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# International Editorial Board

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## Contents

# Educational Inclusion and its Influence on School Performance

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## A B S T R A C T

*Inclusive education is understood as being with each other, how to face adversity, how to face differences. A set of principles that ensure that the student with a disability is seen as a valuable and necessary member in all aspects of the school community. A movement towards expanding the possibilities of "ordinary" schools so that they can include a greater diversity of students. Schools that offer a curriculum to students through organizational planning different from those of schools that exclude some students from their regular classes. Not even briefly, it is convenient to refer to the reasons that support the movement towards an inclusive school. They are certainly several and of a different nature; on the one hand, from a psycho-pedagogical point of view, there is a conception of development of social origin; the decisive importance of interaction for learning is recognized; The responsibility of adults in determining the nature of the experiences offered to students (relationship with materials and classmates) is decisive, which is why a decisive role is attributed to the school as a development context.*

***Keywords:*** *familiar;family education; measurement; performance; professional development;*

## 1. INTRODUCTION

Educational inclusion is the process of identifying and responding to student diversity through greater participation in learning, allowing them to develop their skills and abilities by being participatory in the development of daily activities. This process involves changes, modifications and adaptations in the contents, structure and methodological strategies being very flexible and motivating, making the student get involved in the activities and thus feel that motivation to learn.

Educational inclusion has a vision that includes all children in an appropriate age range and with the conviction that the student receives a quality and comprehensive education and that their rights and principles are respected. As a process, inclusive education is achieved with a strong decision of the top management of an educational institution and a strong conviction of what the work team wants to do that will favor the educational process. Bending over to the implementation of inclusive education is everyone's task, and includes the development of patterns, schemes, methodologies, tools, and techniques that will be used in the educational process until the support given to the teacher by the teacher, their peers or support staff (Delgado-Gaitan, 1994; Weaver, 2003).

It is necessary for students to have access to an inclusive motivational education that is comprehensive and of quality based on the standards of educational quality by activating the routes and protocols to follow, involving both teachers and students that they are participants and main actors of this education Inclusive and responsible. As well; You can train students with great human qualities, full of significant values, good study habits and being very responsible in the tasks entrusted, being a more participatory, creative and innovative example of improvement for other people. On the other hand (Hall, 1997). The concept of inclusion has acquired a special emphasis in recent years in the Latin American educational context and particularly in Chile, becoming visible in areas such as public policies and government actions.

This representation of the concept of inclusion regulates not only educational practices (teaching, methodology, curriculum, among others) but also the ideas about situations of exclusion, diversity and in a significant way, about the construction of identities. This last aspect refers to the construction of pedagogy subjects/students from inclusion discourses that circulate and reproduce in the educational field. In this sense, the meaning of inclusion has implications for students who prepare. For the educational inclusion, it is necessary that the authorities must emphasize, direct and control the activities so that they are carried out, here it must involve the entire educational community to be a participant of the tasks that are in benefit of the educational inclusion.

In his research (Verdugo & Calvo, 2012), he refers to inclusive education that is based on a system of determined values that are accepted to be able to start the teaching and learning process. Educational inclusion is manifested because it is a way to express the ability of teachers to use methods and techniques, without leaving aside that affective part where the teacher demonstrates teaching in a way and that the student feels relaxed in environment. The author (Corral et al., 2015), states that the student must be aware of the activities carried out in order to better capture the knowledge; but it is necessary to warn that the mere physical presence of the student does not represent that the institution becomes an inclusive space, this is just the beginning of the process of inclusive education ”

The student must collaborate with all the activities that are carried out there must be a link between student and teacher, in order for the learning development process to exist, the teacher must be aware of or guided by the activities that the students are doing and thus be able to draw criteria and analyze the results obtained or the significant learning that the learners have achieved so much he Pedagogical as in the personal. Throughout the studies on the academic performance of schoolchildren, progress has been made towards the acceptance of a factor interaction model (Tejedor, 1994-2003) in this model, it is proposed that in school performance they interact, simultaneously, several factors that can describe the

nature of the variables associated to school success or failure.

Among these variables, there are some whose influence is more than demonstrated and accepted by most authors, such as intelligence (as an individual factor), the personality of the subject, environmental, family, social influence.Academic performance is manifested in the results during the teaching-learning process by which students demonstrate what progress, what achievements or weaknesses they had to assimilate knowledge. The performance according to Pizarro & Bloom (2003), is understood as: “a measure of the corresponding or indicative capacities that manifest, in an estimated way, what a person has learned as a result of an instruction or training process”, this perspective focuses attention and expectations in the student's performance and places him as solely responsible for school success or failure. The Organic Law of Intercultural Education (LOEI) of Ecuador states that: educational establishments are obliged to receive all persons with disabilities, to create the physical, curricular and promotional supports and adaptations appropriate to their needs; and, to ensure the training of teaching staff in the areas of methodology and specific evaluation, for teaching with capacities for the process with inter-learning, for quality care and warmth.

## 2 Materials and Methods

For the investigative performance of the work educational inclusion and its influence on school performance, the inductive-deductive method was used, which allowed to carry out research that had a non-experimental qualitative approach without the use of quantitative variables. A bibliographic review was carried out that included the study of articles, books, manuals, institutional documents, among others, being able to analyze the information related to educational inclusion and its influence on school performance, which served for the development of research.

## 3 Results and Discussions

Educational inclusion allows all students to have access to a quality and comprehensive education (Ainscow, 2004), assumes that school inclusion is a process that is built from presence, being in school, overcoming the isolation of the private environment and inserting the individual into a public space of socialization and learning; participation, according to the offer of the necessary conditions for the student. Should be to involve students interested in this inclusive education

If a student has difficulty learning it because has a deficit or limitation that interferes with the learning process. In these cases it is an "importation" of the so-called clinical or medical model; any learning

difficulty is seen as a symptom of a deficit that must be diagnosed and treated. Educational inclusion is a right that allows the student to develop their abilities, where a system is constructed that is structured to meet the needs of each, regardless of their condition or academic performance, seeking that the school, teachers, and teaching adapt the student with needs, placing the responsibility on the professionals who work in the school and who are they who must prepare to meet the needs of all their students.

This inclusion must prioritize and meet the needs of the student being an interactive and dynamic process.Inclusive education allows students to develop their abilities to the fullest (UNESCO, 2006). Inclusion is related to the access, participation, and achievements of all students, with special emphasis on those who are at risk of being excluded or marginalized for different reasons, conceived in this way; it becomes the responsibility of the State and of the ministry of education or related dependency, and not of any subdivision assigned exclusively to special education.

This should be a challenge for the rulers. Inclusion would help improve the quality of life of students. Inclusion is to intrude the student motivating him to value himself as a human being. Inclusion refers to participation and community values and focuses on all students without distinction of race, disability, socioeconomic status, gender, religion, family, personal circumstances, etc. Ainscow & Booth (2002), referred to different approaches to identify and resolve difficulties that arise in school. Inclusion would be to have all students without any discrimination welcoming them in a pleasant and comforting environment.

Teachers must be trained to responsibly assume the challenge of being inclusive. Inclusion is a process, it is learning to live with differences and learning how to learn from differences. The differences are seen positively to strengthen learning, even between children and adults. Inclusion is related to the identification and elimination of barriers to learning, so it implies collecting, collating and evaluating the information of the great variety of resources to plan improvements in policies and practices (Echeitia & Ainscow, 2011), has stated that barriers that stop being more inclusive must be removed by having a comprehensive education.

### 3.1 Special educational

Needs Educational needs must be prioritized and addressed urgently (Marín, 2004), states that special training needs It is when a disciple presents greater difficulties than other students to access the learning, which finish the curriculum that It corresponds to their age and needs, to compensate for difficulties, significant curricular adaptations, so students with educational needs must be included in the curriculum

to achieve the learning process. In Ecuador, all students are full members that the classes must be appropriate for their age at their local school, participating in the same lessons as the rest of their classmates; also, share with your friends that they spend time outside of class (Nehru, 2016).

Within the educational needs, a curriculum according to the educational need of the student must be adapted. The author (Aincow & Both, 2015), stated that the construction of a curriculum for all tried to answer the question related to inclusive values and teaching and learning activities, being able to be a flexible curriculum adapting according to the need and capabilities of each student. It must be recognized that each special need requires different learning.Each student learns in a different way, given a stimulus or how the learning takes place or the environment where it is carried out and from there it depends on the creative imagination or methodology that the teacher uses to make that learning be assimilated in the best way by On the part of the students.

According to Lozano & Martínez (2014), they commented that the relationship between educational policy and the school should be strengthened, that is, the legislation for educational inclusion must be adjusted to the needs of educational contexts in order to transcend situations that are presented in the classroom, where each educational need is a different reality that must be addressed in a timely manner. The methodological strategies of Special educational needs must be in constant transformation. Dueñas (2010), states how he can infer then that the concept of inclusive education has gone through a process of change throughout history, due to the different conceptions that have been taken about attention to diversity. This process of change is continuous and not finished. These processes of changes in educational needs must be prioritized and addressed.

Educational needs must be socialized and understood (Ainscow, 1995), they kept in mind that through school integration, the culture of diversity constitutes a magnificent opportunity to improve the educational quality of each and every student, to give rise to a new organizational base ”If we reach a good school integration, students will improve their academic performance. School integration should involve the entire educational community. Vera (2017), “to obtain changes in education aimed at students with educational needs, there must be a cognitive transformation in the educational units and teachers, work for the love of children hoping that students do not feel excluded but included ”. The changes must be effective and relevant, transforming inclusive education for the benefit of students with special educational needs.

### 3.2Curricular

The inclusion of educational influences and academic performance The Ministry of Education should empower and provide the necessary resources for teachers to be inclusive. Educational institutions should give full and willing to ease the teaching staff can provide an organized way of inclusive education classes. Academic performance ismultifactorial and is the result of the interaction of personal, social and cultural variables, which means that it cannot be assumed from the traditional perspective that puts responsibility solely on the student with their attitudes, interest, responsibility, the fulfillment of their tasks, their good behavior in the classroom.

*Conflict of interest statement*

The authors declared that they have no competing interests.

*Statement of authorship*

The authors have a responsibility for the conception and design of the study. The authors have approved the final article.

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Adjustments In an inclusive educational process it is necessary to make curricular adaptations, being this the backbone of the educational activities of an institution, it is the axis of all the activities in the Teaching-Learning Process (PEA), so it is necessary to start the revision of the same so that it can be flexible in order to meet the necessary and sufficient objectives, as well as impart content, with criteria and methods previously established Pedagogical. Improvisation is not the most appropriate in an inclusive process for all, so it is necessary to have prior planning, where all students and especially students with disabilities, should receive guidance on the subjects or itineraries they can opt for, avoiding prejudices and reviewing for each case the competences, abilities or skills, as well as objectives established for each subject and the difficulties that may arise depending on the type of disability.The integration of a student with disabilities will be better the greater their participation in curricular activities. Making curricular adaptations means starting from a flexible, broad and balanced curriculum (Mustika & Harini, 2017). Each adjustment, adaptation or curricular adaptation is based on a thorough evaluation of the needs and abilities of students with disabilities that are incorporated into the regular educational process.Figure 1. shows the educational inclusion and its influence on school performance.

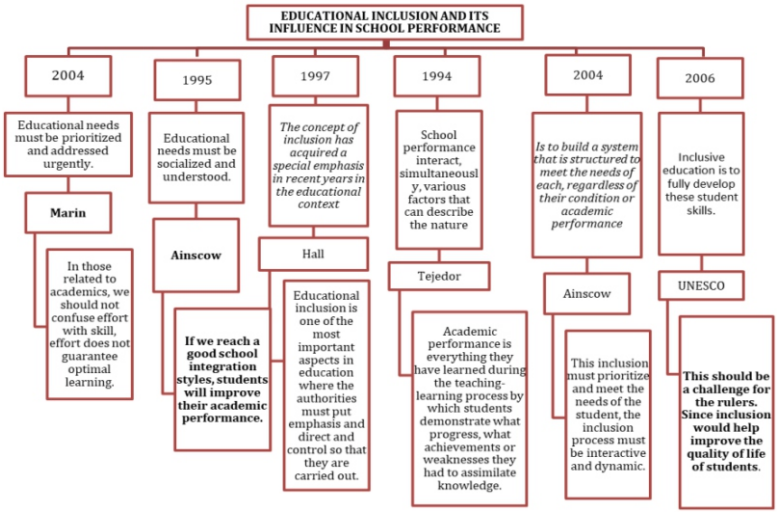


Figure 1. Educational inclusion and its influence on performance

When carrying out this work and being inductive-deductive, non-experimental information was reviewed information from different Times related to the subject. In figure 1, a timeline was used that helped us compare and contrast related information. The family is a determining factor in the training of students, so parents must strengthen their emotional ties by providing security for their children, promoting responsibility, supporting them in their school tasks, motivating them and showing interest in the educational process.

## 4 Conclusion

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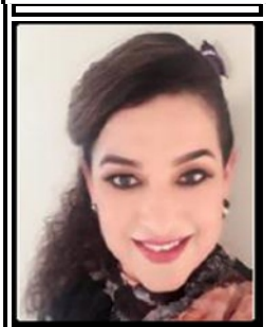

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# Assessing Depth of Optimization Digital Samsat Program (E-Samsat) in Bali Province

**Komang Widya Nayaka a,Gede Sri Darma b**

## A B S T R A C T

*This research describes the optimization of the Samsat digital program which has been tested in seven provinces in Indonesia, one of which is in the Province of Bali, Badung Regency. Digital Samsat hereinafter referred to as e-Samsat (Samsat electronics). The launch of the Samsat digital program is aimed at increasing the ease of paying motor vehicle tax for taxpayers. The implementation of the Samsat digital program is a form of information technology innovation in government programs in the industrial revolution 4.0 era. The application of this program is also to realize e-government and good governance. The purpose of this study was to determine the implementation of digital Samsat in the community and to determine the factors that influence the Samsat digital program. This research is a qualitative study conducted at the office of UPT Bapenda in Badung Regency (Samsat Office, Mengwi). The sampling technique for selecting informants in this study used a purposive sampling method. The instrument used in this study was using structured interviews, direct observation at the research location, and using supporting documents in the form of books and previous research about the same field study with this research. To test the validity of the data in this research used one of the methods, it was a triangulation of research data through checking on various sources to get saturated research data. The result showed that the implementation of the Samsat digital program in the community of Badung Regency the majority of users were satisfied and felt helped by the presence of the Samsat digital program that was launched. In its application in the field, there are many system components that must be updated to make it easier for taxpayers to use digital Samsat one of which is so that the entire process of digital equations becomes a fully online system.*

***Keywords:*** *digital technology;samsat digital;Vehicle Tax;Badung regency;good governance;*

## 1. INTRODUCTION

The era of industrial revolution 4.0 is an era in which all lines of life experience rapid development towards automation and digitalization which are marked by the importance of technological development. In this era the speed of information exchange is very easy, the existence of the internet (internet of things) is almost found in all lines of life. In addition, due to these developments also have an impact on increasingly complex human needs. One of the impacts of increasing human needs in this era is the increasing need for transportation. From year to year, the number of vehicles is always increasing as human mobility is advancing. On one hand, this has led to congestion, but on the other hand taxes on motor vehicles have also increased.

The increasing number of vehicles that are in line with the payment of high tax exams has not been able to align with the quality of service in the payment to date. The long waiting time (queuing) problem is a

complicated problem for tax service officers. Samsat office as a manifestation of the Regional Revenue Agency which is the main guard for vehicle owners to fulfill their obligations. Various demands for improving service quality have been complained by the public at the Samsat office. Vehicle owners are required to pay taxes on time, but on the other hand, problems related to the length of the queue and the complicated payment procedures make people reluctant to go to the Samsat office.In the midst of the current technological development, the community also expects the government, especially the Samsat motor vehicle payment service (Samsat), to adopt technological advancements to facilitate tax payment transactions. To that end, the government launched a digital-based Samsat payment program called Digital Samsat (e-Samsat). The presence of e-Samsat is expected to be a solution in optimizing tax revenue on motor vehicles and overcoming all obstacles and complaints in conventional tax payments.

E-Samsat Innovation shortens the work process of the administration team in the Samsat Joint Office. People only need to use the internet to register on the online Samsat page, then payment can be made at an ATM machine by entering the billing code or the privacy account code obtained. Digital or online samsat services can be accessed for 7 days 24 hours unless there is an error system or damage to the online system network. Pros and cons of applying samsat online occur in many fields, one of them is in Badung Regency. The obstacle faced by the public is regarding the payment process through e-Samsat, the existence of special codes included in the payment process confuses some people. Lack of socialization and unavailability of brochure instructions for digital payments at ATMs makes people not clearly understand how to pay for digital samsat, especially to people who lack knowledge of information and communication.The e-Samsat program aims to realize good governance. The implementation of good governance is an effort made by providing good services to the community or commonly referred to as reforms to public services. Public service is a series of government activities or public bureaucracy in carrying out its obligations to meet the needs of the community (Dwiyanto, 2008). However, due to lack of socialization and education to the community can be an obstacle in the field.So far the detailed evaluation and research related to the quality of Samsat digital services, especially in the Badung Region have not been effective. Therefore, the authors strive to conduct research related to the depth of optimization of the Samsat digital program. The purpose of this study was to determine the implementation of the Samsat digital program (e-Samsat) in realizing good governance in the community of Badung Regency.

## Literature review

### Legal Basis for Taxes and Local Taxes

Law of the Republic of Indonesia Number 28 the Year 2007 regarding General Provisions and Tax Procedures Article 1 Paragraph 1 describes taxes as a mandatory contribution form that must be fulfilled by a citizen because this is forced because the results are used fully for the prosperity of the people. There are two tax components, namely the central tax and the regional tax in accordance with their collection authority. One example of a regional tax that can increase regional income is the Motor Vehicle Tax (PKB). Law No. 28/2009 defines the PKB tax on motor vehicle ownership. PKB is expected to be able to support the increase in Regional Original Revenue (PAD).

Ott et al. (2001) in Nasucha (2004), the reformation of the double carry out two main tasks namely: achieving high tax revenue effectiveness I which is also supported by efficiency which is also going well. The government as a regulator is expected to be able to create a high pattern of compliance for the people in fulfilling their obligations. This is the meaning of the word "effective". Meanwhile, efficiency implies that in the activities of tax payment the government is able to minimize administrative costs to a minimum. Extension reform means a series of policy and regulatory formulation activities to realize continuous tax revenue (tax revenue continuity). This tax collection is a set of provincial government authorities and forms part of the provincial tax.

**Theory of Diffusion of Innovations**

Everett M. Rogers quoted in Elvinaro & Lukiati (2004), defines that diffusion theory is the process of delivering innovation through certain media. The diffusion of innovation explains how the magnitude of the role of a communicator who has mass information access can affect other individuals. There are several aspects that influence the decision making of innovation diffusion theory, namely:The initial condition is the condition of a social system before adopting an innovation (Firdaus & Wasilah, 2012). The initial conditions include the initial situation, needs and problems, innovation, and social systems.According to Rogers (2010), explains that there are five aspects that influence the decision making of innovation diffusion theory, namely:Knowledge. In this aspect, individuals do not yet have information about new innovations. The characteristics that influence this aspect are socioeconomic characteristics, individual variables (consisting of intelligence and attitudes towards change), characteristics of communication behavior (influenced by factors of participation and factors of contact with agents of change).

Persuasion is that individuals become interested in innovation and begin to actively participate in exploring the innovation. According to Rogers (2010), the characteristics of innovation that affect aspects of persuasion are relative advantages, compatibility, complexity, experiments, and finally, observational characteristics (the level of innovation results seen by others).

Decisions are on the aspect of individuals taking the concept of innovation, weighing the advantages and disadvantages of using innovation, and making an innovation-related decision. Decisions taken are adoption (innovation as a whole is put into action), rejection (the decision not to adopt innovation).Implementation is in this aspect began to give a role to the individual in the innovation that was formed in accordance with the capacity and capabilities that are adapted to the current situation. The role of individuals is vital in the context of seeking and obtaining information in determining the usefulness of these innovations. Confirmation is the process after a decision is taken where an individual will seek justification for the decision taken.According to Alexander (2010), there are several perspectives that cause the failure of innovation, namely strategy perspective (the occurrence of a failure in adopting innovation is something that cannot be denied, but if failure can be managed well it will be able to give a good impact as well. Technology perspective (innovation failure in innovation perspective in the perspective of technology can be caused by human problems, technical problems, or a combination of humans and the equipment used (technical).

**E-Government and Electronic Samsat (Digital Samsat)**

Indrajit & Djokopranoto (2006), describes e-government as a form of utilizing technology (internet) in supporting government activities (bureaucracy) in providing quality public service quality. Lee (2009) states that the purpose of e-government is the effective delivery of public services to the public. E-Samsat (electronic-samsat) or digital form of technology-based PKB payment services is a tangible manifestation of the government's commitment to realize technology-based governance.E-Samsat is a technology-based PKB payment system that can be done through a variety of registered banking services and in cooperation with the government ranging from ATMs, mobile or internet banking (Melaning & Giantari, 2019; Yoga et al., 2019). To be able to use e-Samsat services, the vehicle owner's identification number (KTP) registered on the Samsat server must be the same as that listed on the bank account. Approximately 7 (seven) regions have adopted e-Samsat, starting from areas on the island of Java, namely: Jakarta, Banten, West Java, Central Java, Yogyakarta, East Java, and also the Province of Bali.

Samsat online provides quality data and information that is more valid and up-to-date so that the achievement of the realization of tax revenue of all Regional Tax Services UPT (PPD) can be known in real-time. For taxpayers, the online Samsat service provides ease of PKB payment, because taxpayers can pay at any time anywhere so that they are free from long queue problems and avoid late payments.

## Good governance

Good governance is defined as the overall management order of all sectors, both government and private, properly and correctly. Ulum & Sofyani (2016), explain that good governance covers all aspects of both legal and legal aspects, social and political economy. Good governance is closely related to the procedures or procedures and mechanisms for the implementation of all elements of power both executive, legislative and judiciary. The characteristics of good governance according to UNDP (Arifin Tahir, 2014), are as follows namely participation, rule of law, openness, responsiveness, consensus-oriented, equality, effectiveness and efficiency, accountability and finally, is a strategic vision.

## Framework

The framework of this research can be illustrated in Figure 1. The industrial revolution 4.0 had a major impact on every aspect of individual life, one of which was the President of the Republic of Indonesia launched a new breakthrough making Indonesia 4.0. This is a form of government commitment in preparing to face challenges in the industrial revolution era 4.0. Regulation of the Minister of Administrative Reform and Bureaucratic Reform of the Republic of Indonesia (PermenPAN & RB) No. 30 of 2014 concerning the acceleration of improving the quality of public services, considers it very important for the government to create a series of public service innovations. This was then followed up with various policies and programs of public service innovation based on information technology (online system), one of which was an online vehicle tax payment program called E-Samsat. The online based tax payment program in Badung Regency is regulated in the Local Regulation of Badung Number 2 of 2016 concerning the Local Tax Online System. E Samsat is part of an online-based PKB payment system. For this reason, researchers are interested in conducting a research study with the title: Assessing the Depth of Optimization of the Digital Samsat Program. This research was conducted at the Integrated Services Unit (UPT) of the Samsat Mengwi Office, Badung Regency. The research is intended to examine the implementation of Digital Samsat (E-Samsat) public service innovation in realizing good governance that contains principles of governance that are efficient, effective, transparent, openly competitive, fair, and accountable.

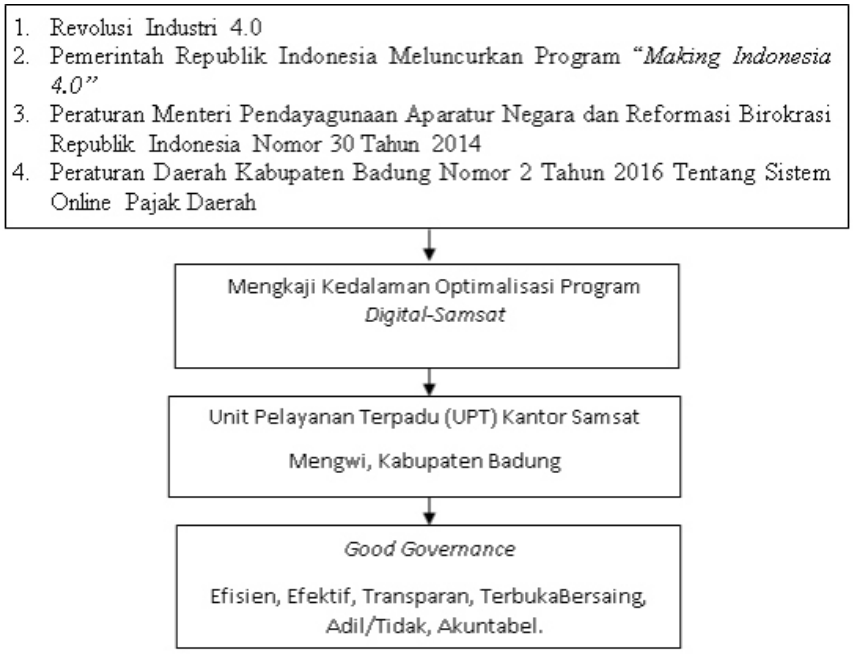


Figure 1. Research Framework

## 2 Materials and Methods

Badung Regency, especially in the UPT Bapenda office in Badung Regency (Samsat Mengwi Office), was chosen as the location of this research. The type of research data is a type of qualitative data. Qualitative data is descriptive data or narratives in the form of information needed in research, qualitative data is obtained through various types of data collection such as interviews, observations, and documentation. Data sources are secondary and primary.Data on the number of bureaucratic officers assigned to the UPT of the Samsat Mengwi Office, Badung Regency and the people who make vehicle tax payments (Samsat) at the Mengwi Samsat Office, Badung Regency is the primary data on this research. Meanwhile, secondary data sources in this research are about research objects and are used by researchers in the analysis of documents, Presidential Instruction, Presidential Regulations, Legislation and books deemed relevant to this research.

The population and sample in the study used a purposive sampling technique, where the researcher will select an informant or sample based on the specific criteria that the author sets. The criteria set forth are as follows: firstly having the authority to provide information in implementing the e-Samsat program, having at least one (1) year work experience, having experience of having used an online tax payment system (E-Samsat), people who use the ESamsat program Samsat in paying vehicle taxes.Data collection techniques that use the method of observation, and documentation on the research object. In this study validity checking techniques are used through triangulation of data through sources starting from time, interviews, observations, and documentation. Finally is to use reference materials that

support or support the data that has been found. The data analysis technique used in this study is data reduction, through data presentation, through data verification. The purpose of conducting the data analysis process is to get the final data to be written in the report. The raw data obtained is then processed, discussed, and interpreted to be written in the report.

## 3 Results and Discussions

Based on the analysis of the data it was found that after a year of launching and implementing e-Samsat it has not shown a significant impact on increasing revenue on motor vehicle tax (PKB) or does not indicate the ease of administration of taxpayers. This is reinforced by the lack of e-Samsat users, which is only 0.9% of the total motor vehicle taxpayers. This is reinforced and can still be understood because it is still in the initial stages of implementation and improvement in various ways. According to information submitted by the Head of the UPTD Services Section, Samsat Mengwi, there were around 6000 people registered as e-samsat users in Badung Regency.

The inhibiting factors of the implementation of e-Samsat are first, e-Samsat is not yet a fully online system. This is because in practice after the taxpayers make the PKB bill transfer, they are required to come back to the Samsat office to get the STNK validation. This causes taxpayers to feel that there is no significant difference between conventional SAMSAT and e-Samsat because in the end they are obliged to return to SAMSAT Office to get STNK validation. To overcome these obstacles the Badung Regency Government plans to imitate the East Java Regency Government by providing an STNK printing press so that it does not need to go to the SAMSAT office again for authorization.

Another inhibiting factor encountered in the field is the lack of socialization related to the implementation of the e-Samsat program to the public. Based on the results of the interview it was found that the community as e-Samsat users said that they felt helped and supported the e-Samsat program conducted by the government. This is in line with the theory of innovation diffusion wherein the initial conditions of the community's knowledge of the presence of e-social security are still very low and the community tends not to know about this program, to various program socialization efforts and finally, the community begins to choose to use this program. Increased public knowledge is low in the initial conditions until the decision to adopt e-Samsat even though the level of use has not been significant shows the relevance of the theory of innovation diffusion in the implementation of e-Samsat in UPT.PPRD Samsat Badung.

## 4 Conclusion

Based on the results of the research and discussion, it can be concluded that the Samsat digital program (e-Samsat) is one of the applications of e-government in order to realize good governance in the Badung Regency Government related to the optimization of public services, especially related to vehicle tax. The results showed that the implementation of e-Samsat has not been able to provide significant benefits, both in increasing PKB revenues and direct benefits for taxpayers especially the direct benefits in the form of accessibility and ease of PKB payments so that the implementation of this program has not been able to support government efforts in realizing good governance good (good governance).

From the research results obtained supporting factors for the implementation of Digital Samsat (E-Samsat) in the UPTD Samsat Mengwi in Badung Regency include participation in the digitalization era, ease in getting information on the amount of PKB payments, time efficiency and speed of payment, E-Samsat's ability to minimize payment delays. There are also inhibiting factors of the e-Samsat program implemented, namely e-Samsat is not yet fully implemented with the full online system method, public knowledge about e-Samsat is relatively minimal, people still feel complicated with the e-Samsat payment flow, lack of program socialization to community, and the habit of using formal or informal intermediary services or (samsat brokers) which are still more favored by the general public taxpayers.

Suggestions that can be delivered in this research are related to the implementation of the e-Samsat program which is still not significant, so the government in collaboration with all relevant parties should conduct a comprehensive study in collaboration with independent institutions and expert teams to improve the quality of the eSamsat program so that it can become a solution in the realization of e-government and good governance. The related parties should further enhance the e-Samsat program so that it is more user-friendly with the taxpayer community, the more frequent the socialization to the community.

*Conflict of interest statement*

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*Statement of authorship*

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# Relationship Between Length of Leg and Strength of Leg Muscle to Frequency of Straight Kicks

**Agustinus Dei a**

## A B S T R A C T

*To be able to increase kick frequency requires anthropometric factors and adequate physical conditions. Anthropometry that is very important is the length of the leg and a very important physical condition is the strength of the leg muscles. For this reason, the length of leg and strength of leg muscleswhich is related to the frequency of straight kicks need further investigation. This study aims to determine the relationship between the length of the leg and strength of leg muscle to the frequency of straight kicks. This research is a correlation study with data collection using tests and measurements. The population of this research is 70 male pencak silat at Junior High School of PGRI-1. From this population, 33 peoples were chosen by random sample selection. The test is a measurement of leg length using an antrophometer (cm). Measurement of leg muscle strength with leg dynamometer (kg), and frequency of straight kick measurement using a hand box and stopwatch by measuring the number of kicks in one minute. Data analysis was performed using Pearson correlation and multiples regression. Based on the analysis at the 5% significance level, it shows that there is no relationship between the length of leg and frequency of straight kick with the correlation coefficient r = - 0.279 and p = 0.115. There is a significant relationship between the strength of leg muscle and frequency of straight kick with correlation coefficient r = 0.803 and p = 0,000. Multiple regression values r = 0.841 with p = 0,000. The determining coefficient is 70.7%. This means that there is a significant relationship between leg muscle strength and leg length and the frequency of straight kicks. Therefore, it is necessary to consider the length of leg and strength of leg muscle in determining the frequency of straight.*

***Keywords:*** *frequency of the straight kick;length of the leg;pencak silat; relationship;strength of the leg muscle;*

## 1. INTRODUCTION

Pencak silat is one of the sports heritage of the Indonesian nation which needs to be preserved and developed. Pencak silat is a way of self-defense that is adapted to the surrounding natural conditions that have developed in prehistoric times. Pencak silat is a genuine martial art of Indonesia to avoid all disasters (Sudiana, 2009). In 1975 the Executive Board of the Indonesian Pencak Silat Association (PB IPSI) defined that, pencak silat is the result of the cultivation of the archipelago with the characteristics in each region. The aim is to maintain the existence and integrity of the local area (Rachman, 2008).

In increasing achievement, pencak silat training needs various things including the ability to move, physical condition, tactics and mental. Basic techniques need to be mastered first to improve martial arts achievement. In pencak silat there are various streams so that the names and basic moves are different in each stream. But basically,the form of the style is almost the same. Some basic skills in pencak silat

there are various streams so that the names and basic moves are different in each stream. But basically, the form of the style is almost the same. Some basic skills in pencak silat according to the National IPSI standard include horses, pairs of attitudes, and patterns of steps, defenses, avoidance, attacks, and catches.

Pencak silat competition has a difference with other martial arts because it must display the attitude of the tide, the pattern of steps, attack, and back to the tide. All methods must occur in play every round. Techniques to achieve optimal results can be using punches, kicks, greeting techniques, cutouts, or falling with catches. An attack with an incoming leg on the target without being blocked by an opponent's defense, avoidance or evasion will get two points. According to the IPSI National Conference (2012), assessed foot attacks are attacks that hit the target by using foot attack techniques (in any form), strong and steady, not accompanied by catches/handles, without being blocked by rebuttal or hindrance and horse support- a horse, or a good fulcrum, good range and correct trajectory. Attacks with legs and feet consist of kicks, strokes, snouts, and clippings. Kick in Pencak Silat consists of several types namely straight kicks, sickle kicks, T kicks, and back kicks.

The kick technique skills in pencak silat are greatly influenced by the quality of the leg muscles of the pencak silat player. To be able to do the kick technique well it takes the element of strength and speed of the muscle groups supporting the movement. Of the most dominant muscle groups supporting the kick, movement is the leg muscles. Therefore, the provision of training applied to the fighter is very appropriate when focused on the leg muscles, by not ignoring other supporting muscles. Leg muscle strength functions as a buffer of body weight, jumping, walking, running, kicking, and escorting (Harsono, 2013).

Muscle strength can also be interpreted as the maximum strength of the muscles supported by cross-sectional which is the muscle to hold the maximum load on the tendon. In muscle contraction produces tension and requires strength (Ariani & Putu, 2011). Rapid strength or power is the ability of muscles to exert maximum strength in a very short time (Nala, 2011). Furthermore, Sandi & Parwata (2018), stated that in exercising, several factors must be considered, including physical, technical, mental conditions, facilities and infrastructure, age, anthropometry, environmental factors, and others. Environmental factors are a very important role in sports, especially the temperature and relative humidity of the air (Sandi 2014; Sandi et al., 2017). Research results from Sandi et al.(2016), that 40% relative humidity inhibits the increase in pulse, body temperature, and blood lactic acid levels in exercise. Furthermore, the research results of Sandi et al. (2017), found that 40% of the relative humidity of the air inhibits the decrease in body fluids compared to 60% of the relative humidity during exercise. Another factor that is

no less important is the mastery of biomechanics. According to Sandi et al. (2020), a trainer will not be successful in training if he does not know the principles of the lever system, the location of the body's center of gravity, momentum, and impulses.

Kick is a movement that is done by using the foot and become a very important technique because its strength is far greater than the hand, and the use of kicks is not only done during the fight, but the kick is also done when doing movement moves (TGR art), where the movement this requires a biomotor component of speed, strength, and balance. Besides that, it also requires good mastery of motion techniques, mastery of distance and the right timing for the kick to be effective.One of the kicks that are often used in training or competition is a straight kick. The more kicks taken by athletes and their targets following applicable pencak silat rules will get a higher score. Therefore, the speed or number of kicks in time is very influential on the value that will determine the athlete's victory. Kick speed that produces kick frequency is influenced by internal factors and training factors provided to a fighter (Sudiana, 2009).

The frequency of the kick is affected by the length of the leg. The length of the limbs involves the bones and muscles of the limbs that form both the lower limbs and the upper limbs. Leg-forming bones include leg bones, tibia and fibula limbs and femur bones (Syarifuddin, 2012). The leg-forming muscles involved when implementing the pencak silat straight kick consist of several muscle groups, namely the groin muscles, upper leg muscles, lower leg muscles, and the feet muscles (Sudiana, 2009).

The difference in muscle strength, proportions and the size of the cross-section of muscles in the body for men and women of the same age will be different. Thus the muscle strength is also different. The different values of muscle strength and muscle mass in each muscle group are also different. Age also affects kick speed, because all biomotor components are influenced by a person's age. From direct observations of researchers in the field at a glance it can be seen that with the same age and gender, the speed of the student kick is different. In pencak silat, especially in making straight kicks, several combinations of movements must be mastered to be able to kick well and quickly. Biomotor components needed in pencak silat kicks are speed, endurance, strength, balance, coordination,flexibility, and explosive power. If these components are not met then it is difficult to do a straight kick (Tamat, 2002).

A straight kick is an attack that uses one foot, where the trajectory is forward with the body facing forward. In this kick, the use is the base of the inner toes with the target of the solar plexus and the chin (Lubis & Wardoyo, 2014). There are four movements when doing a straight kick. First; head movements facing the target, second; perpendicular body movements to maintain balance when releasing the kick to

return to the next, third; upper limb movements in rhythm with the movements of the body and upward footwork, one hand is in front of the chest with elbows bent and the other hand straight down, alternating swinging movements between the left and right legs, fourth; movements of the limbs do a straight kick with maximum speed and strength, one foot as a pedestal and the other foot attacks, its trajectory going forward with the body facing forward, its use is the base of the inner toes with the target of the solar plexus and chin (Bakti Negara, 2007).

The purpose of this study was to determine the relationship between the length of the leg and strength of the leg muscle to the frequency of the straight kicks in pencak silat athletes of PGRI-1 Junior High School in Denpasar. The results of this study are expected to add insight into sports science specifically in the relationship between leg length and leg muscle strength to the frequency of straight kicks as a parameter to determine the level of development of athletes undergoing an exercise program. Another goal is to provide scientific data for coaches in improving athlete achievement (Genty et al., 1989; Burnett & Rickerby, 1987; Deschrijver & Kerre, 2003).

## 2 Materials and Methods

This research is a descriptive study. The study population was 70 students from Junior High School - PGRI-1 Denpasar aged 14-15 years. Of these 33 people were selected as samples that fit the inclusion, exclusion, and group out criteria. The study was conducted at SMP PGRI-1 Denpasar for two days. The independent variables are leg length (X1) and leg muscle strength (X2), while the dependent variable is straight kick frequency (Y). The research instrument used in the form of a leg length measuring instrument using a Japanese super brand antrophometer, leg muscle strength used a leg brand dynamometer made in Japan and kick frequency using a stopwatch brand Seiko. Research data were collected by direct measurement of the study sample. The research data were analyzed using the Pearson correlation test to analyze the relationship between leg length and kick frequency and the relationship between leg muscle strength and kick frequency. Furthermore, a multiple regression test was performed to determine the simultaneous relationship between leg length and leg muscle strength and the frequency of straight kicks. The strength of the relationship is expressed by the correlation coefficient and the relationship is stated by the significance value p. The limit of significance used is 0.05.

## 3 Results and Discussions

### 3.1 Result

**Research characteristics**

The characteristics of the research concern the characteristics of the research subjects, and the characteristics of the results of the study. The characteristics of the research subjects from the data collected were age, weight, and height. While the characteristics of the results of the study are leg length, leg muscle strength, and kick frequency. The data is shown in Table 1.

Table 1
Characteristics of subjects

| Characteristics | N | Minimum | Maximum | Mean ± SD |
|---|---|---|---|---|
| Age (years) | 33 | 14,00 | 15,00 | 14,59 ± 0,50 |
| Weight (kilograms) | 33 | 42,00 | 57,00 | 49,24 ± 2,92 |
| Height (centimeters) | 33 | 140,00 | 159,00 | 154,03 ± 3,51 |
| Length of Leg (centimeters) | 33 | 85,20 | 93,90 | 89,62 ± 2,08 |
| Strength of Leg Muscle (kilograms) | 33 | 21,50 | 39,50 | 29,32 ± 3,74 |
| Frequency of kick (times per minute) | 33 | 24,00 | 34,00 | 28,73 ± 2,99 |

Note: N = number of samples, SD = standard deviation

The relationship between the length of leg and strength of leg muscle to the frequency of the kick

Data from the analysis of the relationship between the length of leg and frequency of kick and between the strength of leg muscle and frequency of kick analyzed by the Pearson correlation test are shown in Table 2.

Table 2
Correlation between research variables

| Research variable | | Length of Leg | | Strength of Leg Muscle |
|---|---|---|---|---|
| Frequency of Straight Kick | r | - 0,279 | r | 0,803 |
| | p | 0,115 | p | 0,000 |
| | n | 33 | n | 33 |

Note: r = correlation coefficient, p = significance value, n = number of samples

From Table-2 it is found that there is no relationship between leg length with straight kick frequency with correlation coefficient r = - 0.279 and p = 0.115 (p> 0.05), there is a significant relationship between leg muscle strength and straight kick frequency with r = 0.803 and p = 0.000 (p <0.05).

*Simultaneous relationship between the length of leg and strength of leg muscle to the frequency of straight kicks*

Next will be tested the relationship between leg length and leg muscle strength of students participating in pencak silat extracurricular SMP PGRI-1 Denpasar. Statistical test results using multiple regression analysis can be seen in Table 3.

Table 3
Analysis of the relationship between the length of the leg (X1) and strength of leg muscle (X2) against straight kick frequency (Y)

| Correlation | r | $r^2$ | p | Contribution (%) |
|---|---|---|---|---|
| $\mathbf{X_1.X_2.Y}$ | 0,841 | 0,707 | 0,000 | 70,7 |

Note: r = correlation coefficient, p = significance, % = percent

Based on the results of the analysis above, the correlation coefficient between the leg length and leg muscle strength on the straight kick frequency is 0.841, a positive value means the greater the value that affects the greater the value of the result. The simultaneous relationship between leg length and leg muscle strength to the frequency of straight kicks was significant ($p < 0.05$). Thus there is a significant relationship between leg length and leg muscle strength to the frequency of straight kicks in pencak silat extracurricular students at SMP PGRI-1 Denpasar.

The magnitude of the contribution of the determinant coefficient of the leg length and leg muscle strength to the frequency of the straight kick is obtained by multiplying between r2 by 100% (r2 x 100%). The value of r2is 0.707, so the contribution of leg length and leg muscle strength to the frequency of straight kicks (KP) = 0.707 x 100% = 70.7%. Thus there are as many as 29.03% influenced by other factors not investigated.

### 3.2 Discussion

#### Research characteristics

Based on Table-1, age ranges from 14-15 years with a mean of 14.58 ± 0.50 years. This age is indeed appropriate for junior high school students, considering that students who take extracurricular pencak silat never miss class. Therefore, the age factor will affect leg length, leg muscle strength, and frequency of straight kicks.The mean height of the subject was 154.03 cm with a standard deviation of 3.51 centimeters. The minimum height is 140.00 centimeters and the maximum is 159.00 centimeters. This subject is in the mild nutritional mall limit to normal WHO standards which are in the 50th percentile (Soetjiningsih, 2013). So when viewed in terms of height, the subject has no significant nutritional deficiencies and can do activities like most students to influence the frequency of straight kicks.

The mean body weight of the subject was 49.24 kilograms with a standard deviation of 2.92 kilograms. The minimum limit is 42.00 kilograms and the maximum limit is 57.00 kilograms. This value is also in the mild nutritional mall limit up to normal WHO standards taken at the 50th percentile (Soetjiningsih, 2013). Therefore, none of the research subjects lacked significant nutrition when viewed by their body weight. In this weight condition, the subject can carry out the physical activity as usual so that it will affect the frequency of straight kicks.

Both height and weight will affect the nutritional status of the subject by comparison between body weight (kilograms) and height squared (meter squared). This comparison is called the body mass index.

Nutritional status as measured by body mass index is influenced by various things including consumption patterns and physical activity. The better the consumption pattern the better the nutritional status and the better the physical activity the better the nutritional status. This is consistent with the results of research Ariyasa et al. (2017). Whether it's age, height, or weight will be closely related to one's fitness. When viewed from the pulse frequency, there is a significant positive correlation between age, height, and weight (Sandi, 2013). This will certainly affect the strength of leg muscles which directly also affects increasing the frequency of straight kicks.

**Contribution of the leg length to the kick frequency**

Pearson correlation analysis results show that leg length does not contribute to kick frequency. This is indicated by the correlation coefficient of - 0.279 with a value of $p = 0.115$ ($p > 0.05$). This shows that there is no significant effect between leg lengths on kick frequency. A negative sign indicates a negative correlation, which means that if the leg length increases the kick frequency will decrease and conversely the kick frequency will increase if the leg length decreases. However, the negative correlation between the two is not significant with $p = 0.115$ ($p > 0.05$).

The frequency of the kick is closely related to the kick away in the soccer game. The results of similar studies show that there is no relationship between leg length and the ability to kick a ball in students aged 16-18 years with a correlation coefficient $r = 0.268$ and $p = 0.195$ (Purwanta, 2016). Research that links the relationship between leg length and kick frequency is different from leg length and running speed. If the leg length increases, the running speed will increase, whereas the running speed decreases when the leg length decreases. The results of Maulana (2019), of elementary school students, found that there was a significant relationship between leg length and running speed with a correlation coefficient $r = 0.672$ with $p = 0.012$.

The difference between the result of the relationship between the length of the leg and the frequency of the kick and the length of the leg to the running speed is due to the frequency of the kick, the foot takes the target with a higher distance than the shorter leg (Austin et al., 2003; Walsh et al., 2000; Gurney, 2002). Increased distance of the track causes an increase in travel time from the ready to the target. Increasing travel time will reduce kick frequency. When running, the opposite occurs, namely running speed is directly proportional to the length of the leg. This is caused by an increase in leg length causing an increase in the length of the steps which speeds up running.

**Contribution of leg muscle strength to kick frequency**

From the results of data analysis using Pearson correlation, it was found that leg muscle strength contributed to kicking frequency. This is indicated by the correlation coefficient of 0.803 with a value of $p = 0.000$ ($p < 0.05$). This shows that there is a significant influence between leg muscle strength and kick frequency and positive correlation. If the leg muscle strength increases the kick frequency will increase and if the leg muscle strength decreases the kick frequency will also decrease.

Leg muscle strength is very closely related to leg muscle explosive power, where the higher the leg muscle strength, the higher the leg muscle explosive power. The results of Maulana (2019), which was conducted on the ability to kick a ball in elementary school students in Gowa, obtained a correlation coefficient of 0.521 which states there is a positive correlation between leg muscle strength and the ability to kick a ball. This means that the higher the leg muscle strength, the higher the ability to kick the ball. Research has also been conducted by Putri et al.(2019), found that there is a relationship between leg muscle strength and running speed with a positive correlation.

In principle, leg muscle strength is the ability of muscles to generate tension over a load. If the soccer player's leg muscle strength is adequate when kicking the ball, then it will certainly contribute to providing maximum results. Fahkruzzaman (2015), found that there was a relationship between leg muscle explosive power and kicking ability of the SSB Aneuk Rencong Banda Aceh player with a correlation coefficient $r = 0.540$. The results of a similar study also carried out by Ash'ari (2017), there is a significant relationship between the leg muscle explosive power and the results of the dollyo chagi kick in male athlete taekwondo Bandar Lampung.

**Contribution of leg length and leg muscle strength to kick frequency**

In this hypothesis, the simultaneous relationship between leg length and leg muscle strength is tested for the frequency of kicks. It has been explained that the correlation coefficient between leg muscle strength and kick frequency is greater than the correlation coefficient between limb length and kick frequency, which is $r = 0.803$ compared to $r = - 0.279$. This means that the two are opposite so that the simultaneous correlation between leg length and leg muscle strength to the frequency of a straight kick does not greatly increase the correlation coefficient. If we see the simultaneous correlation coefficient of leg length and leg muscle strength get $r = 0.841$ with $p = 0.000$, it means that there is a very strong and significant relationship between leg length and leg muscle strength.

Both leg length and leg muscle strength together determine relationships so that the determining coefficient can be calculated. The magnitude of the contribution of the determinant coefficients of these two independent variables to the frequency of straight kicks is obtained by multiplying r2 by 100%, so that the magnitude of the contribution of leg length and leg muscle strength to the frequency of straight kick = 0.707 x 100% = 70.7%. So the two variables both leg length and leg muscle strength had an impact of 70.7%. It appears that there were as many as 29.3% of other factors that helped determine the frequency of straight kicks that were not examined in this study (Paul et al., 2012; Hasselgren et al., 2011; Rittweger et al., 2000; Paul et al., 2012). Possible factors that determine the frequency of a straight kick are the type of training that was followed previously, heredity, a physical condition when collecting data, and environmental factors. If all of these factors are involved in further research, they will get a higher determinant coefficient.

## 4 Conclusion

The results showed; there is no significant relationship between leg length and kick frequency and there is a significant relationship between leg muscle strength and kick frequency. There is a significant simultaneous relationship between leg length and leg muscle strength to the frequency of straight kicks with a contribution of 70.7%.

## Suggestions

It is expected that sports teachers, coaches, and sports coaches especially pencak silat look for pesilat seeds to pay attention to the strength of leg muscles, to produce an increased frequency of straight kicks. Besides that, it is also recommended to train leg muscle strength to increase kick frequency. Another more in-depth study of leg muscle strength and leg length is recommended for the frequency of straight kicks.

## Conflict of interest statement

The author declared that he has no competing interests.

## Statement of authorship

The author has a responsibility for the conception and design of the study. The author has approved the final article.

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# Occupational Safety and Health (OSH) Factors Identified in Indonesian Batik Textile Small/Medium Enterprises

**Ayudyah Eka Apsari a,Hari Purnomo b**

## A B S T R A C T

*Indonesia is a country with numerous SMEs spread throughout 34 provinces. One of the important problems that need to consent more is labor health and safety. To increase safety, SMEs need to identify factors of occupational health and safety. SMEs need to properly avoid workplace accidents, and the batik industry is no exception. As a first step, it is necessary to identify the OSH factors that can be used in a prevention accident strategy. The population in this study were workers in Indonesia, these batik companies were located in Solo, Yogyakarta, Pekalongan, Cirebon, Minahasa, Bali, Madura, Indramayu, Bengkulu, and Palembang. The questionnaire consisted of latent variables, from the research that has been done, variables that affect work safety are the physical work environment, social work environment, job stress, and work productivity, while the variables that have a significant influence on occupational health are the physical work environment, social work environment, and work stress.*

***Keywords:*** *batik industry;health;OSH;safety;small-medium enterprises;*

## 1. INTRODUCTION

A small industry plays an important role in the economy of Indonesia. The number of micro-, small-, and mediumsized enterprises (SMEs) amounted to 56.6 million with a growth of 2.41%, which, in the crutch workforce, amounted to 107.6 million (Statistic Indonesia, 2016a). Indonesia is a country with numerous SMEs spread throughout 34 provinces. The Java Island has approximately 67.8% of Indonesian micro- and small businesses, with 28.1% of these in Central Java 28.1%, 22.4% in East Java, 13.1% in West Java, 3.2% in Banten, 1.5% in Yogyakarta, and 1% in Jakarta (Statistic Indonesia, 2016b). According to the International Standard Industry Classification (ISIC) codes for the textile industry, Indonesia has 131,433 different types of micro- and small businesses (Statistic Indonesia, 2016c). Meanwhile, small and medium batik industries in Indonesia reached 50,000 units with 100,000 employments (Ministry of Industry, 2016a). The number of workers in the batik industry will certainly be an influence on employment issues (Wisenthige & Guoping, 2016; Bagudu et al., 2016).

The decline of labor problems has been influenced by several factors. One of them is leader commitment, in which the leader has a relationship with the safety of the workplace (Nielsen et al., 2016). Besides, the organization is classified as a factor that has a significant effect on safety climate (Haslam et al., 2016). To increase safety, SMEs need to identify factors related to occupational health and safety (OSH) (Cagno et al., 2011). Safety conditions in SMEs are worse and less acceptable compared to large enterprises (Cagno et al., 2011; Reinhold et al., 2015). SMEs also have a higher risk of

occupational hazards, and their ability to control risk is lower than that of large firms (Jørgensen et al., 2010; Micheli & Cagno, 2010; Tait & Walker, 2000).

Based on Jamsostek data, 65,474 accidents happened, which caused 1,451 deaths and 5,326 injuries (Kani, 2013). Accidents should be prevented by identifying accident factors. The information obtained in this study relating to labor (employment, health facilities, health education, health and safety management, and safety activities are important to OSH management (Kongtip et al., 2008). Safety management and safety culture is also an important factor in the prevention of occupational accidents (Jorgensen, 2016).

Efforts to improve the performance of SMEs have been conducted worldwide through the study of knowledge management (Floyde et al., 2013; Chen et al., 2012; Chen et al., 2013), Quality Management System (QMS) certifications (Santos et al., 2013; Santos et al., 2011), and regulation (Deros et al., 2014). The assessment is used to determine the influence of management in how successful SMEs are at anticipating occupational accidents and to encourage investment. Studies indicate that efforts to improve performance have been conducted in several countries. In Indonesia, as a country where SMEs contribute to 57.9% of GDP (Ministry of Industry, 2016b), investment flows and exports continue to increase (Media Industry, 2015). Thus, SMEs need to properly avoid workplace accidents, and the batik industry is no exception in this regard. Several studies related to batik have been done. As a first step in reducing the accident rate, it is necessary to identify the OSH factors that can be used in a prevention accident strategy.

## 2 Materials and Methods

### Population and Sample

The population in this study were workers in ten batik companies in Indonesia. These batik companies were located in Solo, Yogyakarta, Pekalongan, Cirebon, Minahasa, Bali, Madura, Indramayu, Bengkulu, and Palembang. The selected batik manufacturers were the most popular in the batik industry (Sindo, 2014). The samples consisted of 400 workers taken at random from each location, such that each location provided 40 samples. The number of samples was estimated using structural equation modeling (SEM) observations of 5–10 for each parameter (Ferdinand 2002; Jogiyanto, 2004). There are 53 parameters used in this study, and therefore the recommended minimum sample size is 265–530. The number of respondents (400) meets this minimum requirement. The locations where the questionnaire was distributed are shown in Figure 1.


Figure 1. Location of the questionnaire distribution

### Questionnaire

The questionnaire consisted of latent variables, namely occupational safety, occupational health, corporate management, physical work environment, social work environment, work behavior, job stress, and work productivity as a bound variable. The questionnaire used a 5-point Likert scale, with the size of the STD (strongly disagree) score of 1; D (disagree) score of 2; QA (quite agree) score of 3; A (agree) score of 4; SA (strongly agree) score of 5. Details of the variables are as follows:

a) Occupational safety
Encompasses OSH training, supervised use of personal protective equipment (PPE), OSH procedures have been implemented, PPE availability, and fire extinguishers.

b) Occupational health
Encompasses stress levels, smoking habits, sleep quality, nutrition and balanced nutrition, sufficient rest, workload, and whether workers relaxed before work.

c) Corporate management
Encompasses the worker's value to the company, whether dangerous work is stopped, whether OSH training is provided if OSH violations are punished, the standard level of satisfaction, and whether there are safety meetings.

d) Physical work environment
Encompasses heat level, air quality, level of noise, available space in work stations, lighting quality, vibration levels, presence or absence of smell, and air humidity.

e) Social work environment
Encompasses the involvement of a social worker in decision making, whether there were awards for workers, the contribution of workers in the running production process, availability or lack of training, availability or lack of supervision, whether there was cooperation among workers, and whether workers cast blame on others.

f) Work behavior
Encompasses the level of accident reporting, whether fellow workers were warned about the dangers and safety, whether materials and tools were in the appropriate place, whether work was performed according to the procedure, and whether instructions were followed.

g) Job stress
Encompasses sleep regularity, appetite, whether a worker could be easily shocked, whether a worker trusted people, whether a worker was easily offended, workers' ability to concentrate, whether workers' were patient in doing all the work and socializing, and quality of social life.

h) Productivity
Encompasses whether tasks were completed on time, adherence to company rules, rate of worker absenteeism, whether workers actively provided input, individual potential, attitude, positive work, and producing on target.

**Research Procedure**

a) Preparation Step
The research procedure began by preparing questionnaires for discussion with stakeholders, including company management, ergonomic experts, and government authorities. The purpose of discussing questionnaires was to allow some companies to provide input and variables that were not included in the questionnaires. Identify industries and labors target in ten regions that are the biggest batik industry in Indonesia

b) Research Step
This research was conducted in the ten most popular batik companies in Indonesia. Respondents were provided with guidance on the purposes and objectives of the study and were asked to fill out questionnaires. A questionnaire distribution was conducted with assistance. The questionnaire distribution was conducted for one month in each of the ten regions for a total of ten months.

c) Analysis of Step
Statistical analysis in this study used Moment Structure Analysis or AMOS version 21. SEM analysis allowed the simultaneous calculation of multiple and interconnected estimated regression equations. The characteristics of this model are as follows: (1) it estimates the relationship of dependent double interlocking, (2) it brings a concept that is not observed in the relationship as well as in determining

measurement errors in the estimation process, and (3) it accommodates a set of relationships between the independent variables with the dependent variable and uncovers latent variables (Ghozali, 2008).

## 3 Results and Discussions

Figure 2 shows the result of the confirmatory analysis.

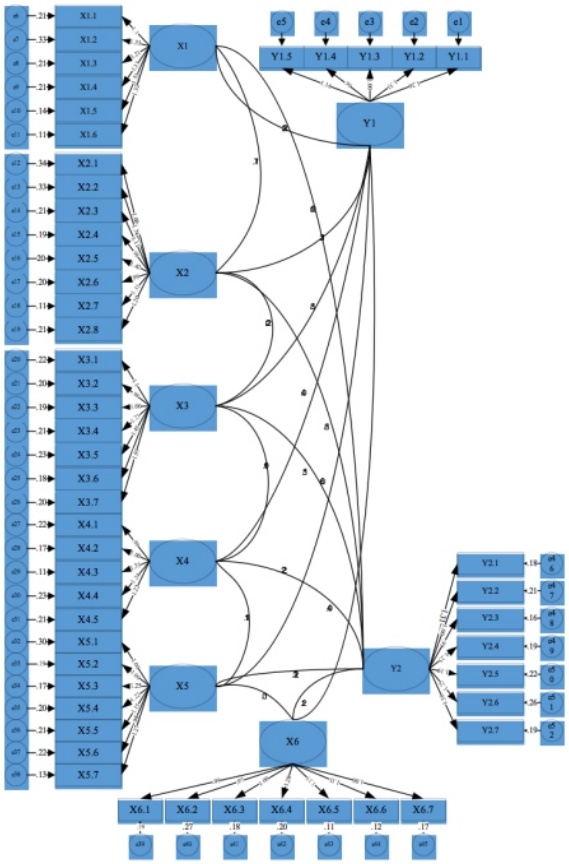


Figure 2. Confirmatory factor analysis

Confirmatory Factor Analysis (CFA) was used to obtain the loading factor estimation, factor weight score, and error variance for each item. The previous figure is the result of CFA in 52 question items from 8 variables, which are as follows: work safety, health, company managerial, physical environment, social environment, work behavior, work stress, and work productivity. The results of the reliability test are shown in Table 1.

Table 1
Reliability test

| Label | Variable | Reliability |
|---|---|---|
| Y1 | Work Safety | 0.66 |
| Y2 | Health | 0.70 |
| X1 | Company Managerial | 0.66 |
| X2 | Physical Environment | 0.68 |
| X3 | Social Environment | 0.70 |
| X4 | Work Behavior | 0.73 |
| X5 | Work Stress | 0.67 |
| X6 | Work Productivity | 0.71 |

These results show that the variables have reliability values above 0.5. Work safety had a value of 0.66, health had a value of 0.70, company managerial had a value of 0.66, the physical environment had a value of 0.68, the social environment had a value of 0.70, work behavior had a value of 0.73, work stress had a value of 0.67, and work productivity had a value of 0.71. The next step was model testing, whose results are shown in the following figure 3.

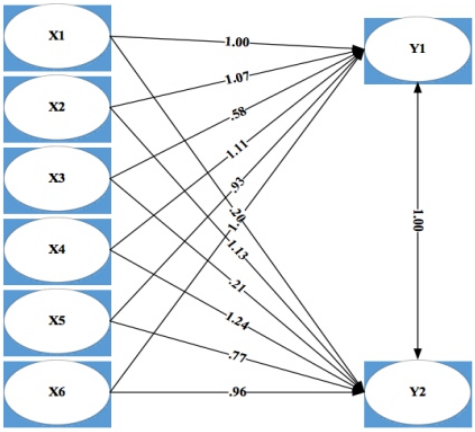

Figure 3. Model testing

An identification test was done to test whether the model could be analyzed further or not. This test used degrees of freedom. SEM could be categorized as:

a) Just Identified Model, which has 0 degrees of freedom and identified, indicating that estimation and model assessment was not necessary.
b) Under-Identified Model, which has <0 (negative) degrees of freedom. The estimation parametric was below variants data and its co-variants, indicating that estimation and model assessment was not necessary.
c) Over-Identified Model, which has >0 (positive) degrees of freedom. The estimation parametric was below variants data and its co-variants, indicating that estimation and model assessment was possible to do.

Table 2
Goodness-of-fit model

| The goodness of Fit Index | Result | Cut Off Value | Criteria |
|---|---|---|---|
| *Likelihood Chi-Square* | 248,734 | Expected to be small | |
| *Probability* | 0.000 | ≥ 0.05 | *Marginal Fit* |
| CMIN/DF | 1.859 | ≤ 2.00 | *Good Fit* |
| RMSEA | 0.077 | ≤ 0.08 | *Good Fit* |
| GFI | 0.936 | > 0.90 | *Good Fit* |
| AGFI | 0.865 | > 0.90 | *Marginal Fit* |
| TLI | 0.947 | ≥ 0.90 | *Good Fit* |
| CFI | 0.956 | > 0.90 | *Good Fit* |

From the results of the goodness-of-fit index in the preceding table, most of the goodness-of-fit criteria met the cutoff value, and only the probability values and AGFI that do not meet the cut-off value. This is following the opinion of Ghozali (2006), who states that if there are some goodness-of-fit parameters are not qualified, this can be seen from the other parameters, and if the majority of parameters meet the requirements, it can be stated that the modelmeets the assumption's goodness of fit. The results of the goodness of fit are the value X2 (Chi-Square) with a significance level of 248,734, whereas the minimum sample discrepancy function (CMIN/DF) is an index that measures the relationship of conformity parsimonious goodness-of-fit models and the number of estimated coefficients that are expected to reach the level of conformity. The result of CMIN/DF is 1.859, which is less than the recommended value CMIN/DF < 2, thus showing that the model fits well. The root means square error of approximation (RMSEA) is an index which compensates the statistical Chi-Square in huge samples. The RMSEA value indicates the goodness of fit that can be expected when the model is estimated in the population. The recommended value for acceptance is ≤ 0.08, while the test result is 0.077, which shows that the model is good.

Based on an analysis of the goodness of fit (GFI), it reflects the level of an overall fitness model. The recommended level of acceptance is GFI > 0.90. The results show that the GFI value is 0.936, indicating that the model fits well. The Tucker Lewis Index (TLI) is an alternative incremental fit index that

compares the baseline models tested. The recommended value of a good fit index is > 0.90. The results showed that the TLI value was 0.947, so it can be stated that the level of conformity is good. The Comparative Fit Index (CFI) is incremental stability that compares tested models with the null model. The recommended CFI value is > 0.9. The test resultsshown 0.956, showing that the model is good.

Table 3
AMOS model estimation result

| Variables Relationship | | | Estimate | S.E. | C.R. | p | Note |
|---|---|---|---|---|---|---|---|
| Y1 | ← | X1 | 0.326 | 0.101 | 4.069 | 0.070 | Not significant |
| Y1 | ← | X2 | 0.198 | 0.082 | 2.136 | 0.031 | Significant |
| Y1 | ← | X3 | 0.245 | 0.108 | 2.753 | 0.033 | Significant |
| Y1 | ← | X4 | 0.222 | 0.108 | 2.165 | 0.044 | Significant |
| Y1 | ← | X5 | 0.211 | 0.100 | 2.176 | 0.015 | Significant |
| Y1 | ← | X6 | 0.116 | 0.076 | 3.563 | 0.024 | Significant |
| Y2 | ← | X1 | 0.163 | 0.108 | 3.118 | 0.198 | Not significant |
| Y2 | ← | X2 | 0.185 | 0.099 | 2.364 | 0.018 | Significant |
| Y2 | ← | X3 | 0.157 | 0.100 | 4.323 | 0.017 | Significant |
| Y2 | ← | X4 | 0.155 | 0.104 | 2.145 | 0.099 | Not significant |
| Y2 | ← | X5 | 0.243 | 0.098 | 1.454 | 0.003 | Significant |
| Y2 | ← | X6 | 0.154 | 0.078 | 3.638 | 0.067 | Not significant |

Table 3 shows whether there is a significant relationship between variables or not. This is indicated by a value of significance that is greater than 0.05. Variables that are not significantly related are as follows: X1 to Y1 (company management to work safety); X1 to Y2 (company management to health) in this case a lot less cares evidenced by the company against exercising their OSH program has been done by Kani et al. (2013), which prove that in Indonesia, the company still has not been given sufficient attention and commitment that is appropriate to implement the OSH program; X4 to Y2 (work behavior with occupational health); X6 to Y2 (productivity with occupational health).

The following variables were shown to be significantly related: X2 to Y1 (physical work environment and work safety) with a p-value of 0.031; X3 to Y1 (social environment and work safety) with a p-value of 0.033 this result is followed by research held by Khan et al. (2014), where the purpose of health and safety, including in fostering a healthy work environment. X4 to Y1 (work behavior with work safety) with a p-value of 0.044; X5 to Y1 (work stress and work safety) with a p-value of 0.015; and X6 to Y1 (work productivity and work safety) with a p-value of 0.024. Research has been done by Taderera (2012), proving that OSH actions eliminate the hazard or risk and control the hazard at its source by using controls or work processes regularly.

The following variables are related to Y2 (occupational health): X2 to Y2 (physical work environment and occupational health) with a p-value of 0.018, X3 to Y2 (social work environment with occupational health) with a pvalue of 0.017, and X5 to Y2 (work stress and occupational health) with a p-value of 0.003. In terms of occupational health and safety, both the physical and social working environment has a significant influence on health and safety. This conclusion is supported by Grahaningtyas et al. (2012), whose research describes how the working environment physically and psychologically affects health and safety. Furthermore, it also mentioned by ILO (2010), that managerial parties have the overall responsibility in protecting the safety and health of workers. Continuity between all aspects of the possible impact on health and safety, into a single unit for the workers to create a healthy and safe work environment. As previously disclosed by Al-Abdallat et al. (2015), factors in health and safety at work can result in injury and death and can be a burden on society, the economy, families, communities, industry, and government.

## 4 Conclusion

From the research that has been done, it can be concluded that the variables that affect work safety are the physical work environment, social work environment, job stress, and work productivity, while the variables that have a significant influence on occupational health are the physical work environment, social work environment, and work stress, with p values of 0.018, 0.017, and 0.003, respectively. Based on the calculations that have been done, work stress (X5) is the most influential factor on the dependent variables. Job stress has a p-value of 0.015 against the dependent work safety variable, and a p-value of 0.003 against the value of occupational health

## Conflict of interest statement

The authors declared that they have no competing interests.

## Statement of authorship

The authors have a responsibility for the conception and design of the study. The authors have approved the final article.


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