# IJMPERD

## International Journal of Mechanical and Production Engineering Research and Development (IJMPERD )

# International Journal of Mechanical and Production Engineering Research and Development

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|---|---|
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| **Subject Area and Category** | Chemical Engineering<br>Fluid Flow and Transfer Processes<br><br>Engineering<br>Aerospace Engineering<br>Mechanical Engineering |
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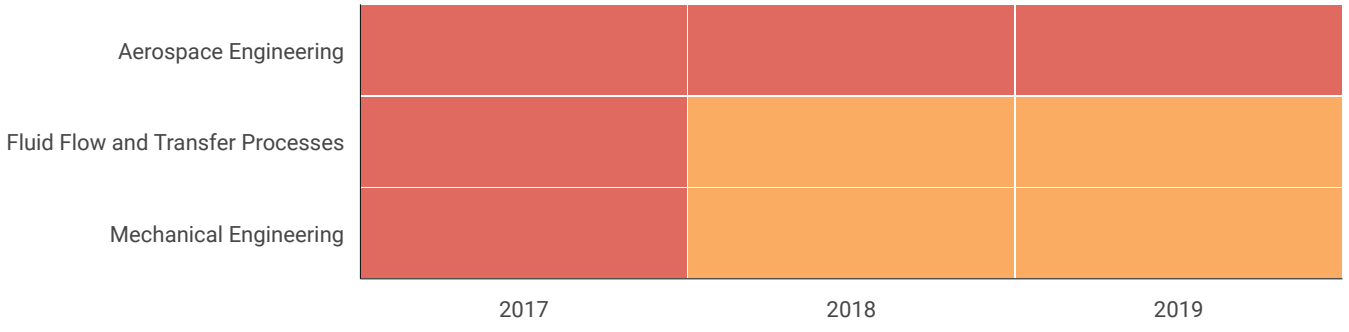


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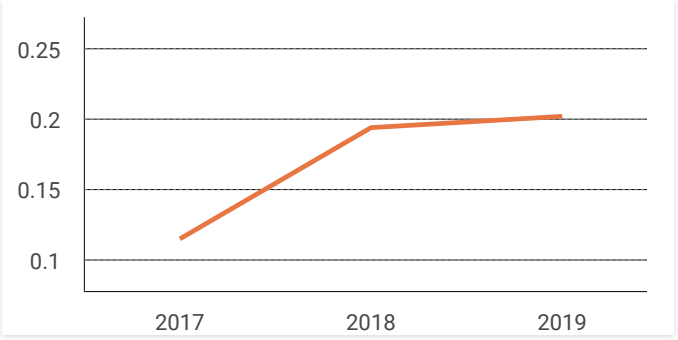


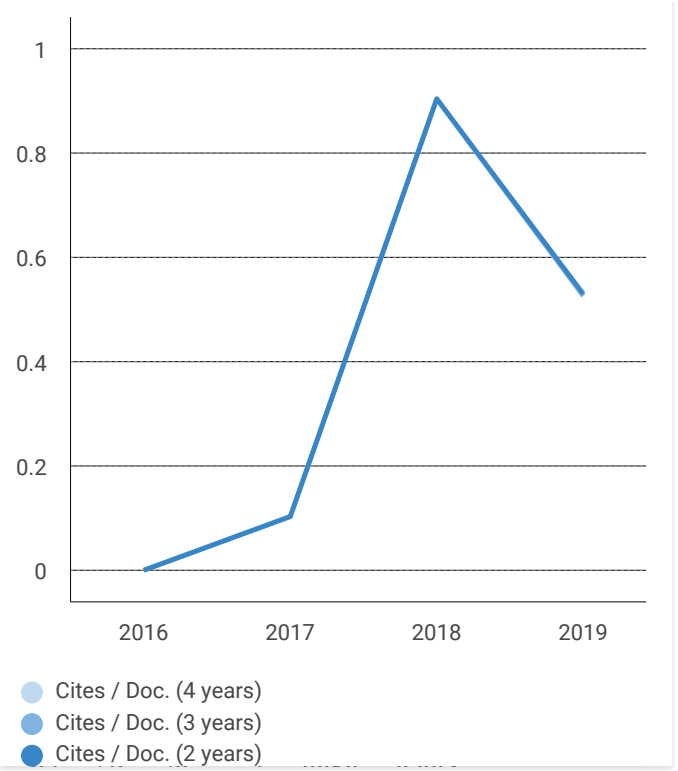


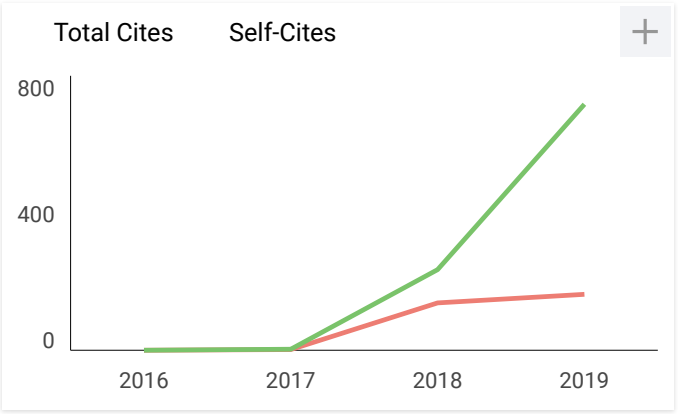


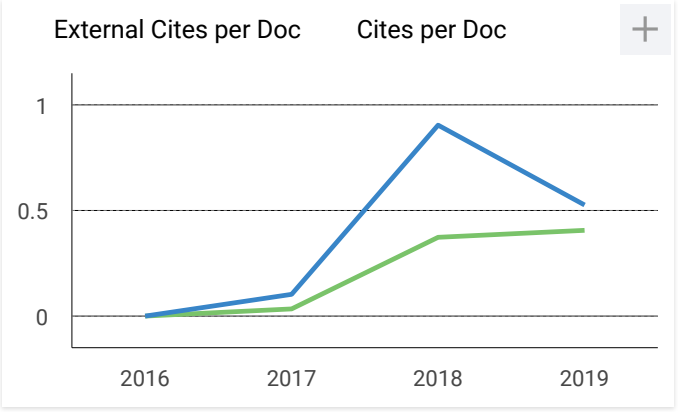


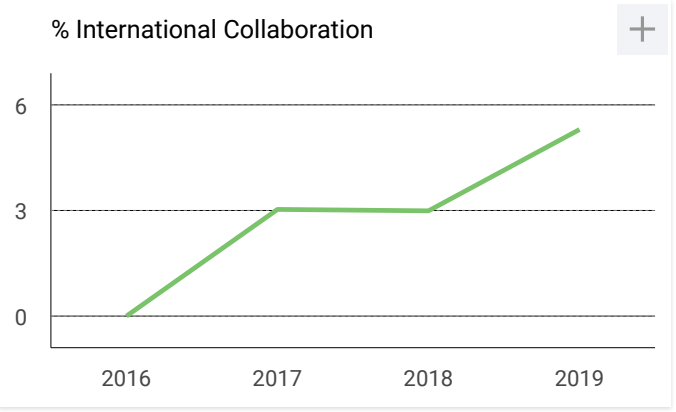


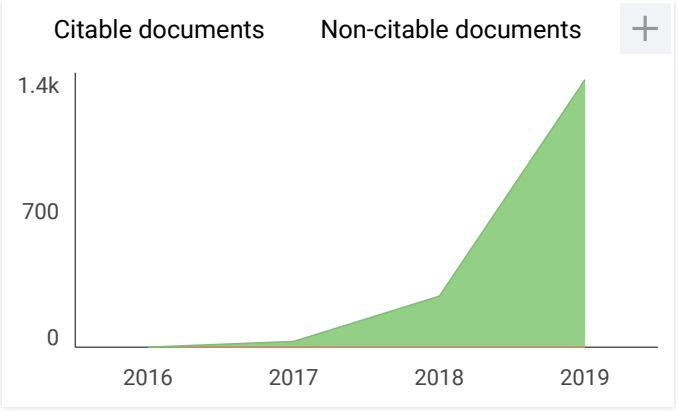


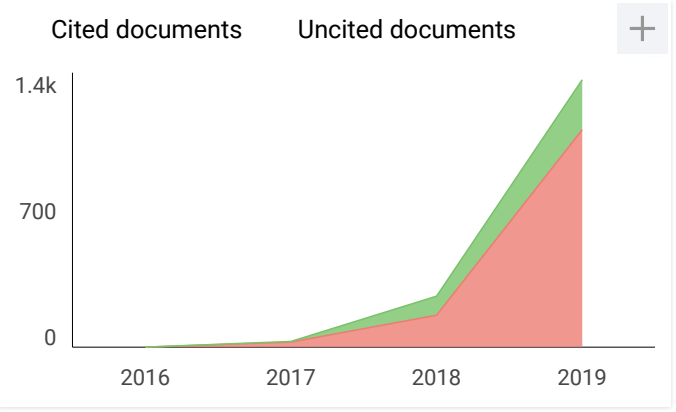



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**International Journal of Mechanical and Production Engineering Research and Development**

( ISSN (Online): 2249-8001; ISSN (Print): 2249-6890; Impact Factor(JCC) : 6.8765; Index Copernicus Value (ICV) : 60.6; NAAS Rating: 3.11; )

*in recognition of the research paper quality, originality and significance in modeling and technical flow and upon recommendation of the TJPRC Journals Best Paper Award Committee proudly present this*

# BEST PAPER CERTIFICATE

to

## Sri Ranjini. S

**Paper Title** : **An Examination of the Essential Aspects in Execution of Enterprise Resource Planning in Manufacturing and Production Industries**

**Edition Date : 12/31/2017**

L. Gayathri

**Associate Editor-TJPRC**

**Chief Editor-TJPRC**

## COMPANY PROFILE

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**Key audiences :**

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- Technological, Arts, Science, Engineering & Management Universities and Colleges.
- End User Organizations: Emerging technology development groups, Strategic technology planners, Strategic business planners, CTOs, CIOs, lead architects and other senior IT staff.
- Vendor and Service Provider Organizations: Strategic product planners and marketers in product or service provider companies, including consulting and sourcing organizations.

## MANAGEMENT TEAM

**T. Sethuraman @ TSR**

**Co-founder and Chairman**

T.Sethuraman who is fondly known as TSR in business circle, has been the motivator and inspiration behind the formation of TJPRC. He served in Indian Air Force (IAF) for about 18 years and got a voluntary retirement as Junior Warrant Officer at the age of 36 years in view of providing educational services to the poor and downtrodden. Though he is an educationally unqualified philanthrope, with the experience he had gained in his IAF career, he later on stamped his foot print in various business domains like automobiles, IT communications, FMCG distributions, Constructions etc., with management assistance and leadership directives from Ln. Prof. Dr. Manivannan Sethuraman.

**Ln. Prof. Dr. Manivannan Sethuraman, B.Tech (Chem)., D.E.M., D.T.Tech., A.M.S.P.I., M.B.A., M.S. (Software Systems), P.M.P (PMI, USA)., F.M.S.P.I., Q.P.M.P. (IPMA, Switzerland), S.C.E.A. (Sun Microsystems, USA), M.I.E., W.C.P.(BEA Systems, USA), C.S.Q.A.(QAI,**

**USA), F.M.I.P.M.A., S.C.J.P.(Oracle Corporation, USA), F.M.I.A.E.M.E., Ph.D.,**

**Founder Managing Director and Chief Editorial Officer**

Ln. Prof. Dr. Manivannan Sethuraman has a successful track record in various leadership capacities in the Engineering operations, Quality & Process Management , Industrial Marketing and Production across Chemical Engineering, Manufacturing and Software Engineering disciplines in the leading conglomerates that include Flex Industries Limited (http://www.flexindustriesltd.com), 3i Infotech (www.3i-infotech.com/), CSS Corp (www.csscorp.com/), etc., He has hands on experience and expertise in all phases of Software Development Life Cycle like Requirements Analysis, Enterprise Architecture Design, Development, Implementation and Training of distributed systems with excellent system design experience using UML, Rational Rose and System Architect 2001. Has about 16+ years of techno-functional experience and an in-depth understanding of emerging technologies and their commercial applications.

Have held responsibilities in various capacities in disparate functions like Pre-sales assistance, Proposal preparation, Project Initiation, Project Planning, Team Acquisition-Allocation-Development, Scope Planning-Development-control, Cost Estimation-Budgeting-Control, Project Execution-Oversight-Tracking, Quality Planning-Assurance-Control, Infrastructure Planning-Acquisition-Administration, Software Configuration Planning-Management, Performance Monitoring-Reporting-Review, Release Management, Client & Vendor Management and Closure of Projects & Contracts.

Ln. Prof. Dr. Manivannan Sethuraman is an innate entrepreneur and is instrumental in establishing various retail centres across disparate disciplines like automobiles, IT communications, FMCG distributions, Constructions etc.,, in his early years itself, sustaining them with high process orientation and running them profitably successfully for many years.

He has obtained the following prestigious technical certifications given by International bodies like :

- SUN Microsystems, USA,
- Quality Assurance Institute (QAI), USA,
- Project Management Institute (PMI), USA,
- International Project Management Association (IPMA-Swiss),
- BEA Systems, USA and
- International Register of Certificated Auditors (IRCA), UK
- Tekmetrics, USA
- Young achiever award from Rotaract and Lion's clubs, Mayiladuthurai, India.

Following list portrays the different certifications obtained by our M.D and C.E.O :


- Certified Sun Java 2 Programmer.
- Certified Enterprise Architect in J2EE.
- Certified BEA Weblogic Server 5.1 Architect.
- Certified Project Management Professional (PMP) by PMI, USA.
- Certified Qualified Project Management Professional (QPMP) by IPMA, Switzerland.
- Certified Software Quality Analyst (CSQA) by QAI, USA.
- Certified Internal Auditor of projects by IRCA, UK.
- Certified Tekmetrics & BrainBench Java Programmer.
- Certified Tekmetrics C++ Programmer.

He is an Associate and Fellow member of Management Studies Promotion Institute, New Delhi, India, life time member of Project Management Association, Indian associate of International Project Management Association, Switzerland, Member of Project Management Institute, USA, Member of

Institute of Engineers, India, Member of Computer Society of India and Editorial board member of International Association for Engineering and Management Education, Chennai, India.

He has published several articles in Computer Science, Engineering and Information Technology in the leading Indian and International journals, conferences etc., and has been an inaugural speaker at national and international conferences organized by leading institutions like Anna University of Technology, Coimbatore, Velammal College of Engineering, SSN College of Engineering, Nandha Engineering College, AVC Engineering College, Kalaimagal College of Engineering etc., in India.

Ln. Prof. Dr. Manivannan Sethuraman obtained his B.Tech., in Chemical Engineering from National Institute of Technology, Trichy, MBA from Thiagarajar School of Management, Madurai, MS (Software Systems) from BITS, Pilani, Rajasthan and Ph.D., from Anna University of Technology, India

**Scholastic and Entrepreneurial Achievements**

- Recipient of **merit scholarship and merit certificate** for having secured 1st rank in the district and 12th rank in the state in SSLC examination from the Government of Tamilnadu.
- Recipient of **Aringnar Anna award & scholarship** from the Government of Tamilnadu for all the four years of B.Tech.,(Chemical Engineering) for having secured first rank in the district in H.S.C.,(Plus 2) examination.
- Recipient of **merit certificate** for having secured prestigious position / 2nd rank in the Bharathidasan University in the under graduation.
- Secured **University rank** for the final year project in post graduation in the Management.
- Recipient of monetary **Fellowship** (USD 1100 per month) from the Yale University for pursuing a 5 year integrated Ph.D., course in 1993.
- Recipient of the prestigious "**Quality Champion"** award from the chairman of **M/s Flex Industries Limited (Mr. Ashok Chaturvedi)** for having resolved quality issues for one of the company's prominent customers (HLL, Coimbatore and Khatgeshar) in the manufacturing and flexible

packaging industry in 1997.

- Recipient of **CSS Corporation's** "**Best Manager**" award consecutively for **2 times** for an excellent performance in the Account Management function and displaying high degree of efficiency in Software Project Management discipline.
- Recipient of "**CSS Distinguished Fellow**", an award given by CSS Corporation's Management team for the year 2009 towards an outstanding accomplishment in Software delivery and account management.
- Recipient of **Young achiever award** from Rotaract and Lion's clubs, Mayiladuthurai, India.
- Recipient of **entrepreneurial awards** from corporates like M/s Kothari Products Limited, M/s Henkel SPIC India Ltd, M/s Parle Products Ltd., M/s Nutrine Confectionery Ltd., etc.,

**Professional Memberships**

- Project Management Institute (http://www.pmi.org/), USA.
- Project Management Association, Indian associate of International Project Management Association (http://www.ipma.ch), Switzerland (European equivalent of the PMI® USA).
- Institute of Engineers(https://www.ieindia.info/), India.
- Member of Computer Society of India (http://www.csi-india.org).
- Member of QAForum, Chennai and using which guided QA personnels of various companies in getting them the CSQA certification along with other seniors and attended informal meetings on weekly basis to ascertain and update the quality practices of various companies.
- Associate member of M.S.P.I., New Delhi.
- Fellow member of International Association for Engineering and Management Education, Chennai, India (http://www.iaeme.com/).
- Editorial board member of International Association for Engineering and Management Education, Chennai, India (http://www.iaeme.com/).

**Paper publications - (a few from plethora of publications)**

Following are some of the important papers (but not limited to) presented by our beloved MD and CEO in different National and International journals / conferences.

- Paper published on title “Rheology of Blood” – at a National symposium conducted by IEEE in National Institute of Technology, Trichy and won the first prize.
- Paper published on title “Multiple Views of CMMI approach” in “Tool Box for IT” and “www.stickyminds.com” journals.
- Paper published on title “Knowledge Management in Software Organization” in “IndianMBA.com” IT journal.
- Paper published on title “Methodology of Patenting of Software Product” in “www.oppapers.com” journal.
- Paper published on title “Empirical Investigation of success and failure factors of CMMI implementation” in “KMPro Journal” journal.
- Paper published on title “Design and Development of Software metrics for Development and Maintenance Project” in “Serials Publications” international journal.
- Paper published on title “Application of Metrics for Software Process Improvement ” in “Tool Box for IT” journal.
- Paper published on title “Defect and Effort Prediction Models in Software Maintenance Projects” in “International journal of Management (IJM) - Pages 20 – 34, Volume 1, Issue 1(2010) , May 2010.
- Paper published on title “Software Metric Analysis Methods for Product Development and Maintenance projects” in “International journal of Computer Engineering and Technology (IJCET) - Pages 18 - 33 Volume 1, Issue 1(2010) , May - June 2010.
- Paper published on title “Software Process Methodologies and a comparative study of various models “ in “International journal of Computer Engineering and Technology (IJCET) - Pages 123 - 135 Volume 1, Issue 1(2010) , May - June 2010.

**S. Vijayalakshmi**

**Director – Publications and Subscriptions**

Mrs. S. Vijaylakshmi is an educationally unqualified, but a proven writer & journalist under the able encouragement of Lion Prof. Dr. Manivannan Sethuraman. She has been writing articles pertaining to South Indian ethos, culture, religion, dynasties, family relationship, lineage etc., for more than 20 years as a columnist for variety of magazines, local dailies and weeklies. Traveled throughout India, from East to West and North to South by virtue of her husband's transferable IAF job, she has been exposed to multi cultural, multi lingual, multi communal and multi racial aspects of India, which was an instigating factor in imbibing and absorbing the intricacies of human ethos in this part of the world. She has about 20 years of experience in the publication and printing industry.

**M. Jayasudha**

**Director – Research**

M. Jayasudha obtained her graduation in Computer Science and Engg from one of the reputed colleges in India and has got about 15 years of experience in software consulting, general management and research consulting. As an avid reader and an aggressive thinker, she has always been successfully leading technical teams and has got good exposure to research consulting. She is the sitting chairman of TJPRC's Research Board, which comprises eminent professors who are specializing in disparate disciplines. Has worked in reputed software vendors in and around India prior to joining TJPRC.

**Research Board**

The Research Board is a sub council within the TJPRC framework created to strengthen and deepen the knowledge base related to disparate disciplines across Engineering & Technology, Management, Arts, Science, Humanities, Health and Medical Sciences. The Research Board has a

flexible approach to basic research, Planning, Funding, Project execution and Delivery. Chief Technology Officer (CTO) is the chair person of research board who directs all the other members in the below displayed hierarchy. The board's day-to-day operations is being handled by Mrs.M.Jayasudha, who holds directorship in the board of company (www.tjprc.org). The research board comprises eminent advisors who have got specializaton and interests in disparate disciplines and are well known, reputed contributors in their own functional areas. CTO's decision is final with respect to any business proposals, research findings etc.

The Board is soliciting funds from Governmental institutions & Private research firms to nurture research talent and to create research facilities in the Universities, higher technological institutions, colleges and other research centers including industries in the country for promoting basic research, design and development. The board's activities are co-ordinated through specialist panels constituted for various disciplines like Engineering & Technology, Management, Arts, Science, Humanities, Health and Medical Sciences. The Board also participates in Government tenders, proposals etc., to get funding for the execution of research projects.

**Ln. Prof. Dr. Manivannan Sethuraman, B.Tech (Chem)., D.E.M., D.T.Tech., A.M.S.P.I., M.B.A., M.S. (Software Systems), P.M.P (PMI, USA)., F.M.S.P.I., Q.P.M.P. (IPMA, Switzerland), S.C.E.A. (Sun Microsystems, USA), M.I.E., W.C.P.(BEA Systems, USA), C.S.Q.A.(QAI, USA), F.M.I.P.M.A., S.C.J.P.(Oracle Corporation, USA), F.M.I.A.E.M.E., Ph.D.,**

**- Chief Technology Officer (CTO) - Research Board,** Transstellar Journal Publications and Research Consultancy Private Limited (TJPRC)

Ln. Prof. Dr. Manivannan Sethuraman has a successful track record in various leadership capacities in the Engineering operations, Quality & Process Management , Industrial Marketing and Production across Chemical Engineering, Manufacturing and Software Engineering disciplines in the

leading conglomerates that include Flex Industries Limited (http://www.flexindustriesltd.com), 3i Infotech (www.3i-infotech.com/), CSS Corp (www.csscorp.com/), etc., He has hands on experience and expertise in all phases of Software Development Life Cycle like Requirements Analysis, Enterprise Architecture Design, Development, Implementation and Training of distributed systems with excellent system design experience using UML, Rational Rose and System Architect 2001. Has about 16+ years of techno-functional experience and an in-depth understanding of emerging technologies and their commercial applications.

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- Project Management Institute (PMI), USA,
- International Project Management Association (IPMA-Swiss),
- BEA Systems, USA and
- International Register of Certificated Auditors (IRCA), UK
- Tekmetrics, USA
- Young academic achiever and entreprenerial awards from Rotaract, Leo and Lion's clubs, Mayiladuthurai, India.

**M. Jayasudha- Director Research – Research Board,** Transstellar Journal Publications and Research Consultancy Private Limited (TJPRC)

M. Jayasudha obtained her graduation in Computer Science and Engg from one of the reputed colleges in India and has got about 15 years of experience in software consulting, General management and Research consulting. As an avid reader and an aggressive thinker, she has always been successfully leading technical teams and has got good exposure to research consulting. She is the sitting chairman of TJPRC's Research Board, which comprises eminent professors who are specializing in disparate disciplines. Has worked in reputed software vendors in and around India prior to joining TJPRC.

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**Dr. Sujana Dhar, M.E., Ph.D.,(Civil Engg)**
Associate Fellow, Water Resources Policy & Management, The Energy and Resources Institute (TERI),
New Delhi, India

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**Dr. Haitham K.Ali, M.Sc., Ph.D.,** Lecturer, Foundation of Technical Education, Department of Communication Engineering, Sulaimany Technical College, Salaimani, Iraq

**Prof. Dr. K. Baskar, M.E., Ph.D(NUS), MIE., MISTE., MIRC., MISWE.,** Associate Professor, Department of Civil Engineering, National Institute of Technology, Tiruchirappalli - 620015, India

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**Prof.Dr.Mridula Goel, Ph.D.,** Associate Professor of Economics, Head of Department of Economics, BITS, Pilani-K.K.Birla Goa Campus, NH 17B, Zuari Nagar, GOA-403726, India

**Prof. Dr. Mainak Banerjee, M.Sc., Ph.D.,** Assistant Professor, Department of Chemistry, BITS-Pilani- K. K. Birla Goa Campus, Zuarinagar, 403726, Goa, INDIA

**Prof. Dr. Palash Mandal, M.Sc., Ph.D.,** Assistant Professor, Dept. of Biology, BITS, PILANI, Hyderabad campus, Shameerpet Mandal, Hyderabad-500078 , India

**Prof. Dr. R . Nagarajan, M.Sc. (Zoo), M.Sc. (Appl. Psy.), M.Phil., B.Ed., Ph.D. (UK)., Ph.D.(India),** Dept. of Zoology & Wildlife Biology, A.V.C. College, Mannampandal -609305, India

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The publication of a research paper / case study / short communication in a peer-reviewed journal is an important building entity in the development of a knowledge repository. In an age of information abundance, it is very important and vital to help readers and research scholars to segregate quality information. It is mirror reflection of the quality work of the authors and the publishers who support them. Transstellar Journals (TJPRC Journals) understand the importance of publication ethics and we had established standards of ethical behavior for all parties involved such as the authors, the peer review experts, the editors, and the publisher.

Transstellar Journals is committed to ensuring robust peer review and ethical standards in publication and quality of articles. Strict adherence to standards of ethical practices as defined by Code of Conduct of the Committee on Publication Ethics (COPE) is expected from all the parties involved: Editors, Authors, Expert Reviewers and the Publisher. We work to educate researchers, authors, contributors, reviewers, and editors on understanding and delivering those standards, in partnership with others.

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- Confidentiality of contents & source
- Disclosure, conflicts of interest, and other issues
- Fair play

**Role & responsibility of Reviewers:**

- Assistance to Editors
- Confidentiality
- Firm on Objectivity / Eradication of subjectivity
- Promptness

- Acknowledgement of sources
- Disclosure and conflict of interest

**Role & responsibility of Authors:**

- Reporting standards
- Originality of contents and plagiarism
- Avoidance of concurrent publication
- Acknowledgement of sources, persons
- Disclosure and conflicts of interest
- Notification of Fundamental errors in published works

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- Editorial autonomy
- Intellectual property and copyright
- Scientific misconduct

Transstellar Journals (TJPRC) follows strict Code of Conduct and aims to adhere to its Best Practice Guidelines

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**Improper Author Attribution:**

All listed authors are expected to make significant scientific contributions to the research in the artcile and authenticated all its claims. It is important to list everyone who made a significant scientific contribution, including students, lecturers, professors, laboratory assistants & technicians.

**Data Falsification:**

Submitted research materials that are found to have falsified experimental outcomes will incur falsification penalty. The penalty will be decided by the Publication Ethics Committee (PEC)

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Citation Manipulated articles are those articles that are found to include citations whose objective is to increase the number of citations to a given author’s work, or to articles published in a particular journal. These Citation Manipulated manuscripts will incur penalty. The penalty will be decided by the Publication Ethics Committee (PEC)

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**Publishing :**

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# APPLICATION OF INCLUSIVE TEACHING STYLES IN STRADDLE STYLE HIGH JUMP LEARNING

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***ABSTRACT***

***Problems in the learning process can be overcome with the teaching styles used by the teacher, one of which is the inclusive teaching style. The purpose of this study was to determine that inclusive teaching styles can improve student learning outcomes in class XI SMK Budi Oetomo 2 Cilacap. This type of research includes experimental research. The experimental research method used was quasi-experimental. Two groups were randomly selected, then previously given a pre-test for the initial state between the experimental group and the control group and given a post-test to determine the final learning outcomes. Based on the results of the study, it can be seen the value of straddle style XI high jump learning outcomes at SMK Budi Oetomo 2 Cilacap. There is an increase in the average value of the experimental class of pre-test 74.82 and post-test 82.28, with an increase of 7.46. It was increasing the application of inclusive teaching styles in learning in the experimental class. The results of the tests carried out, and it was known that the significance of the post-test mean difference test obtained Sig (2-tailed) 0.002 <α (= 0.05) and t count (3.267)> t table (1.669). So, the decision to test H0 was rejected, meaning that there are differences in the average post-test scores of students in the experimental class and the control class. The difference in the mean value of students' post-test scores explains that treatment in the experimental class and the control class can improve learning outcomes. So the use of inclusive teaching styles increases learning outcomes more significantly.***

***KEYWORDS: Inclusion Teaching Style, Learning Outcomes & High Jump Straddle Style***

Original Article

## INTRODUCTION

The achievement of educational goals in Indonesia, according to the law, must be appropriately implemented in every school. Schools are required to carry out directed learning as an achievement of goals and to improve the quality of their education. The learning process in schools depends on how the competencies possessed by the teacher. The teacher is the initial determinant of the success of the learning process in the classroom. Teachers are at the forefront of the delivery of education in Indonesia. The success of education is in the hands of teachers. Teachers are individuals who deal directly with students in class in learning Alawiyah (2013). The competence of the teacher will influence how the implementation of teaching can run according to the objectives achieved. Therefore, teachers must be aware of and develop what the obligations and abilities that teachers as teachers should have are. The teacher increases all the potential and skills possessed so that they can carry out their primary tasks, namely: educating, teaching, guiding, training, assessing, and evaluating students both at the primary level to the intermediate level (Rahman, 2016).

The learning process in the classroom will run well if the teacher has social competence. When the teacher

cannot communicate, the process of delivering material to students is hampered. It is necessary to have social competences that must be present and improved by the teacher. Ways of communicating verbally, in writing, and with signs are considered Associating effectively with students are also taken into account. So there is effective reciprocal communication also provided by students. This competency will smooth the process of teachers in teaching students in all learning. One of the most important parts of competence to support success in learning is teaching techniques or teaching styles. Lindawati (2017) says the teacher's teaching style is a way or technique of a teacher in conveying the contents of their teaching. The teacher's teaching style is concerned with the delivery, interaction and personality traits of the teacher. The teaching style is the whole behavior that is unique to him and is somewhat sedentary at every teaching time. Every teacher has a different teaching pattern in the learning process, and this is done to achieve learning objectives (Deswita, 2013)

Physical education is one of the most important lessons in the education process. Physical education that is taught in a directed manner has a positive impact on student development. The historical description of the development of physical education in schools is made in four aspects: physical, social, affective, and cognitive (R Bailey et al., 2009). The aspects that exist within students, including physical, social, and emotional aspects, can be implemented in all physical education subjects. One of the subjects taught in physical education in schools is athletics in the straddle style high jump. The high jump is a sport that is taught in high schools. D Stanković (2017) states that straddle high jump is an athletic discipline that is a component of the physical education curriculum for primary and secondary school education. The high jump learning process will occur regularly and well if the teacher can create effective teaching. Provide material that makes students active in carrying out physical education activities in the field. To create this learning, physical education teachers can use the right teaching style.

The results of the evaluation of high jump learning, especially at SMK Budi Oetomo 2 Cilacap, show that conditions in the field have found several problems. From the straddle style high jump scores obtained by students, most of them are still below the KKM score. Overall, there is something that must be addressed in the previous learning process. The learning contained in the Lesson Plan (RPP) has not been maximally achieved. The unachieved learning objectives as outlined in the lesson plan, must be evaluated, both from the teacher, students, learning methods, learning approaches, teaching styles, learning facilities, tools, media, and others. Based on the straddle style high jump learning that has been carried out in class XI at SMK Budi Oetomo 2 Cilacap, most students make experience difficulties in practice. The difficulties faced by students are different, students do not master the high jump technique, students feel afraid to practice high jumping, and some students are indeed unable to do the high jump movement. The problems of students in the field vary, but seeing this physical education teacher still provide equal learning from one student to another. According to Uno (2005), a person's ability to understand and absorb lessons is definitely of different levels. Some are fast, medium, and some are very slow. Therefore, they often have to take different ways to be able to understand the same information or lesson. Therefore teachers must find innovations and look carefully at these problems by implementing what solutions are appropriate.

From these problems, the researcher is interested and provides solutions to apply an inclusive teaching style to solve these problems. In theory, the style of inclusion is characterized by student access to the teaching process and active learning. In the course preparation stage, the teacher is active, and then during the practice and conclusion stages, students are active. According to these individual differences, student participation is adjusted according to the level of

preparedness so that a positive learning environment is created and success is achieved with as many students as possible (Demirhan& Altay, 2001). So the application of an inclusive teaching style can differentiate student learning from the easy, medium, and challenging stages. So students can practice high jump learning gradually.

## RESEARCH METHOD

### Research Design

This type of research used in this research is experimental. In educational research, the research design usually uses a nonequivalent pre-test-post-test control group design (two-group pre-test-post-test). The method used is qualitative and quantitative approaches. Arikunto (2006) states that this mixed method is called mixed methodology design because the approaches between qualitative (see Kusuma & Apriyanto, 2018)and quantitative are mutually supportive, integrated, and one unity to complement each other.

This study was used using the quasi-experimental method in two classes with different treatments. Quasi experimentation is research that cannot give full control (Hartono, 2016). There were two groups selected randomly, then previously given a pre-test to determine the initial state between the experimental group and the control group. From the pre-test, it can be seen that the initial data of the control group and the experimental group. Then the control group was not given treatment, while the experimental group was given treatment to find out the results of the comparison of the two groups. After the treatment has been given, a post-test is carried out to determine the final data results of the two groups. To determine the significance of the effect of the treatment can be tested using statistics using parametric tests or non-parametric tests. If there is a significant difference between the value of the control group and the experimental group, then the treatment given has a significant effect.

### Population and Sample

The population is all calculated and measured values, both quantitative and qualitative, and certain characteristics regarding a group of objects that are complete and clear (Husaini, 2006). The population in this study were all students of class XI SMK Budi Oetomo 2 Cilacap.

A good sample is a sample that illustrates the state of the population or reflects the fullest even though it represents a sample, not a duplicate population. The sample is part of the amount owed by the population (Sugiyono, 2013). The research sample in this study was class XI TKRO A totaling 28 students and XI TKRO B totaling 28 students. The two classes were used as research samples with class XI TKRO A and being treated using an inclusive teaching style while class XI TKRO B was not given treatment but with conventional learning.

### Research Variable

This experimental research uses two variables. The variable in this study was the inclusion teaching style as the independent variable, while student learning outcomes were the dependent variable.

## DATA ANALYSIS TECHNIQUE

### Normality Test

In this study, data analysis was carried out by calculating the gain or difference between the pre-test and post-test scores. The gain score is then analyzed for normality. The normality test is very important to know this is related to the accuracy of the selection of statistical tests. In this study, testing was carried out and assisted by the SPSS version 20 data processing

program to test for normality through the one-sample Kolomogorov Smirnov normality test.

**Homogeneity Test of Variance**

The homogeneity test of data variance, it can be seen that the sampling of the population has the same variance data and or does not have significant difference data. The statistical homogeneity test of the distribution value of the control and experimental groups was carried out. Data interpretation can be seen in the results of statistical tests with SPSS.

**Hypothesis Testing**

The data analysis used to answer the research hypothesis is the t-test or t-test. In testing the t-test, this study uses two hypotheses according to Sugiyono(2009), namely (H0) the null hypothesis and the alternative (Ha) hypothesis. The explanation is that H0 means there is no significant difference, while H1 means there is a significant difference. H0 is accepted, or H1 is rejected if the significance level is> 0.05, and H0 is rejected, or H1 is accepted if the significance level is <0.05. The prerequisite test analysis used statistical analysis software, SPSS 21.

## FINDINGS AND DISCUSSIONS

**Research Result**

The research sample was taken from two classes from the population of class XI at SMK Budi Oetomo 2 Cilacap. Class XI TKRO A consisted of 28 students as the experimental group, while class XI TKRO B was used as the control class. The experimental class was given treatment with an inclusive teaching style, and the control class was not given treatment or with conventional learning. The treatment aims to determine the application of the inclusive teaching style to improve learning outcomes of the straddle-style high jump.

The study was conducted during four meetings, both the experimental group and the control group. The experimental class was given treatment by applying an inclusive teaching style. The application of the inclusive teaching style divides students into three groups, the easy stage, the medium stage, and the difficult stage. The division of the group was based on the students' ability to perform the straddle style high jump technique.

This experimental research procedure before being given the treatment of the experimental class and the control class was given a pre-test to determine the results of students 'high jump learning as students' initial ability. After being given the treatment, the post-test was carried out to determine the final student learning outcomes. From the scores obtained by the experimental class and control class students, it can be seen how the comparison of the scores of the two classes. From the comparison of the scores of the two classes, it can be concluded that the inclusion teaching style can improve the learning outcomes of the straddle-style high jump.

The following can be presented with a table of recapitulation of learning outcomes high jump straddle style pre-test and post-test values in the experimental and control classes.

Recapitulation Table of Pretest and Posttest Value of High Jump Learning Outcomes Experimental and Control Classes

**Table 1**

| Absent Number | Experiment Class | | Absent Number | Control Class | |
|---|---|---|---|---|---|
| | Pre-Test | Post-Test | | Pre-Test | Post-Test |
| 1 | 74 | 82 | 1 | 70 | 75 |
| 2 | 80 | 87 | 2 | 72 | 78 |
| 3 | 80 | 90 | 3 | 68 | 72 |
| 4 | 74 | 87 | 4 | 78 | 80 |
| 5 | 74 | 82 | 5 | 75 | 75 |
| 6 | 72 | 77 | 6 | 80 | 82 |
| 7 | 74 | 85 | 7 | 72 | 75 |
| 8 | 74 | 82 | 8 | 78 | 80 |
| 9 | 68 | 75 | 9 | 68 | 75 |
| 10 | 80 | 82 | 10 | 74 | 74 |
| 11 | 75 | 87 | 11 | 80 | 80 |
| 12 | 85 | 90 | 12 | 77 | 80 |
| 13 | 68 | 75 | 13 | 87 | 90 |
| 14 | 68 | 72 | 14 | 70 | 75 |
| 15 | 74 | 80 | 15 | 78 | 80 |
| 16 | 80 | 85 | 16 | 72 | 74 |
| 17 | 87 | 90 | 17 | 84 | 87 |
| 18 | 70 | 77 | 18 | 74 | 75 |
| 19 | 70 | 75 | 19 | 64 | 72 |
| 20 | 78 | 87 | 20 | 68 | 75 |
| 21 | 84 | 90 | 21 | 78 | 80 |
| 22 | 75 | 84 | 22 | 80 | 82 |
| 23 | 70 | 78 | 23 | 68 | 75 |
| 24 | 74 | 82 | 24 | 70 | 77 |
| 25 | 74 | 80 | 25 | 68 | 80 |
| 26 | 75 | 85 | 26 | 70 | 80 |
| 27 | 68 | 78 | 27 | 72 | 74 |
| 28 | 70 | 80 | 28 | 80 | 80 |
| Mean | 74,82 | 82,28 | Mean | 74,10 | 77,92 |

Based on the above recapitulation, it can be seen that the learning outcomes of the straddle style high jump students of the experimental class and the control class. The results of the pre-test experimental class the average value of high jump learning outcomes is 74, 82. The results of the pre-test of the control class average value of high jump learning outcomes are 74.10. The post-test results of the experimental class mean the high jump learning outcome value is 82.28. The post-test result of the control class, the average high jump learning outcome value is 77.92. Based on the average value of the high jump learning outcomes between the experimental class and the control class, there is a significant increase in the value of the experimental class. The average value of the experimental class's high jump learning outcomes increased by 7.46. In contrast, the average value of the high jump learning outcomes of the control class increased by 3.82. So the increase in the average value of the experimental class high jump learning outcomes is higher than the control class.

## DATA ANALYSIS

### Data Normality Test

### One-Sample Kolmogorov-Smirnov Test

**Table 2**

| | | Experimental Class | Control Class |
|---|---|---|---|
| N | | 28 | 28 |
| Normal Parameters[a] | Mean | 82.28 | 77.92 |
| | Std. Deviation | 7.366 | 6.112 |
| Most Extreme Differences | Absolute | .103 | .245 |
| | Positive | .093 | .245 |
| | Negative | -.103 | -.176 |
| Kolmogorov-Smirnov Z | | .543 | 1.298 |
| Asymp. Sig.(2-tailed) | | .934 | .067 |

**a. Test Distribution is Normal**

Based on the table, the number of data (N) in the experimental class was 28 students, and the control class 28 students. The mean (mean) of the experimental class was 85.71, and the control class was 79.93. The pre-test and post-test data obtained a sig value> 0.05 for both the experimental class and the control class. So it can be seen that the pre-test and post-test data of the two groups are normal.

**Homogeneity Test of Variance**

**Table 3**

| Levene Statistic | df1 | df2 | Sig. |
|---|---|---|---|
| 186 | 1 | 54 | .648 |

Based on the test table using SPSS 21, it can be seen that the significance value is 0.648 because the significance value is more than 0.05, namely, 0.648> 0.05, so that the data can be said to be homogeneous.

**Hypothesis Testing**

After the normality and homogeneity tests were carried out, the hypothesis test was used to determine the effect of the inclusion teaching style on the straddle style high jump learning outcomes of class XI SMK Budi Oetomo 2 Cilacap. The data analysis used to answer the research hypothesis is the t-test or t-test. In this t-test, there are two hypotheses, namely (H0) the null hypothesis and the alternative (Ha) hypothesis with

- H0 = no significant difference,
- H1 = there is a significant difference,
- H0 is accepted, or H1 is rejected if the significance level is> 0.05, and
- H0 is rejected, or H1 is accepted if the significance level is <0.05. Source: (Sugiyono, 2009). Prerequisite test analysis using SPSS 21 statistical analysis software.

**Independent Samples Test**

**Table 4**

| | | Levene's Test for Equalityof Variances | | t-Test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-Tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | | Lower | Upper |
| Learning Outcomes | Equal variances assumed | 1.422 | .238 | 3.267 | 54 | .002 | 5.786 | 1.771 | 2.235 | 9.337 |
| | Equal variances not assumed | | | 3.267 | 53.035 | .002 | 5.786 | 1.771 | 2.233 | 9.338 |

Based on the independent sample test table, it can be seen that the significance of the post-test mean difference test is obtained Sig (2-tailed) 0.002 <α (= 0.05) and t count (3.267)> t table (1.669). So, the H0 test decision is rejected, meaning there is a difference in the average post-test scores of students in the experimental class and the control class. The difference in the average post-test scores of students explained that the treatment in the experimental class and the control class could improve learning outcomes. Treatment in the experimental class using an inclusion teaching style had a more significant increase in high jump learning outcomes than the control class.

## DISCUSSIONS

The purpose of this study was to determine that inclusive teaching styles can improve student learning outcomes in class XI SMK Budi Oetomo 2 Cilacap. This type of research includes experimental research. The experimental research method used is the quasi-experimental method. Edi Junaedi (2013) states that the quasi-experimental method is a research method and, in its implementation, does not use random assignments but uses existing groups. The use of this quasi-experimental method is based on the consideration that in the implementation of this research, learning takes place naturally, and students do not feel experimented on so that with such a situation, it is hoped that it can contribute to the validity level of the research.

In the early stages, the researcher made observations in the field to retrieve initial data as a guide for researchers to conduct research. Researchers conducted interviews with physical education teachers and made observations at SMK Budi Oetomo 2 Cilacap about how the physical education learning process in schools. Teachers in delivering student material still use conventional learning. There are no teaching innovations made by physical education teachers. The problem of students in the field is what kind of teacher does not pay attention carefully. The teacher should find and provide the right solution to overcome the problems faced by students in learning. Puput (2016) said that by providing good and appropriate material, adjusted to the conditions and characteristics of students who are active, creative, effective, and fun, physical education learning would run well, and learning objectives can be achieved. Results of a study of student enjoyment in physical education conducted with a teaching style of command, reciprocity, and inclusion (Cai, 1998).

The results of preliminary observations made by the researcher found several student problems in participating in physical education learning, especially the straddle-style high jump. Students following the straddle style high jump learning experience have some difficulties. The difficulties that students experience with one another are indeed different. Some students are afraid to make a move. Some students do not master the high jump technique. Some students are not even able to do the high jump. From these problems, the high jump learning outcomes of class XI students are below the

*KKM*. The data on the results of learning the high jump of two classes, totaling 28 students, were sampled, showing 17 students were still below the *KKM* score. Researchers assess that the application of an inclusive teaching style is very suitable for this problem. The essence of the inclusive teaching style is that students' abilities can be assessed from the teacher's perspective according to the learning aspects that students have. This allows teachers to answer the various needs of students, where each class being taught has different abilities among students (Jenkins, 2002)

From these problems, the researchers applied an inclusive teaching style to improve the learning outcomes of the straddle-style high jump. The study was conducted during four meetings, both the experimental group and the control group. The experimental class was given treatment by applying an inclusive teaching style. The application of the inclusive teaching style divides students into three groups, the easy stage, the medium stage, and the difficult stage. The division of the group was based on the students' ability to perform the straddle style high jump technique. HZ Zeng, et al. (2009) teachers design and provide various levels of difficulty for students to choose from. Female students can get a level of assignment that suits their conditions, resulting in better motivation and learning outcomes. This style emphasizes the implementation of the subject matter (movements) as a whole, which is presented based on the level of difficulty. In learning a movement skill, students are given the freedom to choose and determine at what level of difficulty to start the lesson, and how many times they have to repeat the movements in each meeting (Mosston, 1981). By providing inclusion, student involvement, and student activity in making movements in learning will be more frequent. The treatment shows that the style of command, practice, and inclusion can influence the level of student involvement in physical activity lessons (B Sanchez, 2011).

Based on the recapitulation of data that has been collected, it can be seen the value of the straddle style high jump learning outcomes of the experimental class and control class students. The pre-test results of the experimental class, the average high jump learning outcomes were 74, 82. The control class pre-test results in the high jump learning outcomes average 74.10. The post-test results of the experimental class mean the high jump learning outcome value is 82.28. The post-test result of the control class, the average high jump learning outcome value is 77.92. Based on the average value of the high jump learning outcomes between the experimental class and the control class, there is a significant increase in the value of the experimental class. The average value of the experimental class's high jump learning outcomes increased by 7.46. In contrast, the average value of the high jump learning outcomes of the control class increased by 3.82. So the increase in the average value of the experimental class high jump learning outcomes is higher than the control class. After that, the data analysis is done using the t-test to answer the research hypothesis. It can be seen that the significance of the post-test mean difference test obtained Sig (2-tailed) 0.002 <α (= 0.05) and t count (3.267)> t table (1.669), so the H0 test decision is rejected, meaning that there is a difference in the average value. Post-test students in the experimental class and control class. The difference in the average post-test scores of students explained that the treatment in the experimental class and the control class could improve learning outcomes. Treatment in the experimental class using an inclusion teaching style had a more significant increase in high jump learning outcomes than the control class.

## CONCLUSIONS

Based on the results of the study, it can be seen the value of straddle style XI high jump learning outcomes at SMK Budi Oetomo 2 Cilacap. There is an increase in the average value of the experimental class of pre-test 74.82 and post-test 82.28, with an increase of 7.46. This increase was due to the application of an inclusive teaching style in learning in the experimental class. The results of the t-test that are carried out can be seen that the significance of the post-test mean

difference test is obtained Sig (2-tailed) 0.002 <α (= 0.05) and t count (3.267)> t table (1.669). So that the H0 test decision is rejected, meaning there is a difference in the average post-test scores of students in the experimental class and the control class. The difference in the average post-test scores of students explained that the treatment in the experimental class and the control class could improve learning outcomes. So the use of inclusive teaching styles increases learning outcomes more significantly.

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