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ARTICLE

Preparedness, Raising the Level of Preparedness and Enhancing Contemporary Prevention Methods to Get Rid of the Risks of Deadly Health Crises and Their Implications for the Health of Workers

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ABSTRACT

This study came to emphasize the importance of health promotion at the present time in all parts of the universe due to the federal movement witnessing the challenges of the Corona virus that originated from the Chinese city of Wuhan and spread in all countries of the world with amazing and terrifying speed (for bacterial, parasitic and viral causes) despite the WHO assurances Globalization with a high degree of responsibility, and this was evidenced by the calls and appeals of leaders of health organizations in the world for prevention, awareness, discussions and advice that they gave to all of humanity, as the virus has infected most of the world without exception between developed and developing countries alike. (In his speech, Tiedros Adhanom Gebresus is Secretary-General of the World Health Organization: February 27, 2020) As the virus evolved from the respiratory syndrome of the Middle East caused by cats to SARS, who moved between camels to Ebola and then developed to the most dangerous corona, which is transmitted between humans through touch, spray and breath, which has exceeded cases in the world to more than 600,000 patients with a confirmed infection And over 26 countries in the world until March 2020 and from here the researcher eagerly awaits the moment when investors announce their willingness to embrace any innovation related to the recovery from these epidemics. [15]. It is a logical result stemming from the feeling of great dismay that has caused mankind in recent times as a result of the outbreak of the Corona epidemic and the massive series of panic in all parts of the globe that left behind and the confusion that made the need to invent vaccines and ways to spread awareness in a timely and instant manner and seize the finest federal concept between the administration and the media related to the accident. The time is "Participate in the comprehensive awareness campaign and the highest levels of caution and caution" To achieve maximum benefit from it in combating, preventing, sterilizing, and identifying the most important pillars upon which it is based, and then showing the health benefits of workers in local organizations with a view to preserving them, and to achieve the desired benefit in sounding the work and promoting it with health by integrating administrative and health concepts with each other and circulating them through disseminating them Seminars and conferences in a manner that achieves the desired goal above: So this effort was divided as follows: Part one: will cover the systematic aspect of the study; The second part: He will be interested in presenting the concept, benefits and pillars of the essential participation; Part Three: He will examine the concepts of health promotion activities for institutions; Part Four: Examination and testing the feasibility of including the concept of substantive participation and activities of the health promotion unit; Part Five: Results, Conclusions and Recommendations. The study recommended the necessity of disseminating the health information in addition to the administrative information in all institutions and segments of society in order to address firmly the prejudiced rumors and ideas aimed at impeding the administrative and health growth in our local institutions.

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1. Introduction

The study aimed to enhance the culture of prevention and preparedness from deadly diseases through cross-fertilization of the efforts of administration, media and health with the perspective of the federal core participation, as the basic ideas were tested on three departments from three important sectors in Basra, which are education represented by female preparations and the university represented by the Shatt al-Arab and transport college represented by the (Maqal Ports Company). The three samples were chosen randomly and by 30 individuals from each sector to be the total sample is (90) individuals, and the researcher dealt with the subject of participation as very influential in raising awareness of the dangers of contemporary diseases, as well as the meaning of the health educator, his job and the most important characteristics and skills. Health activities as a critical issue at the present time in unhealthy institutions and to survey the opinions of members of the three samples on the content of their axes.

Because the current health crisis (Corona pandemic) is a major humanitarian challenge for all institutions and cannot be avoided without prevention, sterilization, and awareness-raising directives, which require the collaboration of the administrative, health and media sectors in order to overcome its effects.

The directives of international health organizations were used in health guidance, and in particular what was announced by its Secretary Gebresus in his repeated speeches about ways to prevent the Corona epidemic that swept the world at the beginning of the current year 2020 and to face contemporary diseases that have afflicted most countries of the world and as a precaution, the research sought to cover the requirements of health awareness in institutions And testing the feasibility of incorporating a new section in the structure of any institution, which is the health activities promotion section, requires hybrid efforts from the health, media and administrative sector, and it is missing in most of the institutions researched, except for what is scarcely to be an enhancement of the performance of the health sector in the current era, and it is the most important objective of the current study that sought to test it in real-time.

2. The First Part of the Study

The methodology of the research and its methodology consists of five paragraphs as follows:

2.1 The Research Problem

The lack of departments specializing in health promotion in our local unhealthy institutions is a phenomenon that deserves research, attention, attention and immediate treatment. The researcher recorded it through his observations and frequent visits to various state departments. Boredom due to the relatively similar daily work "in the work of our local institutions". This is well known to all and is not subject to discussion.

It is known that there is a widely circulated saying and spread in different social and economic circles in all countries of the world, namely, "a healthy mind in a healthy body". Unfortunately, it is in our institutions not more than a mere slogan we hear, but it is not activated in our unhealthy institutions, so it is not surprising. So from the absence of factors and stimuli for creativity in some of our institutions, the inactivity is almost "nested in them. It is not surprising that they did not create any new product or service, as this makes them restricted to waiting for stereotyped models from the West and the inevitability of spending more costs to learn them after they are abroad and have turned to others". This phenomenon must be addressed through the study raising the following questions, which the research will try to answer:

(1) Is it possible to open departments or units to promote health and benefit from its activities in our local unhealthy institutions? What is the extent of that possibility now being realized? And is there any point in including it?

(2) Is there a willingness to raise this issue in the current circumstances the country is going through? Is it possible to address the relevant authorities as an initiative by universities in developing the economic sector in the country?

(3) Do these concepts lead to improving the business performance of our struggling institutions in relation to the performance of the institutions of other countries?

(4) Can the causes of the current modest performance by the employees of our institutions be attributed to their lack of concern for their health by senior management

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by not providing a specialized department that promotes health?

The researcher believes that our unhealthy local institutions are in dire need of such trends, and they must be approached with scientific dialogue based on analysis and conclusion that the universities in Iraq bear their responsibility and tasks, and what they have to do is try to include scientific outputs, ideas and studies that can make them more keen "to preserve their competencies and wealth". And its intellectual and human capital to feel that it is dear and generous.

2.2 The Research Importance

(1) What indicates the importance of health in the countries and the implications of the work of the developed institutions globally, which is surprising is that the Ford Motor Company spends more on health care for its employees [1]. It spends on steel, which is the basic raw material for the automotive industry

(2) The share of the federal budget allocated to health care is now close to 14% of the general budget of the United States.

(3) Health is a crown on the heads of healthy people, and it must be established through the concerted efforts leading to it. Participation preserves the health and safety of workers and teamwork is a result of the results of participation directives and quality comes from the health of the five senses of workers and the intensity of their focus on their inclusion only verifies the health of their bodies, minds and psychological states.

(4) That the skills (mental, psychological and technical) required in the completion of the work assigned to individuals of the various upper, middle and lower administrative levels in the organizations are not achieved for the human resources working in them and in the various specializations and competencies except through adherence to the health system appropriate to the nature of the work practiced by the institutions and adherence to the health instructions for access to That planned purpose, the higher the conditions and health conditions for work, the closer the organizations to their goals of growth and prosperity.

(5) The environment, which is a social responsibility for all organizations of all kinds and activities, cannot be protected without appropriate health awareness that emerges from the womb of the organizational structure and is definitely included in it.

(6) And the. The call, through this study, to provide pleasant green and water views within local institutions, to clarify paths or paths, and to provide a distinctive appearance for employees as well as to create a garden whose view will reduce the effort and tension that workers feel at peak times with routines and try to heal them from it. [2]

2.3 The Research Goals

(1) Spread health awareness in the form and level that it should be and befits the reputation of the Iraqi people and rid the reality of the local institutional work environment from the distortions that afflict it.

(2) Reducing the burden on local health organizations and participating in raising awareness of prevention campaigns in institutions, each from its location by opening departments and units of care concerned with promoting the health of their workers to maintain public health manifestations in order to meet the requirements of the current stage in dealing with dangerous and rapidly spreading diseases in the world such as the multiple influenza pandemic Species (pigs, birds, goats, and horses).

(3) Preparing for steps that must be taken in the future to instill their concepts in the fields of unhealthy businesses, similar to the institutions of the developed world, and to trace their impact on development and health and participate in protecting the global environment (ozone, global warming).

2.4 The Research Variables

(1) Independent: Participation (and its pillars) in health promotion activities

(2) Approved: A safe atmosphere full of safety, satisfaction, quality and creativity.

2.5 The Research Hypotheses and Models

The study has a hypothesis that "there is a statistically significant relationship between participation and health promotion activities that contributes to the development of organizations' performance."

As for the study model, it was based on a simple idea that the support of local institutions for awareness-raising activities, education, participation and health promotion (which represents the lung) that provides an outlet for the organization through the interest in opening health promotion centers and psychological, social and physical counseling will inevitably lead to the workers' belief in taking care of the affairs, environment and assets of the organization With all my gratitude, this will constitute two wheels of progress pushing forward, and the more it increases in that, which is what the two circles (lungs) refer to, the more that is intended (+) in the general atmosphere and other details of work life of safety, quality, satisfaction and creativity, and the figure below illustrates the above:

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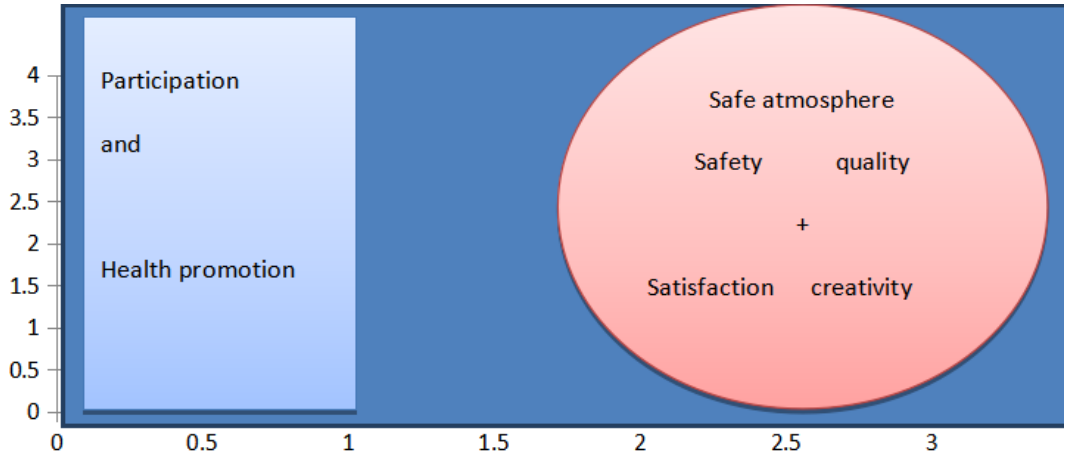

Figure 1. The default search form

3. The Second Part of the Research

3.1 The Concept of Participation in the Opinion of Some Researchers

Through teamwork that is based on training individuals working on the skills of communication, interaction and influence in others, any organization can practice it to obtain the best possible results in the work it performs and thus achieve the satisfaction of its customers and increase its reputation in the market in which it exercises its activity, which is expressed by participation.

Participation, called Empowerment, is one of the main components that represent the essence of the concept of employee integration into organizations [3].

Therefore, some view it as one of the most recent radical approaches to administrative development, which aims to involve workers at different administrative levels, especially the front lines, in taking decisions and acting freely in new situations that hinder their daily work [4]. According to Blumbery, participation is the way in which individuals influence decision-makers, and Vroom believes that participation is nothing but a two-way exchange between decision makers and those affected by it. Whereas, Mathuos believes it is the effort to influence decision makers in an organization by choosing from among alternatives.

We note from Matthews' definition above that he carries a behavioral point of view, so we can come to the definition of [5], which is considered by the individual's mental and emotional interaction with the group with which he works in a way that enables him to mobilize his efforts and energies to achieve common goals and assume his responsibilities towards them with awareness and self-drive.

From the above, it can be said that participation is one of the reasons for solidarity and one of the most important pillars of enthusiasm that leads to the unification of efforts in the entire organization as a whole, and this is what the divine religions also confirm, including the true Islam, which was embodied by the Almighty saying (and consulted with them in the matter) [4]. And it is the biggest proof that everyone proves that decisions become more mature and more rational and satisfied when they come out with the cover of the group, so the participation of workers in drawing the goals of the organization was not limited to supporting the organization's productive process only, but it has become a civilized feature and a renaissance and progressive approach consistent with the spirit and requirements of the age and its modern ideas. It is imperative to spread its values among the various parts of the organization, educate workers about its useful concepts that go hand in hand with the general culture of the organization, and spread the language of tolerance and apology that is emphasized by modern concepts of management, such as the culture of total quality management and the culture of instantaneous production, which are based on the element of participation.

3.2 Pillars of Participation

The most important pillars of participation can be summarized as follows: [6]

(1) The existence of mutual interaction between the members of the group based on mental and emotional harmony.

(2) Interdependence and communication between members of the group that achieves the collective position.

(3) Expressing interaction and links with serious work, joint effort, constructive dialogue and horizontal and vertical consultation openly and objectively by providing opportunities and establishing means of expressing the

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existence of communication that encourage the expression and criticism of positions and put forward meaningful alternatives to make the participation positive and effective.

(4) Participants have the perceptive awareness and personal conviction, and the internal motives stemming from commitment to the professional mission.

(5) The presence of the conscious leader of the group, united with its members and convinced of its capabilities.

3.3 Benefits of Participation for Health Organizations

After we have clarified the concept of participation and its pillars, its benefits must be clarified, as researchers interested in participation see that there are many benefits that result from the participation of workers in decision-making, and they can be summarized as follows [7,8]:

(1) Organizations that depend on the principle of participation in the completion of their work are more effective and responsive to the needs of their internal and external customers.

(2) It increases employee satisfaction and gives them self-confidence and pride.

(3) It gives employees an opportunity to contribute to achieving organizational effectiveness and operational efficiency.

(4) Development of the skills, expertise and experiences of the participants.

(5) Creating motives for the participants to make their decisions succeed and increase their enthusiasm to contribute to their implementation and defense, because of their feeling of their joint responsibility in making them.

4. The Third Part of the Research: The Concept of Health Promotion

It is the art of helping people change their lifestyle in order to reach an ideal state of health, which means a state of physical, psychological, social and spiritual integration and not merely freedom from disease. Therefore, the goal of (health promotion) (is to enable people and groups to increase control over their health and their quality of life and improve it). Accordingly, "the (Health Promotion Department) is considered a 'advisory' center" and supervises "the development of health awareness and making people themselves partners in maintaining and caring for their health".

Health Education

It is an ongoing media process that aims to urge people to adopt sound health practices in order to raise the health level of the individual and society, and reduce the spread of diseases [9].

Health education achieves this goal by spreading sound health concepts among the individual and society, introducing people to the dangers of diseases and directing them to the means of prevention.

4.1 The Goals that a Healthy Educated Seeks to Achieve

There are three main goals [10]:

(1) Health counseling to help people understand how diseases spread and get rid of them 1- Directing people to acquire correct information.

(2) Urging people to change misconceptions.

(3) Directing people to follow the desired correct behavior.

4.2 Who is a Health Educator

A person who conducts individual interviews or conducts groups of discussions with the participants.

4.3 Qualities of a Health Educated

presented several characteristics of health education, the most important of which are [9]:

(1) He shall be willing and willing to work in the field of health education.

(2) He must be conversant and have general health and cultural information and knowledge that qualify him to work in health communication and education programs, and to have a good understanding of the topic so that he can delve into the issues related to the topic and be able to build an atmosphere of familiarity and trust between him and the participants.

(3) To be free to work in the field of health education.

(4) To have an influential and social personality and the ability to persuade.

(5) He must have a qualification or academic achievement close to this field.

(6) In terms of choosing the sex of the health educator, being a man or a woman, that choice depends on the research topic, local customs, cultural standards, and the environment in which the participants live.

(7) To detail the information to suit each target group.

(8) Avoid flooding the target group with information.

(9) To respond to the concerns and concerns of the target group.

(10) To have the ability to establish a positive atmosphere and a positive dialogue language between him and the participants, and in the case of group discussion, he must be skilled "in managing the group discussion process so that he can stimulate or stimulate discussion among

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all the participants in the group instead" of conducting a question-and-answer session.

4.4 Methods of Health Education is done by

Health Contact So what is health contact? It is a systematic endeavor to positively influence the health practices of an individual and society.

Elements of health communication

The elements of communication are summarized in the word (Numbered) [11]:

whereas

(S = sender, M = message, C = channel, R= receiver E=Echo feedback)

(1) The sender: is the health educator who is familiar with the topic and who has the ability to communicate information.

(2) The message: It is a group of words or a short sentence that summarizes your story in a simple and understandable way, and it is that information that people circulate and pass on to friends, colleagues and others, and a good message is short that is at the heart of the topic and is interesting. It is also known as "correct, clear, understandable, interesting information and at the level of the recipient".

(3) The channel: (the means of communication) that transmits the message between the sender and the receiver, which is in the form of brochures, bulletins, recording equipment, radio, television.

(4) Echo feedback: It is the comments of the participants (the recipient or the receiver) where the sender is able to identify the opinions of the participants and their questions and discuss with them about the topic or the correct health information presented. (Echo return) plays an "important" role in making sure that the message has been received correctly, as health communication in this case is two-way, and this is one of the most important advantages of successful communication. Rather than being one-way, as happens on radio and television channels, where viewers are For television or radio listeners, they do not express their opinions to the broadcaster. Therefore, one-way communication may lead to many problems in understanding and comprehension and in accepting the correct information.

4.5 Means of Communication

FIRST. Direct contact:

(1) Two parties exchange discussions about the correct information until the correct concept is achieved, and direct contact takes place through individual or group meetings to exchange discussions about that correct information. The direct contact takes place "face to face" (verbal and non-verbal) and includes the exchange of information and feelings between individuals or small working groups to reach building a relationship of trust.

(2) Verbal communication: It is the communication that takes place through words, words and phrases as well as "sounds, so in this type of communication the sender uses the mouth and the tongue and the receiver uses the ear to hear these sounds. From here came the current study's emphasis on the need for the safety of the five senses for all human elements in the organization.

The channel of communication here is the direct confrontation between the sender and the receiver, and this communication may be accompanied by some explanatory means (folder - health message) in which the explanation and discussion between the sender and the receiver takes place.

(3) Non-verbal communication: It is a type of direct communication in which no words or words are used, but in which body movements are used, such as facial expressions, eyes, and gestures such as head and hand movements. Therefore, non-verbal communication is only achieved through personal, visual communication (both the sender and the receiver see each other) so that they can respond to these expressions and deal with them (such as the Braille method in teaching the blind). [12]

(4) Personal communication: It is the delivery of information, opinions and ideas from a sender to a receiver face to face, with echoes returning from the receiver to the sender.

SECOND. Indirect communication:

represented by the following means:

(1) Brochures: They contain correct information in the form of pictures with comments and instructions for a target group.

(2) Posters and flyers: They contain key information so that this information is clear, understandable, has an attractive picture, has appropriate colors, and is placed in the appropriate place so that the target group can see it.

(3) Recording devices: microphones, video films, television, and the blackboard, which are an ancient educational tool.

4.6 Requirements for Health Letter Work

When making a health message, you must: to always remain "(in the subject of the message) and not to delve into the details and then to get lost in the details. You also have to "remind the audience (workers or external customers) of the main topics repeatedly" as staying at the center of the topic is an important factor in health communication.

Focusing on the length of time that the audience will

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spend with the message, for example a message in the form of a billboard on a public road. Drivers passing by that road spend seconds of their attention on this message, so if this message is complex or multi-axis, it is very likely that "drivers will miss the idea of the message".

As for their requirements:

(1) Comprehension: Comprehension includes not only the degree of clarity of the material but also "how to present it. A difficult or incomprehensible word may prevent the audience from understanding the message or the message may be clear and the language used is appropriate, but the print is very small" which makes it difficult to read the message as well as broadcast Too many ideas that one may baffle the audience, so they miss the main content of the message.

(2) Gravity: If the material lacks gravity, then many of those who see or hear it will not regard it as important. Any wall brochure printed in faded colors, especially if the drawing or picture is not related to the topic or any boring radio program, may encourage listeners to change the station and therefore these materials lack attractiveness and do not attract the attention of the target audience.

(3) Acceptance: The message and the method of its delivery must be acceptable to the target audience. If the message's content contains something that outrages modesty or provokes controversy among the target audience or that cannot be believed, then the target audience will often reject this message addressed to him.

(4) Participation: The target audience should feel that the message is addressed to him, as people who do not find themselves in the message or feel that it is not directed to them will not give it any importance [13].

(5) Encouraging action: The materials must explicitly include encouraging and urging the target audience to carry out an action and to provide more information on the subject of the message, which leads to abandoning the wrong behavior and following the correct healthy behavior.

(6) Getting to the heart and mind of the audience so that they feel that the message material addresses them directly and gives them a feeling of confidence or enthusiasm that they can accomplish something based on "the correct information mentioned in the subject of the message, provided that this message reflects actually existing cases" in reality with solutions A process for the problem, not just a presentation of the problem [14].

(7) Rephrase and repeat important information, especially when addressing those with low educational levels, as this helps the audience to understand and remember the topic of the message.

4.7 Steps to Produce Health Awareness Methods

The first step: prepare the health letter

The health message: It is a group of words or a short sentence that summarizes your story in a simple and understandable way, and it is that information that people circulate and pass on to friends, colleagues and others. A good message is short that feeds into the heart of the topic and is interesting.

It is also known as "correct, clear, understandable, interesting information and at the level of the recipient".

The second step: setting the production plan: Searching and reviewing pre-existing materials: Some of the materials you find already exist, which saves us time, effort and money. (1) Defining the goal and purpose of producing these materials. Knowing the information the target audience wants to know. (2) Knowing the type of materials to be used: printed materials, radio, television. (3) Knowing the cost of materials and the cost of their distribution. (4) Create a budget for production.

The third step: what does the audience know in advance "about the topic"? What is the wrong information that he previously heard on the subject? What are the questions they have? defining and studying the target audience.

The fourth step: make the health message

When making a health message, you must:

(1) To always remain "in the subject of the message" and not to go into the details and then to get lost in the details. You must also remind the audience of the main topics "over and over", as staying at the center of the topic is an important factor in health communication. (2) Focusing on the length of time that the audience will spend with the message, for example a message in the form of a billboard on a public road. Drivers passing by that road spend seconds of their attention on this message, so if this message is complex or multi-axis, it is very likely that "drivers will miss the idea of the message".

* Effective formulation of the message so that it is based on brief facts that move emotions according to the needs of the target audience, provided that it is enhanced with visual effects (pictures, tables, drawings, characters) as this helps the audience to understand, remember and reach the message more than any printed words with attention to the audience Those with a low educational level, as drawings and pictures help to convey the message's topic a lot of the written text, and on the contrary, with the educated audience, the focus is on the logical sequence of the text and the use of the appropriate language for that educated audience, with emphasis on the following five points:

(1) Assimilation; (2) Gravity; (3) Acceptance; (4)Par-

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ticipation; (5) Urging to work.

The fifth step: drafts of materials The draft:

It is not the final material, but you will test it with your target audience to find out if it is understood and acceptable or not. Taking into account that the printed material in the message if it is directed to the educated class in this case will be the writing accompanying the pictures more while in the case of the message so that each picture shows a part. From the message this is called the storyline. As in the example of a health message that encourages the use of a solution to treat cracked skin on an infected agent:

(1) A photo of the crack treatment solution

(2) A picture of a man with it

(3) A picture of a colleague preparing the solution

(4) A picture of an agent handling this solution

(5) A picture of disposal of the remnants of this used solution after the expiration of one day of use

The sixth step: produce the materials After making sure that the materials have won the acceptance of the target audience and everyone concerned begins the actual production phase: the production of printed materials is taken into consideration: Material Type (Poster, Folded)

(1) The size

(2) Colors

(3) The type of paper (coarse, smooth, glossy) all this affects the cost

(4) Number of pages

(5) If the material contains pictures or not?

(6) The number of copies to be printed Distributing materials or training in their use

After the production of the materials is finished, they are distributed to the individuals who will use them and then they are trained to use them with the target audience. It is better to make a distribution plan to ensure that the produced materials reach all service outlets and this requires a chain of distribution starting from the central level in the administration to the operational level.

The seventh step: evaluation of materials

The evaluation will inform you first, "whether the material has achieved its desired purpose or not ?. Also," the evaluation will introduce you to the strengths and weaknesses of the materials produced, in the selected communication channels, and in the pre-test method that you followed.

4.8 Methods of Evaluation

(1) Personal interview with the target audience.

(2) Conducting personal interviews with the targets and asking them if they can remember the information that was in the materials and if this information has changed their behavior.

(3) Holding group discussion sessions with the target audience and service providers to obtain feedback from them.

(4) Conducting a survey or research to assess the information, trends and practices of the target audience.

(5) Monitor and evaluate the effectiveness of distribution channels by reviewing the persons responsible for distribution in the various stages.

(6) Observing the process of using the materials by observing the target audience in the practice of preparing a rehydration solution or their attendance at the health center in the institution for the purpose of immunization.

* Pretend that you are a beneficiary and note if the service provider will offer you educational materials on the subject and if he will answer your questions in an acceptable manner.

5. The Fourth Part of the Research

The process of examining and testing the feasibility of incorporating the concept of substantial participation and the activities of the Health Promotion Unit in our local institutions The researcher prepared the following checklist and distributed it to a limited experimental number of local non-health institutions, including (girls 'schools for the importance of health for women and the requirements of her female body's safety in adolescence, Shatt al-Arab University College, and the Iraqi Ports Company) to meet the study objectives.

Results and Proof of Hypothesis:

After analyzing the data received from the three tested or examined institutions above, the results were as follows:

(1) Girls' schools scored on a general grade scale, which reached a total of (3840) points, with a general average of (128) points. When the division process was made on the number of variables of (16) variables, the result was close to (8) from a range that reached a maximum of (10). With a response rate of 74%, this rate indicates something, but it indicates that these schools support the actual need that requires the creation of a health promotion department specialized in alleviating some of the health suffering that the administration feels, as well as the support of the sample members for the desired participation and empowerment.

(2) The university also carved the same approach, as the Shatt al-Arab University College, the examined university, indicated an average of (6) out of the maximum range of (10) as it got points totaling (576) with an overall average of (96) and a rate of 11%, which indicates the positive in

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Table.1 Checklist for the feasibility of incorporating the health promotion unit in the structure from the point of view of a random sample in some different institutions and distributed to a sample from each sector of 30 individuals in each of the three sectors below. (n=90)

Series	Question	the range	Choose the appropriate score		
			Average answers Schools sample Girls n = 30	Average answers Shatt College Arabs n = 30	Average answers Port company Stronghold n = 30
1	What is the level of integration of workers with work in your organization?	1-10	7	6	7
2	What is the level of the degree of freedom granted to you by the administration?	1-10	7	6	8
3	Supreme in disposing of new situations.	1-10	4	5	9
4	What is the degree of interaction and harmony with your colleagues?	1-10	10	7	8
5	Is the level of solidarity and enthusiasm appropriate to achieve success?	1-10	4	4	8
6	In your organization?	1-10	6	8	8
7	What is the degree of expression and frankness in the official work atmosphere	1-10	8	5	4
8	Prevailing?	1-10	6	7	7
9	How satisfied are you with the level of participation	1-10	8	6	10
10	In your organization and hat is the degree of its contribution to achieving quality in	1-10	6	6	6
11	How strongly do you support the creation of the Health Promotion Department?	1-10	6	5	6
12	In your organization?	1-10	8	7	10
13	Do you support the appointment of a health advisor in your organization?	1-10	6	6	8
14	Do you develop a state of boredom at work? You need to see a consultant doctor to support you	1-10	8	6	8
15	Do you feel that the health promotion section is what your organization needs?	1-10	7	4	5
16	And the current healthy time calls for the development of that department?	1-10	7	8	6
Total overall averages of scores			112	96	128
Details of the answer in numbers for the samples as a whole: n * degree of question			784	576	3480
The percentage of each sample			15%	11%	74%

Source:
The researcher's behavior with the help of ideas [13].

the aforementioned trend. Although it is limited.

(3) As for the Maqal Ports Company, the percentage of its response to this idea was (7) from a maximum range of (10), as its points indicated a total of (784) with a general average of (112) indicative of the validity of the initial hypothesis that summarized b (there is a statistically significant relationship between Participation and health promotion activities contribute to the development of organizations performance).

6. The Fifth Part of the Research: Conclusions and Recommendations

6.1 Conclusions

(1) We conclude from the theoretical side of the research that any organization based on a culture based on flexibility, participation and health is morally linked to quality improvement processes and therefore it is positively related to the customer's awareness and senses,

which makes employees possess some of the enrichment of organized work that achieves the general goals of the organization as long as the organization meets everyone's aspirations.

(2) Promoting joint endeavors by linking the efforts of (media to administration and health) to save individuals, society and organizations from deadly diseases.

(3) The immediate move to encourage investors concerned with humanitarian activities related to transnational organizations and rid humanity of infectious diseases that affect the entire global economy is the top priority for all organizations in the world in light of the spreading epidemics and increasing the spread and danger to human resources in Iraq and the world.

(4) Health performance is a partner of all businesses and sectors. The horizons of appointment must be opened to include all professionals and from various sectors in all institutions, and the specializations are enriched under the so-called multi-talented individual and the organization with diverse skills, and this case will stand up to the types of challenges and crises that surround the organizations and their various forms and activities without discrimination.

6.2 Recommendations

(1) It is beneficial for all our non-health institutions to open departments concerned with the promotion of health in order to meet the preventive requirements of the age.

(2) It is advisable to firmly confront rumors, malicious practices and ideas that hinder the development (health, social and economic) in our local institutions. (3) It is necessary to spread health information in cooperation with health institutions specialized in the health field among all segments of society, including universities.

(4) It is important to improve awareness of environmental affairs by all organizations and embrace the concept of environmentally friendly organizations in order to preserve "the universe."

(5) The first is to create an entertainment atmosphere that supports and supports the safety of a person's psyche from the attack of boredom that he feels at the site of routine and official work. It must be spread and implanted in organizations, and the manifestations of discord and hatred should be eliminated by spreading the culture of apology, cooperation and tolerance, which is an "important" aspect of the required healthy coexistence At the current stage.

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ARTICLE

Online Shopping: Antecedents of Attitude, Intention and Use

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ABSTRACT

Consumer behavior in electronic commerce has been the theme of hundreds of studies conducted by researchers of many nationalities in the past twenty years. The purpose of this study was to review and classify the concepts used in papers published between 2003 and 2014 to explain the consumer behavior in electronic commerce. A systematic search of the literature in nine databases was performed and 136 papers published in double-blind peer reviewed journals were selected. Reference models were prepared based on a classification of the concepts found. This article reports only the concepts that displayed statistical significance in the studies analyzed. Finally, we suggest new studies that can be conducted.

1. Introduction

The Information Revolution has led to a profound change in development of commerce [1]. Exchanges came to be made using information technology, through personal computers and a global communications network. This technology allowed the development of a form of commerce that mentally eliminated geographic distance and gives the impression that there is only a single market [1]. This new form of commerce is usually called electronic commerce (or e-commerce). Various definitions of this concept are found in the literature, including those offered by [2-5]. All these definitions have points in common but are also complementary in certain ways. Thus, electronic commerce (e-commerce) is understood to be any activity or delivery of goods, which has an immediate, prior, or posterior commercial purpose, totally or partially conducted through electronic devices connected to the Internet. It can involve individuals, companies, governments, non-business organizations and all the possible relationships between them, even among themselves.

Since the appearance of e-commerce, dozens of studies have been conducted to understand the behavior of consumers in this market, as can be seen in the work of [6], which combines the results of 45 studies conducted from 1990 to 2003. Considering the technological development that has taken place since the latter date and the use of more recent theories to predict behavior, such as the Unified Theory of Acceptance and Use of Technology (UTAUT) - conceived in 2003 [7] - in studies by [8] and [9], it is believed that research about electronic commerce has evolved in relation to the use of concepts to explain consumer behavior in

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this new market.

Nevertheless, despite the use of new models and theories, the constructs attitude, intention and use - coming from the Theory of Reasoned Action (TRA) and which have influenced the Theory of Planned Behavior (TPB), the Technology Acceptance Model and UTAUT - are still central to the most recent studies. Of the 166 articles published from 2003 to 2014, 81.93% (136) incorporate at least one of these three constructs in the models tested. It should be highlighted that in all the 136 works the influence of the constructs tested was statistically significant in the consumer behavior.

On this basis, this study proposes to conduct a literature review about the antecedents of attitude, intention and use in a more recent time period than that used in the study by [10]. The summarized objectives of this article are:

(1) To classify the antecedents of use, intention, and attitude in the context of online shopping, confirmed in the studies published from 2003 to 2014 in scientific journals that use double-blind peer review;

(2) Based on the classification of the antecedents, to construct reference models for each one of the three constructs mentioned, as well as a general model, representing the relationships confirmed between all the groups and constructs.

The following section presents the details of the study's methodological procedures.

2. Method

To meet its objectives, this study conducted document research and uses secondary data, collected in documents published by scientific journals. To identify the material, a systematic search of the literature was conducted based on the literature review method proposed by [11]. The study included articles published between 2003 and 2014 in Portuguese and English, and was conducted in the following scientific data bases: ACM, EBSCO, Emerald, Academic One File (Gale), Scielo, Science Direct, Springer, Web Of Science and Wiley. The search terms used to locate the material were the same as those used by [10], who conducted a similar study, but for the period from 1990 to 2003. These search terms are: *<"online shopping">, <"online" AND "shopping">, <"internet shopping">, <"internet" AND "shopping">, <"online buying">, <"online purchase">, <"electronic commerce">,* and <"*online" AND "consumer behavior"*>. The references located were imported to the reference manager software EndNote X7®. The initial search resulted in 9,938 non-duplicated references. Only their titles were read, and only the references whose titles made some reference to online shopping were maintained. Of these, 1,652 displayed adherences to the study, of which 1,519 permitted access to the complete document. The next step was to read the keywords and abstracts, a step in which were maintained only the empiric articles that analyzed consumer behavior in online shopping. A total of 341 articles adhered to the research objectives. Then, in February 2015, the Internet page of the 123 scientific journals that published these articles was accessed to identify the evaluation system adopted. Of these, 59 affirmed on their page that they use double blind peer review, and these journals accounted for a total of 166 of the published articles selected. It should be emphasized that this study only considered articles published in periodicals with a double-blind peer review evaluation system. To determine the quality of the systematic search of the literature, of the 59 journals identified, the ten with the most articles published about the research theme were selected. These ten journals accounted for 51.8% of the articles published in journals with a double blind peer review evaluation system, and are: *International Journal of Retail & Distribution Management, Internet Research, Behaviour & Information Technology, Online Information Review, European Journal of Marketing, Journal of Electronic Commerce Research, International Journal of Electronic Commerce, Journal of Fashion Marketing and Management, MIS Quarterly and Social Behavior and Personality.* The Internet site of each one was accessed and the titles of all the articles published by each journal between January 2003 and December 2014 were analyzed to identify if all the articles that adhered to the theme of this study had been located in the initial search. No new document was found. Then, the hypotheses tested in each of the articles were analyzed, and only those that tested antecedents of use, intention or attitude in an online shopping context were considered. After this filter, 136 documents remained.

Of the 136 articles that adhere to the objectives of this study, all the confirmed antecedents of use, intention and attitude in an online shopping context were surveyed. These antecedents were organized on the Excel® software and were then classified based on their definition. The results of this classification are presented in the following tables. Based on this classification, the reference models were prepared, and are presented in the format of a figure.

The next section presents the concepts, which have now been classified, used in the literature to explain consumer behavior in the context of online shopping and the reference models constructed based on this classification.

3. Results

This section presents the antecedents of attitude, intention and use in the context of online shopping, with their

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respective classifications, and the reference models constructed based on this classification.

Figure 1 presents the general reference model, encompassing the antecedents of the three constructs that are the focus of this study (attitude, intention, and use). As can be seen, these three constructs are affected by the variables of all the other five, located at the upper and lower extremes. Among the constructs attitude, intention, and use, only the first is not influenced by the others, according to the data collected in the literature.

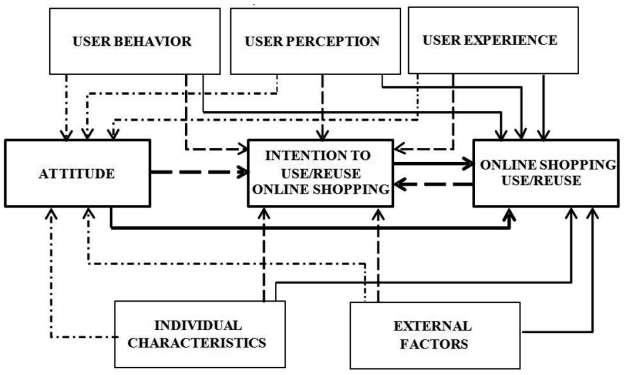

Figure 1. Reference model for attitude, intention, and use in online shopping context

Source: Prepared by the authors, 2020.

With a greater level of depth, the next section specifically addresses the antecedents of attitude in the online shopping context.

3.1 Antecedents of Attitude in the Context of Online Shopping

As can be seen, Figure 2 presents the groups and subgroups that affect attitude in the context of online shopping. The variables (or concepts) that compose each one of these groups/subgroups are presented in Table 1, together with the indication of the source and of the direction of influence on attitude. Variables accompanied by a plus sign (+) positively influence attitude, while variables accompanied by a minus sign (-) negatively influence attitude. Variables without either sign can be nominal variables, or the literature consulted did not analyze the direction of its influence. It should be remembered that all the variables in Table 1 exercise direct and statistically significant influence (to the level of at least 0.05) on attitude.

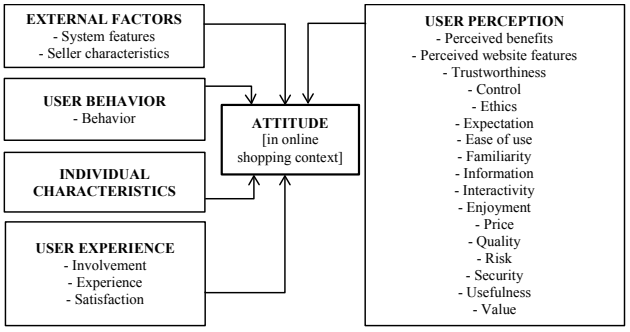

Figure 2. Reference model of antecedents for attitude in online shopping context

Source: prepared by the authors, 2020.

Table 1. Antecedents of attitude in online shopping context

INDEPENDENT VARIABLE	REFERENCE
Individual characteristics	
Computer anxiety (-)	[12]
Cognitive absorption (+)	[12]
Self-enhancement (+)	[13]
Consumer demographics	[14]
Conservation (-)	[13]
Need for sensory interaction (-)	[15]
Need for social interaction (-)	[15]
Innovativeness (+)	[12, 16]
User behavior	
Behavior	
Internet exposure level (+)	[12]
User experience	
Involvement	
Involvement (+)	[17]
Website involvement (+)	[18]
Experience	
Internet experience (-)	[19]
Internet experience using customized site features (+)	[20]
Online shopping experience (+)	[12,21-23]
Online shopping frequency	[14]
Satisfaction	
Satisfaction (+)	[14,24-26]
External factors	
System features	
Purchasing decision aids using customized site features (+)	[20]
Avatar-mediated communication (+)	[27]
Download delay (-)	[28]

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Layout design of website (+)	[29]
Site effectiveness (+)	[18]
Human-human interactions (+)	[30]
Human-message interactions (+)	[30]
Seller characteristics	
Merchandising (+)	[31]
User perception	
Perceived Benefits	
Perceived benefits of online shopping	[23]
Perceived benefits	[14]
Perception of social benefits (+)	[32]
Relative advantages (+)	[17]
Perceived website features	
Attractiveness of website (+)	[33]
Complexity (+)	[17]
Website reliability (+)	[33]
Perceptions of web design aspects (+)	[32]
Interface and protection (+)	[31]
Social telepresence experienced by customer (+)	[34]
Trustworthiness	
Trustworthiness (+)	[24,26,35-38]
Potential customer's trusting beliefs (+)	[39]
Trust in getting information (+)	[28]
Trust	[40]
Trust on seller (+)	[28,41,42]
Trust in website (+)	[42,43]
Trust in group members (+)	[42]
Control	
Computer self-efficacy (+)	[12]
Perceived compatibility (+)	[17]
Ethics	
Ethics of online retailer's websites (+)	[43]
Expectation	
Adjusted expectation (+)	[24]
Ease of use	
Perceived ease of use of online shopping (+)	[16,28,44-46]
Perceived ease of use of website (+)	[33]
Perceived ease of use on information seeking (+)	[28]
Familiarity	
Perceived familiarity with online shopping (+)	[15]
Information	
Alternative information (+)	[20]
Interactivity	
Interactivity (+)	[25]
Perceived machine interactivity (+)	[34]
Enjoyment	
Site entertainment (+)	[18]
Emotional arousal (+)	[29]
Perceived enjoyment (+)	[38]
Enjoyment on website (+)	[33]
Price	
Perceived price (+)	[47]
Quality	
Information quality (+)	[31]
Risk	
E-commerce transaction perceived risk (-)	[48]
Perceived online risk (-)	[49]
Perceptions of invasion of privacy (-)	[32]
Perceived risk (-)	[12,42]
Perceived risk in e-commerce (-)	[23,50]
Security	
Personal awareness of security	[16]
Usefulness	
Perceived usefulness of blogger's recommendation (+)	[40]
Perceived usefulness (+)	[12,38,45,46,51]
Perceived usefulness of online shopping (+)	[28,44]
Value	
Personal values	[52]
Perceived service of a product (+)	[47]
Product value (+)	[28]

Source: Prepared by the authors, 2020.

Now that the antecedents of attitude in the online shopping context found in the literature have been presented, the next topic presents the antecedents of intention to use or reuse online shopping.

3.2 Antecedents of Intention to Use or Reuse Online Shopping

As in the previous section, Figure 3 presents the groups and subgroups that affect intention to use/reuse online shopping. The variables (or concepts) that compose each one of the groups and subgroups are presented in Table 2, together with the indication of the source and the direction of the influence on the intention. Variables accompanied by a plus sign (+) positively influence the intention, while

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variables accompanied by a minus signal (-) influence the intention negatively. Variables without any signal can be nominal variables, or that is, the literature consulted did not analyze the direction of the influence. It should be remembered that all the variables presented in Table 2, exercise direct and statistically significant influence on intention.

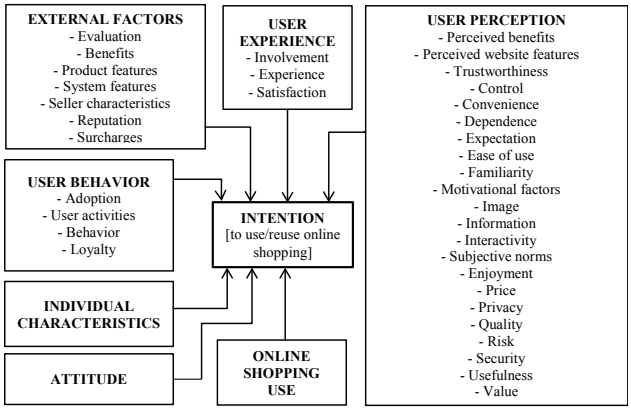

Figure 3. Reference model of antecedents for intention in online shopping context

Source: prepared by the authors, 2020.

Table 2. Antecedents of intention to use/reuse of online shopping

INDEPENDENT VARIABLE	REFERENCE
Attitude	
Attitude (+)	[8,16,17,19,24-26,36,45,46,53]
Potential customer's attitudes toward the store (+)	[39]
Attitude toward instructional video advertising (+)	[30]
Attitudes toward shopping for cultural products on the internet (+)	[31]
Attitude toward online shopping (+)	[13,15,23,34,37,38,40,42,44,47-51]
Attitude toward service (+)	[18]
Attitude toward the seller (+)	[41]
Attitude toward website (+)	[29,43]
Individual characteristics	
CMSI (-)	[54]
Risk aversion (-)	[55]
Demographic motivational factors	[56]
Economic motivational factors	[56]
Personal internet interest (+)	[57]
Number of children (+)	[58]
Impulse purchase orientation (+)	[59]
Technology readiness (+)	[60]
Extraversion (-)	[61]
Married and children status (+)	[62]
Gender	[58,63-65]
Age (-)	[62]
Innovativeness (+)	[16,17]
Innovativeness towards online shopping (+)	[44]
Emotion	[66]
Income (+)	[58, 62]
User behavior	
Adoption	
Web-shopping adoption (+)	[21]
User activities	
Information search using the retailer's online store (+)	[67]
Habit of searching for information (+)	[21]
Behavior	
Web use (+)	[68]
Impulsiveness (+)	[68]
Loyalty	
Inertia (+)	[69]
User experience	
Involvement	
Affective involvement (+)	[70]
Cognitive involvement (+)	[70]
Website involvement (+)	[18]
Experience	
Online shopping experience (+)	[22,23,59,63,64,71-75]
Flow experience (+)	[70,76,77]
Emotional experience (+)	[78]
Functional experience (+)	[78]
Satisfaction	
Satisfaction [general] (+)	[9,24,25,69,79-84]
Satisfaction with online shopping (+)	[61, 85]
Satisfaction with online store (+)	[86,87]
Satisfaction with website (+)	[60,88]
Design satisfaction (+)	[89]
Satisfaction with e-service quality (+)	[90]
Satisfaction within post-purchase stage of the online buying process (+)	[91]
After-delivery satisfaction (+)	[92]
Evaluation-based satisfaction (+)	[93]
Emotion-based satisfaction (+)	[93]

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Satisfaction within purchase stage of the online buying process (+)	[91]
Satisfaction with vendor (+)	[94]
External factors	
Evaluation	
Credibility of online consumer reviews (+)	[95]
Infomediary (+)	[96]
Online review manipulation [to positive] (-)	[97]
Online review manipulation [to negative] (+)	[97]
Online review quantity (+)	[98-100]
Benefits	
Promotional offers (+)	[21]
Product features	
Product type	[63]
System features	
Banner advertisements	[101]
Attractiveness of website (+)	[33]
Informativeness (+)	[18]
Website stickiness (+)	[102]
Avatar-mediated communication (+)	[27]
Website reliability (+)	[33,101,103]
Presentational consistency	[101]
Usability (+)	[104]
Product choice variety (+)	[55]
Functionality (+)	[95]
Seller characteristics	
Merchandising (+)	[31]
Reputation	
Store image (+)	[105]
Firm reputation (+)	[95]
Surcharges	
Surcharges (-)	[106]
User perception	
Perceived Benefits	
Net benefit (+)	[81]
Time/effort savings	[107]
Incentive programs (+)	[58]
Relative advantages (+)	[108]
Online shopping relative advantages (+)	[54]
Perceived website features	
Result demonstrability of e-commerce (+)	[54]
Perceived playfulness (+)	[109]

Trustworthiness	
Cultural environment of trust (+)	[49]
Trustworthiness (+)	[19,24,34,36,40,46, 59,74,80,103, 104,110-112]
Trust on the internet (+)	[8,57]
Perceived confidence of internet shopping at the online retailer (+)	[67]
Trust toward online shopping (+)	[40,54,72,113]
Trust on internet shopping mall (+)	[103,114]
Trust on e-tailer (+)	[115,116]
Trust on seller (+)	[81,94,113,117-119]
Trust in website (+)	[43,102,120]
Control	
Compatibility (+)	[54]
Perceived behavioral control (+)	[13,19,28,47, 121,122]
Perceived control (+)	[17]
Online proficiency [self-efficacy derived] (+)	[55]
Convenience	
Convenience (+)	[123]
Convenience based pragmatic motivational factors	[56]
Dependence	
Online shopping information dependency (+)	[44]
Internet dependency (+)	[124]
Expectation	
Adjusted expectation (+)	[24,84]
Performance Expectation	[8]
Ease of use	
Perceived ease of use [general] (+)	[16,19,53,95,109, 117,118]
Perceived ease of use of online shopping (+)	[16,54]
Perceived ease of use of website (+)	[33,110]
Familiarity	
Familiarity with a web site's brand (+)	[71]
Motivational factors	
Service excellence motivational factors	[56]
Situational motivational factors	[56]
Attributes of product based motivational factors	[56]
Search and information based pragmatic motivational factors	[56]
Time and efforts based pragmatic motivational factors	[56]
Hedonic shopping motivation	[65]
Image	

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Reputable retailer brand (+)	[96]
Perceived online reputation (+)	[101]
Online reputation of an online supplier	[101]
Perceived company size (+)	[104]
Information	
Information overload (-)	[125]
Perceived amount of information (+)	[126]
Interactivity	
Interactivity (+)	[25]
Social presence (+)	[74]
Subjective norms	
Perceived social norm (+)	[13]
Subjective norms (+)	[17,34,47,121,122, 127,128]
Enjoyment	
Arousal (+)	[126]
Emotional arousal (+)	[29]
Enjoyment (+)	[118,123,126-128]
Online shopping enjoyment	[107]
Enjoyment on website (+)	[33]
Price	
Price attractiveness	[107]
Perception of favorable price (+)	[92]
Perceived price (-)	[123]
Privacy	
Perceived privacy control (+)	[57]
Information privacy concerns (-)	[57,116]
Perceived privacy (+)	[95]
Quality	
Online review quality (+)	[98, 100]
Information quality (+)	[79]
Website information quality (+)	[129]
Interface quality (+)	[101]
Quality of argument in online reviews (+)	[99]
Product quality (+)	[130]
Service quality [general] (+)	[79,129]
Service quality of online store (+)	[86]
Perceived service quality of e-commerce website (+)	[129]
E-service quality (+)	[90]
System quality (+)	[79,129]
Site quality (+)	[94]
Risk	
Product risk (-)	[75]
Product quality risk (-)	[131]
Transaction risk (-)	[131,132]
Financial risk (-)	[75]
Perceived risk (-)	[107,110-112, 125]
Perceived risk in e-commerce (-)	[73]
Social risk (+)	[132]
Security	
Personal awareness of security (+)	[16]
Safety perception (+)	[53]
Security (+)	[101]
Usefulness	
Perceived usefulness of instructional video advertising (+)	[30]
Perceived usefulness (+)	[16, 19, 46, 62, 95, 109, 117, 118, 127, 128]
Perceived usefulness of online shopping (+)	[44,73,82,91]
Perceived usefulness of website (+)	[61,110]
Value	
Product value (+)	[77]
Perceived value (+)	[95,105,123]
Use	
Greater use of the internet to purchase search products (+)	[108]
Greater use of the internet to purchase experience products (+)	[108]

Source: prepared by the authors, 2020.

Now that the antecedents of intention to use/reuse online shopping found in the literature have been presented, the next section presents the antecedents of use or reuse of online shopping.

3.3 Antecedents of Use or Reuse of Online Shopping

As in the previous section, Figure 4 presents the groups and subgroups that affect the use (or reuse) of online shopping. The variables (or concepts) that compose each one of these groups/subgroups are presented in Table 3, together with the indication of the source and the direction of influence on the use of online shopping. Variables accompanied by a plus sign (+) positively influence use, while variables accompanied by a minus sign (-) negatively influence use. Variables without a sign can be nominal variables, or the literature consulted did not analyze the direction of influence. It should be remembered that all the variables presented in Table 3 have direct and statisti-

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cally significant influence on the use of online shopping.

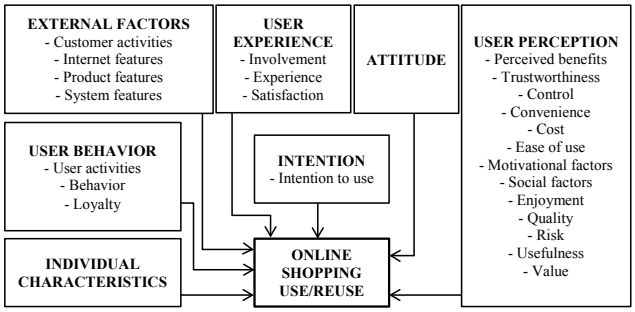

Figure 4. Reference model of antecedents for use/reuse in online shopping context

Source: Prepared by the authors, 2020.

Table 3. Antecedents of use/reuse in online shopping context

INDEPENDENT VARIABLE	REFERENCE
Attitude	
Attitude toward online shopping (+)	[35,52]
Individual characteristics	
Self-enhancement (+)	[133]
Gender	[134,135]
Innovativeness (+)	[136]
Education level (+)	[135]
Income (+)	[134]
Economic condition (+)	[137]
User behavior	
User activities	
Information seeking (+)	[135]
Getting product information from a vendor's website (+)	[28]
Product search on web (+)	[138]
Search process on web (+)	[138]
Use of other direct marketing channels to shop (+)	[134]
Behavior	
Internet exposure level (+)	[135]
Loyalty	
Website commitment (+)	[139]
Website loyalty (+)	[140]
User experience	
Involvement	
Involvement of Internet usage (+)	[133]
Experience	
Online shopping experience (+)	[141]
Total number of years consumers have been Internet users (+)	[135]
E-mail activity (+)	[135]
Telephone purchasing activity (+)	[135]
Internet experience (+)	[134]
Habit	[142]
Satisfaction	
Satisfaction with online store (+)	[87]
External factors	
Customer activities	
Do the bulk of shopping for a household (+)	[135]
Internet features	
Variety of Internet activities (+)	[135]
Product features	
Product features (+)	[141]
Search-goods categories (+)	[21]
System features	
Website reliability	[143]
Website design	[143]
Intention	
Intention to use	
Intention to use e-commerce (+)	[37-39,46,55, 68,79,110]
User perception	
Perceived Benefits	
Perceived benefits of online shopping (+)	[134]
Perceived benefits (+)	[135]
Perception of time saving (+)	[141]
Relative advantages (+)	[108]
Trustworthiness	
Trust toward online shopping (+)	[32,46,137]
Control	
Perceived behavioral control (+)	[35]
Perceived behavioral control in e-commerce (+)	[28]
Online proficiency [self-efficacy derived] (+)	[55]
Convenience	
Online Shopping inconvenience perception (-)	[133]
Cost	
Perceived cost (-)	[135]
Ease of use	
Difficulty in selecting items (-)	[144]
Perceived ease of use of website (+)	[141]
Motivational factors	

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Affect for traditional "bricks and mortar" purchasing (-)	[135]
Social factors	
Importance placed on the loss of social interaction in internet shopping (-)	[134]
Enjoyment	
Enjoyment (+)	[108]
Quality	
Product quality (+)	[141]
Risk	
Product risk (-)	[108]
Perceived risk	[145]
Perceived risk in e-commerce (-)	[134]
Usefulness	
Perceived usefulness (+)	[45]
Perceived usefulness of online shopping (+)	[138]
Perceived usefulness of travel e-shopping (+)	[136]
Value	
Hedonic shopping value	[142]
Utilitarian shopping value	[142]

Source: Prepared by the authors, 2020.

Now that the antecedents of attitude, intention and use in the online shopping context have been presented, the next section presents the conclusions.

4. Conclusions

As mentioned in the introduction, the purpose of this article was to review the literature about online shopping to identify the confirmed antecedents of attitude, intention and use in the works published from 2003 to 2014. As supposed, the works published in this period in fact used new concepts and new theories to explain consumer behavior in online shopping, which can be found by comparing the results of this study with those reached by [6].

Due to the variety of concepts found in the literature, the work of classification required a detailed analysis of their definitions, mainly of the concepts not derived from theories. In the opinion of the authors, the analysis of the definitions is what can guarantee greater trustworthiness of classification in relation to what the authors of the works consulted proposed to analyze.

Even though the online shopping market has already reached a certain degree of maturity, it is believed that new studies will always raise new concepts to explain consumer behavior in this market. This is because the use of new concepts does not depend on a maturing of the online shopping market, but much more on the development of new theories, mainly in the field of psychology.

As can be seen, the major focus of the studies falls on psychological variables. In this scope, greater attention has been given to the variables related to user perception. Dozens of studies have invested in the analysis of perception of quite specific variables, escaping the command of the dominant theories. And as seen, these studies have obtained success in concentrating on these variables, given that many of them have seen their influence statistically confirmed.

Many studies have also focused their efforts on analyzing the influence that a previous experience has on the online shopping context. One particular concern has been the influence of satisfaction. But, in addition, a strong concern among researchers for external factors was also found, variables that are not under the control of the individual at the time of the transaction. Various external variables have been tested and have seen their influence in the online shopping context confirmed. Among the groups presented in this article, it is believed that the external factors group has greater space to still be developed, mainly in questions related to the system (software), given that this is the form of entrance to any virtual store.

Considering the limits of this study to scientific periodicals with double blind peer review evaluation systems, sixty-four scientific periodicals with articles published about consumer behavior in online shopping were not analyzed. Thus, as a recommendation for future studies, the analysis of the works published in these journals is proposed. Another research recommendation is to analyze variables not confirmed in the articles referenced in this study.

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ARTICLE

Analysis of Service Delivery Improvement of Manufactured Products with Lean Method Management

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ABSTRACT

This study aimed to determine the waste that occurs in activities from receiving to delivering of finished products that can result in delays in the delivery of audio to Japan. The waste identified is limited to activities in the finished goods warehouse. The problem that occurs is the delay in product delivery, because the product is not ready to be delivered so that it causes delays. The lean approach is used to reduce waste in the overall work process activities in the finished goods warehouse. Waste identification was performed through the 7 waste approach. Process Activity Mapping is one of the tools of VALSAT, and is looking for critical waste to find the root cause of waste. Delay can be minimized by making improvements to the layout of the warehouse and routine inspection of goods transporters. Companies should use lean to reduce the waste that occurs so there is no delay in the delivery of audio products.

1. Introduction

Distribution is the process of channelling products from producers to consumers. Ease of consumers in getting the desired product is the top priority of every company to satisfy its customers. Distribution problems are often the biggest obstacle, especially for companies that produce mass. Errors in planning distribution strategies can cause products that should be delivered to consumers on time according to the agreement but become late and the company loses money. Distribution is an important factor in marketing. In the distribution process, one thing that must be considered is customer satisfaction because customer satisfaction will affect the success of product sales. One of the factors of customer satisfaction is the product arrives to consumers on time and the product is as expected. Philip Kotler defined distribution as a group of companies and individuals who take over rights or help in taking over the rights of the goods or services from producers to consumers [1]. According to Kotler a company that carries out physical distribution, certainly has goals to be achieved. The purpose of physical distribution is to move products in the right amount, at the right time, and at the right place with the use of minimal costs. According to Mikael and Suryanto [2] the definition of delivery is the activity of distributing the products and services of producers to consumers. Delivery is a marketing activity to facilitate the distribution of products from producers to consumers. A warehouse is a building that is used to store goods. Warehousing is an activity to store goods in a warehouse [3]. According to Hadiguna and Setiawan [4], warehouse as a place to store products to meet

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customer demand quickly has several functions between receiving and delivering products. Technical activities in warehousing are carried out according to standard procedures and are made as simple as possible, but do not reduce the meaning of the tested work. This process must be synchronous and optimal, in order to increase efficiency by considering the cost reduction in warehouse operations. Details of work procedures must be made, documented and always available to all employees. These activities are pre-receiving, receiving, putting away, storage, picking, refilling, packaging, value added services, delivering, and claim services [3].

2. Literature Review

2.1 Lean Method

According to Gaspersz [5], Lean is a continuous improvement effort to eliminate waste, increase the added value of products (goods and/services) and provide value to customers so that it is in the right place, at the right time, and in the right amount to achieve a perfect work flow besides minimizing waste and flexible (easily change) process. A distribution strategy that results in lower costs can be performed with the activity distribution approach combined with principles of Lean. Lean is a systematic approach to eliminate waste and changing processes. This is performed by identifying and reducing waste by continuous improvement. Lean strives to create production flows along the value stream by eliminating all forms of waste and increasing product added value to customers. In addition, this approach can reduce unecessary inventory, increase knowledge about the production process, save costs, reduce defects so that quality increases, reduce production lead times and reduce waste.

2.2 Big Picture Mapping

Big Picture Mapping is used to describe the production system (ranging from ordering to a finished product as a whole) along with the value stream in the company, so that later obtained an overview of the information flow and physical flow of the existing system, identify where waste occurs, and describe the lead time which is needed based on each characteristic of the process that occurs. This tool is very helpful in identifying the occurrence of waste.

3. Methodology

Research Design

After the data is obtained by using several data collection techniques, both primary and secondary data, the data can be identified from the cause of the waste time that occurs and results in late delivery of audio products at PMI. In this stage, the data that has been collected is then processed to map problems and solve problems. At this stage the first thing to do is to map the activities into the big picture mapping, while what is performed in this stage, namely

3.1 Big Picture Mapping

Making BPM that is by mapping the flow of information and material or physical products, the steps that must be taken are as follows:

(1) Describing the flow of information from customers to suppliers, namely: the organization or department that provides information to the company, how long the information appears until it is processed, what information is delivered to the supplier and the required orders.

(2) Linking physical flow and information with arrows that can provide information on the schedule used, work instructions generated, from and for what information and instructions are sent, when and where problems usually occur in the physical flow.

(3) Completing the map with information about the lead time and VA of the whole process to provide information about the time.

3.2 Waste Identification and Weighting

Waste weighting was performed by distributing questionnaires to 4 respondents who were most aware of the conditions that occur. The first respondent was the chief group from PPC, and the second questionnaire was given to the Audio BU PMI goods warehouse supervisor, and the third and fourth were given to the PPC staff. The basis in weighting is the respondent gave a score of 1-5 on each type of waste

3.3 Value Stream Tools

After the value of each waste is obtained by distributing questionnaires, then the selection of the right tool is performed using Value Stream Tools. The value of each tool is obtained by multiplying the waste value in the recapitulation results of the questionnaire with the weight value in the Value Stream Tools (VALSAT) table in Table 1. The following table will be filled in accordance with the weight of each waste at PT PMI, there are high, medium, and low correlations. Furthermore, from this table it can be seen the order of the lowest to the highest score of 7 wastes, for the highest score can choose tools from VALSAT that will be used.

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3.4 Process Activity Mapping

After the highest score by processing in the VALSAT table is obtained, it can be determined the tools that will be used further waste analysis. In this tool activities are categorized in several categories such as: operation, transport, inspection, and storage/delay. The process activity mapping consists of several simple steps:

(1) Performing initial analysis for each process of activities that occur from receipt of goods to delivery of finished goods.

(2) Identifying activities that can be a waste of time.

(3) Considering processes that do not have added value to be changed so that the order of the process can be more efficient and also reduce cycle times.

(4) Considering better flow patterns to be more efficient and effective than the previous process.

(5) Classifying activities into Value Added (VA), Non-Value Added (NVA), Non-Necessary Value Added (NNVA) [6].

3.5 Process Cycle Efficiency

After obtaining the time from each activity process and classifying it using Process Activity Mapping, it can calculate the Process Cycle Efficiency (PCE) measurement by comparing VA with Lead Time. If PCE results under 30%, it can be said that there is a waste that occurs in the process of its activities, so it requires to find the most influential waste to the occurrence of problems and minimize it [7].

3.6 Determine Critical Waste

Looking for waste that has great potential in causing problems that occur, the first thing to do was distributing questionnaires to 4 respondents namely the Head of the PPC, supervisor of finished goods and the two PPC staff to determine the waste as the main factor of late product delivery. By distributing questionnaires so that the value of waste weight that has been classified into 7 waste would be obtained. After that, a graph was made to determine the lowest to highest waste weight [8].

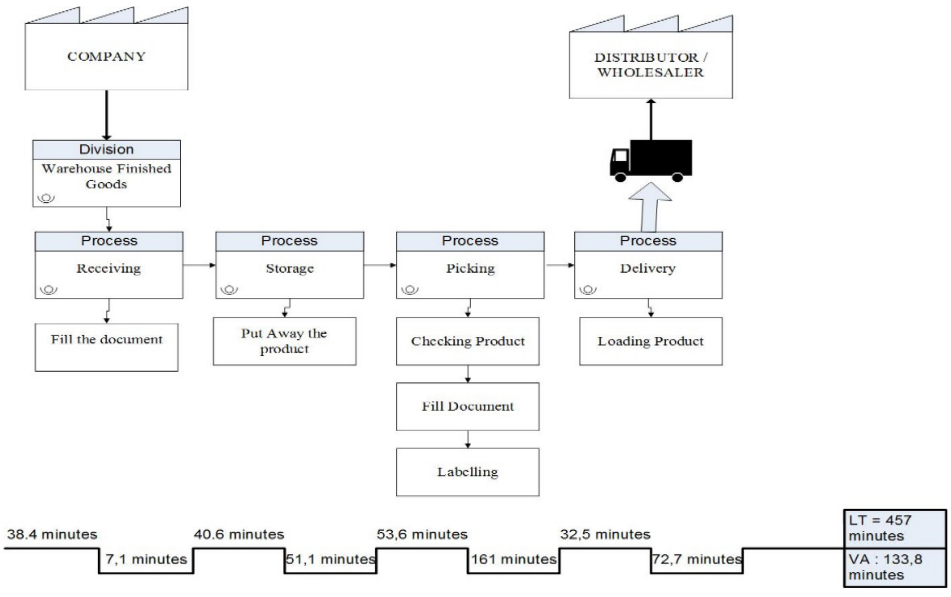
4. Result and Discussion

In the delivery of audio products at PT PMI there are several parts of the process including receiving, storage, picking & delivery. Big picture mapping shows all process activities from receipt of finished audio goods to loading to be sent to their destination. The activities shown in the big picture mapping are only for activities that have only added value. With big picture mapping, it can be obtained a clear picture of the general process of activities from the receipt to delivery of audio.

Looking for waste was carried out from the process of receiving finished goods until the loading of fineshed goods into container trucks. Based on the results of interviews related to parties who understand the problems with the Head of PPC and the supervisor of finished goods data will be presented as follows.

4.1 Defect

Defect is a waste of errors that occur in the work process, problems in product quality or lack of information. This type of waste occured at PT PMI because sometimes the operator did not use gloves that can cause traces of oil in the audio that is being handled in the finished goods ware-



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house, it can cause the goods to become reject or "NG". Poor packaging conditions will reduce the quality of the product itself, so it is necessary to repack the item. This problem usually occurs because when handling goods in the finished goods warehouse, there is an error in the equipment that is not operating properly. Hoists that are used to transport goods from the production floor to the finished goods warehouse or vice versa, rarely do routine checks so that when used, the hoist cannot operate properly so that it can potentially cause the goods to fall and cause damaged packaging.

4.2 Unnecessary Inventory

Waste in inventories occured in finished goods warehouses because one audio model experienced an excessive amount so there was not enough space to store the model. If this happens, the audio product which cannot be placed in the place of the model will be placed in the place of other audio models that still have available space. BU AC and BU Refrigerator Printed Circuit Board (PCB) material is made in BU Audio so sometimes before it is delivered, PCB material for Refrigerator and AC is in finished goods warehouse without any special placement for PCB storage in finished goods warehouse

4.3 Excesives transportation

Another waste was found in the finished goods warehouse, namely the allowance that was considered too small because it could only be passed by one hand pallet, so the operator had to find another way or turn around to store goods or receive goods. The location of the hand pallet area is at the end of the room and away from the hoist so that if the operator wants to take a hand pallet to store or receive goods, the operator is required to walk to the end of the room first so as to produce a delay in handling the goods in the finished goods warehouse.

4.4 Waiting

This waste occured because loaders or officers who load goods into container trucks were not available or were loading goods in other BUs. This will cause waiting time and the next process cannot be performed. Waiting for the availability of trucks from the forwarder, because of bad traffic or other so there was delaysto come to PMI.

The waste weight that had been known by distributing questionnaires would be entered into the VALSAT table. VALSAT has seven tools which can later be used to analyze the waste that occurs in the work process. The biggest score would be selected by mapping to identify waste in detail. By entering the weighted scores obtained from the results of the questionnaire and multiplying by the value of each indicator on VALSAT which can be seen in Table 1. The calculation would be presented in the following table:

Table 1. The calculation value

Waste	PAM	SCRPM	PVF	QFM	DAM	DPA	PS
Overproduction	0	0	0	0	0	0	0
Waiting	1.53	1.53	0.17	0	0.51	0.51	0
Excessive transportation	3.06	0	0	0	0	0	0.34
Inappropriate processing	0	0	0	0	0	0	0
Unnecessary Inventory	0.87	2.61	0.87	0	2.61	0.87	0.29
Unnecessary Motion	0	0	0	0	0	0	0
Defect	0.20	0.20	0.6	0.20	1.8	0.6	1.8
Total	5.66	4.34	1.64	0.20	4.92	1.98	2.43
Ranking	1	3	5	6	2		4

Description :
PAM = *Process Activity Mapping*
DPA = *Decision Point Analysis*
SCRPM = *Supply Chain Response Matrix*
PVF = *Product Variety Funnel*
QFM = *Quality Filter Mapping*
PS = *Physical Structure*
DAM = *Demand Amplification Mapping*

In this process, mapping was performed from receiving finished goods to the delivery of finished goods, time measurement was carried out for goods that were only delivered to Japan which carried out once every 2 weeks a month and with relatively the same number of requests. There were more than 20 types of models delivered to Japan, for example R-45-S, RF-2450-S, RF-P155-S, RF-U15-S, RX-D47-S, RX-FS27-K , RX-M45-H and other models.

From PCE results obtained, it can be known that process had not been efficient due to less than 30%, then critical waste determination was carried out by distributing questionnaires to 4 respondents namely the Head of PPC, supervisor finish goods and two PPC staffs. In determining the critical waste or waste that has the most significant influence on the problem that occurs, it was performed by rating scores 1 to 5 of each waste in order to know the waste with the largest score and have an impact on work productivity and time of work on an activity. The value for weighting waste was obtained from the results of a questionnaire that has been made based on the identification of 7 waste in Table 1. There were 4 respondents to answer the questionnaire which understand the conditions that occur based on work experience. The results of the waste weighting questionnaire will be displayed in the table below. In the table above shows the results of the percentage of waste that occurs, after that it was mapped using a graph to see the waste that has a large value [9].

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In the graph above shows there were 3 types of waste that have the greatest weight compared to the others, namely C2, B1, and A2.

5. Conclusions

The conclusion that can be drawn from the results of this study, found waste of products with damaged packaging due to tools for transporting goods not functioning properly, such as hoists that cannot operate properly so that when they want to load goods from the hoist the goods have the potential to fall. Another problem is that there was no special storage area for storing PCBs. Hand pallet located at the end of the room and far from the hoist.

Proposed improvement by performing relayout the finished goods warehouse and making a special placement for PCB material storage, and moving the hand pallet storage area adjacent to the hoist. Make a schedule for maintenance on the goods loader. Proposed improvement to the company that it is better to use lean methods to eliminate waste so that it is hoped that there will be no more delays in the delivery of audio products.

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ARTICLE

Research on the Prediction of Quay Crane Resource Hour based on Ensemble Learning

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ABSTRACT

In Container terminals, a quay crane's resource hour is affected by various complex nonlinear factors, and it is not easy to make a forecast quickly and accurately. Most ports adopt the empirical estimation method at present, and most of the studies assumed that accurate quay crane's resource hour could be obtained in advance. Through the ensemble learning (EL) method, the influence factors and correlation of quay crane's resources hour were analyzed based on a large amount of historical data. A multi-factor ensemble learning estimation model based quay crane's resource hour was established. Through a numerical example, it is finally found that Adaboost algorithm has the best effect of prediction, with an error of 1.5%. Through the example analysis, it comes to a conclusion: the error is 131.86% estimated by the experience method. It will lead that subsequent shipping cannot be serviced as scheduled, increasing the equipment wait time and preparation time, and generating additional cost and energy consumption. In contrast, the error based Adaboost learning estimation method is 12.72%. So Adaboost has better performance.

1. Introduction

In recent years, with the continuous development of container terminals, terminal data has exploded, and the utilizat ion rate of data is extremely low. Scholars begin to turn their attention to the analysis and application of port data [2,3].

Vessel's handling time is a decisive factor in container terminals, which is closely related to the efficiency of port's service and cost of vessels. In the planning stage, the handling time is affected by various operating stages, such as berth allocation, quay crane allocation, quay crane scheduling, yard planning, etc. Vessel's handling time, usually as an important input to determine reliable plan, is considered to be static (depending on the number of berth, number of quay crane, number of crane's move, etc.), but in practice there are many complicated factors, such as personnel, quay crane and truck, on its impact), will cause a deviation between the vessel handling time of the predicted value and the actual value, and could lead to congestion or even interruption in a port or other operations on the supply chain.

Vessel's handling time can be obtained by the quay crane number of each berth and the quay crane resource hour of each vessel (QC-hours, see Meisel and Bierwirth[4]). The term "quay crane resource hour" refers to the amount of quay crane time resources occupied by vessel

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loading and unloading operations, which is expressed in hours. Compared with vessel's handling time, using QC-hours to measure the vessel's workload and serve as the input data of vessel operation plan can control the quay crane capacity more accurately, which is more conducive to the description and planning of quay crane resources by planners. However, in the current practical operation of ports, QC-hours are usually estimated by operators based on experience. The empirical estimation method cannot accurately grasp the nonlinear influence of multiple complex factors on QC-hours in each operation stage, which leads to frequent additional costs and energy consumption in the actual operation of the port. For example, the vessel operation is delayed due to the shortage of available quay crane resources; then, delay in vessel's departure from berth causes subsequent vessels to be unable to berth, and the operation plan should be adjusted temporarily; moreover, over-estimation of QC-hours required results in equipment ullage, etc.

The main objective of this paper is to investigate the method of QC-hours estimation through the effective use of port data, so as to obtain more accurate vessel's handling time, and then reduce the uncertainty of vessel operation plan, and improve its anti-risk ability and feasibility.

In this paper, the ensemble learning model is used to analyze a large amount of data from various operational stages in the container terminal operation system (TOS) and estimate QC-hours. Feature data that may affect QC-hours are extracted from different operational stages of the container terminal, and needs to be processed such as feature selection, data preprocessing and data set's conversion. In order to determine an appropriate modeling method, an empirical study related to the estimation of QC-hours in container terminals was carried out by comparing different evaluation indicators of various estimation methods, and the optimal estimation method with high accuracy and short calculation time was obtained.

The innovation points of this paper are as follows: (1) by studying the effectiveness of ensemble learning to estimate qc-hours in ports, it makes up for the lack of relevant empirical research, and provides a new research direction for the application of big data in smart ports.(2) The key factors affecting vessel handling in different operation stages of container terminals and the interrelations between these factors were systematically studied for the first time.(3) It upgrades the current resource estimation method in the port, which has reference significance for accurate control of port resources.(4) It provides a new research idea for anti-interference management of port operation plan.

2.Literature Review

The research object of this paper is the "quay crane resource" of container terminals. Due to the quay crane resources are mostly used in the field of vessel operation planning, so the references of this paper focuses on this field.

Usually, the operation of container terminals can be divided into the vessel operation process of container handling and the operation process of container receiving and transfer by the outward truck. Allocating resources and scheduling equipment for these operations has become a major planning problem for container terminals. Researchers have reviewed these issues in container terminal operations[5-9].

In the operation planning of container terminals, vessel's handling time is a key factor, which is affected by various factors such as ship stowage plan, number of berth and quay crane and operation rules of quay cranes, etc. And its accuracy is related to the reliability of each operation plan. In general, it is difficult to predict the degree of influence of these factors on handling time, and inaccurate estimation results of handling time will lead to serious consequences: One side, over-estimation of time will lead to waste of resources in berths and cranes; In turn, under-estimation will cause delay to subsequent vessels. All along, relevant studies have been trying to solve this problem by constructing the combined framework of berth allocation, quay crane allocation and scheduling, or considering robustness in the model of vessel operation plan to improve the ability to cope with errors, such as Karam and Eltawil[10], Xu, Chen and Quan [11].But this approach does not improve the accuracy of time index.

The main equipment for handling operations is the quay crane. Meisel and Bierwirth [4] first proposed the concept of "quay crane resource time" to refine the handling time and describe the vessel operation plan more accurately. Quay crane resource refers to the workload completed by a quay crane in one hour, and it is the quay crane operation time estimated in advance, that is, the quay crane capacity that a vessel needs to occupy. Accurate handling time can be obtained by QC-hours. In existing studies, QC-hours are assumed to be a known information [1], which is mostly obtained from historical experience and personal experience of planners. In fact, due to the nonlinear influence of each port operation stage on the handling operation, the QC-hours obtained by empirical estimation tend to deviate from the actual value, so the estimation is highly uncertain and subjective, and the vessel operation plan based on it is often forced to be adjusted temporarily. When Bierwirth and Meisel[12] summarized the container

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terminal operation planning model, they also mentioned that QC-hour has an important influence on the time index in the integrated berth plan, but is often ignored by the relevant studies of QCAP. Therefore, scholars' research on interference management in the field of port planning is triggered. See HU, ZHANG and DING[13].

The research method is ensemble learning method. Ensemble learning is a kind of data mining algorithm. In essence, multiple weak classifiers are transformed into a strong classifier through an effective integration, so as to improve classification accuracy [14]. Dasarathy and Sheela first proposed the idea of Ensemble Learning in 1979 [15]. Since then, ensemble learning has developed rapidly, with more and more novel ideas and models appearing, and major breakthroughs have been made in many fields, such as time series analysis [16] and medical health [17].These fields have similar characteristics, that is, the data dimension is high, the data structure is complex, the feature is fuzzy and the data analysis and processing by manpower is difficult and costly. The characteristic of maximizing learning ability by ensemble learning is well embodied in this kind of problem.

The differences between ensemble learning algorithms are mainly based on three aspects[18]:the training data provided to individual learners, the process of generating individual learners, and the combination of learning results. According to the training method of the base learner, the ensemble learning algorithm can be divided into Bagging[19], Boosting[20], Stacking[21].There are two common combined strategies for base learner [22]: voting method and average method. When applying the ensemble learning method, the suitable combination strategy should be selected according to the characteristics of the base learner.

According to the characteristics of multi-region interaction, high complexity and high feature dimension of port, Adaboost method [23] with inherent feature selection and RF method with excellent generalization ability and random attribute selection function [24] are selected. Meanwhile, Bagging, GBRT (gradient boosted regression trees) [25] and SVR (Support Vector Regression) method [26] are selected for comparison and validation.

3. Research Methods

The initial data for the research was collected from a large container terminal in Waigaoqiao, Shanghai, and was preprocessed. And then, the data set is divided into training set and test set. Based on the sorted data set, the initial models of RF and SVR are built on the training set by Python. The initial model with better imitative effect is selected, its parameters are adjusted, and the Adaboost, Bagging and GBRT models are built respectively as the base learner. Parameters are adjusted to improve the accuracy of the ensemble learning model on the training set, and the performance of the model is evaluated using the test set. By modeling and analyzing the actual data, the feasibility and practical significance of the ensemble learning estimating QC-hours were explored.

3.1 Initial Data

There are 17,197 original data and 57 initial data features extracted from TOS, which are divided into four categories, including vessel data, quay crane operation data, yard operation data and horizontal transportation operation data.

The data are from TOS of a large container terminal in Waigaoqiao, Shanghai, and used for training learners. In fact, some of the data are posterior data (marked with "*"), and the accurate data cannot be known before the completion of the operation. However, such data is associated with QC-hours, so it is reserved to explore its influence on QC-hours.

3.2 Data Preprocessing

Actual data is often incomplete, and noisy. It is necessary to preprocess the original data in order to improve the quality of the data and improve the accuracy and efficiency of the subsequent process.

The pretreatment process is as follows:

3.2.1 Data Cleaning

The data cleaning process can fill in missing values, smooth noise, identify outliers, and correct inconsistencies in the data. For the missing values, it can be processed by functions in Python's NumPy library, and based on whether the data is skewed, the attribute mean is filled in for all samples. This study is aimed at the handling of containers after the berthing of self-sailing vessels in large container terminals, without considering the situation of barges. Furthermore, the number of data samples is relatively rich, so the sample with the outliers are deleted.

3.2.2 Data Conversion

By data conversion, data is transformed or consolidated into a form suitable for centralized processing. The nominal data and ID tags (such as the route name, the actual berthing position of the vessel, and the actual berthing direction of the vessel) are standardized by LabelEncoder function. The numeric data is standardized by the StandardScaler function.

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3.2.3 Feature Selection and Result Analysis

By ranking the importance of features (i.e., ranking the contribution of each feature in the process of predicting QC-hours) and setting a threshold of importance, feature items with the least impact were screened out. The random forest method was used to rank the importance of features. The out-of-band data (OOB) error rate was used as an evaluation indicator to measure the contribution.

It is assumed that there are 1000 trees in the forest, and the importance of features is ranked from the largest to the smallest, as shown in Table 1. According to the order of features' importance, the three weak influencing features of "the minimum number of reposition containers with the yard crane for a vessel in one same bay", "the minimum workload of the yard crane for a vessel" and "the minimum number of yard crane" were deleted to improve the calculation efficiency. Among all the feature items, "quay crane movement number","empty truck trip number", "yard crane workload for a vessel", "average quay crane number per hour" and "truck waiting time at quay crane" have the largest contribution, accounting for 98.79% of the total.

Table 1 importance ranking table of random forest features

Features	contribution	Features	contribution
quay crane movement number	0.683995	actual berthing direction of a vessel	3.55E-05
empty truck trip number	0.29398	the minimum number of reposition containers with	0
yard crane workload for a vessel	0.004841	the yard crane for a vessel in one same bay	
average quay crane number per hour	0.003358	the minimum workload of the yard crane for a vessel	0
truck waiting time at quay crane	0.001693	the minimum number of yard crane	0
total vessel workload on the seaside in the sametime (UNIT)	0.000807		
…	…		

In addition, We know from the sequence that posteriori features has certain contribution for the forecast of QC -hours, including "quay crane movement number" and "empty truck trip number" with the largest contribution while the rest of 8 posterior features have small contribution, in which "truck waiting time" (i.e., "truck waiting time at quay crane" and "truck waiting time at yard crane") is the relatively important features.

3.3 Building Model and Tuning Parameter

The model is built using functions in Python's Sklearn library.

The preprocessed data set was divided into training set and testing set in a ratio of 6:4. Because the sample number of data set is not large enough and there are many features, the proportion of testing set is increased to prevent over-fitting. In order to select a suitable base learner, the initial models of RF and SVR(Support Vactor Regression) were built, and the scores (accuracy) of the two were calculated by 10 fold cross-validation. The testing results were as follows: the mean value of RF score was 0.9840 and the standard deviation was 0.0038. While, the mean value of SVR score was 0.9772 and the standard deviation was 0.0068.

By comparison, RF performs better than SVR as a base learner. Cross-validation is a good way to evaluate the generalization ability of a model, whose purpose is to select different model types rather than to obtain specific parameters of the model.

Furthermore, the parameters of RF and SVR base learner are tuned. The random search parameter tuning method is adopted here. The search ability of random search depends on the number of training iteration. The higher the value, the greater the parameter accuracy, but the longer the search time.

Bagging algorithm, Adaboost algorithm and GBRT algorithm are built with the RF base learner after tuning. The parameter Spaces before and after tuning are shown in Table 2.

Table 2 parameter space of ensemble learning models

model	parameter	Before tuning	After tuning
Bagging	n_estimators	20	65
	max_samples	15	135
	warm_start	False	False
	bootstrap	True	True
Adaboost	n_estimators	20	25
	loss	"linear"	"exponential"
	learning_rate	0.8	0.5544
GBRT	max_depth	15	11.3219
	n_estimators	20	150
	warm_start	False	<class "bool">
	min_samples_leaf	1	60
	max_features	None	"auto"

4. Results and Evaluation

Above all, RMSE(Root Mean Squard Error) and Adjusted

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R-squared Error were selected as the evaluation indicators for the above five models to make an unified evaluation.

(1)RMSE: Root Mean Square Error is the standard deviation of the residuals (prediction errors). Residuals are a measure of how far from the regression line data points are; RMSE is a measure of how spread out these residuals are.

$$E(f; D) = \sqrt{\frac{1}{m}\sum_{i=1}^{m}\left(Y_{actual} - Y_{predict}\right)^2}$$

(2)Adjusted R Squared: A penalty is added to R^2 for additional variables that will not improve the effectiveness of the model.

$$R^2_{adj} = 1 - \left[\frac{\left(1 - R^2\right)(n-1)}{n-p-1}\right]$$

Where: N -- sample size; P -- Number of features

The evaluation results are shown in Table 3.

Table 3 evaluation results of each model

model \ result	tuning	RMSE	Adjusted R Squared
RF	-	0.1215	0.9847
SVR	-	0.2209	0.9493
Bagging	before	0.5568	0.6778
	after	0.1427	0.9788
Adaboost	before	0.1186	0.9854
	after	0.1183	0.9855
GBRT	before	0.152	0.976
	after	0.1442	0.9784

According to the evaluation results of the model before and after parameter tuning, tuning parameters has the greatest impact on Bagging model, while the scores of Adaboost model and GBRT model are slightly improved. Among the five type of ensemble learning models, RF regression model and Adaboost regression model have the best prediction effect, and among which, Adaboost model has better prediction accuracy than RF, but its calculation cost is higher.

The fitting effect of Adaboost model on the testing set is shown in Figure 1. Sample points are clustered near the reference line, and the closer the position is to the reference line in the smooth scatter diagram, the darker the color is. The residual analysis of Adaboost model is carried out, and the residual histogram is shown in Figure 2. It can be seen that the residual distribution of Adaboost model on the testing set basically conforms to the normal distribution.

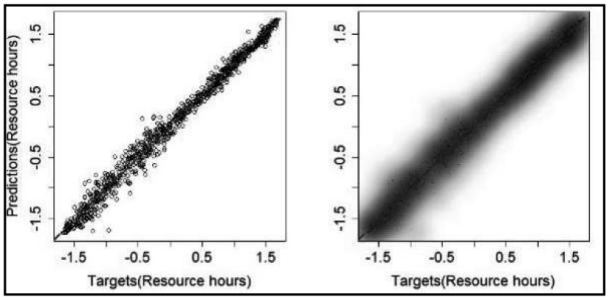

Figure 1 the fitting effect of Adaboost model on the test set

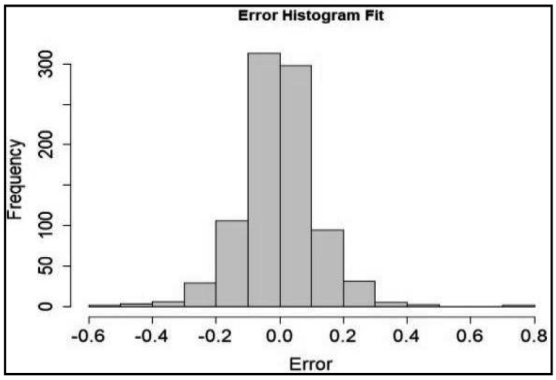

Figure 2 residual histogram of Adaboost model

To sum up, the fitting effect of the model meets the expected requirements.

5. Example Analysis

This section describes how to use the Ensemble Learning to predict the quay crane resource of a certain container terminal of Waigaoqiao in Shanghai. And analysis data is taken from on a certain day in 2017. The port has continuous berths, and 4 quay cranes are arranged along the selected shoreline. The arrival vessel information and estimated QC-hours data are as shown in Table 4. The empirical estimate of QC-hours in the table is the current customary method in ports. According to the statistics of the quay crane working efficiency data of the port over a period of time, the general QC efficiency of the port in a certain period can be obtained: 33TEU/h for empty containers, 25TEU/h for full containers, 6TEU/h for dangerous goods containers, and 27TEU/h for special and refrigerated containers. Combined with the number of container, QC-hours can be estimated by the empirical method.

The MRE (Mean Relative Error) between QC-hours estimation and actual value obtained by the two methods is as follows: the empirical estimation method is 131.86%,

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Table 4 statistical table of arrival ship information

index	name	Estimated time of arrival	Minimum QC number	Maximum QC number	QC-hours (empirical estimate)	QC-hours (model prediction)	QC-hours(Actual value)
1	inland river	2017/12/27 1:00	1	1	1.44	1.38	0.93
2	CHJ-JIHA	2017/12/27 1:10	1	2	5.56	9.51	10.78
3	CHJ-JIHA	2017/12/27 2:10	1	1	10.96	7.96	8.54
4	YSK-XXX	2017/12/27 3:40	1	1	8.66	7.66	5.80
5	CHJ-JIHA	2017/12/27 10:15	1	1	4.88	5.20	4.85
6	CHJ-XXX	2017/12/27 10:07	1	2	2.55	5.43	5.00
7	CHJ-XXX	2017/12/27 16:00	1	1	3.34	3.80	3.91
8	CHJ-WYCJ	2017/12/27 16:00	1	1	4.04	6.88	5.97
9	CHJ-XXX	2017/12/27 16:30	1	1	0.56	5.73	5.11
10	CHJ-XXX	2017/12/27 20:00	1	1	3.52	3.50	3.72
11	CHJ-XXX	2017/12/27 20:45	1	2	1.27	5.78	4.93
total	-	-	-	-	46.78	62.84	59.52

and Adaboost is 12.72%. The results show that the error between the value predicted by the empirical method and the actual value is too large.

According to QC-hours and available quay cranes, the berth planning Gantt chart can be drawn as shown in Figure 3 in combination with ship type, ship stowage plan and expected berth position(the berth that minimizes the operating cost on the landside), which shows that: the berths allocated in Figure 3a are distributed in a fragmented shape. The berths allocated in Figure 3b show a continuous and clustered distribution, which is more in line with the arrival and departure times of ships in the actual situation.

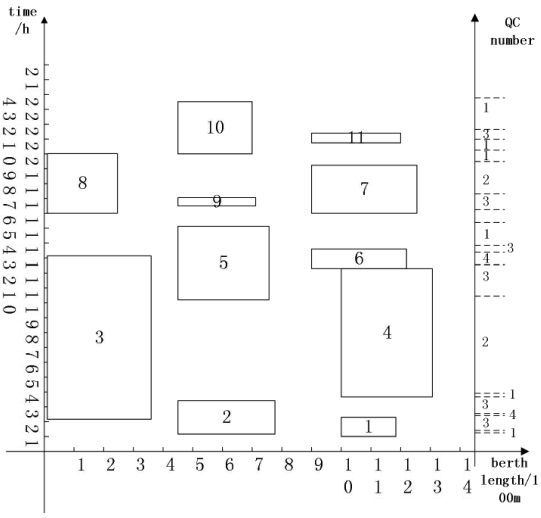

Figure 3a. Berth allocation diagram based on empirical estimation

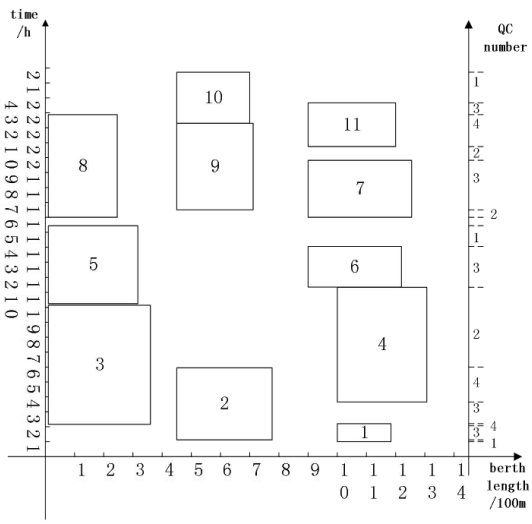

Figure 3b. Berth allocation diagram based on Adaboost method

The comparison shows that: (1) over-forecast of qc-hours (ship 2,3) will generate additional QC preparation/depletion costs, which will lead to subsequent ships not being able to dock at the expected berths, and increase the operating costs on the landside; (2) under-forecast (ship 10) will cause subsequent ships to be unable to dock/leave as scheduled;(3) frequent starting, stopping equipment will increase the operating cost of equipment and exacerbate the ullage of the units life. As shown in Figure 3a, due to the large QC-hours prediction deviation, QC will frequently carry out intermittent operations. In addition, excessive prediction deviation leads to insufficient capac-

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ity of pre-prepared equipment in ports, which increases ship berthing time, equipment energy consumption and scheduling operation.

To sum up, the current estimation method of QC-hours in ports is too rough, ignoring the impact of facilities and equipment in each stage of operation on QC efficiency. The large deviation from the actual situation will result in waste of equipment capacity, increase of port operation cost and extra energy consumption, and increase the probability of congestion. Using ensemble learning method to predict QC-hours will effectively improve the above problems.

6. Conclusion

Aiming to estimate QC-hours, an ensemble learning estimation model based on random search parameter optimization was proposed. The optimal model of the estimation task was determined by comparing the evaluation indicators of various models. The model evaluation results show that Adaboost has the best prediction effect. The study found five features have the most considerable contribution within 57 features, accounting for 98.79% of the total.

Besides, the study also shows that ensemble learning is suitable for data mining in ports. The forecast model can help the staff accurately control port resources, be better able to complete agreement with the shipping company about time, resources, and other service requirements. At the same time, significantly optimize unreasonable steps in port management and planning, reduce workload, improve the port productivity and serviceability, give full play to the port of each operation stage cooperation ability, and strengthen the port resource integration. Simultaneously, the method of data analysis was proposed to optimize the accuracy of the time index, which provides a new idea for research in interference management.

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ARTICLE

Knowledge Sharing and Innovation in Small Medium Enterprises (SMEs) Moderated by Creative Leadership

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ABSTRACT

The purpose of this study is to analyze the role of creative leadership in moderating the influence of knowledge sharing on innovation in the SMEs of leather craft industry in Badung Regency. The population of this study is employees of the leather craft industry of which the data were obtained from Bali Province Industry and Trade Office. The data of 2019 show that there is a population of as many as 115 employees in the industry, and by using the Slovin formula, the samples obtained are 53 respondents. The collected data were analyzed using Right Moderating Regression Analysis (MRA). The results show that knowledge sharing has a significant effect on innovation. Creative leadership has a significant effect on innovation. Furthermore, the findings of this study indicate that creative leadership can strengthen the influence of knowledge sharing to support innovation. The implications of this study inform that creative leadership plays an important role because it can amplify the effect of the activities of cultural knowledge sharing to create innovation.

1. Introduction

Micro, Small and Medium Enterprise (SME) is one of the priority industries in Indonesia which has a great opportunity in the global market because it has its own characteristics. SMEs has proved to be more resilient in facing crises and been able to save the Indonesian economy, and SMEs also become a factor of economic growth as they can recover the economy after the crisis. Until today, Indonesian people have been engaged in SMEs for generations [1].

SMEs in Indonesia currently face many challenges, one of which is innovation. The company will achieve success if it creates an innovation structure and function that is in line with the underlying business mission of the company, particularly by increasing cooperation of every employee in the company [2]. Various kinds of information and experience are basic tools that will bring an important contribution to the application of new knowledge to generate innovation [3, 4].

Knowledge sharing is an important part of innovation and innovation depends on how a company uses the knowledge, abilities and experiences of employees during the process of creating organizational value [5]. Knowledge sharing can reduce knowledge gaps that occur between one employee to the other one [6]. Employees who are given the opportunity to exchange knowledge with the other employees are able to accelerate the creation of innovation in the company [7].

Knowledge sharing shows the availability of relevant

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and credible knowledge within the company aiming at achieving an innovation of each individual [8, 9, 10, 11]. Knowledge sharing is not only done among the company's internal employees but it can also be done with and/or by people outside the company [5]. So, it can be concluded that organizations or companies that share more knowledge tend to create better quality of innovation [12].

Every company needs to innovate, whether it is a large or small company. Therefore, to create an innovation from the knowledge sharing process, the role of a leader is needed [13]. Especially, a creative leader is the one who is required. Creative Leadership is characterized by a leader who is able to come up with new ideas and standards, can inspire workers or employees in the company to realize projects and produce creative and innovative employees who are able to become facilitators to solve problems [14]. Creative leadership is a leadership that can influence employees to make an innovation according to their creative ideas [15].

The concepts of innovation, knowledge sharing, and creative leadership described above are very important to be applied by small industries in the current era. Therefore, this industry requires creative leaders to be able to become role models for all employees in the company, with the existence of creative leadership it is hoped that it will be able to encourage employees to share knowledge to create new innovations. One of the micro, small and medium enterprises that will be discussed in this study is the SME of leather craft industry.

The leather craft industry, especially in Bali area, is a work of exploiting leather whose existence cannot be separated from the influence of modernization, one of which is tourism transformation. The development of leather handicrafts in Bali is seen from the aspects of form, type, and its meaning for the community. This craft shows its very diverse types with economic, social and cultural meanings. The types of leather handicrafts produced include shoes, bags, wallets, belts, jackets and accessories. One of the areas in Bali that has a very developed leather craft SMEs is Badung Regency. This is because Badung Regency has various tourist attractions and supporting accommodation, making Badung Regency the main gate of Bali which is certain to be passed by many tourists, both domestic and foreign. Hence, the opportunity to expand the market for leather handicraft products in Badung Regency is enormous.

The rapid development of the leather craft industry in Badung Regency certainly needs to be balanced with a brilliant innovation. However, whether the creation of these innovations is influenced by knowledge sharing and moderated by creative leadership remains a problem that must be solved. Therefore, based on the above phenomena, this study was conducted to find out whether the role of creative leadership as moderation can strengthen or weaken the influence of knowledge sharing and innovation of the leather craft industry in Badung Regency.

2. Literature Review

Innovation can be understood as an effort to develop, produce, adopt and implement some new ideas, methods, programs, and policies to achieve organizational goals effectively [16]. Innovation has a relation to knowledge sharing. One of the most important advantages of knowledge sharing ability is to innovate by motivating companies to share ideas and facilitate them to understand about the market [17]. The willingness of employees to donate knowledge and collect knowledge is positively related to the company's innovation ability.

Knowledge sharing is the core and basis of knowledge management [18]. Knowledge sharing is an important process in the progress of organizations today, because it spreads intellectual capital for the entire organization [19]. Sharing knowledge will be more meaningful and effective in supporting innovation [20]. The existence of knowledge sharing activities can affect the increase of employee innovation which in turn will have an effect to improve company performance [16]. Knowledge sharing can help employees disseminate good and relevant information to fellow employees [21].

The company's ability to innovate and apply knowledge can determine the level of innovation capability [22]. Knowledge sharing has acted as an important driver of innovation; hence, there is a positive correlation between knowledge sharing and innovation [23]. Sharing of knowledge has a positive effect on the speed, quality of innovation and company performance. Knowledge sharing is widely recognized as the primary source for companies to foster innovation capabilities and achieve organizational effectiveness, survival and sustainable competitive advantage [24, 25, 26]. Therefore, it can be concluded that knowledge sharing has a positive effect on innovation.

Various factors influence innovative behavior. One important factor is leadership. A leader can persuade and motivate employees about the need to implement change and innovation. This also ensures that employees will support and react positively to innovation efforts [27]. Creative leadership refers to leading others towards achieving innovative results [28]. A leader with creative leadership has courage and is ready to take the risk of failure and not afraid to get involved in a conflict with the staff [16].

Creative leadership can be considered as a form of a certain mix with creativity. Creative leadership is an abili-

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ty to generate new ideas and useful innovations as well as to influence others to complete the ideas of the leader. In other words, it can be said that a creative leader is someone who leads others to reach the achievements of new innovations [15]. Innovation requires creative leadership who has an understanding of resources to develop creativity, freedom for employees in the innovation process [29]. There is a positive relationship between transformational leadership and innovation in organizations. Transformational leadership is considered to be one of the most effective leadership styles that affects the main outcomes of an organization such as: knowledge capital, human capital, managerial performance, and innovation [25]. Transformational leaders create a supportive work environment through inspiration, motivation and individual consideration [30].

A successful and innovative organization is an organization that supports initiative, rewards creative employees, encourages collaboration, does not blame individuals for mistakes, and encourages members to take risks [22]. Flexibility in decision making, having different views, having the courage to take risks because of new ideas and innovation are characteristics of creative leaders, which can make business organizations in a good position [31]. Hence, it can be concluded that creative leadership has a positive effect on innovation.

The role of creative leadership in a company is not only directly related to innovation. Creative leadership also affects knowledge sharing. This is because the creativity of a leader is an important factor in obtaining and collecting various information [20] which will later be able to encourage the creation of a knowledge sharing process between employees to create new innovations in the company. [16] add that the role of creative leadership in the knowledge sharing process is greater than that of the innovation process. Thus, in the process of developing innovation, the role of creative leadership is as a moderator, namely strengthening the influence of knowledge sharing on innovation. This is as suggested by previous research that the role of creative leaders is said to be able to trigger the role of knowledge sharing so that it can have a more significant effect on innovation [20].

H1: Knowledge sharing has a positive effect on innovation.

H2: Creative leadership has a positive effect on innovation.

H3: Creative leadership moderates the effect of knowledge sharing on innovation.

3. Methodology

This research was conducted at 7 SMEs of leather craft industry in Badung Regency with a population of all employees in total was 115 people. The number of samples was determined by using probability sampling techniques. The calculation results obtained a sample number of 53 employees. Quantitative and qualitative data, both from primary and secondary sources, were collected by conducting interviews and distributing questionnaires. This study used a causal quantitative research design. The objects of this research are knowledge sharing, innovation, and the moderating role of creative leadership.

The questionnaire was structured based on 3 (three) variables, namely innovation, knowledge sharing, and creative leadership. The indicator of the innovation variable was adopted from innovation research variables by Rogers [32], namely relative advantage, compatibility, complexity, trialability, observability. The variable of knowledge sharing was adopted from the study proposed by Hwang [33], namely the knowledge collecting and knowledge donating. The variable of creative leadership was adopted from the indicators of research conducted by Jain and Sharma[34], i.e. the ability of creative, inspirational motivation and, individualized consideration.

Table 1. Characteristics of Respondents

No.	Profile	Classification	Number of people)	Percentage (%)
1	Gender	Male	31	58.5
		Women	22	41.5
		amount	53	100
2	Age	<20 Years	7	13.2
		21-30 Years	27	50.9
		31-40 Years	7	13.2
		41-50 years	9	17.0
		> 50 Years	3	5.6
		amount	53	100
3	Last education	Elementary School	8	15.0
		Junior High School	15	28.3
		Senior High school	24	45.2
		Diploma	4	7.5
		Bachelor Degree	2	3.8
		amount	53	100
4	Years of service	1-5 Years	15	28.3
		6-10 Years	29	54.7
		> 10 Years	9	17.0
		amount	53	100

Source: Processed Data, 2020

Before the data was collected as a whole, the data qual-

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ity test was carried out on the research instrument using 53 samples to calculate the sample determination from the population, using the Slovin formula [35]. In this test, the value of a reliability was shown through the Cronbach's Alpha score, where if the score is above ≥ 0.60, then the instrument can be said to be reliable [35]. Furthermore, the collected data were analyzed using descriptive statistical analysis and Moderating Regression Analysis. Furthermore, the profiles of research respondents are described in table 1, below.

4. Results

This study uses the interaction test technique (Moderated Regression Analysis), which is a special application of linear multiple regression. This study also examines creative leadership to moderate the effect of knowledge sharing on innovation in the SME of leather craft industry in Badung Regency. In this study, the influence of knowledge sharing on innovation through the SPSS 21.0 for windows program is calculated in table 2.

Table 2. Results of *Moderated Regression Analysis*

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	-1,252	1,263		-0.991	0.326
X	0816	0.341	0.928	2,395	0.020
M	1,413	0.387	1,472	3,653	0.001
XM	0.207	0.100	1,299	2,064	0.044

Source: Processed Data, 2020

Based on the results of the Moderated Regression Analysis in Table 2, the structural equation that is formed can be formulated as follows.

$$Y = \alpha + \beta_1 X + \beta_2 M + \beta_3 XM + \varepsilon \quad (4)$$

$$Y = -1.252 + 0.816X + 1.413M + 0.207\ XM$$

Dertemination analysis is carried out to determine the variation of the independent variables, namely knowledge sharing (X), creative leadership (M) on the innovation variable (Y). Based on the results of the SPSS, the determination analysis can be seen in table 3.

Table 3. Determination Analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.756 a	0.571	0.545	0.66770

Source: Processed Data, 2020

Based on the Table 3, it can be seen that the value of r square (r^2 = 0.571). The analysis uses the following formula:

$D = r^2 \times 100\%$

$D = 0.571 \times 100\%$

$D = 57.1\%$

Based on these results, it is known that the value of R^2 = 57.1%, which means that 57.1% of innovation in SMEs of leather craft industry in Badung Regency is affected by the variables of knowledge sharing and creative leadership; and, the remaining 42.9 percent is influenced by other variables which were not examined in this study.

Based on the results of the FSig value analysis amounting to 0.000, it can be said that H_1 is accepted because the value of FSig is 0.000 <0.05. The conclusion is that knowledge sharing and creative leadership simultaneously have a significant effect on innovation in the SME of leather craft industry in Badung Regency. The model used in this study is feasible and can be used for further analysis.

Based on the results in Table 2, knowledge sharing has a Beta value of 0.816 and a Sig. amounting to 0.020, it can be said that H_1 is accepted because the Sig. is 0.020 <0.05. The conclusion is that knowledge sharing gives a positive and significant impact on innovation. In other words, the more doing knowledge sharing, the more innovation of leather craft industry SME in Badung Regency increases. Therefore, the first hypothesis is accepted.

Based on the results in Table 2, creative leadership has a Beta value of 1.413 and a Sig value of 0.001, it can be said H_2 is accepted as the Sig is 0.001 <0.05. The conclusion is that creative leadership gives a positive and significant impact on innovation. In other words, the more applying creative leadership increases, the more innovation of leather craft industry SME in Badung Regency increases. So that the second hypothesis is accepted.

Based on the results in Table 2, creative leadership interactions have a Beta value of 0.207 and a Sig. amounting to 0.044, it can be said that H_3 is accepted because the Sig. is 0.044 <0.05. The conclusion is that creative leadership strengthens the influence of knowledge sharing on innovation in the SME of leather craft industry in Badung Regency. The resulting moderation effect is to strengthen the relationship; in other words, if there is a creative leadership variable, the effect of knowledge sharing on innovation in the SME of leather industry in Badung Regency will be further strengthened, so that the third hypothesis is accepted.

5. Discussions

Knowledge sharing is one of the methods in the knowledge management cycle that is used to provide opportunities for members of a group of employees within the company to share their knowledge with other employees. The

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existence of knowledge sharing activities will affect the development of innovation in individual employees and groups that are useful in the progress of a company. The results of the hypothesis in this study show that knowledge sharing gives positive and significant impact on innovation. In other words, the more doing knowledge sharing, the more innovation of leather craft industry SME in Badung Regency increases. Hence, the first hypothesis is accepted. This is in line with the research results of [16] which states that the existence of knowledge sharing activities can affect the improvement of employee innovation which in turn will improve company performance. Knowledge sharing is an important process in organizational progress because it can spread intellectual capital throughout the organization [19]. Sharing knowledge will be more meaningful and effective in supporting innovation [20].

Hidayat says that sharing knowledge can help employees disseminate good and relevant information to fellow employees [21]. A company's ability to innovate and apply knowledge can determine the level of innovation capability[22]. Knowledge sharing helps employees to foster an innovation; thus, there is a positive correlation between knowledge sharing and innovation [23]. Knowledge sharing has a positive effect on the speed, quality of innovation, and company performance. Knowledge sharing is widely recognized as the main source for companies to foster innovation capabilities and achieve organizational effectiveness, survival and sustainable competitive advantage [24, 25, 26].

Based on the respondents' perceptions of creative leadership, the respondents assess that a leader is less able to study the obstacles faced and find solutions to problems faced by the company which can hinder the progress of the company. Besides, a leader in the company cannot place employees in accordance with the capabilities possessed by each individual employee. Therefore, the role of creative leadership is needed by a company, especially SMEs, in order to increase innovation. The results of the hypothesis in this study indicate that creative leadership has a positive and significant effect on innovation, in other words, if creative leadership increases, innovation in the SME leather industry in Badung Regency will increase. So that the second hypothesis is accepted.

Various factors influence the development of an innovation. One important factor is leadership, which will be able to persuade and motivate employees about the need to implement change and innovation. This also ensures that employees will support and react positively to innovation efforts [22]. Creative leadership refers to leading others towards achieving innovative results [28].

Creative leadership has the courage and is ready to take the risk of failure and is not afraid to involve in conflicts between staffs [16]. Creative leadership can be considered as a form of a certain mix with creativity. Creative leadership is the ability to generate new ideas and useful innovations as well as the ability of creative leadership to influence others to complete the ideas of the leader. In other words, we can say that a creative leader is someone who leads others to reaching the achievements of new innovations [15].

Creative leadership is a leadership style based on the concept of working together to develop innovative ideas. Creative leadership tends to create conditions that support creativity and innovation. With the existence of creative leadership which has the ability to gather knowledge so that it can share knowledge and experience with employees. This will increase employee awareness to carry out knowledge sharing activities in order to increase innovation both in individuals and companies.

The results of the hypothesis in this study indicate that creative leadership moderates the effect of knowledge sharing on innovation in the SME of leather craft industry in Badung Regency. The resulting moderation effect is to strengthen relationships, in other words, if there is creative leadership, the positive influence of knowledge sharing on innovation in the SME of leather industry in Badung Regency will be further strengthened. Creative leadership is a quasi moderator variable so that the third hypothesis is accepted.

The role of creative leadership in a company is not only directly related to innovation. Creative leadership also affects knowledge sharing. This is because the creativity of a leader is an important factor in obtaining and collecting various information [20] which later will be able to encourage the creation of a knowledge sharing process between employees to create new innovations in the company. Add that the role of creative leadership in the knowledge sharing process is greater than that of the innovation process [24]. Thus, in the process of developing innovation, the role of creative leadership is as a moderator, namely strengthening the influence of knowledge sharing on innovation. The previous research suggests that the role of creative leaders is said to be able to trigger the role of knowledge sharing so that it can have a more significant effect on innovation [20].

This research was conducted to examine how many contributions can be given to the knowledge management theory. Knowledge management is a necessary process in maintaining competitive advantage, where the goal of knowledge management is to provide knowledge for organizations and this knowledge is made easier to apply in order to achieve organizational goals. Knowledge management is a very important thing that must be understood

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by the entrepreneurs of SMEs in order to develop the business by carrying out knowledge sharing and being supported by creative leadership, in order to be able to create a product innovation of the company, so that the corporate objectives can be achieved. Thus, the results of this study provide empirical support and can be stated to strengthen the results of previous studies. This study also provides an understanding that knowledge sharing and creative leadership can significantly influence innovation, when knowledge sharing increases it can strengthen innovation, with the presence of creative leadership in companies that has the potential to increase innovation.

The results of the research that has been carried out can provide a comprehensive understanding of innovation in small industries or SMEs as evaluation materials for analyzing and dealing with problems related to innovation, knowledge sharing, and creative leadership. From these results, the practical implications of the innovation variable are that the leather handicraft business in Badung Regency has a high average. This can be seen from the businesses of SMEs that have adopted new technologies in gaining new markets and in introducing new products, companies often excel in the market.

Practical implications for the variable knowledge sharing on the employees of the leather handicraft SMEs in Badung Regency have a high average. It can be seen that employees are willing to share their knowledge if requested by other employees. The practical implication of the creative leadership variable is that the SME of leather handicraft business in Badung Regency is able to create superior quality employees in terms of innovation created by a leader who challenges employees with high standards.

6. Conclusions

The results of this study indicate that knowledge sharing has a positive and significant effect on innovation. This shows that the existence of knowledge sharing activities by high employees can lead to the increased innovation in individuals and companies. Creative leadership has a positive and significant effect on innovation. This shows that high creative leadership can lead to the increased innovation. With the existence of creative leaders, they are expected to have an ability to encourage employees by creating innovation in order to create a creative and innovative company. Creative leadership strengthens the influence of knowledge sharing on innovation; in other words, when SMEs apply the type of creative leadership in a company, it can amplify the effect of the activities of knowledge sharing towards innovation in terms of both individuals and companies.

This research implies that a culture of sharing through gathering knowledge is then given to fellow organizational staff to increase innovation. Likewise, creative leadership has an important role in encouraging the creation of a culture of sharing so that SME innovation can be stronger. Furthermore, knowledge management needs to be developed in SMEs so that innovation can develop properly. Knowledge management also needs leaders who apply creative leadership patterns to enhance a culture of sharing knowledge so that SMEs are more innovative.

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