THE EVALUATION WITH MODEL CIPPO OF INDONESIAN NURSE STANDARD COMPETENCIES (INSC) FOR INDUSTRY 4.0

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ABSTRACT

This study aims to evaluate the implementation of the INSC and the method of evaluation of research using model: Context, Input, Process, Product, Outcomes. INSC current set of the year 2009, has not yet been evaluated for nearly 10 years, not to accommodate the new policy post 2009 and have not adapted new technology especially the industrial revolution 4.0. The results showed that: Aspects of the context of moderate value, determination and implementation of INSC in line with the expectations of the team's constituents. There are linkages the purpose of the determination and implementation of INSC to the satisfaction of all stakeholders. Has not yet been adapted with the industrial revolution 4.0. Aspects of inputs include Human Resources with low-value, needs to be adapted, the industrial revolution 4.0. The budget and facilities with a value of moderate, planned and would be sure but still need efficiency as the impact of the use of the latest technology. Organizational structure involved with low-value, not to accommodate Regulation No. 90/2017 concerning the team compiling the INSC is the Power of Nursing Council Indonesia and need to be adapted the industrial revolution 4.0. Planning with moderate value, needs to be adapted planning industrial revolution 4.0. Design, stages and standard designation INSC with moderate value, still need to be adapted with the industrial revolution 4.0. Aspects of the process includes the setting, implementation and monitoring of the evaluation of the value of moderate, yet adapted the industrial revolution 4.0. Aspects of products with low value includes the availability of Component competencies of Nurses in health care institutions as well as the curriculum available in nursing education institutions are based on INSC and have not been adapted by the industrial Revolution 4.0. Aspects of the impact of low-value, satisfaction of stakeholders has not been optimal. Novelty model development implementation and evaluation renewable INSC against technology and current policies. Researchers recommend CIPPO renewable INSC and adapted with the industrial revolution 4.0.

Keywords: Evaluation, INSC, Renewable

INTRODUCTION

The INSC 2009 conventional general nursing competencies, and not demanding digitizing competence of nurses. When this happens the fundamental changes that the disruption in the era of industrial revolution 4.0 which is a new challenge for the nation and state of Indonesia and the world. This has implications in the provision of nursing services. Minister Hanif (2018) states that a change in the era of big data digitization with greatly impact on the character of the work up to the necessary competencies of workers also changed. Nursing human resources need to adapt and anticipate competence of the system as well as new equipment and work procedures based on digital technology. Literacy nurses on digitization and big data is necessary to improve the competence adapted to the industrial revolution 4.0. That is INSC need to be renewed.

Ariani A. P. (2018) stated that nurses participate has its own challenges in the era

of globalization and digitization. Nurses today need to compensate and adapt to the surrounding environment based on the latest technology. 4.0. Globalization of the industrial revolution in the field of nursing is a phenomenon that continues to roll in the community. The presence of information and communication technologies which accelerate the process of globalization and the process of working in the nursing field. The fact that globalization touches to the entire field is important in human life. Globalization 4.0 digitalization in the industrial revolution creating challenges and problems that must be faced, answered and resolved in an effort to use globalization for the sake of people's lives better.

Akhirfiarta BT. (2019), said that digital literation is the ability to understand and use information from a variety of digital sources. This means that not only includes the ability to read, but it takes a process of critical thinking to evaluate the information found through digital media. Nurses also require this capability in the health service. INSC need to accommodate the competence of nurses due to digital literacy. The nursing workforce is prepared for a digital globalization in the industrial revolution 4.

Research Egbert N et al., (2018) says that when nurses digital literacy in the various domains in the advanced level will help to more easily acquire the skills and other competencies in life. Nursing services will experience the efficiency and effectiveness with high acceleration achieve service goals when nurses terliterasi literacy and digitization.

Research Methods

The method in this study is described in the research design through two activities, namely science conceptual and empirical drawn through the data collecting.

Research design is Described as follows:
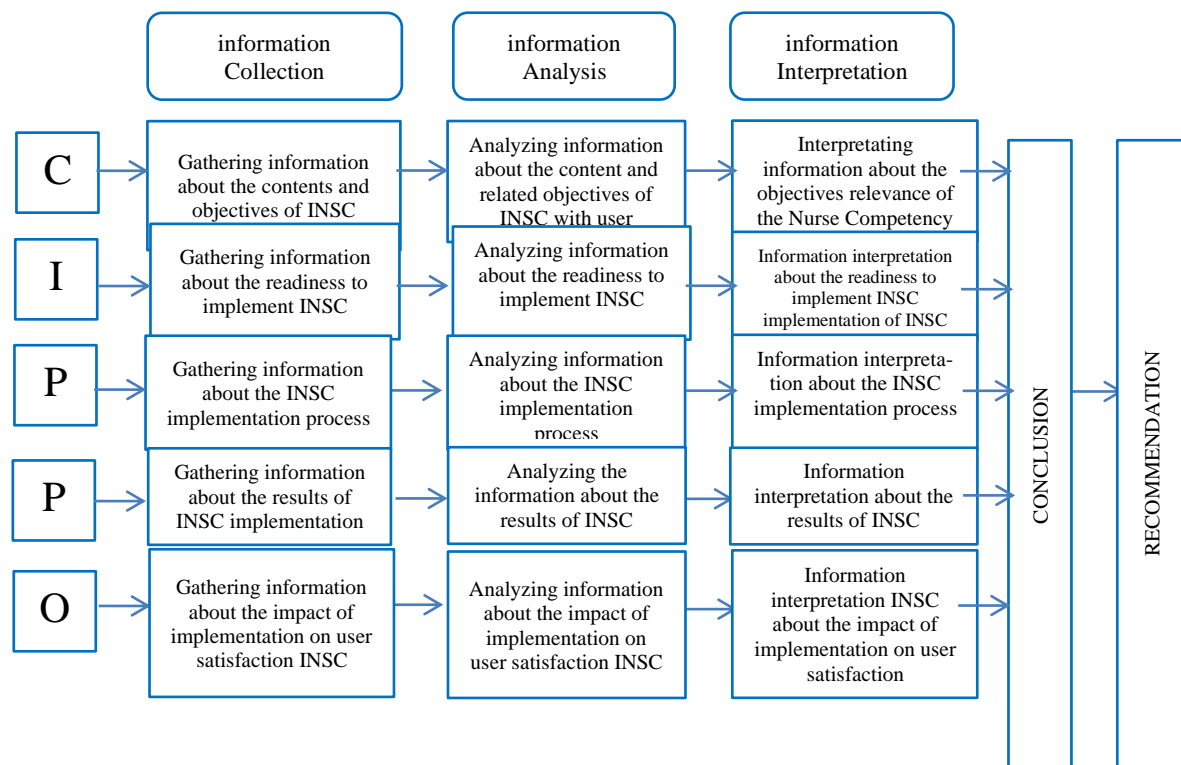
Note: INSC: Indonesian Nurse Competency Standards, C: Context, I: Input, Q: Process, P: Product, O: Outcome. Evaluation design CIPPO of the INSC
Source: Modification from Stufflebeam, 2017

Results of the implementation and results of each of the constituent components are rated displayed through the following description:

Table 1. Evaluation Assessment Guidelines

Scoring scale	Rankings/ratings	Description
1.	Low	Evaluation criteria are not fulfilled or partially fulfilled all below 50% of the number of grains of criteria
2.	Moderate	Evaluation criteria is met, ≥50% of the number of grains of criteria
3.	High	Evaluation criteria are met all

RESEARCH RESULT

Context

Table 2 Results of Context Evaluation of INSC

Aspects Evaluated	Evaluation criteria	Evaluation findings	Ranked			Decision
			L	M	H	
Analyze the context INSC	The contents of the INSC accommodate on-going regulatory and adapted to the industrial revolution adapted & 4.0.	INSC has a comprehensive reference, established based on decision letter of the Chairman of Indonesia's National Nurses Union. In the content INSC has not been imaged competencies adapted the industrial 4.0.		V		Evaluation criteria are met partly:> 50%

L: Low, M: Moderate, H: High, INSC: Indonesian Nurse Standard Competencies

The table above explains that INSC prepared well through good references and accommodate the laws, regulations and policies related to standards of competence at home and abroad but has not been reflected in the statement competencies adapted to the industrial revolution 4.0. INSC determined by the Board's decision PPNI center and has the aim of achieving the satisfaction of stakeholders. Thus the results of the evaluation context values are moderate.

Input

Table 3 Results of Input Evaluation of INSC

Aspects to be evaluated	Evaluation criteria	Evaluation findings	Ranked			Decision
			L	M	H	
HR in the establishment and implemen-tation of INSC	Nursing HR capable of digital literacy identity; Infor-mation, media literacy & data; learning & self-development; communication skills, collabo-ration & parti-cipation; tech-nical skills; Digital Creation, in-novation & research	Establish and implement HR INSC hasn't been able to meliterasi digital identity; Information, media literacy & data; learning & self-development; communication skills, collaboration & participation; technical skills; Digital creation, innovation & research	V			Evaluation criteria is met: <50%
Budgetary resources are used	Enough budget with the latest technology-based	The budget fairly, but not yet a digital-based management		V		Evaluation criteria is

in the Determina tion and implemen-tation of INSC		system for the de-termination of ef-fectiveness effi-ciency accelera-tion & & INSC implementation				met:> 50%
The resources of the facilities used in the determination and implementation of INSC	Sufficient facilities with the latest technology-based management	Amenities enough, but not optimal digital-based mana-gement to accelerate the efficiency and effectiveness of the INSC		V		Evaluatio n criteria is met:> 50%

Aspects to be evaluated	Evaluation criteria	Evaluation findings	Ranked			Decision
			L	M	H	
The structure of the organi-zations invol-ved in the es-tablishment & implemen-tation of INSC	KTKI have the ability to literacy digitization	Permenkes not been enacted Decree No. 90/2017 and has not adapted to the industrial revolution 4.0	V			Evaluatio n criteria is met: <50%
Planning the structure of organizations involved in the creation and implementation of INSC	Each of the parties involved have the deter-mination & im-plementation planning for INSC of the industrial revolution 4.0	Each party involved has the determination and implementation planning INSC but not yet adapted to the industrial revolution 4.0.		V		Evaluatio n criteria is met:> 50%
Design of INSC	Explain the description of the INSC speci-fication for & each category nurse & descri-be competen-cies adapted the industrial revo-lution 4.0	Description and specification INSC portrayed by nurses but yet undefined category competencies that have adapted to the industrial revolution 4.0			V	Evaluatio n criteria is met:> 50%
Stages determina-tion INSC	Stages of the determination of the appropri-ate procedures in progress INSC& adapted the industrial revolution 4.0	Stages take place according to the procedure INSC determination but not yet adapted to the industrial revolution 4.0.		V		Evaluatio n criteria is met:> 50%
Standard-setting	The stan-dard setting of	Standard-setting INSC not		V		Evaluatio

INSC	INSC using the current reference & adapted the industrial revolution 4.0	accommodated related policies set out above in 2009 and has not adapted to the industrial revolution 4.0	n criteria is met:> 50%

L: Low, M: Moderate, H: High, INSC: Indonesian Nurse Standard Competencies

The table above explains that HR enough but Commissariat PPNI not participate in the implementation of M & E Nurse Competency Standards in Healthcare institutions. SDM not yet have literacy towards digitalization. HR in INSC determination has involved the relevant stakeholders, but has not been involved in the monitoring and evaluation PPNI Commissariat INSC implementation in health care institutions where nurses work so that the value is low. Budget resources and facilities are met but not yet adapted to the industrial revolution 4.0 so that the value is moderate. in the structure of the organizations involved has not imposed Health Minister Decree No. 90/2017 and has not adapted to the industrial revolution 4.0 so that the value is low. Planning each unit involved in the organizational structure has the determination and implementation planning INSC but not yet adapted to the industrial revolution 4.0 so that the value is moderate. INSC determination procedures and implementation are met but have not yet adapted to the industrial revolution 4.0, so the value is moderate. INSC design has made it clear description and specification INSC in each category nurse but has not been reflected in the competencies related to digitalisation, thus ranking moderate. INSC stages of adoption and implementation of compliance procedures, but have not been adapted to the industrial revolution 4.0, so nilaitnya moderate. Standard-setting INSC have used a complete reference at the time but have not yet adapted to the industrial revolution 4.

Process

Table 4 Results of Process Evaluation of INSC

Aspects Evaluated	Evaluation criteria	Evaluation findings	Ranked			Decision
			L	M	H	
Stages of the process of implemen-tation INSC	Stages of the process of imple-mentation of appropri-ate INSC according to Standar Operational Prosedure & adapted to digitization	INSC implementation process stages according to the procedure but has not adapted to the industrial revolution 4.0		V		Evaluation criteria is met:> 50%

L: Low, M: Moderate, H: High, INSC: Indonesian Nurse Standard Competencies

The above table describes the stages of the implementation process INSC according to the SOP, but have not yet adapted to the industrial revolution 4.0 so that the value is moderate.

Product

Table 5 Results of Product Evaluation of INSC

Aspects Evaluated	Evaluation criteria	Evaluation findings	Ranked			Decision
			L	M	H	
INSC Products: Nurse Competency Standards in health care institutions and curricula in nursing education institutions based INSC	There are nurse competency standards in nursing care institutions by INSC and provided curriculum at every education category nursing by INSC and adapted to the industrial revolution 4.0	There are nurse competency stan-dards in nursing care institutions by INSC and provided curriculum in each category of nursing education based INSC but not optimal adapted to the industrial 4.0		V		Evaluation criteria is met:> 50%

L: Low, M: Moderate, H: High, INSC: Indonesian Nurse Standard Competencies

The table above explains that INSC product on health care institutions already have standards of competence which are based on INSC and on nursing education institutions provided curriculum refers to the optimal INSC but not yet adapted to the industrial revolution 4.0 so that the value is moderate.

Impact

Table 6 Results of Impact Evaluation of INSC

Aspects Evaluated	Evaluation criteria	Evaluation findings	Ranked			Decision
			L	M	H	
Stakehol-ders satisfaction on the performance of INSC	Nurses have the competence managed to give great satisfaction to Stakeholders	Leaders healthcare or nursing convey that it is not satisfied with the performance INSC in improving the quality of health care in institutions Healthcare	V			Evaluation criteria is met: <50%

L: Low, M: Moderate, H: High, INSC: Indonesian Nurse Standard Competencies

The table above explains that the implications INSC to satisfaction of stakeholders are still not optimal, so the value is low.

Discussion

Below is a discussion of the results of the study as follows:

1. **Context**

   The findings of the evaluation aspects of the context, INSC prepared well through good references and accommodate the laws, regulations and policies related to standards of competence at home and abroad but has not been reflected in the statement competencies adapted to the industrial revolution 4.0. INSC determined by the Board's decision PPNI center and has the aim of achieving the satisfaction of stakeholders. Thus the results of the evaluation context values are moderate. The research result Halcomb E et al., (2016) says that the testing and assessment of standards of competence in continuing to strengthen and develop competence of nurses in primary health care. It is very necessary to improve public confidence in the quality of nursing services.

   INSC is continuous and regular basis must be investigated and evaluated to be developed that are adapted to the development of science and technology and is capable of responding to global challenges. INSC expected to raise the dignity of nursing jobs nursing services

so that people recognized as noble and scientific work. The nurse caring for the individual human being in need of a helping hand and heart services of a competent nurse. Competent nurses are nurses who carry out nursing care based Caring. Caring is the essence of nursing services. INSC should be able to improve the health status of the community, nation and state of Indonesia. Nursing personnel with the greatest number of health services are expected to bring up the quality of service at the institution where the nurse worked.

2. Input

The findings of the evaluation of the input aspects, human resources PPNI Commissioner's pretty but not participate in the implementation of M & E Nurse Competency Standards in Healthcare institutions. SDM not yet have literacy towards digitalization. HR in INSC determination has involved the relevant stakeholders, but has not been involved in the monitoring and evaluation PPNI Commissariat INSC implementation in health care institutions where nurses work so that the value is low. Budget resources and facilities are met but not yet adapted to the industrial revolution 4.0 so that the value is moderate. in the structure of the

organizations involved has not imposed Health Minister Decree No. 90/2017 and has not adapted to the industrial revolution 4.0 so that the value is low. Planning each unit involved in the organizational structure has the determination and implementation planning INSC but not yet adapted to the industrial revolution 4.0 so that the value is moderate. INSC determination procedures and implementation are met but have not yet adapted to the industrial revolution 4.0, so the value is moderate. INSC design has made it clear description and specification INSC in each category nurse but has not been reflected in the competencies related to digitalisation, thus ranking moderate. INSC stages of adoption and implementation of compliance procedures, but have not been adapted to the industrial revolution 4.0, so the value is moderate. Standard-setting INSC have used a complete reference at the time but have not yet adapted to the industrial revolution 4. 0 and yet accommodate the policies set after the year 2009 until now, so the value is moderate. Acreditation research results ANCC (American Nursing Credentialing Center), 2017 said that the nurse's competence needs to be evaluated and accredited continuously. Nurses Council of Indonesia has been established

through the Minister Regulation No. 90 in 2017, especially in chapter 8. The function of the council is the setting, the establishment and development of nursing personnel in performing nursing practice to improve the quality of health services. The task for the nursing council registration nursing staff, nursing personnel conduct training run practice, develop national standards for nursing personnel, set standards of practice and competence standards and enforce discipline health workers practice nursing personnel. In this regulation have been accommodated consistency INSC makers will monitor and evaluate the implementation of INSC and discipline practices nursing personnel. Need to provide a tool or tools that purpose of this regulation will be achieved in improving the health status of the community.

3. Process

The findings of the evaluation aspects of the process, the stages of the implementation process INSC according to the SOP, but have not yet adapted to the industrial revolution 4.0 so that the value is moderate. Aspects observed in the implementation process is consistency in the implementation INSC start of the discussion, preparation, determination, dissemination and implementation as well as monitoring and evaluation. Discussion process done well through discussions in the meetings by INSC maker teams with experts nursing. After a discussion of the preparation and adoption INSC done. Determination INSC occur after discussion in the national congress as the ultimate legal power INSC. Socialization was carried out from the center to the regions.

Monitoring and evaluation processes will also be something very important in the process of sustainable development so that INSC is always renewable. INSC latest procurement will be able to satisfy stakeholders. INSC renewable procurement process will make nurses carry out the task with confidence and dignity.

Acreditation research results ANCC (American Nursing Credentialing Center), 2017, said that individual nurses who have successfully completed a course of education or competence as well as a certificate of competence, does not necessarily have the ability or competence in nursing practice. Individuals who are successful and recognized expertise or competence in nursing are individuals who have successfully implemented these

competencies in the execution of daily tasks. These competencies should be developed and researched in order to improve the quality of care is continuous.

4. **Product**

The findings of the evaluation aspect INSC product on health care institutions already have standards of competence which are based on INSC and on nursing education institutions provided curriculum refers to the optimal INSC but not yet adapted to the industrial revolution 4.0 so that the value is moderate. INSC has been implemented at each institution nursing services. Consistency is the case with the INSC implementation monitoring and evaluation directly by every individual nurse leaders are at work. In the future these products will be implemented by council consistently ranging from manufacture to INSC development. council consists of: Elements ministry held government affairs in the health sector as much as one person; ministry which held government affairs in the field of higher education as much as one person; organization of the nursing profession as much as two people; college of nursing as much as two people; association of nursing education institutions as much as one person;

association of health facilities as much as one person and community leaders as much as one person.

Results of research-Qin Fang Wu et al., (2014) expressed about the consistency and effectiveness of achievement of competence set out in the curriculum. Likewise, the results of research Ruth S et al (2018), with the title of Entry-to-practice public health nursing competencies: A Delphi method and knowledge translation strategy in the journal Nurse Education Today. In this study are described: Background to sustain and strengthen the contribution of nurses in public health services and society in the 21st century, most still rely on the quality of nursing education.

Likewise, the results of research Egbert N et al., (2018) with the title: Competencies for nursing in a digital world. Methodology, results, and use of the DACH-Recommendations for nursing informatics core competency areas in Austria, Germany, and Switzerland in the Journal of NCBI (National Center for Biotechnology Information). In this study, submitted that nurses require understanding or digital literacy: the ability to live, learn, work, participate and thrive in a digital society. Humans become digital literacy which involves the development of

skills, attitudes, values and behaviors that can be categorized as: Digital Identity, welfare and safety, communication, collaboration and participation, teaching, learning and self-development, technical capability information, make data and digital media literacy and innovation. Digital literacy in the various domains in the advanced level will help to more easily acquire the skills and other competencies in life.
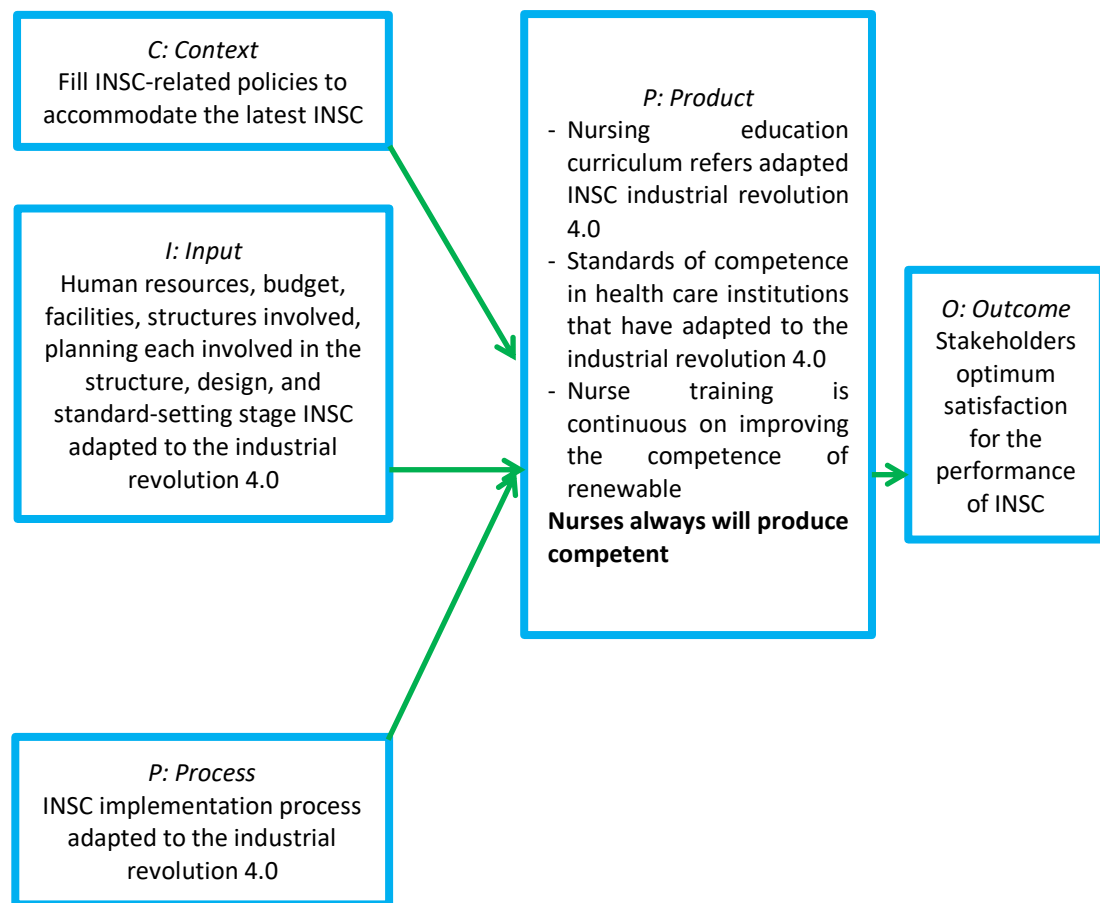
5. Impact

The findings of the evaluation aspects of impacts, implications INSC to satisfaction of stakeholders are still not optimal, so the value is low. Research results of Silaban G. et al., (2015) in the journal Public Health Andalas entitled Draft Competency Based Performance Appraisal System Emergency Room Nurse at XX Hospital Medan. In the study said that some public hospitals (RSU) in the field still have not meet the standards Key Performance Indicator (KPI) of IGD, one is RSU XX Medan. Needed emergency nurse performance assessment which is based on competence, in order to provide the best performance. Thus competence is continuous, nurses need to be evaluated to create optimal satisfaction for stakeholders.

Results informant interviews indicate that the implementation has not been satisfactory INSC party stakeholders. Generally, participants said about their satisfaction level is not optimal. This shows that the adoption and implementation of INSC still need to be improved so that the impact is more positive for policy makers, users and stakeholders and other policies that will benefit the community nursing service recipients. In particular in the current era of the industrial revolution 4.0 by digitizing and big data encourage nurses adapts itself to the disruption.

INSC model development

From the discussion above authors describe the novelty of this research is the development and implementation of INSC pricing model based on the evaluation Cippo as follows:

C: Context
Fill INSC-related policies to accommodate the latest INSC

I: Input
Human resources, budget, facilities, structures involved, planning each involved in the structure, design, and standard-setting stage INSC adapted to the industrial revolution 4.0

P: Product
- Nursing education curriculum refers adapted INSC industrial revolution 4.0
- Standards of competence in health care institutions that have adapted to the industrial revolution 4.0
- Nurse training is continuous on improving the competence of renewable
Nurses always will produce competent

O: Outcome
Stakeholders optimum satisfaction for the performance of INSC

P: Process
INSC implementation process adapted to the industrial revolution 4.0

Findings and discussion of the evaluation results summarized as follows:

1. **Context**
   a. INSC policies need to accommodate the latest as the foundation for preparing the contents
   b. INSC future needs of renewable and adapted to the industrial revolution 4.0, digitizing and big data.
   c. Availability of nurses who are competent and have the digital literacy to meet the expectations of society and the government.

2. **Input**
   a. In the aspect of human resources and organizational structure needs to be adjusted to the Presidential Decree No. 90 in 2017 and HR literacy nurses on digitization.
   b. Budget and facilities required in setting up the implementation of planned and fulfilled INSC well but managed digitizing cloned partitions for efficiency and effectiveness.
   c. INSC determination and implementation planning, design INSC, stage-setting and standard-setting INSC INSC pretty good, but need to be adapted to the industrial revolution 4.0.

3. **Process**

   Aspects of the process of analyzing the discussion, preparation, determination

of content, implementation and monitoring and evaluation INSC. Implementation stages of discussion, the preparation, establishment, implementation and monitoring and evaluation carried out according to the procedures in force at the time. The researchers concluded that this aspect of the process is at a moderate ratings. All stages performed well but need to be adapted to digitization.

4. **Product**

Standards of competence and curriculum of nursing education requires competence statement digitization and need to be adapted to the industrial revolution 4.0.

5. **Impact**

a. Impact determination of content and implementation of INSC have a positive effect for the institution of nursing education as the cornerstone of the establishment of the learning curriculum

b. Impact determination of content and implementation of INSC have a positive effect on the health care institution as guidelines for the preparation of job descriptions, performance measurement cornerstone of nursing personnel.

c. The level of satisfaction of stakeholders on the implementation of INSC not optimal.

Recommendation

The Council of Nurses INSC Indonesia needs to improve the quality of the content establishment, implementation, monitoring, evaluation and development INSC as follows:

1. Discussion, assessment, dissemination, implementation, evaluation and development INSC future will be coordinated by Council of Nurses Indonesia in accordance with Presidential Decree No. 90 in 2017

2. Literacy nurses towards digitization in the era of the industrial revolution 4.0 needs to be done through the implementation of nursing education and nurse competence in health care institutions

3. Develop and establish and monitor the implementation of the adapted INSC industrial revolution 4.0.

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