

# Validity and Reliability of Lecturers' Behaviors Questionnaire and Student Instructor-Relationship Scale (SIRS) Instruments: Study of Physical Education Students in College

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## ABSTRACT

The purpose of this study was to test the validity and reliability of the Lecturers' Behaviors Questionnaire and Student Instructor-Relationship Scale (SIRS) instruments. This study used a quantitative approach. Respondents in this study were students of the Physical Education, Health, and Recreation study program, Faculty of Sport and Health Sciences, Surabaya State University. The researcher used the Slovin formula in determining the number of respondents. Data were collected using an online Likert-scale questionnaire. The researcher conducted validity and reliability tests using SPSS. The results showed that 22 of the 24 total statements in the Lecturers' Behaviors Questionnaire were deemed valid (Sig.) (2-tailed)  $<0.05$ . The reliability of the Lecturers' Behaviors Questionnaire was .916. In the Student Instructor-Relationship Scale (SIRS), 34 of the total 36 statements in the Lecturers' Behaviors Questionnaire were valid (Sig.) (2-tailed)  $<0.05$ . The reliability of SIRS is .852. Based on the research results, the Lecturers' Behaviors Questionnaire is suitable for measuring students' perceptions of lecturers' behavior during the learning process. SIRS is suitable for assessing the quality of the relationship between students and lecturers in the learning process for students of the Physical Education, Health and Recreation study program in higher education.

## INTRODUCTION

The primary duties of lecturers in Indonesia are synonymous with the Tri Dharma of Higher Education: teaching, research, and community service (Markus Masan Bali, 2018; Pranatasari, 2017). A lecturer's schedule can vary significantly depending on factors such as their area of expertise, teaching level, and additional roles they take on at the university or institution where they teach.

Lecturer behavior refers to how lecturers treat and interact with students, colleagues, and others in higher education. Lecturers perceive their professional behavior, including how they teach and treat students, as influencing their motivation to learn (Noori et al., 2020). Behavior is a person's response to a particular situation. In the classroom context, lecturer behavior refers to the interaction between students and lecturers (Noori et al., 2021).

The fact that effective student-faculty relationships can positively impact academic achievement and ensure the quality of education at universities has prompted many universities to initiate programs to improve the relationship between faculty and students.

The Lecturers' Behaviors Questionnaire is a research instrument used to measure students' perceptions of faculty behavior during the learning process. This instrument aims to determine how students assess the way faculty members teach, interact, guide, and manage the classroom during lectures. The results of the questionnaire are a decision-making consideration by the head of the study program to evaluate faculty teaching quality, enhance learning effectiveness, and improve interactions between faculty and students. This instrument is also frequently used in higher education research to analyze the relationship between faculty behavior, student learning motivation, and student satisfaction or engagement in the learning process.

The busy schedules of faculty members, with various additional duties, reduce the time they have to interact with students outside of class. The Student–Instructor Relationship Scale (SIRS) is an instrument used to assess the quality of the relationship between students and instructors or faculty members during the learning process. This scale is used in educational research to determine the level of interaction, support, communication, and academic closeness between instructors and students. The results of measurements using the SIRS instrument are a decision-making consideration by the head of the study program to evaluate teaching effectiveness, improve classroom interactions, and enhance the learning environment to be more positive and supportive of student development.

Initial identification is the first step, involving research on the close relationship between lecturer behavior in learning and the quality of the relationship between students and lecturers. Reliable and valid instruments enable researchers and educational institutions to understand the dynamics of classroom interactions, identify cases requiring evaluation, and demonstrate the effectiveness of various pedagogical interventions. Two relevant instruments for measuring these aspects are the Lecturers' Behaviors Questionnaire (LBQ) and the Student Instructor-Relationship Scale (SIRS). Therefore, research is needed to assess the validity and reliability of the instruments and to adapt them to the characteristics of the research sample.

## METHOD

### Research design

This study employed a quantitative approach. Respondents were 360 students from the Physical Education study program, graduating class of 2023, at Surabaya State University. The researcher used the Slovin formula to determine the number of respondents to ensure time and cost-effectiveness. The researcher obtained 191 responses, meeting the minimum sample size.

### Data collection

Data was collected using an online questionnaire. Researchers used a Google Form that students completed within a time limit. The questionnaire consisted of a respondent identification section and two sub-questionnaires: the Lecturers' Behaviors Questionnaire and the Student-Instruction Relationship Scale (SIRS).

### Data analysis

The collected data were analyzed using IBM Statistical Package for the Social Sciences (SPSS). To assess the validity of the Lecturer Behavior Questionnaire and the Instructor-Student Relationship Scale (SIRS), the research used Pearson's product-moment correlation or Spearman's rank correlation. Meanwhile, Cronbach's Alpha is used to assess the reliability of the scales of instruments.

The statements of the Lecturers' Behaviors Questionnaire instrument, which consists of 24 statements and the Student Instructor-Relationship Scale (SIRS) consists of 34 statements.

## RESULT AND DISCUSSIONS

The test results for the Lecturers' Behaviors Questionnaire instrument showed different conditions for the two score parameters (SUMQ and AV):

1. Total Score (SUMQ): Has an Asymp. Sig. (2-tailed) value of 0.095.
2. Average Score (AV): Has an Asymp. Sig. (2-tailed) value of 0.073.

The Lecturer Behavior Questionnaire is normally distributed, as the data analyst stated, based on the considerations above.

The results of the Pearson Correlation test by comparing the calculated R with the R table are as follows:

Table 3. The calculated R with the R table

No	Questions	R count	R table	Decision
1	My lecturer comes to class well-prepared.	.702**	0.141	Valid
2	My lecturer gives me adequate assignments.	.698**	0.141	Valid
3	My lecturer uses reference books.	.544**	0.141	Valid
4	My lecturer uses different teaching techniques.	.654**	0.141	Valid
5	My lecturer uses different assessment techniques.	.593**	0.141	Valid
6	My lecturer uses tests only to promote students.	.319**	0.141	Valid
7	My lecturer is punctual in completing assignments.	.781**	0.141	Valid
8	My lecturer makes the class conducive to learning.	.704**	0.141	Valid
9	I enjoy being friendly with my lecturer.	.682**	0.141	Valid
10	My lecturer shares their personal experiences with the class.	.735**	0.141	Valid
11	My lecturer admires me when I excel.	.649**	0.141	Valid
12	My lecturer encourages me in co-curricular activities.	.675**	0.141	Valid
13	My lecturer explains difficult points in the lesson.	.628**	0.141	Valid
14	My lecturer relates the topic to real-life situations.	.764**	0.141	Valid
15	My lecturer provides constructive feedback.	.754**	0.141	Valid
16	My lecturer is friendly and willing to help me.	.742**	0.141	Valid
17	My lecturer insults us in front of the whole class.	0.001	0.141	Not Valid
18	My lecturer behaves well towards me.	.727**	0.141	Valid
19	My lecturer dresses formally and nicely.	.703**	0.141	Valid
20	My lecturer is anxious when I ask questions.	-0.022	0.141	Not Valid
21	My lecturer motivates me using different techniques.	.738**	0.141	Valid
22	My lecturer comes to class in a cheerful mood.	.759**	0.141	Valid
23	My lecturer focuses on building my character.	.627**	0.141	Valid
24	My lecturer doesn't show any discrimination.	.453**	0.141	Valid

The results of the Pearson Correlation test using the Sig. value (2-tailed) is as follows:

Table 4. The Pearson Correlation test

No	Question	Sig. (2-tailed)	Decision
1	My lecturer comes to class well-prepared.	0.000	Valid
2	My lecturer gives me adequate assignments.	0.000	Valid
3	My lecturer uses reference books.	0.000	Valid
4	My lecturer uses different teaching techniques.	0.000	Valid
5	My lecturer uses different assessment techniques.	0.000	Valid
6	My lecturer uses tests only to promote students.	0.000	Valid
7	My lecturer is punctual in completing assignments.	0.000	Valid
8	My lecturer makes the class conducive to learning.	0.000	Valid
9	I enjoy being friendly with my lecturer.	0.000	Valid
10	My lecturer shares their personal experiences with the class.	0.000	Valid
11	My lecturer admires me when I excel.	0.000	Valid
12	My lecturer encourages me in co-curricular activities.	0.000	Valid
13	My lecturer explains difficult points in the lesson.	0.000	Valid
14	My lecturer relates the topic to real-life situations.	0.000	Valid
15	My lecturer provides constructive feedback.	0.000	Valid
16	My lecturer is friendly and willing to help me.	0.000	Valid
17	My lecturer insults us in front of the whole class.	0.991	Tidak Valid
18	My lecturer behaves well towards me.	0.000	Valid
19	My lecturer dresses formally and nicely.	0.000	Valid
20	My lecturer is anxious when I ask questions.	0.759	Tidak Valid
21	My lecturer motivates me using different techniques.	0.000	Valid
22	My lecturer comes to class in a cheerful mood.	0.000	Valid
23	My lecturer focuses on building my character.	0.000	Valid
24	My lecturer doesn't show any discrimination.	0.000	Valid

The researcher conducted an instrument validity analysis by comparing the R value to the R table at a specified significance level, with a comparative value of 0.141. Based on the test results of 24 statement items, the data analyst declared 22 items valid because their calculated R values were greater than 0.141, as indicated by the presence of two asterisks (\*\*) indicating significance at the 0.01 level. However, 2 statement items were declared

invalid by the data analyst: item 17, with an R calculated value of 0.001, and item 20, with a value of -0.022, both of which were far below the specified  $R_{\text{table}}$  threshold. In line with the correlation coefficient analysis, testing using significance values (Sig. 2-tailed) also showed consistent results, with items declared valid if the Sig. value  $< 0.05$ . A total of 22 statement items had a significance value of 0.000, indicating a very significant correlation with the instrument's total score. On the other hand, items 17 and 20 were declared invalid by the data analyst because their p-values were 0.991 and 0.759, respectively, which were well above the 5% significance threshold. Therefore, these two items did not meet the statistical requirements for use in research data collection and should be removed from the questionnaire by future researchers.

Cronbach's Alpha test with 24 statements is as follows:

Reliability Statistics	
Cronbach's Alpha	N of Items
.916	24

Cronbach's Alpha test with 22 questions by eliminating 2 invalid statements is as follows:

Reliability Statistics	
Cronbach's Alpha	N of Items
.936	22

Reliability testing of the Lecturer Behavior Questionnaire was conducted by the researcher using Cronbach's Alpha to assess the questionnaire's internal consistency. An initial reliability analysis of the 24 items yielded a Cronbach's Alpha value of 0.916. Based on established criteria, this instrument has a very high level of reliability according to data analysts.

Final Analysis (22 Statement Items): After conducting a validity test and eliminating 2 invalid statement items, a reliability test was conducted again on the remaining 22 statement items. The Analysis results showed an increase in Cronbach's Alpha to 0.936. This increase in value confirms that the elimination of invalid items successfully improved the instrument's internal consistency. With a value above 0.90, the Lecturer Behavior Questionnaire demonstrates very high reliability. This instrument is highly suitable for research data collection.

Based on the test results for The Student Instructor-Relationship Scale (SIRS) variable (sumQ), the Test Statistic value was 0.102 with a significance value (Asymp. Sig., 2-tailed) of 0.000. Because the p-value was  $< 0.05$ , the SIRS instrument data were deemed non-normally distributed.

The results of the Pearson Correlation test by comparing the calculated R with the R table are as follows:

Table 5. The Calculated R with the R table

No	Calculated R	R table	Statement
1	0.044	0.141	Not Valid
2	.345**	0.141	Valid
3	.268**	0.141	Valid
4	.420**	0.141	Valid

No		Calculated R	R table	Statement
5		.411**	0.141	Valid
6		0.130	0.141	Not Valid
7		.452**	0.141	Valid
8		.380**	0.141	Valid
9		.458**	0.141	Valid
10		.485**	0.141	Valid
11		.238**	0.141	Valid
12		.176*	0.141	Valid
13		.476**	0.141	Valid
14		.466**	0.141	Valid
15		.503**	0.141	Valid
16		.481**	0.141	Valid
17		.176*	0.141	Valid
18		.473**	0.141	Valid
19		.375**	0.141	Valid
20		.470**	0.141	Valid
21		.180*	0.141	Valid
22		.516**	0.141	Valid
23		.170*	0.141	Valid
24		.394**	0.141	Valid
25		.554**	0.141	Valid
26		.394**	0.141	Valid
27		.254**	0.141	Valid
28		.369**	0.141	Valid
29		.251**	0.141	Valid
30		.194**	0.141	Valid
31		.408**	0.141	Valid

No	Calculated R	R table	Statement
32	.539**	0.141	Valid
33	.388**	0.141	Valid
34	.628**	0.141	Valid
35	.227**	0.141	Valid
36	.186*	0.141	Valid

The results of the Pearson Correlation test using the Sig. value (2-tailed) is as follows:

No	Sig. (2-tailed)	Statement
1	0.542	Not Valid
2	0.000	Valid
3	0.000	Valid
4	0.000	Valid
5	0.000	Valid
6	0.073	Not Valid
7	0.000	Valid
8	0.000	Valid
9	0.000	Valid
10	0.000	Valid
11	0.001	Valid
12	0.015	Valid
13	0.000	Valid
14	0.000	Valid
15	0.000	Valid
16	0.000	Valid
17	0.015	Valid
18	0.000	Valid
19	0.000	Valid
20	0.000	Valid

No		Sig. (2-tailed)	Statement
21		0.013	Valid
22		0.000	Valid
23		0.019	Valid
24		0.000	Valid
25		0.000	Valid
26		0.000	Valid
27		0.000	Valid
28		0.000	Valid
29		0.000	Valid
30		0.007	Valid
31		0.000	Valid
32		0.000	Valid
33		0.000	Valid
34		0.000	Valid
35		0.002	Valid
36		0.010	Valid

The researcher conducted validity testing of the SIRS questionnaire instrument by comparing the R calculated value with the R table value of 0.141. Based on the analysis of 36 statement items, 34 were declared valid by the data analyst because their R values were greater than 0.141, with a distribution of correlation values predominantly significant at the 0.01 level (marked with \*\*). However, data analysis identified 2 statement items as invalid: item 1 (R = 0.044) and item 6 (R = 0.130). Both items failed to meet the minimum criteria because their correlation values were below the predetermined  $R_{table}$  threshold. Data analysts strengthened these results through significance testing (2-tailed), and an item was considered valid by the researchers if its significance value was below 0.05. A total of 34 SIRS questionnaire statement items showed significance values that met the requirements, with the majority being at 0.000. In contrast, items 1 and 6 were statistically proven invalid because their significance values were 0.542 and 0.073, respectively, both of which were greater than 0.05. Therefore, to maintain measurement accuracy in the next stage of the research, it is recommended that these two invalid items be removed from the instrument or revised in depth before reuse.

Cronbach's Alpha test with 36 statements is as follows:

Reliability Statistics	
Cronbach's Alpha	N of Items
.852	36

If you remove 2 invalid statements, the reliability increases. Cronbach's Alpha test with 34 statements is as follows:

Reliability Statistics	
Cronbach's Alpha	N of Items
.856	34

Based on the results of the reliability analysis using the Cronbach's Alpha formula, the Student Instructor-Relationship Scale (SIRS) instrument showed the following results: Initial Analysis (36 Statement Items): Testing of all statement items ( $N = 36$ ) produced a Cronbach's Alpha value of 0.852. This value indicates that the SIRS instrument has reliable (strong) internal consistency. Analysis After Elimination (34 Statement Items): After conducting a validity test and eliminating 2 invalid statement items, the instrument's reliability value increased to 0.856 with a total of 34 statement items. This increase in value indicates that the remaining items have a more solid relationship with each other. With an alpha value of 0.856 (above the threshold of 0.60 or 0.70), the SIRS instrument is declared very feasible and consistent for use in this study.

Higher education institutions and their components play a strategic role in human development, particularly by helping students realize their potential and improve their performance. A university is an institution that provides higher education as a continuation of secondary education, aiming to prepare students with specific academic abilities to apply, develop, and create new knowledge. One of the goals students aspire to achieve during their studies is maximum academic achievement (Bone & Minggu, 2022). Lecturer behavior refers to how lecturers treat and interact with students, colleagues, and everyone else at the university. Lecturers perceive that their professional behavior, including how they teach and treat students, influences their motivation to learn (Noori et al., 2020).

Specifically, these individual relationships manifest in communication and interaction, representing reinforcement. This communication also characterizes human social existence. This statement means that interaction and communication are inherent and integrated within the social being. Learning is a process that relies on interactions between students and lecturers, resulting in quality education. Relationships between students and lecturers in higher education can foster an environment in which students learn effectively (Sundani & Mamokhere, 2021).

Technological advances have impacted the relationship between lecturers and students. On the one hand, the internet brings them closer, but on the other hand, it indirectly creates distance between lecturers and students (García-Machado et al., 2024). internet changes the quality of the relationship between students and lecturers from one of intellectual guidance to a more transactional or technical one (Alshahrani et al., 2017; Kuong, 2015). This statement relates to the lecturer's role as a role model or mentor. As interactions shift to screens, the personal touch and character guidance are lost. Lecturers are seen only as graders or facilitators, no longer as role models.

Another example is when students feel the material is stored by sharing data from the lecturer on their laptops, they lose the urgency to understand it in real time during lecturer-student interactions in class. Recording technology is a double-edged sword. It helps disciplined students, but also keeps in check those with less effective time management and poor study habits that trivialize online learning activities (Voelkel et al., 2023; Werang & Leba, 2022).

Motivation is also an internal drive that determines how committed students are to their studies. While lecturers and technological resources are optimal, academic success ultimately depends on students' intrinsic drive to set goals, manage their time independently, and bounce back from failure (Ali, 2020). Strong motivation serves as a fulcrum, guiding students to remain actively engaged and persistent, ensuring that the information they receive is not merely memorized but transformed into deep, sustained mastery of competencies (Troyer et al., 2019).

The success of education lies not solely in technology, but rather in course design that fosters human interaction and active collaboration. By shifting focus from simply presenting material to engaging, participatory learning experiences, education has great potential to become a pillar of flexible, high-quality, lifelong learning for student development (Kamraju et al., 2024). The role of the lecturer remains a key one that no technology can replace. Direct interaction, whether face-to-face or through online sessions, allows lecturers to serve as intellectual mentors, not simply video players or uploaders of material. This meeting is where lecturers provide context, a human touch, character, and inspiration that can transform raw information from the internet into meaningful understanding for students (Markus Masan Bali, 2018).

## CONCLUSION

The reliability of the Lecturers' Behaviors Questionnaire was .916. In the Student Instructor-Relationship Scale (SIRS), Researcher 34 of the total 36 statements in the Lecturers' Behaviors Questionnaire were valid (Sig.) (2-tailed)  $<0.05$ . The reliability of SIRS is .852. Based on the research results, the Lecturers' Behaviors Questionnaire is suitable for measuring students' perceptions of lecturers' behavior during the learning process. SIRS is suitable for assessing the quality of the relationship between students and lecturers in the learning process for students of the Physical Education, Health and Recreation study program in higher education. There were two invalid items in this study. Future researchers can review the wording or replace these items to ensure all statements are used optimally in other research.

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