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Impact of qualitative and quantitative variables on the effectiveness of training: Example unit of production food Moroccan

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ABSTRACT

The use of a HACCP plan in food processing units became mandatory after a mandatory decisions of international commissions, so after studying the sources and modes of bacterial contamination of the product, that is to say a non-compliance, use the technique of Five M: Raw materials, equipment, Medium, method, Manpower. This means that for each of these categories, look for items that may be at the origin of a germ intake. should be considered in this study, Manpower which remains the most uncontrollable and that is that it depends on the other quads, based on training of GHP (good hygiene practice) and GMP (good manufacturing practice) was conducted inside the unit with assessment of its effectiveness has hot and cold on his staff that is recognized by its great heterogeneity vis-à-vis gender, age, experience, socioeconomic level, place to live, to see who among these variables show a direct impact on the implementation of prior learning objectives, and identify key points at the origin of the impacts, then improvement measures are proposed.

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KEYWORDS

Food processing units;
Contamination;
Product training;
Labor;
GHP;
GMP;
HACCP.

INTRODUCTION

Improving product quality and sanitary quality of the organization is observed by a sharp decrease in number of non-compliances at the GHP and GMP on the side of agency staff and could be the cause microbial contamination of the product dangerous for humans. By cons, longer product marketing channels has re-

quired the mastery of exogenous contamination in order to ensure an unaltered preservation and security guarantees. To try to counteract these risks, institutions for the Conservation of food products must carry out regular training for their staff^[1], (HACCP^[2], ISO 9001 V 2008^[3], V IFS 2012^[4], ISO 22000 V 2005^[5], BRC V 2005) with scores of the BRC standard V 2012. Many studies have shown the importance of human

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capital in building the firm's competitive advantage^[6,7]. Some studies have shown that significant variability in the results of disinfection when the disinfectant is applied by employees rather than professionals^[8]. The staff responsible for carrying out these operations is an important factor in variations of the results of the decontamination. Their training and motivation are two major successes. To quality, a training system must be efficient. That means it must achieve its objectives. So we can talk about efficiency in relation to the objectives of training, or with the expected effects on the ground, that is to say the impact is seeking to have any training system for the benefit of organization in which it takes place^[9]. A training system is located within a company (in the broadest sense: human society or in the narrow sense: the "Company" as a company) and aims to provide a society of individuals that may make it work and grow. The effectiveness of a training system must not only be estimated from the product as it appears at the output of the system, but also with respect to the place and role occupied this product in a society once it is removed from the system. Our goal is to have a successful worker. Dennerly^[10] for this we must give learners the motivation and create an environment that allows them to learn and to provoke their commitment to a process of learning, develop in the skills relevant to reproduce, know-how and know-being; address the cognitive, psycho-sensory-motor and social-emotional, has knowledge and integrate these different areas so that the learner not only acquire knowledge but more importantly has the capacity to gradually move towards the skills to handle as many situations as possible, to explain the importance of employee involvement in continuous improvement of the organization, as^[11]. There are other aspects of equilibrium of a system of education, including:

- The balance between information flows and activities staff in developing the ability to learn to learn;
- The balance between the functional activities (real or simulated) and structuring activities;

In this work, we sum concerned has the study of the impact of the variables sex, age, experience, socio-economic status, living place on the effectiveness and usefulness of training for all staff present in the body along the food chain, in order to assess the level of GHP (good hygiene practice) and GMP (good training

practice) and whether participants actually implement the skills they have acquired training, after which they find themselves at their workstation

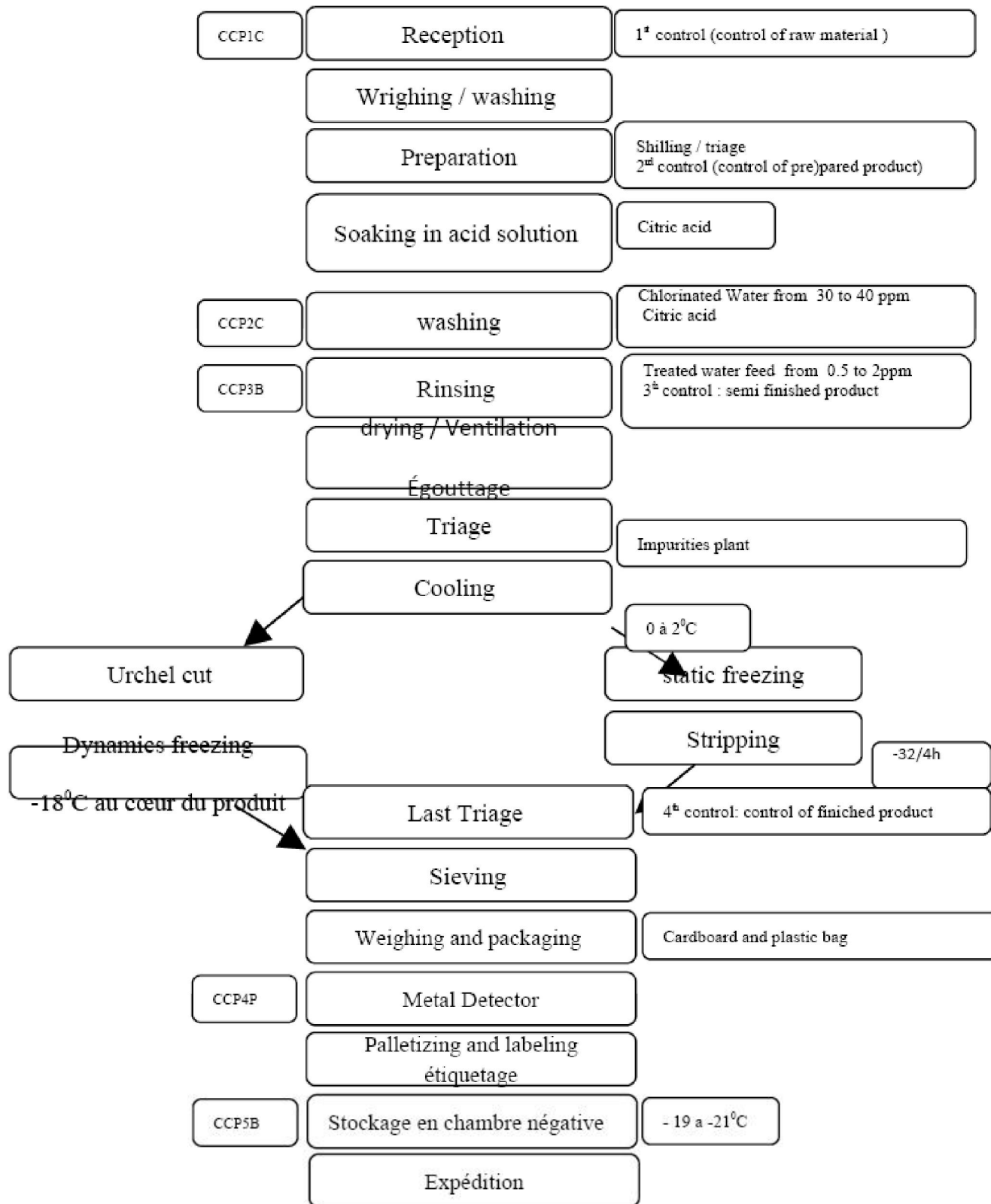
MATERIALS AND METHODS

The study was conducted in a processing and canning of fruits and vegetables in the city of Kenitra, in the year 2010 when production reached 2,700 tons. It includes 20 people as permanent staff. This number can reach 240 in campaign period. Were casual. That women constitute 80% of all staff. Artichokes come to the company in boxes of about 20 kg each by means of trucks. The reception is done inside the company under the control of those responsible for quality and production. Travel lines are unloaded by hand onto pallets identified by lot number. They are then weighed and registered at the preparation area. Triage begins and non-compliant products are discarded. The upper third is cut. The tail and leaves are removed except the parts cool. Heart or artichoke heart is deposited on a treadmill. It is immersed in a tank filled with a solution of citric acid to pH 3 to 3.5. The product carried by another conveyor belt passes under a shower of water to remove traces of acid. A final sorting is done before entering the freezing tunnel dynamic temperature of -18 ° C. The frozen product is bagged in plastic food identified. The 5 or 10kg bags are carefully nested in cartons labeled. 48 boxes are the unity of a pallet. The latter is identified to ensure traceability. Shipping is done via refrigerated trucks at a constant temperature of -18 ° C. Loading is made using a Clark or pallet. The differences are placed in plastic crates for a second sorting. The best (second choice) are for the local market, the rest (third choice) is intended for feeding livestock. The processing steps described above are elucidated in the following flow diagram:

Our study will focus on four groups A, B, C, D of 40 women each, and the 5th Group E will be on 40 men who underwent a first step, an initial training on 1 November 2010 from 8am to 10am in the morning, instruction on cleaning and disinfection of premises (TABLE 1)

To see the impact of varying gender, age, socio-economic level, living place, and experience on training objectives, according to a questionnaire consisting of 20 questions is a hot that is to say just after training in

process flow diagram



the same day and a Another cold that is to say, after 15 days of training. First variable was sex between men and women who will attend, Second variable is the age range from 19 years as little as 55 years old and the

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Cutting tail



Cutting head



Cutting outer leaves



Cutting outer leaves



Cutting bases leaves



Artichoke heart



Cutting heart artichoke



Frozen artichoke receptacle



Frozen heart

greater age, and so we will classify it five group A group 19, group 20 to 29 years, group 30 to 39 years group between 40 and 49, and group between 50 and 55, third variable socioeconomic level: it was evaluated using two indices: the index of wealth at home and index educational resources^[12]. The wealth index at home includes nine statements such as “In the house where you live most often, how it y’at televisions?”

“The index of educational resources at home has 4 items such as” In the house where you live most often, how it y’at of dictionaries? “Using these variables as SES measure is justified by the fact that capital in material resources and educational resources at home are among the best indicators of SES to affect performance in training The fourth variable is a place to live staff who come from rural areas and other urban areas, Fifth year experience variable has a range between 0 and 2 years

in the same area and so we will classify them into five groups: Group 0 days, group 3 months, 6 months group, group 1 year, group 2 years and over, training will take place in a local well equipped and suitable for the quality manager of the same organism, a researcher in food microbiology with 15 years experience in the same field, happens in Arabic is the mother tongue and French language. This training is spread over a theoretical part to explain in detail each item of the statement (TABLE 1) and the various manufacturing steps, the room has the form of animated slides with explanatory drawings and a practical part

Evaluation of training

We will try to involve in training variables: age, sex, socioeconomic status, place of life and experience and see in a questionnaire consisting of 20 questions, which students were asked to respond on a 7-level Likert

TABLE 1 : Instruction de nettoyage et désinfection des locaux

Instruction of cleaning and disinfection of premises	
Definition	Chemical and mechanical action to remove dirt adhering to the walls and floors.
Purpose	Get a visual cleanliness, Eliminate transient flora, resident flora Decrease
Indication	washing walls at each end of work, whenever it appears dirty, whenever necessary
Materials	Cleaning and disinfection Delladet, Water Network, bucket, broom, brush, water jet machine, squeegee
Completion of cleaning and disinfection of floors and walls	Remove all food products and packaging materials from the area to be cleaned or adequately protect them (if necessary), Protect equipment and electrical outlets, Collect up dry debris on all the machines and on the ground, put the waste in a tank waste and empty containers in the appropriate place, make a wet wiping the walls to remove dirt, taking care not to resuspended into the air. Make a wet sweeping to retrieve the loose dirt on the floor, wash water jet from the top down to the walls, scrub with a brush manually using a detergent or degreaser and emphasizing the points the dirtiest, do a visual inspection to make sure everything is rinsed well, disinfect, rinse with water using a hose and a squeegee, rinse and disinfect equipment broom, squeegee and brush and put them back to their place

TABLE 2 : Questionnaire

	1. Disinfectant: is a chemical or physical that kills or inactivates microorganisms such as bacteria
	2. detergent: chemical capable of removing grease and dirt
	3. mopping: dusting operation (usually movable items) impregnated with an applicator
	4. Cleaning: operation, above all macroscopic soil removal (particulate, organic, organic liquids)
GHP	5. Wash: application to the substrate of a detergent solution, to take off and suspending the dirt. It can be manual or mechanized
	6. rinsing : élimination par l'eau des résidus de produits de lavage, de lessivage ou de décapage. l'eau utilisée ne
	7. dust, particles of various origins, whose dimensions are such that they can stay a while airborne.
	8. microbe: a microorganism means usually a bacterium responsible for a disease
	9. micro-organisms can be bacteria, viruses, fungi, protozoa or algae
	10. microorganisms: are living beings who need food, grow, "reproduce" and die
	1. triage is to remove the damaged units
	2. soaking the peeled artichokes in acid solution to prevent their oxidation cancers
	3. weighing is a procedure that is used by a balance and to ensure the required weight
	4. the metal detector is a machine alarm units containing metal
GMP	5. a label carries a lot number
	6. a label used to identify a product, a carton or pallet
	7. cooling it is a freezing
	8. freezing is to reduce the temperature to -18 ° C
	9. shipping operation is to send the finished product to the customer
	10. weighing used to determine the weight

scale (1 - not at all, 7 - strongly), how (s) parameter (s) that has a Significant effect on the competence that is to say, based on particular knowledge, skills and life skills that has, as well as its ability to learn. The ability to know and memorize things short and long term.

RESULTS AND DISCUSS

Impact of gender on acquired learning objectives

Evaluations of GHP and GMP for both sexes hot and

cold are shown in Figure 1. The results show that the type of sex did not influence achievement of training objectives

The assessment results and (GHP1, GMP1) for women slightly exceeds that of men, but not highly significant, since there is a slight overlap between the error bars, and the can be explained by the women that have made the used to Slightly lower results for the GHP and GMP's fourth assessment, this can be explained by the decrease in information and knowledge stored in memory Undiscounted through training in the short

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term. A slight dominance of the results of the fourth assessment, this can be explained by the coaching staff by qualified corporals level of production.

Impact of age on the achievements of the training objectives

Evaluations of GHP and GMP for different ages hot and cold are shown in Figure 2

Evaluation results show that there's no consequence difference for the ages, there are less than 49 years for GHP because their error bar overlap in most cases. The level of GMP against it there's a difference along all evaluations since their error bar does not overlap in most cases, this can be explained by a better physical health among children under age, and reduced motor

activity among older women^[13,14]. However, one common misconception is that the adaptive capacities of individuals decreased with age. It is rooted in psychological research and the fact that the returns to training decline with age. Heckman^[15] shows that it is desirable that training policies are focused on younger individuals. Indeed, learning affects cognitive abilities that make themselves the subsequent acquisition of Knowledge. Under these conditions, the effectiveness of training is strongly decreasing with age, younger individuals are best placed to acquire and develop subsequently a large stock of cognitive abilities. It seems that the ability to accumulate new skills declines with age. Older workers appear to be less well placed than their younger colleagues to deal with a work environment in fast chang-

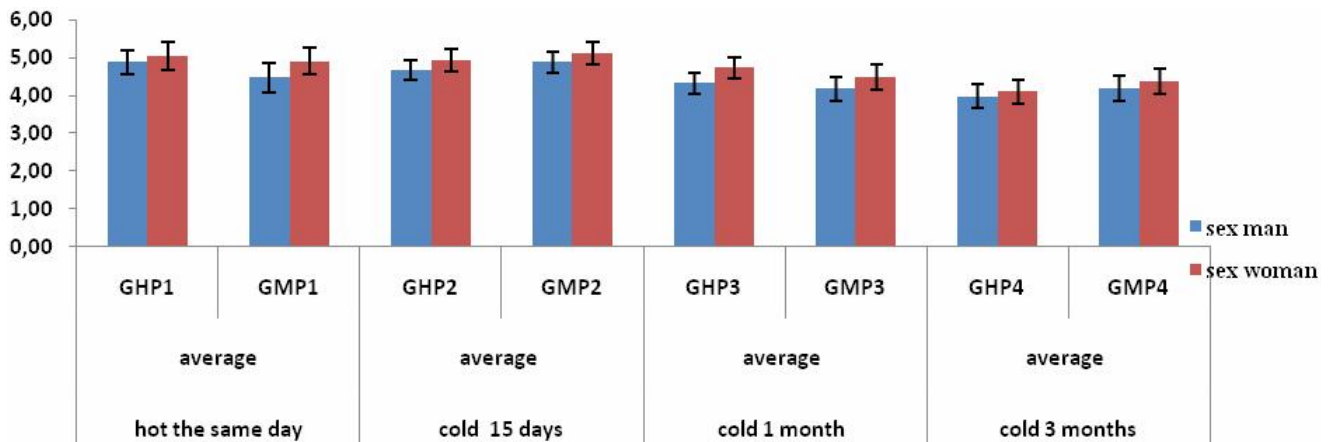


Figure 1: Impact of gender on acquired learning objectives

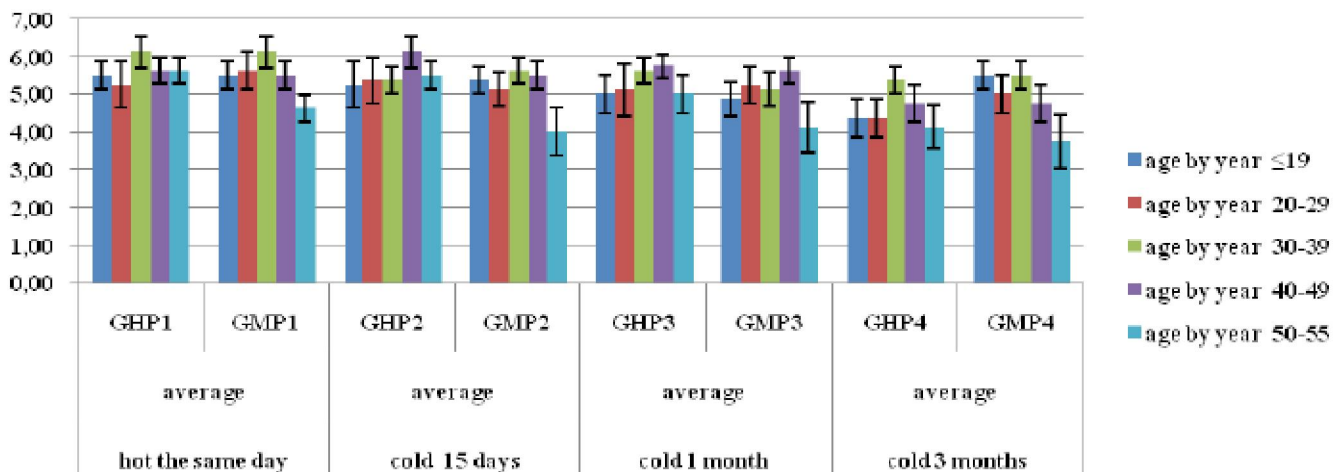


Figure 2: impact of age on the achievements of training objectives

ing. Obsolescence “economic” due to the reduction in market value of knowledge Previously accumulated is coupled with an outdated “technical” due to declining learning ability at older ages.

Impact of the experience acquired on the training objectives

Evaluations of GHP and GMP for different lengths

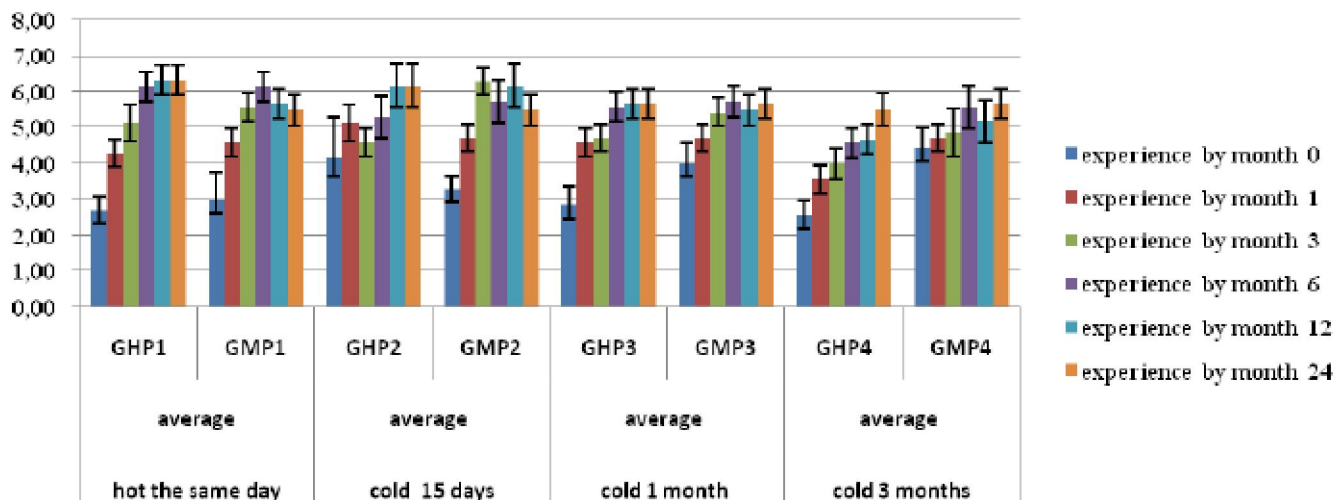


Figure 3: impact of the experience acquired on the training objectives

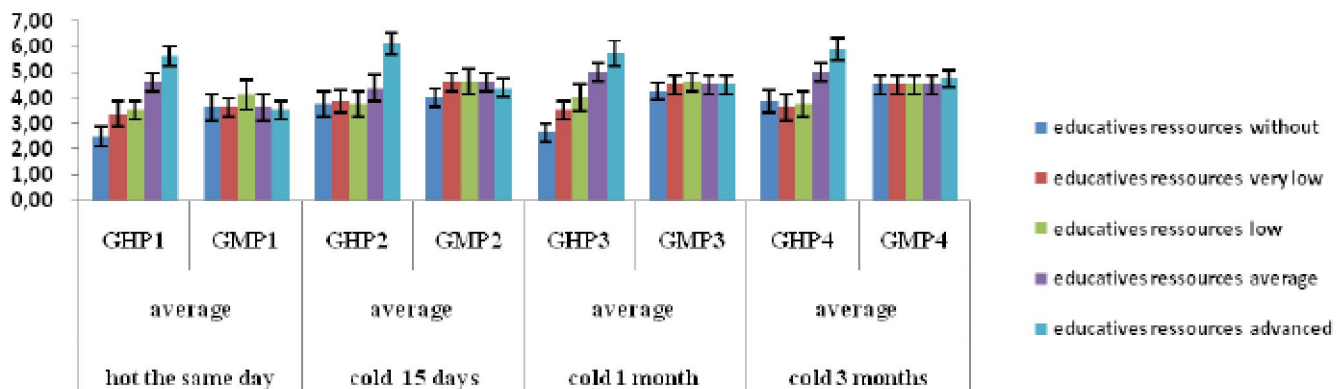


Figure 4: Impact of educational resources on the acquired training objectives

of experience hot and cold are shown in Figure 3

We note here that as experience increases in personnel since the results of assessments and GHP1 GMP1 increases, their error bar does not overlap, especially for the less experienced it so there’s a highly significant difference, this is explained by the more than made that the staff is more experienced with time it acquired the techniques of handling and good practice the cleaning and disinfection, And even more time between the first and second evaluation, the greater achievements of the objectives of the formation decreases due to loss of information stored in memory, by cons operations on GMP remain almost the same as explained by the presence of qualified corporals who supervises staff at product handling,

Impact of educational resources on the acquired training objectives

Evaluations of GHP and GMP for different lengths

of experience hot and cold are shown in Figure 4

We may remark here that the more educational resources increases over the notes of GHP increases in assessments and the same error bar for the column advanced educational resources does not overlap with others, so it ‘is a highly significant difference that the can be explained by the addition given that the staff has a good level of study, most understand that the training objectives and AC remains high even at the GHP4 this can be explained by the fact that the total educated staff remains in contact with reading and with signs posted in appropriate places of the factory explaining the procedure of cleaning and disinfection. The results show overlap between the different columns of training some remains almost constant as the case BPF4. We therefore conclude that the level of education has no effect on GMP

Impact of the wealth index on the achievements of training

Objectives Evaluations of GHP and GMP for the

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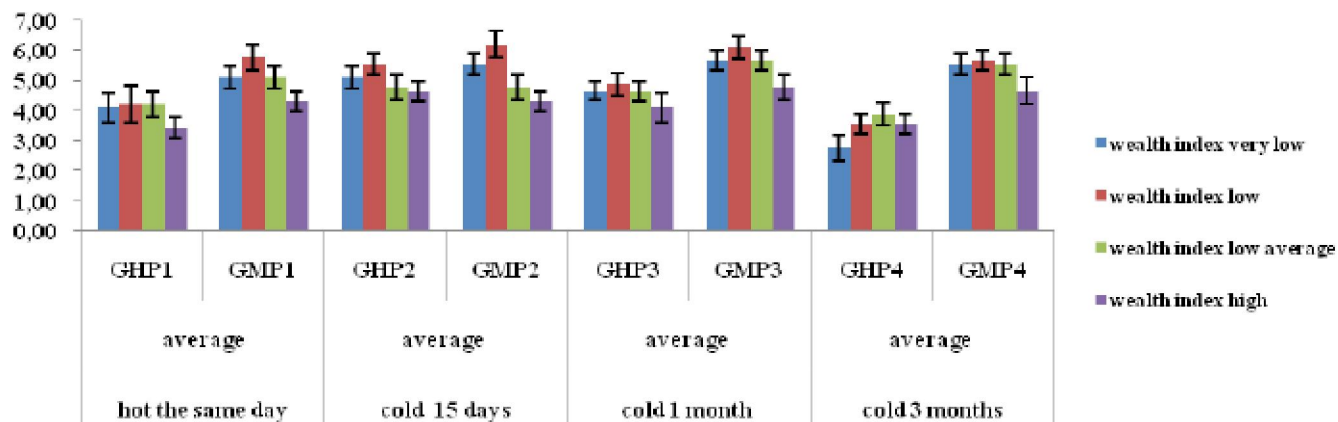


Figure 5: Impact of the wealth index on the achievements of training objectives

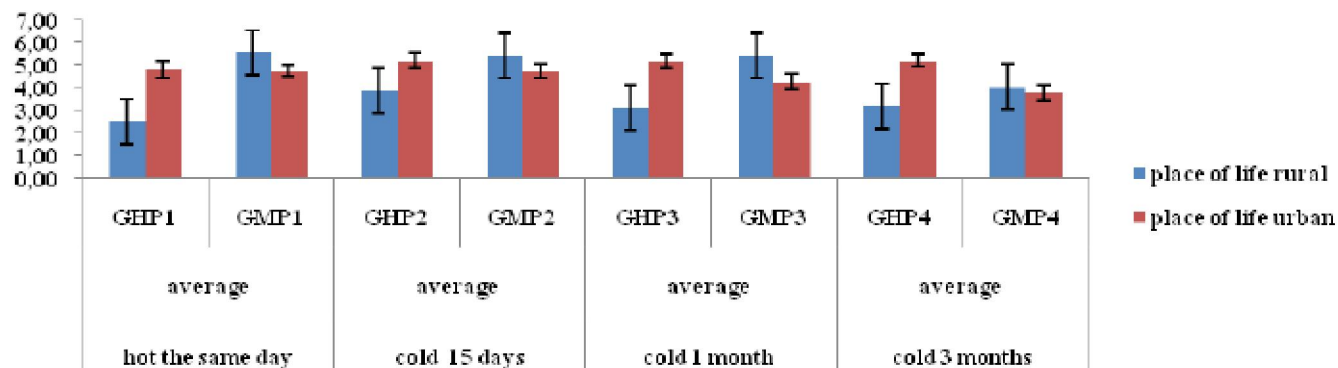


Figure 6: Impact of living space on the acquired training objectives

wealth index hot and cold are shown in Figure 5

Note that the results of individual assessments for staff with wealth index as very low, low and medium level of GHP and GMP is higher than that of high wealth. One can also notice at any assessments that the results for staff with a wealth index is lower to higher staff with lower wealth indices, and their error bar in most cases do not overlap. We concluded that therefore a significant difference, this can be explained by the staff that made having a low wealth index seeks to improve their situation through work. Also the longer the delay between the first and second training is more along the ideas or achievements of the objectives of training vis-à-vis the GHP decreases.

Impact of living space on the acquired training objectives

Evaluations of GHP and GMP for the wealth index hot and cold are shown in Figure 6

Note that the results of evaluations of GHP1 for staff living in the rural area is less than that of staff who lives in the urban area, and remains unchangeable for any formations same mistakes their bar so it does not

overlap there's a difference clearly significant, this can be explained by the fact that the total urban employees work a lot with cleaning and disinfection in their homes, Against by the average GMP1 for staff of the rural area is higher than that of staff of the urban area and remains unchangeable for all assessments, This can be explained as that made by the staff of the rural area was used to working these products in their homes, farms or fields. Similarly, the more time between a first and a second assessment increases, the evaluation results for the GHP and GMP decreased this can be explained by the loss of data stored in their memory.

CONCLUSION

The new equipment and methods of communication and new forms of work organization require greater adaptability on the part of staff. This is due in part to the characteristics of new technologies, but also the fact that new production systems are based on a greater responsiveness to changes in markets. Under these conditions, the personnel must be able to quickly adapt to ongoing changes in their environ-

ment and the use of materials and methods work sometimes radically new, and will be considered as new targets. The organization faces is to fulfill training needs and optimize their training plan to achieve its objectives and has that are related to the various critical points of the body and to convince the challenges of external stairs, Evaluations are very important to compare the one hand the training objectives with the achievements of staff and secondly to assess the conditions and level of training to determine corrective actions. Negative results on either of these assessments should draw the attention of management training and lead them to make further analysis to take the necessary measures to ensure better return on their training system. The organization receives personal recognition for its great heterogeneity for its location and surroundings that is recognized by a heterogeneous coat. It takes a diagnostic staff for fattening to know the proper training. Make training a high level and has accelerated gents for high-level study, Make audio visual training was low and with their mother in Arabic language in our case for other people illiterate. Selecting a homogeneous group to give an even level and training pace for performing a given task, as is the case of the group of cleaning and disinfection, which requires training focused on the goal the procedure products, and making dilutions. Similarly the HACCP team should have extensive training on the various stages of the HACCP plan, the different types of hazards and the different types of PCB in the body, and the team area of handling the product must it must show the product line and the nonconforming product, and even different type of peeling and cuts that are accepted and not accepted, Given the tasks that requires quick reflexes and reckless youth educated preferably Given the tasks that require physical fitness for men Stains that require a lot of manual manipulation of preference for the staff who used or experienced rural View detailed instructions well in suitable locations, with diagrams showing the procedure and write at least two languages: Arabic and French Given their motivation as companion-end bonus, 13th month bonus, bonuses for staff who showed good discipline, good performance, good appearance Rest days, the means of transport especially for other people who live far

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