

## ***Dasa Gita Laksana: A Strategy of Indonesian Industrial Safety Culture in the Vocational and Technology Education***

Ketut Ima Ismara<sup>1</sup>, Amin Suharjono<sup>2</sup> & Anderias Umbu Roga<sup>3</sup>

<sup>1</sup>*Yogyakarta State University; imaismara@uny.ac.id*

<sup>2</sup>*Semarang State Polytechnic; amin@polines.ac.id*

<sup>3</sup>*Nusa Cendana University; anderias\_umburoga@staf.undana.ac.id*

### ***Abstract***

*A safe and healthy work culture, starting from the basic attitude towards behavior, must be familiarized as early as possible through the educational process. Safety culture is important since it has favorable industrial and personal advantages. The purposes of this study are to (1) reveal the needs of work culture in the industry; (2) develop the implementation strategies in the vocational education and technology (3) test the implementation of vocational education and technology. This research applied an exploratory mixed method, using 120 vocational and technological education institutions, 13 industries, and stakeholders that is relevant triangulated. Data were collected using questionnaires, interviews, FGDs, and documentation studies and were processed using quantitative and qualitative descriptive analysis. Results show (1) work culture in the industry prioritizes on safety, health, environment and work productivity; (2) Dasa Gita Laksana (DGL) is proposed as 10 strategies for the application of industrial safety culture in the vocational education and technology (3) the results of the implementation trials indicated that it is necessary to strengthen the Occupational Health and Safety management system in order to adjust the work pressure to be a driving force for increasing the safety behavior. The limitation of the results of this research is that it has not accommodated the culture in the local area. It is recommended that further research in work culture using local wisdom from various competency skills in the vocational education and technology.*

***Keywords:*** *Work culture, Industry, Safety, Vocational Education and Technology*

### **INTRODUCTION**

The implementation of work culture programs according to industry standards is considered important to be immediately implemented in the vocational education and technology to prepare graduates who are superior and competitive. Graduates of vocational education and technology (voctech education) naturally have full production process skills, in order that they can be more productive in the business and industrial world (1).

Soft skills related to work culture in the industry need to be trained from an early age, as supporters of hardskills. Hardskills are competencies in the production process, in using work machinery and equipment. Softskills are attitudes, behaviors and habits that support hardskills that are oriented to productivity, closely related to safety, health and work productivity. Productivity can be achieved by implementing a culture of safety and health at work (2) (3). The consequence is the required attitudes, behavior patterns and work habits in the vocational education and technology such as in industry. This will have a positive impact on the process of creating a superior workforce since it has a safe, healthy and productive culture according to the needs of the industry (3).

This research will reveal the needs of the world of work in the industry related to a safe, healthy and productive work culture, as well as the strategies for implementing and measuring the results of trials through the vocational education and technology. The results of this research are expected to be useful for all levels of vocational education and technology institutions in Indonesia.

### **METHODS**

This research applied a qualitative and quantitative mixed approach implementing content analysis. The quantitative approach was used to see the feasibility of the practice or application of an

industrial safety culture implementation strategy in the vocational education and technology. Data were collected through observation, interview and Ficus Group Discussion (FGD). In addition, documentation was applied.

Initially, a needs analysis was developed describing the culture of industry and conditions of related to the fields. Extract data and information were revealed from the managers of 130 vocational and technology education institutions regarding profile and best practice on work cultures aligned with the industry. The analysis of the factors that determine the application of industrial work culture in the vocational education and technology was done. This analysis was carried out through Delphy techniques, triangulated, with practitioners from 13 partner industries and vocational education and technology in a FGD. The analysis obtained indicators of industrial work culture that is important and needed, including: safety, health, and work productivity. The next step was developing an intervention model to strengthen the work culture of the industry in the vocational education and technology, which is packaged in the form of 10 stages of the implementation strategies in the vocational education and technology, then called Dasa Gita Laksana (DGL). The trial of the ease and feasibility of the implementation was carried out as a final step before it is submitted as a national policy.

## **RESULTS AND DISCUSSION**

The results of data analysis from the industry and vocational education institutions and technologies mentioned above, are further interpreted and discussed as follows.

### **The Work culture as a necessity in the industry**

Industrial needs of labor will always change according to technological advances in equipment, machinery and production processes. Values as a pillar of industrial work culture will also change according to the development of market demands. The world of work in the industry requires the values of responsibility, honesty, discipline, and care, as a culture, which will certainly be associated with work productivity safely and healthily (4). Consequently, the culture of learning to work in the vocational education and technology must always change according to customer needs, or based on the needs of industries that will absorb their graduates (1).

Culture of learning in the vocational education and technology is still oriented as good students, not yet directed to the principle of work. The teaching and learning process has not fully instilled awareness that later will play an important role in the industry or entrepreneurship by prioritizing occupational safety and health in increasing the productivity (5). Knowledge given to students about the production process, machinery and production equipment, the quality of production safely and healthily still cannot meet industry needs. Vocational education and technology still often provide tolerance for unsafe behavior (unsafe behavior) and leave unsafe conditions (unsafe conditions). Among others, the lack of summary and disorder in the arrangement, which makes the use of equipment not in accordance with its function, can result in work accidents, and the low quality of production (5). Likewise with the lack of intensive care and diligent behavior to be diligent, Cleanliness also still needs special attention, as an important behavior. Vocational education and technology have not tried optimally to have a standard of work behavior and workplace environment such as in the industry as absorbing graduates later. This makes students have a work culture that tends to cause work accidents, and does not care about the work environment as supporting productivity. As a result, the quality of employment of graduates is less than optimal (1).

Work skills also still need to be improved to anticipate changes in the technological developments that tend to be oriented to the safety and health of the production process. Attitudes and work characteristics (soft skills) supporting productive work skills (hardskill) safely, healthily, and comfortably still need special attention. The solution is to apply industrial culture to improve work quality safely, healthily and increase the productivity of work.

A safety work culture will develop if most of the components in vocational education and technology have habitual patterns of behavior that are appropriate to the industrial world. As a result, work situations and conditions will be created that will make students quickly adapt to the behavior of work processes in the future workplace (5). The faster students are adapted, the easier it will be for them to find work, and succeed in a career in the industrial world.

The main objective of vocational education and technology is to produce prospective workers who are ready to use, train and adapt to various changes in equipment and the environment in the industry or company, to be more productive at work, safe and healthy (6). Students should have the attitude, behavior, habits and character of work in accordance with culture in the industry from an early age.

### **Dasa Gita Laksana (DGL) as the implementation strategy**

Based on the results of data analysis in this research, 10 stages of the strategy of planting industrial safety culture can be formulated in a vocational and technological education environment. This strategy accommodates the ability to adapt to changes that will always occur in the industrial job market. This strategy, called DGL, is as follows.

#### ***Analysis of the necessity of industry***

School committees and vocational education and technology leaders discuss with industry partners the work culture, criteria or requirements of graduates to work in industry. This includes how the role of industry and the business world in teaching and learning in vocational education and technology. An important role as a network of partners in improving the quality of competence, safety culture, and absorption of graduates. The role of school committees in the transfer of OSH technology, infrastructure, equipment and production machinery and information on the trend of changes that are immediately anticipated with the vocational education and technology (1).

This opportunity is used to identify behavioral requirements in the form of values that must be possessed by graduates, for example related to the main task in working is productive, safe and healthy (2). Based on the results of the FGD with the industry, that daily behavior during in the workplace environment must be disciplined, honest, responsible, caring and able to work in teams. The results of the identification are reduced to attitudes and behaviors that must be taught, trained and instilled to students from the beginning, and given continuously.

#### ***Analysis of the expectations of the share holders of vocational and technological education institutions***

Leaders of vocational education and technology together with the committee, students' parents, and teachers as shareholders identify the hopes and future needs of students. Students will graduate with what skills or expertise, and with what level of competency test certification (8). What kinds of a work attitude or work behavior students will have or what kind of character they will have. Later, if the students graduate, where they will work, how much their salary and what will be their next career. During the learning process, to achieve these expectations, whatever is needed, the vocational education and technology will serve the how, the parents of students will play a role. All of these should have been formulated in the beginning and agreed by various related parties.

The results of the questionnaire and FGD analysis suggest the following. This stage is an important step in projecting the success of vocational education and technology, based on self-evaluation research, self-determination, and how the design of vocational education and technology programs as an educational service organization for the benefit of the workforce in the industry or company. What is the level of readiness in instilling industrial safety culture based on 5S (concise, neat, clean, caring, diligent), TPM (total productive maintainance), ECP (ergonomic check point), and SHE (safety, health and environment) to be in harmony with the world of work absorbent graduates (7). How is the ability of vocational education and technology parties to provide facilities, infrastructure, work equipment and work learning environments that are in line with the needs of the industry or absorbing graduate companies.

Students have to know the future clearly in order that they can determine their learning patterns and commitments. Consequently, students are also guided to understand themselves both interests, talents, personality and intelligence capital supporting career success in the future.

The parents of students should be enlightened about the future of their children's careers if the school is in vocational education and technology. Real advantages, changes in attitudes and habits if their children go to vocational education and technology, for example being more polite, not smoking,

diligent in worship, persevering in learning, being productive, being able to entrepreneurship and being able to manage income from the start. Parents should also condition the family situation to be conducive and support the character education and development of their children's work culture as students in vocational and technological education institutions. The needs of parents are aligned with the needs of students, adapted to the needs of the workforce, in harmony with the needs of vocational education and technology along with their leaders, committees and teachers. This stage can identify the basic capital owned by vocational and technological education both physical, material and virtual and social, so that the kinds of business power needs that must be prepared to start implementing the industrial safety culture can be determine.

### ***The Arrangement of work culture values***

Leaders of vocational education and technology, committees, teachers with parents accompanied by educational psychologists or human resource experts, and based on input from partner industries, can formulate values, behavior, and work character based on an analysis of graduates' job market needs, complete with reasons and benefits if students have it from the start. Values are divided based on activities related to main tasks during work (tasks), and supporting activities when interacting with the environment at work (contextual). The basis is the values and safety culture of the business and industrial world where graduates can work in the future (4). This must be agreed upon, where the values when learning to work in a workshop with skills or expertise in production, along with infrastructure, work equipment, production machinery and personal protective equipment, or SHE equipment in it. Also formulated values when interacting with customers, the learning environment, learning facilities, public facilities, infrastructure facilities outside the workshop (9).

These values are reduced to a set of good or permissible behavior, or vice versa deemed dangerous. Furthermore, the procedure of the behavior of the habit of supporting habituation and inculcation is formulated so that it becomes an overall work character, which then can be called as an industrial safety culture in the vocational education and technology (4).

### ***The Stabilization of parents and students***

Parents and students should have been given complete information about values, behavior, and industrial culture, which is very important to apply in vocational education and technology. Parents, students and alumni, together with the school committee are facilitated to have a directed discussion about how their children behave when learning to work in vocational education and technology, how the world of work will really appreciate these behaviors, how the role of parents in conditioning their children at home to have behavior which is in harmony with the safety culture in the industry where his child will pursue a career in the future. Parents are given the opportunity to describe how their children behave and how their parents behave in order to strengthen the work character of their children. On this occasion, it is necessary to present alumni who have worked in the industry, and HRD from relevant companies (10). Students are facilitated to discuss in groups, to describe the values, behaviors, habits or safety culture that must be understood and done every day, along with various prizes and their consequences. It is the students who will describe the operational description of the value system into the behaviors that are allowed and not allowed, describe how to familiarize these behaviors and how to embed them into their individual consciousness. Students may submit forms of singing, slogans, celebrations of success, encouragement, posters, infographics, and other mechanisms that will help increase self-confidence in the importance of safety culture (11).

### ***Arranging the implementation guidelines***

Teachers, parents, and students are the main figures in developing guidelines in the form of guidelines for implementing values-based behavior for productive activities (tasks) and other supporting activities. Students organize FGDs to formulate the guidelines and behaviors that must or are prohibited (stage 4). The results of this FGD were then offered to the parents of guardians and teachers. The interaction of the three components (tranguation) will result in an agreement that will lead to commitment in implementing productive, safe and healthy work behavior (11). Along with this activity the teacher can also compile a guidebook for behavior as a role model, guide and guide

students in implementing industrial safety culture. Both of these results can be used as inspiration for the preparation of a guidebook for parents, in order to accompany, motivate and facilitate their children while learning to work in vocational education and technology. The guideline in this case is a kind of standard operating procedure (SOP), or rule of conduct, or behavioral keywords that may or may not be for students, teachers, and parents, related to the inculcation of industrial safety culture in vocational education and technology. The application of industrial safety culture in vocational education and technology will be easier and smoother, one of which is using a regulatory approach, through the assistance of several Standard Operational Procedures (SOPs). SOP is developed based on industry needs adjusted to the state of vocational education and technology institutions, in order that this behavior can work and become a supportive habit when entering the workforce. The guideline or guidelines for behaving contents are keywords of behavior that are productive, safe, and healthy and avoid various work wastes, to indicate which is prohibited or required. The behavioral keywords are determined based on needs analysis (step no. 1 above) of the company or industry as a vocational education and technology partner, who later is a graduate user or employer (1) (3) (11). Furthermore, students are allowed to describe more operationally the behaviors that can and may not be based on their perceptions and assumptions and knowledge through focus group discussion FGD activities related to the attitudes, behaviors and work habits of safe, healthy, and productive. The results are used to perfect the SOP in accordance with the industrial safety culture for students, which consists of; SOP works in Workshop, SOP for Dining, SOP for Walking, SOP for Interacting with Friends, SOP for Bathroom Use, SOP for Trouble Shooting, SOP for Viewing Irregularities/ Discrepancies, SOP for Discussion/ Meeting, SOP for Cleanliness, SOP for Safety Talk, SOP for Safety First, SOP for Briefing Before Work, SOP applies 5S, SOP applies Total Preventive Maintainance, SOP implements Ergonomic Check Point, SOP Driving to get to school, Parking SOP, Fire SOP and SOP for disaster management.

SOP for guiding industrial safety culture for teachers; SOP Guiding Millennial Generation. SOP for industrial safety culture assistance for parents. SOP for Parents - Guiding Millennial Generation, SOP Guiding to understand 5S, SOP Guiding how to eat together, SOP Guiding children to form a safe situation.

Work behavior must be supported by adequate facilities such as facilities and infrastructure. This facility makes it easy to implement these guidelines or guidelines. For example, clean behavior, which means that there are landfills, brooms and other hygiene support equipment. Posters of appeals about garbage disposal in its place or the prohibition of littering (5). Safety culture begins with good work attitudes, leading to safe, healthy and productive work behaviors. Work behavior that is repeated many times becomes work habits that fit the needs of the workforce. Work habits that have been internalized and carried out independently, behave automatically, without having to be ordered or given gifts. This becomes the working character. The same work character is owned by a group of workers or a group of students in a particular work community, or certain vocational and technological education is called a work culture.

### ***Instilling beliefs***

The instilling of beliefs, habit of behaving and strengthening the character of students is a stage that must be passed in the development of industrial safety culture in vocational education and technology. The instilling of belief in work behavior, which must then be familiarized by oneself through mentoring to students in order that they recognize self-intelligence, recognize their potential, interests, and talents, and recognize their personal personality. Self-introduction and providing insights into the world of work will make students able to understand what their ideals are, students have the purpose of learning to work later as what they expected (11). This can be convinced by putting a badge, pin or self-mark on his shirt. Furthermore, students are expected to be able to understand, comprehend, and realize why they need self-discipline, need responsibility, need to be honest, need to learn to work, need to work together, need basic military training, and why need to have a safety culture that is appropriate to the business world or the industrial world pursue his/ her career in the future.

Instilling beliefs in disciplined, honest, caring, responsible, and collaborative behaviors can be through educational activities, which are suggested for basic military training, marching bands,

drumbands, and scouting. Through these activities, especially basic military training can be instilled in the subconscious values with an approach to positive affirmations, suggestions, and intensive self-motivation. Basic military training has proven effective for the formation of attitudes, behaviors, habits and strengthening the character of students, adapted to the development goals of industrial safety culture in vocational education and technology (1). The instilling of belief can begin with knowledge and awareness of the importance of the behavior. This knowledge will help to ensure that work behavior as requested by the world of work is easy to do, not difficult, not complicated, as well as fun. Furthermore, the instilling of beliefs can be done using yells that contain the main values (11). The instilling of belief also can be done by playing games that lead to beliefs and understanding of these values, for example keywords in collaboration with groups that can be internalized using various games, as well as caring, honesty, cleanliness, structuring tools so neat, summarizing, care can be with through an exciting game. Installation of posters, billboards, warning boards, danger signs or directions, will help remind constantly about the importance of productive work behavior, reduce waste, safety and health, by arranging all equipment based on 5S (13). The last attempt at habituation is to apply gifts for those who have safety culture or punishment against those who violate the guidelines, it should be carried out consciously by the students themselves who are taught to dare to feel guilty and say sorry, if he/ she is guilty honestly, if indeed violated. Sustainability, conditioning of facilities and supporting infrastructure can create a safety culture implementation task force, consisting of students and teachers, in all areas of expertise, all classes, for all places and for all aspects of the learning process working in vocational education and technology.

Real behavior that must be repeated in order to become a safety culture supporter when working in the industry is how to walk, when using public facilities, meetings, meals, and when interacting with other work environments. Values shown in behavior for example, cooperation, caution, care, responsibility, discipline, honest, polite, and prioritize customer satisfaction. Included in this are independent learning behavior, discussion, paying attention to all work signs, and promoting SHE and 5S. The habits of productive, safe and healthy behavior are also related to the management of work environment facilities based on 5S and ergonomic check points in order to reduce waste while increasing work productivity (14).

Habitual behavior in harmony with the industrial safety culture in the vocational education and technology, can be used to win contests. Competition materials include student performance, teacher behavior, or in the form of cleanliness, neatness, beauty, can also be in the form of documentation of the application of SHE, ECP, and TPM (5) (4). This activity can be expanded again in the form of ECP and 5S implementation contests. It is also possible to have a combination of all of them as a marker of the implementation of industrial safety culture in vocational education and technology. Competitions for workshops, between study rooms, between skills programs, between vocational education and technology at the regional level (district/ city and province), then progress at the national level. Competitors are task forces at the workshop level, classrooms, skills programs, and teams at vocational and technology education levels for regional or national level competitions. Competition material can be viewed directly on location, through photo documentation, video of school profiles, video documentation of the application of 5S, SHE, TPM and ECP, as well as written documentation through check lists, forms or instruments supporting the application of industrial safety culture in vocational education and technology (5).

### ***Arranging a Monitoring and Evaluation Mechanism.***

The initial stage is to create a task force consisting of students and teachers who serve as supervisors, mentors, and coaches in monitoring and evaluating the application of safety culture. Each member of the task force is equipped with a measuring instrument. The next step is to compile or refine the checklist as a measure of the success of implementing safety culture. The results of monitoring and evaluation are processed statistically and/ or qualitatively descriptive, to obtain feedback information, which is used as continuous improvement material. This monitoring should emphasize the keywords why and how in evaluating the application of safety culture, as feedback material for the next stage of improvement (11).

The measuring instruments can include observing the readiness of the application of safety culture, the implementation of safety culture, the application of 5S, SHE, ECP and TPM, both in

offices, public facilities, and in workshops with respondent students and teachers. The results of monitoring and evaluation data analysis are translated into information that is used as feedback for the benefit of improving the implementation of safety culture and improving the quality of vocational education and technology in a sustainable manner (12).

### ***Arranging a repair mechanism***

Every year a review of values, policies, governance and various supporting devices for the application of industrial safety culture in vocational education and technology is carried out. Need to review various aspects of changes originating from inputs such as students, parents, guardians, committees, and the demands or requirements of the world of work in industry or partner companies (11). Re-analyzing the synergy of various laws and regulations that have been applied, both those originating from industry, central government at the national, provincial, regional level, as well as those within vocational and technological education institutions, including in this case minimum education standards, minimum standards of infrastructure facilities, accreditation requirements and so on (1) (6). Processing information on the results of monitoring and evaluation analysis, which has been carried out simultaneously and continuously from all aspects of the process of industrial work culture education in vocational education and technology. These three inputs are accommodated, compiled, and reprocessed to determine policies to improve the implementation of a further productive, safe and healthy work culture. (12). The result is the planning of school activities in the coming year, complete with vision, mission, goals, and strategies for implementing industrial safety culture in order to improve the quality of graduate competencies so that they can be fully absorbed by the world of work with clear and good career projections (5).

### **Completing facilities and infrastructure**

Values can be applied if supported by facilities and infrastructure to support ease of behavior. The behavior of LISA or the view of picking up trash, and the behavior of taking out the trash in its place, will be easy to do if a trash can is easily accessible. Bathroom hygiene behavior as a public facility, will succeed if given a warning sign, sufficient water, cleaning equipment and bathroom deodorizers. Safe and healthy behavior at work will be implemented if personal protective equipment and warning posters are available about how to use it. The behavior of summarizing and tidying up all equipment, and production machinery, will be carried out diligently if there are 5S-standard shelves, cabinets, and equipment places (16). Equipment and machine maintenance behavior for increasing productivity, should be supported by a relevant set of equipment, equipped with warning posters and maintenance manuals in accordance with the rules of TPM (total productive maintenance).

All work facilities as well as public facilities, are arranged or organized according to the ergonomic and SHE rules. For example signs of hand tools for extinguishing fires, evacuation routes, gathering points, other danger signs, dividing lines, lines determining direction of walking, vacuum or smoke, ventilation, lighting should be in accordance with ECP (14).

Students are accustomed to seeing everything in the learning environment at work, always in a state of being very concise, neat, clean, and well groomed, meaning that they will instill mindset, perception, behavior, habits, and character and safety culture that is relevant to the needs in the world of work. For example, if students always see something in their environment that is completely dirty, dirty, and scattered, then there will be a belief that it is okay and tolerable. It can be seen in the case that students see teachers, school principals and their environment who all smoke, and throw their ashes or stubs at any place, anywhere, at any time, then after graduation will consider it a good habit and need to be emulated.

### **Strengthening commitment**

Leaders of vocational education and technology, committees, and teachers write a commitment to implement and implement agreements on the development of industrial safety culture in vocational education and technology. Furthermore, compiling policies and sets of supporting regulations for application such as behavioral guidelines for teachers, students, and mentoring by parents, complete with reward or punishment management (5). It also can be done by writing commitment in a banner or billboard or poster that is signed together. Make regulations supporting the

implementation of industrial safety culture in vocational education and technology. Preparation of infrastructure, facilities, equipment and warnings or posters supporting the acculturation of industrial work in vocational education and technology. Prepare a budget plan and a program of vocational education and technology activities that are aligned and support the application of industrial safety culture in vocational education and technology. This leadership commitment will be able to move the example, forming norms and implementing stages in the civilizing process.

### The Implementation Trial

The results of the trial analysis of the application of a safety work culture of to respondents of vocational education and technology showed the following percentages, productive work attitudes safely and healthfully by 72%, subjective norms to the importance of culture of safety 80%, perceptions of behavioral control in order to easily behave safely and healthily 78%,

The K3 management system is related to the ease of implementing a culture of safety of 59%, and work pressure to be able to familiarize safe and healthy behavior with a percentage of 65%. The intention or desire to make habituation to work culture survived 67%, Behave according to fixed procedures (SOP) as a culture of survival and health with a percentage of 76%; behave to control activities supporting the implementation of a safe and healthy culture 75%,

Figure 1. Safety Work Behaviour



Based on these data, it can be concluded that respondents in 130 vocational education institutions already have enough readiness to implement 10 safe, healthy and productive work culture strategies. The results of the discussion showed that the strategy was considered possible to be implemented well, although it had to accommodate various kinds of limitations related to the SHE management system, the management system was expected to be able to control well the various work pressures and increase the intention of students and educators to behave safely together in forming productive, safe and healthy work culture.

The discussion of the research results shows that the implementation of industrial safety culture in vocational education and technology is very complex, dynamic, creative, innovative, and comprehensive. Variations between vocational education and technology have different identities with each other. All activities of implementing industrial safety culture in vocational education and technology aim to meet the expectations of the industrial world or area.

The characteristics of vocational education and technology that have applied industrial safety culture can be known through teacher behavior, student behavior, leadership commitment, machine layouting, structuring tools, facilities and infrastructure. Vocational education and technology with safety culture can be described as follows. The leadership commitment is shown by the written documentation that is signed and can be seen by all customers, for example on the website, posters and equipped with words of encouragement. Managerial commitment is evidenced by the existence of funding policies and policies in the form of regulations supporting the application of industrial safety

culture in vocational education and technology, for example in the form of mission, vision, goals, guidelines, behavior guidelines, rewards and punishment. This commitment will have an impact on the presence of posters, warning signs related to the application of industrial safety culture behavior in vocational education and technology. Other facilities and infrastructure such as tool racks based on 5S rules, garbage bins, TPM checklist, SHE warning posters, pedestrian path signs, machine location signs, fire extinguisher signs, emergency lights or alarms and disaster management. All of them are according to the ergonomic check point rules and become a benchmark that vocational education and technology have implemented industrial safety culture. The most important marker characteristic is the existence of behavior as a habit that is the character of work both leaders, technicians, teachers, and especially students from vocational and technological education institutions. The behavior is related to 5S, namely infrastructure, equipment, work machinery, the situation and condition of the learning environment, workshop, teacher's room, bathroom, garden and other places that look all maintained in a concise, neat and clean, no scattering of things. Summarizing behavior, tidying up the various learning equipment at the beginning and estimating activities become important benchmarks. Students and teachers as well as leaders have a strong character in cleanliness, always striving for all infrastructure facilities in a state of concise, neat and clean at all times, and very caring, so see something that goes wrong immediately act proactively. It is also supported by a place of study, practice room, work space, waiting room, bathroom, pedestrian paths in the school yard, all painted beautifully according to the rules of ergonomics and all equipment is always arranged concisely, neatly and cleanly.

Other supporting behavior is related to discipline, honesty, responsibility, cooperation, and caring and polite. Looks good teachers, students and leaders are friendly to fellow customers, smile, say hello, greet, and haircut, dress and be polite, no one smokes, long-haired and dressed casually. All are carried out independently caring about cleanliness, if you see slim trash taken, if you see something that is not neat immediately tidied up, if you see a leaky faucet immediately report or act to overcome various irregularities. Reporting and recording of activities has also become a daily habit, related to ECP, 5S, TPM, and SHE (16)(17).

## CONCLUSION

The implementation of an industrial work culture oriented to productivity, safety and health can be implemented in vocational education and technology using 10 stages of a strategy called Dasa Gita Laksana. The stages of the strategy are as follows (1) Analysis of the necessity of the business and industry world on the competence and work culture of vocational education and technology graduates related to K3; (2) Analysis of the necessity and expectations of vocational education and technology, teachers, students, and parents; (3) Preparation of values that are appropriate and in line with the necessity of the business and industrial world; (4) The process of convincing parents and students that the values are important and appropriate to be applied in vocational education and technology as a whole; (5) Arranging rules or codes of conduct for students, teachers, and mentoring by parents; (6) Arranging mechanisms for instilling confidence, habitualizing behavior and strengthening character in the framework of developing industrial safety culture in vocational education and technology; (7) Establishing mechanisms for regular monitoring and evaluation to provide feedback on further improvements; (8) Arranging a mechanism for improving the values and policies of the sustainable development according to changes in the demands of the world of work; and (9) Completing infrastructure and equipment to support the application of improving industrial safety culture in vocational education and technology. (10) Strengthening the commitment of leaders, committees, and vocational education and technology teachers to the agreed safety culture planting. The ten stages above are complete cycles in accordance with Kaizen PDCA (plan do check action) rules, if automatically and continuously applied repeatedly, it will be able to continuously improve the quality of graduates and vocational education and technology organizations. (16)(17). The implementation of the ten stages above should be under the coordination of a special safety culture team which is directly under the supervision of the leadership of the vocational and technology education institution. The team consists of a chairperson, secretary, treasurer, equipped with a task force of all teachers and class leaders as well as class leaders, who are responsible and report all activities in detail every month, one semester and once a year. Activities related to industry partners

are directly under the coordination of the Vice Rector for PR and Cooperation. Activities related to teaching and learning process, practice, and competency test are directly handled by the curriculum waka, while those related to character building, discipline, care and other behaviors are directly under the coordination of the waka field of education.

Based on the analysis of the best practice observations of vocational education and technology institutions as respondents, FGD 1, and FGD 2, above, it can be concluded as follows:

1. Work culture in industry related to the use of facilities, infrastructure, facilities, machinery, rules that can condition workers to behave to eliminate waste, be productive, safe, and healthy that will benefit the company.
2. Waste includes work accidents, unhealthy workers, improper use of tools and machinery, arrangement of tools, materials not based on 5S, and undisciplined and irresponsible behavior.
3. It is necessary to apply industrial work culture in vocational education and technology with values related to the main tasks supporting productivity, including the application of 5S (ergonomic check point) 5S (concise, neat, clean, care, diligent), care processes using TPM, and SHE (17).
4. The mechanism of the application of industrial safety culture in accordance with industry needs includes the determination of vocational education and technology policies complemented by the commitment of leaders, teachers, students and parents, formulation of values, strengthening beliefs in behavior, habitual behavior, strengthening work character, and uniformity and togetherness in behavior work.
5. Customizing work behaviors that are in line with the work culture of the industry must be agreed upon, carried out repeatedly, accompanied by explanations, mentoring, coaching, emphasizing beliefs or internalizing with yells or shouts of work motivation, ongoing promotion, and giving gifts and penalties.
6. The existence of supporting facilities for the application of industrial safety culture such as the availability of work zoning, work safety posters, signs of danger, procedures for the use of equipment, bins, tool racks, and other supporting infrastructure.
7. Values in attitude, behavior that become the habits of students, and teachers become supporting factors for the application of industrial safety culture such as discipline, caring, honesty, responsibility, dressing modestly and neatly, wearing clothes according to conditions when practicing, wearing personal protective equipment when conduct practical activities, prioritize work safety, cut hair neatly, and implement a work culture of vocational education and technology.

The limitation of the results of this research is that it does not take into account local culture related to safety culture in general. The potential of academic culture that has existed in vocational education and technology is formed from the attitudes, behaviors and habits of teachers and students still need to be accommodated in the development of strategies for implementing the safety culture industry. There are several scientific activities that become the main recommendations as a follow-up to this research, namely: (1) Study of the influence of the implementation of work culture competition between task forces, between workshops, between classrooms, between expertise programs in one vocational and technological education, in stages up to the level national. (2) Research on the implementation of industrial safety culture strategies in each area of expertise in vocational education and technology. (3) Development of management information systems for implementing industrial safety culture strategies in the vocational education and technology.

## REFERENCES

1. Kuntari Eri Murti. (2015). *Pendidikan Abad 21 Dan Aplikasinya Dalam Pembelajaran di SMK*. Jakarta
2. Keputusan Menteri Kesehatan Republik Indonesia Nomor 1405/Menkes/Sk/Xi/2002 Tentang Persyaratan Kesehatan Lingkungan Kerja Perkantoran Dan Industri.
3. Keputusan Menteri Ketenagakerjaan Republik Indonesia Nomor Tahun 2014 Tentang Petunjuk Pelaksanaan Bulan Keselamatan Dan Kesehatan Kerja Nasional Tahun 2015 – 2019

4. Peterson, M., & Wilson, J. F. (2002). The culture-work-health model and work stress. *American Journal of Health Behavior*, 26(1), 16-24.
5. Suyanto dkk. (2019). *Laporan kajiana tahunan Penerapan Budaya Kerja industri di SMK*, Yogyakarta:2019Depdiknas .2003. *Undang-undang RI No.20 tahun 2003.tentang sistem pendidikan nasional*.
6. Sinay, J. (2006). Integration of Risk Management into Complex Management Systems. Karwowski, W. (Eds). *Second Edition International Encyclopedia of Ergonomics and Human Factors Volume 1*. Boca Raton, FL: CRC Press.
7. Robbins SP, dan Judge. 2007. *Perilaku Organisasi, Salemba Empat*, Jakarta.
8. Health & Safety Executive United Kingdom (HSE UK). (2007). *Understanding Ergonomic at Work, Reduce Accidents and Ill health and Increase Productivity by Fitting the Task to the Worker*. <http://www.hse.gov.uk/>
9. Imai, Masaaki. (1998). *Genba Kaizen : Pendekatan Akal Sehat, Berbiaya Rendah Pada Manajemen*. Jakarta: Pustaka Brinaman Pressindo.
10. Wegig pratama, (2016). *Mengembangkan Karakter Pelaut Dengan Co-Prol*. Yogyakarta: PT Kanisius.
11. Ima Ismara & Eko Prianto. (2016). *Keselamatan dan Kesehatan Kerja di Bidang Kelistrikan (Electrical Safety)*. Yogyakarta: Adimeka, CV Adicandra Grafika.
12. Hirano, Hiroyuki. (1999). *Penerapan 5S di Tempat Kerja*. (Terjemahan Drs. Paulus A. Setiawan, M.Sc.). Jakarta: PQM Consultants. (Edisi asli diterbitkan tahun 1992 oleh JIT Management Laboratory)
13. Tawakami, T. (2006). Low-Cost Ergonomics Improvements. Karwowski, W. (Eds). *Second Edition International Encyclopedia of Ergonomics and Human Factors Volume 1*. Boca Raton, FL: CRC Press.
14. Ismail, M. E., Harun, H., Razzaq, A. A., Mahazir, I. I., Samad, N. A., & Othman, H. (2018). Perceptions, Knowledge, and Attitudes of Students towards Safety Practice in Culinary Laboratories. *Jurnal Pendidikan Teknologi dan Kejuruan*, 24(1), 23-31.
15. Ghodrati, A., & Zulkifli, N. (2013). The impact of 5s implementation on industrial organizations' performance. *International journal of business and management invention*, 2(3), 43-49
16. Masaaki Imai & Brian Heymans. (2000). *Collaborating for Change: Gemba Kaizen*. San Francisco, Berrett-Koehler Publishers.
17. Smalley A, Isao K. (2011). *Toyota Kaizen Methods*. Jakarta: Gradien Mediatama.