THE EFFORT TO PROVIDE PROFESSIONAL NEEDS OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) IN THE EDUCATIONAL ENVIRONMENT

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Abstract:
Education is a process to influence students to be able to adapt as well as possible to the environment so that it can cause a change in social life. While the teaching participate for directing the purpose of educational process and changes can be achieved. To create an educational atmosphere and standard qualifications, it is necessary to provide effective and efficient technology by utilizing Information and Communication Technology (ICT) based digital-devices by using computer equipment and its supporting facilities. The development of concept of education management is designed to increase the ability to manage changes and developments in education related to the achievement of purposes, policies, strategies, planning, curriculum that have been determined by the government and education authorities so that it is expected to realize the effort of professional employees that compatible with the era of development.

Keywords: Education, ICT, Professional Needs

Abstrak:
Pendidikan merupakan suatu proses untuk mempengaruhi peserta didik agar mampu menyesuaikan diri dengan sebaik-baiknya terhadap lingkungan sehingga dapat menimbulkan perubahan dalam kehidupan sosial. Sedangkan pengajaran berperan serta mengarahkan tujuan proses pendidikan dan perubahan-perubahan dapat dicapai. Untuk menciptakan suasana pendidikan dan standar kualifikasi, diperlukan penyediaan teknologi yang efektif dan efisien dengan memanfaatkan perangkat digital berbasis Information and Communication Technology (ICT) dengan menggunakan perangkat komputer dan sarana penunjangnya. Pengembangan konsep manajemen pendidikan dirancang untuk meningkatkan kemampuan dalam mengelola perubahan dan perkembangan pendidikan yang berkaitan dengan pencapaian tujuan, kebijakan, strategi, perencanaan, kurikulum yang telah ditetapkan oleh pemerintah dan otoritas pendidikan sehingga diharapkan dapat mewujudkan upaya ketenagakerjaan profesional yang sesuai dengan perkembangan zaman.

Kata Kunci: Pendidikan, TIK, Kebutuhan Profesional

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PENDAHULUAN

Constitution of the Republic Indonesia (2.1989/chapter.1,paragraph.1) states that education is a conscious effort to facilitating students by learning process include guidance, teaching and training activities. Based on this concept, there are four cases that have to in depth studied; conscious effort; facilitating learning, guidance, teaching and/or training activities; and role in the future.

The conscious effort means that education is carried out based on a complete comprehensive and clear planning by using rational and objective thinking. In a specific meaning, education is not carried out without planning and not incidental.

The Preparing means that function of education have a role in preparing students that can participate into the real life. The readiness is related to the position and existence of students as a good citizen for developing new family to take a role in the future.

The guidance, teaching, and training activities are an educational implementation strategy in providing assistance, direction, motivation, advice and counseling so that students able to overcome and solve their problems, where the teaching is an activity that establishes a relationship between the teaching and learning process interaction between educators and students to develop behavior in accordance with educational purpose, while the training is in principle the same as teaching with more emphasis on the skill.

The future role is an outcome of educational process who have the ability to carry out dedicated duties and responsibilities in related to effort of responsible professionals, especially in community development.

Digital based education have to change mindset and behavior stakeholders and other educational components both about managerial and educational environment in viewing, understanding, assisting, monitoring and evaluating of management educational institutions by supported facilities of technology-based information systems where is the main purpose of successfull in education is developing professional qualified and dedicated employees (Oktaviani, D. A.et all 2018).

The expertise of a profession can be defined in 2 aspects, that is the ability in carrying a profession and the appearance / performance in doing a job accordance with the profession, while a professional is a position or job of someone that requires the expertise, that means the job cannot be done by someone do not have skills (Rosita Febriani, 2015).

The rapid development of Information Technology requires many people to be professionals in their fields and cannot be separated from the problem of education as institution that providing of expected professional, so the educational solutions that can be carried out include curriculum and educational policies, readiness of Human Resources (HR) in utilizing Information Communication and Technology, optimizing the abilities of students, and developing the values or character of students, in addition to the readiness of digital-based learning facilities where computers are the most appropriate equipment facilities because it can contribute information in large and varied amounts, has fast job procedures and very varied information applications (Lewis, 1981).

The success of the world's rapid development is determined by the ability to increase knowledge and life skills. So that the education system needs to put strengh and proportional foundation by promoting knowledge and skills and get motivation of young adults to keep continous learning.

Educational assessment and evaluation accompanied by the right incentives can motivate students to learn better, motivate educators to teach more effectively, and motivate educational institutions to become more supportive and productive environments, in this case it becomes the full duty and responsibility of management education as a whole.

Hermawan revealed that education is a multi-discipline, inter-discipline and cross-discipline of knowledge (Agus Hermawan & I Wayan Dharmayana 2020). Therefore, education
has a comprehensive scope, so the study of education management develops in line with the acceleration of development of information technology. Reflianto & Syamsuar stated that learning innovation in the era of digital information technology development is to utilize information technology facilities to improve the quality of learning, so that the role of society in the digital era can be a challenge to build education based information technology and be able to the needs of community, that is to provide of reliable professionals (Reflianto, 2018).

Information for the business field (organization) is the most important part in decision making (decision maker) and determining steps to solve problems (problem solvers), so the organizational purpose can be achieved and to get right opportunities on target. The information is generally built in an information system, which is a system that brings together a number of daily transaction processing needs to support operational activities, both managerial and strategy so can be giving reports about information that needed for stakeholders of organizational management (Jogiyanto HM, 2007).

Figure 1. Fishbone of Education in Providing Professional Needs

Information systems can role in providing information needs for organizations to support managerial and operational activities, both at the managerial level and functional areas. This Information System is often referred to as a Management Information System (MIS) which consists of:

1. Accounting Information Systems (AIS) is a system that can provide information on the needs of financial transactions.
2. Marketing Information Systems (MIS) is a system that provides information for sales activities, promotions, market research, etc.
3. Inventory Management Information Systems (IMIS) is a system that provides information for inventory, production, ordering and selling etc.
4. Human Resource Information Systems (HRIS) is a system that provide activities information and developments in human resource which includes achievements, promotions, wani prerastie, salary, etc.
5. Research and Development Information Systems (RDIS) is a system that provide the activities of research and development (R and D) about a business or a product.
6. Engineering Information Systems (Engis), otherwise known Information Systems Engineering is a system that can provide information for engineering needs or a product engineering as well as business development aspects
7. Credit Analysis Systems (CAIS) is a system that provide information on the results of business credit analysis.
8. Production Information Systems (PIS) is a system that provide information on the results of production activities, processing raw materials, processing finished goods, etc.
9. Financial Information Systems (FIS) that provide information on the allocation of external and internal company funds, cash flow, investment, accounts receivable etc on according to the needs of organizational management in realizing the purpose to get opportunities and make decisions (Muhammad Taufiq, 2007). while the general picture can be shown in the following figure:

![Figure 2. Professionals Needs in an Organizational Management](image)

Computer technology equipment is made for processing transaction data in the accounting field, and in line with its development, computers became a tool for presenting that processed databases in the quality of information so that it is useful to complete the needs of organizational management. The role of computer-based information technology is expected to be utilized in various ways and fields within an organization to be creative in a product related by text, sound, pictures, animations, videos, movies etc (Manalu, 2021).

**METODOLOGI PENELITIAN**

The method used in this research is descriptive qualitative with a literature study approach that focuses on literature with related by the topics or variables, systematic explanations of concepts and theories based on available literature, especially from articles published in various scientific journals. This research uses library source as the main data with reference in this research about the effort to provide professional needs of information and communication technology (ict) in the educational environment which is the subject of this paper to look for rationale research that has been done or for further research ideas. A series of activities related to methods of collecting library data, reading and recording and managing writing materials.
PEMBAHASAN
The Scope of Information Technology

Information and Communication Technology (ICT) includes integrated tools and methods that used for getting and capturing the data (capture), storing (saving), processing (process), sending (distributing), on presenting information needs electronically into various formats, so that useful for users. In this case, technology can be a combination of hardware and software from computers or non-computers, these are procedures, operators, and managers in an integrated system with each other.

The development of ICT has changes the pattern of life in the industrial structure and the practice of managing organizations to compete and carry out customer service activities. Development of ICT has change the lives and management concepts that impact on the information needs in viewing the internal and external conditions to support of solving the problem, decision-making, getting opportunities and achieving purposes.

As have known that the field of transactions in the organization includes managerial, financial, and auditing aspects, as the result the development of ICT has a direct effect on the business field and the practices of management, so the management or businesses that develop in this era of information is expected to provide the best services for clients by utilizing ICT.

Discussion about information technology developments that have an impact on management need to be connected with the field of education to produce professional values in the era of information, so that can implemented in the educational curriculum and teaching - learning methods based on information technology.

Procedures of Information Technology

Industrialization brings new technology in manufacturing activities because more raw materials can be processed into products, and with additional energy, so the capacity of human energy can be raised and get impact on the way of life and people mindset, and as a result, more products are available and can provide special needs (specialized).

Industrialization and technology causes to the basic changes in social and economic aspects, that is about developing of prosperity for the community that have paradigm of efficiency through large-scale operations (mass production) carried out by industrial processes. One day, semi-conductors will be found in computer technology which marks the start of information era, so that the factors of drive the growth of social and economic system are no related with labor or mechanical power but related by information as stated by Alfin Toffler: "Anyone who wants to control the era of globalization, then control the information".

The Country that are able to compete because they have great economic power are those able to utilize effective knowledge by controlling and utilizing information, so the paradigm of developing prosperity can be realized. For the current era, the role of digital computer and information and communication technology is more dominant, so that resource information presented in the balance sheet is generally not able to explain the business successes and failures, therefore information technology capabilities that related to information system development that are based on technical aspects for management needs have to be considered in education.
The Role of Management Leader in Information Era

Management leadership that mean organizational leaders who are responsible for the organizational movement. The role of leaders in the information era is required to be more insight in managing organizational resources because related with the current organizational resources that consist of physical resources which include Man (human), Material (material/raw materials), Machine (machine), and Money (fund/costs) which are managed to produce the expected product except there are other resources known as conceptual resources of information that concepts used in the management of physical resources.

The objective of leadership in managing physical resources is efficiency and effectiveness. For the reason is needed in the organizational environment (internal information), while the leadership in managing conceptual resources uses more information from the external environment that is used to manage the organization in order to get market competition (Competitiveness).

ICT Profession in the Business

Economic and social aspects cannot out of from information, the business sector in the information era can be divided into two situation, the first is the primary information business sector which consists of companies in the production and use of information such as computer companies, lawyers' offices, accountants, universities, publishers. And the second is secondary information business sector is a business sector is not actually engaged in the information business but producing and using information, for example marketing, promotion, publication, finance, production, human resources and others.

The successful companies generally use Information and Technologies to get more intimate with consumers and so that more near among distance and time. Information and Technologies is also used to improve quality of product and management of company and in the process of product re-differentiation to complete the needs of market segment.

The efforts that should be done for every company in this information era is by improving quality, reducing the type of product and cycles of production, focusing on efforts to create value for customers, globalization or finding new partners to fill gaps in technological or human resources because there are two factors that affect as below:
1. The increasing complexity of business, caused by :
   a. International economic influence
   b. Global business competition
   c. Development and growth of IT
   d. Utilization of Time
   e. Social considerations
2. Capacity of Information Technology
   a. Capacity of information needs service
   b. Capacity of interaction in communication network
   c. Capacity of speed of access to data / information

Application of Computer Assisted Manufacturing (CAM), Computer Integrated Manufacturing (CIM), Computer Aided Design (CAD), Just in Time (JIT) describes the use of IT for every company in business competition in the information era by efforts to change the
structure of industry, or the way to compete in the industry, so get impact on the pattern of managing of company.

ICT Profession in Management

Almost all organizations have a phase the technological discontinuities that always occur if there is a change paradigm and in well-being creation that can be seen from the organizational structure which is very hierarchical where the flow of formal information is more vertical, not horizontal, so, organizations get to compartmentalized so the power of integration and responsiveness to environmental changes is weak.

Whatever the slow responsiveness to market needs and competition in many organizations is only can overcome by informal communication. The activities social carried out by inter-departmental personnel are designed to accommodate the need for horizontal communication between departments, so that management get to be locked to the best way of doing anything, that mean the application of scientific management is only directed at the achievement of efficiency targets, the implementation of the standard cost system is based on the level of efficiency that is considered to reflect the best practice, while if there is a deviations can be tolerated.

In the information era, trend of organization / companies leadership not hierarchical but the network model. The form of organization, the horizontal communication is not an obstacle between department, the relationship between managers and management staff on the functional departments becomes a relationship as colleagues, not a superior-subordinate relationship, as a result, communication is getting smoother so the organization's ability to adapt to the environment is faster, and by application of Information Technology, so communication between functions that occur in the organization with this network structure can be implemented.

The basic essence of organizational business process in the information era is "there is no best way to do something, but there is always a better way" as a result, management will always try to do something better and this effort is carried out continuously, the new standard is dynamic standard that means the management efficiency target to be achieved is always to be better or is a moving target.

ICT Profession In Education

The development of science and technology also changed the paradigm of educational development. One of the technological developments that affect life activities is the presence of information technology. This era of information technology can be proven by the fact that all information can be packed such as print, sound, media and images in digital form.

The use of information technology in the field of education for example is e-learning, e-book, e-education, and also e-library. The use of information technology in the field of education continues to grow as technology and infrastructure advance. The application of these technologies is often found in students' learning with a combination of learning methods with audio-data, video-data, audio-video, and also the internet.(Maesaroh Lubis, 2016)

The development of information technology in education will affect to development of electronic devices as the needs of learning media, learning model based ICT, both of web-based or based multi media ICT-based learning media include:
1. Audio-based learning media, which is an audio (sound) learning media that serves to distribute audio messages to the recipient of the message, this audio media is related to the sense of hearing, so the nature of the message received is in a form of delivering verbal message (oral or written), words as well as nonverbal messages (sounds or vocals), audio media can be in the form of radio, tape recorder, telephone, language laboratory, etc.

2. Visual-based learning media is a learning media that relies on the sense of sight. This visual media in displaying material using a projection tool or projector. Delivering message is the form of visualization, while the function of visual media is to interest of attention, to describe of facts, to clear of ideas. Visual-based learning media are divided into two types, these are:
   a. Silent visual media, which can be in the form of photos, illustrations, flashcards, selected pictures and cut pictures, frame films, series films, OHP, graphs, charts, diagrams, posters, maps, and others.
   b. Motion visual media, can be in the form of moving projection images such as silent films and others.

3. Audio Visual-based learning media, is a learning media that displaying sound and images.
   The characteristics of this media are divided into:
   a. Silent audiovisual media, which can be silent TV, sound serial films, sound pages, sound books.
   b. Motion audio-visual media, can be in the form of TV films, TV, sound films, sound images, and others.

Based on this need, it is necessary to prepare reliable and professional experts to be able to provide proportional educational facilities in their fields, that is ICT experts who can help solve learning problems in the field of education, both regarding learning media, learning models, and methods and IT experts in the field of education, regarding the management about school administration, academic administration, and other supporting activities.

CONCLUSION

The rapid development of ICT has had a great influence on human civilization, especially in business organizations, because the distance is getting closer and the need for information is getting faster, then like or not, the self-competence must be developed in order to keep trend up with the ever-evolving and changing of information technology.

The impact of ICT education on the field of management Organizational management is the increasing need for the managerial profession with the consequence of being able to develop clear concepts and in harmony with development of information technology, so can complete the needs of management, at the management level or in the functional area of management.

The educators in the information era will need more information from various perspective problem because related with the whole of complexity of management, both in the internal or external environment so expected to be able produce various perspective to examine solutions of the problems. Therefore, educators have to ability the problems students as a whole, in the other hand, the educators are able to solve problems (problem solvers) comprehensively.
REFERENCES


