67	0.03	0.79
Students' career interests	3.68	0.62	3.35	0.41	0.33	1.90
Leisure activity related to sport science	3.93	0.67	4.01	0.62	0.08	1.30
Enjoyment of nonlinear science learning lessons	3.86	0.80	3.54	0.80	0.32	6.78**

**p < 0.01

Table 7. Analysis of SATNP Interaction by Grade Level and Gender

Source	SS	Df	MS	M
Gender	16.88	1	16.88	70.10**
Grade	1.70	1	1.685	7.02*
Gender * Grade	0.002	1	0.002	0.008

Note: **p < 0.001; *p < 0.05

Table 8. Simple Main Effect Analysis by Gender and School Grade for SATNP

Source	SS	Df	MS	F	Sig	Post Hoc
Gender						
Male	1.23	1	1.23	5.62*	0.03	E>S
Female	0.73	1	0.73	2.43	0.21	
Grade						
Primary	9.12	1	9.12	35.83***	0.000	M>F
Secondary	8.23	1	8.23	34.72***	0.000	M>F

***p < 0.001; *p < 0.05

into junior high school. According to the study, male secondary school students are more optimistic than female pupils. Male students' ATNP at the elementary level are more favorable than those at junior high schools, according to the school's grade level.

Discussion

Based on gender disparities across the five TOSRA scales, students' ATNP reveals that boys' mean scores are somewhat higher than girls', though not considerably. This demonstrates that both men and women are interested in understanding how sports science applies to daily life. They start to understand that using sports science will improve their life. Particularly among female students, students' perspectives regarding the social consequences of science had a significant role in deciding their choice of scientific electives (Jerrim & Schoon, 2014). Many educators believe that students' perspectives on the social aspects of science may influence their choice of a future profession in science (Osborne et al., 2003).

The findings indicate that some students are comfortable with doing experiments to identify motions and prac-

tice them while learning about sports education, and they favor nonlinear pedagogical learning since it may be effective. during learning, particularly in sport science-related tasks. According to the interview data, some students are interested in doing experiments including sport motions, but they are hesitant to do so due to a lack of confidence. Students are affected by it as well. The teacher is expected to be able to help students in carrying out the movements made by these students. Students should be encouraged to feel confident in their findings and content with their efforts to do scientific research (Toma et al., 2019). By performing experiments, science instructors are meant to change the students' attitudes about science. This practice could serve as an alternate strategy for boosting students' interest in science lesson. According to interview data, which demonstrate that sport students aspire to be athletes or work in the sports sector, the data suggest that male students are more interested in the career of sport science. According to Susilawati et al (2022) study, male Indonesian students score higher on the ATNP in sport science than female students do. According to the results of the interviews, female students want to become physicians, work in a lab, teach science, be an architect, or something similar, whereas male students want to become police officers, soldiers, soccer players, sports, etc. Male students are more interested in physical activities than other pursuits, as seen by this data.

Males are more interested in sport science than females do, according to the feature of leisure interest in the field. This result supports earlier research. Researchers have repeatedly discovered that most females are more physically inactive than boys (Nader et al., 2008; Pugliese & Tinsley, 2007). Shropshire et al (1997) also found Boys were shown to be less influenced by environmental influences and to be much more engaged in physical education than females. Compared to the males, the girls exhibited a more favorable attitude toward the instructor and showed less care for how the curriculum was organized. After learning about sport science, they like to talk about it. Contrary to male students, female students find viewing sports programs on TV, listening to sports discussion on the radio, and discussing sports with friends after school to be boring. In the interviews, more male students than female students indicated a desire to attend sporting events on the weekends. In a nutshell, this finding provides science instructors with critical input to assist them improve female students' attitudes toward sport science. It is proposed that in order to encourage their pupils

to study about sport science, the instructors may set up field excursions.

The TOSRA scale shows no significant difference between elementary and junior high schools for the interest scale in a career in sports science, leisure interests in sport, attitudes towards sport investigation, and the social implications of sport science. Students in grades five and seven have the same ATNP, according to the results. The fact that students express a strong desire to engage in sports science courses lends credence to this condition. According to research, students in both school classes are open to pursuing professions in athletics, which is related to the pursuit of jobs in sports science. They believe it would be fascinating to pursue such a career. The findings indicated that both groups' pupils responded more positively to phrases like "my future aspiration is to be an athlete or in the sports sector."

In a word, pupils in elementary and junior schools have comparable favorable opinions of nonlinear instruction. The TOSRA scores demonstrate this fact: they are interested in jobs in sport science, they like playing sports for fun, they have a positive communicative attitude toward nonlinear scientific learning, and they are aware of the social consequences of nonlinear science learning. However, the interest in science among elementary school pupils who transfer to junior high schools sharply decreases. Related to the level of schools, male students' ATNP in elementary schools are better than in junior high schools. However, when they enter junior high school their attitude toward nonlinear pedagogy declines slightly. As a result, the practical significance of this difference seems dubious. Moreover, even though the female students' attitudes are less positive than those of the male students, their attitudes tend to be the same between elementary and junior high school. This study shows that male students in elementary schools feel more enthusiastic in physical education class. Similarly, male students exhibit more enthusiasm than females do in junior high schools.

Conclusions

At both levels of education, the findings indicate that male students had a higher positive ATNP than female students. Higher specifically, across the board, male students had more positive ATNP than female students. Students in higher grades score less favorably on attitude than those in lower grades. This situation is a reflection of the wider trend affecting physical education instruction in Yogyakarta Province. It suggests that boys are more enthusiastic about science than females are. This unexpected result is in contrast to earlier research. Numerous studies have shown that women generally have more favorable opinions about science than men do. However, the interviews revealed that male students showed more interest in sports science activities than female students did. Male students routinely work more than female students, and as a result, they are better suited to handle the demands of learning than their female peers are.

The data shows that there is no discernible variation in students' ATNP between the fifth grade of elementary school and the seventh grade of junior high school, according to the grade of the schools. The results demonstrate that the mean score of the students' attitude in elementary schools is higher than in secondary schools, despite the fact that this

finding suggests that the differences are extremely modest. It is noteworthy that Yogyakarta pupils disclose that their ATNP is the same in the province's primary and junior high schools, contrary to previous studies. However, children's enthusiasm for science greatly decreases as they attend junior high school. This outcome provides physical education instructors with valuable feedback as they work to maintain the students' favorable perception of nonlinear pedagogy.

Acknowledgement

The researcher would like to thank the Ministry of Research, Technology, and Higher Education the author also said thanks to the principal, teachers, and those involved in this research.

Conflict of interest

There are no known conflicts of interest related to this publication, and there hasn't been considerable financial backing for it that would have affected how it came out.

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ДОСЛІДЖЕННЯ СТАВЛЕННЯ УЧНІВ ДО НЕЛІНІЙНОЇ ПЕДАГОГІКИ ЗАЛЕЖНО ВІД РОКІВ НАВЧАННЯ ТА ГЕНДЕРНИХ ВІДМІННОСТЕЙ

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Реферат. Стаття: 7 с., 8 табл., 36 джерел.

Важливо не забувати, що результати навчання – це не єдине досягнення учнів, а ставлення також є важливим здобутком навчання.

Мета дослідження. Метою цього дослідження було вивчення ставлень учнів, особливо стосовно ставлення до нелінійної педагогіки (СДНП) у місті Джок'якарта (Індонезія) відповідно до гендера та років навчання.

Матеріали та методи. У дослідженні брали участь 1160 дітей: учні п'ятих класів початкової школи та учні восьмих класів середньої школи. До участі в дослідженні були включені загалом 18 шкіл з усієї провінції. Для збору даних використовували «Тест науково пов'язаних ставлень» (TOSRA). Ця анкета є ефективною для збору описів ставлень учнів до оцінок нелінійної педагогіки для конкретної групи учасників, оскільки в ній використовується психометрична шкала Лайкерта.

Результати. Результати дослідження показують, що учні мають абсолютно різні рівні ентузіазму до нелінійного навчання наук. У початковій школі учасники чоловічої статі виявляють вищий ступінь позитивного ставлення, ніж учасники жіночої статі ($\chi = 36,75$; $p < 0,001$). У молодших класах середньої школи учасники чоловічої статі виявляють завзятіше ставлення, ніж учасники жіночої статі ($\chi = 35,78$; $p < 0,001$). На основі одержаних даних було встановлено, що в середніх школах учасники чоловічої статі мають більше позитивних ставлень, ніж учасники жіночої статі (8,23, $\chi > \chi$). Відповідно до років навчання у школі, СДНП учасників чоловічої статі, які навчаються в початковій школі, є позитивнішим за СДНП учасників чоловічої статі, які навчаються в молодших класах середньої школи.

Висновки. Статистичні дані показують, що ставлення учнів до нелінійного викладання є аналогічними в початковій і середній школах, незалежно від років навчання в цих школах. Тим не менш, більшість учнів середньої школи вважає, що фізичне виховання приносить менше задоволення, ніж у початковій школі. Для вчителів фізичного виховання цей факт є вхідним сигналом від користувачів. Цей результат є обнадійливим для учнів, які шукають стратегії подолання гендерної нерівності в умовах навчального класу. Впливи нелінійної педагогіки також досліджуються.

Ключові слова: ставлення до нелінійної педагогіки, роки навчання, гендер, учні початкової та середньої школи.

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Cite this article as: Tri Kaloka, P., Nopembri, S., Yudanto, & Elumalai, G. (2022). A Study of Grade Level and Gender Differences in Attitude towards Nonlinear Pedagogy. *Physical Education Theory and Methodology*, 22(3s), S124-S131. <https://doi.org/10.17309/tmfv.2022.3s.17>

Received: 15.07.2022. Accepted: 25.10.2022. Published: 30.11.2022

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