
Exploring Learning in the workplace

Case study of the evaluation and analysis of learning effects, using the
ProductionLearningSystem Basic Training at Daimler
as an example.




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ABSTRACT

This research study was done on the commission of evaluating training and learning at the workplace based on knowledge transfer at Daimler Trucks Plant Mannheim, Germany. The aim of the research study was to find out if there was a difference between the content taught by trainers and lessons learnt by participants of the so called PLS* Basic Trainings. In addition, the research includes a brief investigation about the relevancy of the content being trained as well as the usability of the PLS system after the trainings.

The theoretical framework of Knowledge Management and Organizational Learning here elaborated explores theories of learning in the workplace and references their effects accordingly. The data collected consisted of both ends of the knowledge transfer process, in this case including the trainer's point of view through an interview and the participants of the trainings point of view through 26 responded questionnaires. The data analysis was done using Excel spreadsheets with pie and bar graphs.

Ultimately, the research findings showed that employees are willing to learn on their workplace to improve their individual qualifications and foster growth within the company. The results from this investigation revealed that the PLS Basic Trainings are very satisfying both to the trainers and participants. There is a very small difference in the lessons learnt and the ones being taught. The content was acknowledged relevant because of the direct links PLS provided to their workplace situations and lastly the usability varied with the need. Furthermore, the data perceived in the research study showed that the trainings are being well received and of high ratings throughout. Based on the reported findings, the implications and needs for further future researches are discussed.

*ProductionLearningSystem – is a software system that first of all serves as a guide for new workers, allows workers to learn from one another and share knowledge. Furthermore, with the system the workers can generate documents contributing to standardization, qualification and process of improvement.

Keywords Learning at workplace, KM & OL and PLS Basic Training.

Pages 56 and 71, Appendices 2 and 4.

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ABBREVIATIONS

CIS	Communication and Information Systems
e.g./ex.	Example
ERP	Enterprise Resource Planning
Etc.	Et cetera
IT	Information Technology
JES	Job Element Sheet
JIT	Just In Time
KM	Knowledge Management
KMS	Knowledge Management Systems
OD	Organizational Development
OL	Organizational Learning
PLS	Production Learning System
Quant & Qual	Quantitative and Qualitative research methods
SAP	Systems, Applications and Products
SMART	Specific Measurable Achievable Realistic Timely
SWI	Standard Work Instruction
SOP	Start Of Production
SWOT	Strengths Weaknesses Opportunities and Threats
TAM	Technology Acceptance Model
TCO	Total Cost Ownership
TLBO	Teaching-Learning Based Optimization
TOS	Truck Operating System

1 INTRODUCTION

In this chapter of the study, the introductions for the points covered on the paper are discussed. The research study has as a focal point the evaluation of the basic training conducted by the PLS about standardization, qualification and know-how transfer. The entire study paper consists of four main parts. The first part is made up of the introductions as well as the definitions and benefits of PLS referenced directly to their descriptions. This followed by the theoretical part of Knowledge Management and Organizational Learning, which is what PLS is all about. To finish up, this part Learning Theories will be explored in relation to the knowledge transfer and training. The second part is focused on the research methods used to evaluate and analyze the gap between the teaching and learning with specific examples. The third and last part finalizes the study with results and the recommendations for the possible improvements and optimization for the basic training. The fourth part, the conclusions with the summary of the entire paper is shown.

1.1 Background information of the topics of the study

The research study is referenced to knowledge transfer processes and learning at the workplace and to better explain these needs to understand its definitions. With that being said, the first aspect of knowledge is that it is at the center of learning (Mayer, 2008) and this aspects is becoming very notorious to be implemented in the workplace. Considering that qualification of staff is vital for the overall success of the organization. “The availability of information is changing everything and it is creating the greatest mass empowerment of all times” (Wheatley, 2004, 53). Meaning that with the help of technology and internet the world of today is constantly changing, and organizations have to learn how to be smart, quick, agile, and responsive to these changes to be able to survive in the dynamic business sphere. On the other hand, it is said that for knowledge to be meaningful it needs to induce change, therefore making qualification of the workers very important. However organizations need to ensure that this qualification or knowledge delivered to the staff is being well received and through the right channels. One may say that knowledge is not something that can be quantified and it is far more complex in that it is derived out of human relationships and experiences and this becomes a worrying challenge. And to overcome these Knowledge Management (KM) challenges organizations need to make available sufficient tools, as well as understandable information that can allows the appropriate staff to have access and contribute towards productivity and profitability overall.

In the world of today, some see KM as a choice but in the far future this will not be an alternative but a forced choice. Those that fail to understand the importance of KM and qualification will encounter many challenges and difficulties along the way and to overcome obstacles. Hence, as (Young, 2010, 2) mentioned “having fear of change or innovation is not an option and we have to learn to adapt to the new environment changes said.

It is said that organizations in itself cannot learn. Only through individuals who make up the body of this organization (the staff) can there be learning and the gain qualification inducing improvements. Therefore organizations need to qualify their staff at best to expect the best possible practices and the organizational outcomes. According to (Dierkes, Antal, Child and Nonaka, 2003) organizations should be aware of options to be able to choose the best one for the optimization as he stated “if knowledge is an essential resource for establishing competitive advantage, then management obviously should attempt to identify, generate, deploy and develop knowledge. Therefore managers need more knowledge about KM and how it can be managed if it can at all”. This statement was made about a decade ago, however until today we can see the impact and importance it is causing and how it looks for the future. Even though nowadays the internet is an indispensable tool for organizations, intranet is preferred for security reasons and due to the high levels of exposure of very important knowledge such as their most valuable resources that other organizations should not get access of. And as (Trompenaars and Hampden-Turner, 2004, 53) explained “The world wide web has created an environment that is transparent, volatile, sensitive to the least disturbance, and choked with rumors, misinformation, truths, and passions” one has to be very carefully what he/she exposes.

Charles Darwin said “it is not the strongest species that survive, nor the most intelligent ones but the most responsive to change” meaning that adaption is the most important factor for one to survive in this dynamic world. In business organizations there are needs to be able to resist and adapt to constant changes and use the lessons learnt to improve the processes. Other than that, there have been studies that mention that “Knowledge cannot be stored in a database only information can” according to the book of Goldsmith, Morgan and Ogg (2004, 24) and this is considered as a correct statement to some extent, because as mentioned before organization do not learn but the people who make up the organization so we can only transfer the information but the actual skills are more influenced on the other end of the transfer. This identifies the process of communicating the information, the missing element is the communal aspect and context of the knowledge, and adding to these variables creating a forum and environment for knowledge management.

To put focus on Knowledge Management Systems, these are defined as support technology architecture that makes it possible to realize targeted learning on demand in efficient time intervals. This architecture allows for the input of expert knowledge from all relevant areas within a company, as well as the inclusion of expertise from machine suppliers and facilities. PLS has been used at the Daimler Truck Plants since 2004 in Mannheim-Germany, and since then there have been implementations at other International Plants and in various departments of the company. PLS conducts employees training for the assembly line, machining, and maintenance workers. Many existing problems in daily production routine are caused by the lack of training and the inaccessibility of important information for the workers to meet their deliveries. The PLS system can ensure that this

happens by training the staff and encouraging them to use the system by promoting standardization in general.

Carl Benz the inventor of gasoline powered automobile said “Learning makes life easier“ this has served as a motto for the Daimler Company ever since. Therefore, qualifications are something that the Daimler Company values tremendously using training and standardization as the tools this overall success. For centuries now, scientists and philosophers have been concerned about creating, acquiring, and communicating knowledge and improving the re-utilization of this same knowledge. However it is not as easy as technology itself only, we need to create some mechanisms to manage them, and only in the past 15 to 20 years that the distinct field of KM has emerged, according to William King (2009). It has not been long since KM has been recognized as something that is of very much importance for the business world, especially for the future with standard information and documents for the benefits for globalization. For that fact that everyone eventually dies but the material things stay behind and we need to consider that a lot of the firsthand experiences and important know-how can die along. Therefore, we need to try to retain this information and what better way to do so than to store it in a reliable and safe system such as PLS. And just as the Care Services Improvement Partnership – CSIP stated "We recognize that our most important asset is people and their knowledge. We can understand KM as the cultivation of an environment within which people are willing to share, learn and collaborate together leading to improvement". Now it is up to organizations to develop multiple platforms of interaction where knowledge can be shared and transferred at best through technology and most effective channels using written materials and within cyberspace and face-to-face.

The PLS idea was firstly developed in the year of 2004. The software system was founded to help keep know-how and to provide more efficiency on the workplace in the various departments of the company. The PLS Basic Training strengthens the attitudes, behaviors and values to the work, and it also directly links the learnt factors to the required output of the work. This basic training was firstly intended for instructions new-comers in the company or workers changing from departments for the easy access of standardized know-how and step-by-step procedures at all times. This being done more often than ever there was a need for an evaluation of the training both in the content and the difference in teaching and learning of the participants. In this flow of knowledge many companies seek to structure this in other ways of trainings and intranet software to guide their staff and to promote innovations. The most vital element of managing the change associated with implementing any KM program is considered training. Focusing on the user experience and providing ample real-life scenarios can increase the effectiveness of the training said (Rosenberg, 2004, 243). There are various factors found to influence this knowledge transfer and the possible gap, which this then influences in the overall tasks of each and every worker accordingly. The way the knowledge is handled and by whom is vital for the transfer process to occur effectively, in a positive way so the learning on the job can sometimes also be danger-

ous if not well conducted. As Queen Elizabeth II stated "It's all to do with the training: you can do a lot if you're properly trained" and if this is done well then one can expect that the workers will generate positive outcomes at their workplaces.

1.2 The selection of the topic of the research study

Change should be embraced, so checking and evaluating to make sure all is up-to-date and that the content is still relevant is vital. Hence there was a need for an evaluation of the PLS Basic Training, and therefore also the analysis of the learning effects to check if there is a difference in the content being transferred. To later on recommend possible improvement procedures for the optimization for the trainings and to raise more awareness on the topics of Knowledge Management Systems (KMS) and standard qualifications.

This topic was raised recently by the PLS Team Leader which is one of the two founders of PLS in the Mannheim Plant. After many years of training being conducted to the different departments workers, it was recognized that now would be a good time to have a checkup of how things are being done and if the participants of the trainings. If they are being taught the necessary and sufficient know-how they need to work both directly in PLS and their normal daily activities in the workplace for an increased efficiency. There have been already research studies done on the usability and the acceptance of technology as whole but nothing done yet precisely on the evaluation and analysis of their basic training. This study is focused on training including topics of how it done, the purposes and to find out if the goals are being reached effectively. In brief also analyzing the influence the trainings have on the usability frequency of the participants comparing it with the satisfaction.

1.3 The Research questions of the study

The first part of the thesis title states "Exploring Learning on the workplace" and this is covered in the first and second chapter of the study paper with KM and learning theories accordingly. The basic training evaluation was to be done in a three way perspective: to find the difference in lessons taught and being learnt to be the overall goal, and then to analyze the results from the questionnaire and use the theoretical framework to backup the aspects covered in the paper. The evaluation study will be exploring learning theories and KM throughout, and the general questions within the study to be answered are as follows:

*Are the KM tools that PLS uses, being well accepted in the basic trainings?

*Which factors influence on the outcomes of these trainings and the learning effects as a whole in the different department in Daimler?

*How is the content of the training reaching all of the necessary and useful requirements to satisfy the participant's needs for the best use of the system?

*Are the main objectives to be reached by the trainers, compared to what the participants acquire in the basic training matching?

*What is the frequency of the usability of PLS after the training and for what content?

The above questions are answered later on (in the 6th chapter) after the investigation of all the other topics related is done. The state of art and the current situation will be concentrated on the KM theories and at the end the results of the findings from the questionnaire will allow the research questions to be answered and provide optimizations suggestions.

1.4 The objectives and the aims of the research study

This research paper has as main objective to evaluate the PLS Basic Trainings. Through questionnaires to the participants of the trainings and interviews with the trainers to check if there is a difference in teaching and learning during the training. Complementary to that the usability frequency and the content being used in PLS by these participants of the trainings. Hence to ensure full use of employees skills and potentials in order to help organizations into reaching their goals, it is vital for leaders to take into consideration qualification of their staff when running a business. In any kind of business, human resources are the most powerful sources and with qualification/training these resources can be better recognized and therefore utilized for the businesses best interests. Staff training is a very essential because it is seen as a path that management can recognize the staffs abilities and place them where needed to best accomplish their objectives. With trainings employees also become more professional, hence increase in productivity and profits, so to find out what they learn compared to what is thought is important because this will affect other aspects directly linked. The rate of the productivity of each individual depends on the awareness of the importance of these applications in the workplace. Making it very important to evaluate training which is one of the goals of this research study.

The main goals of the PLS Basic Training are standardization, qualification, and knowledge transfer. From those goals the evaluation and analysis are based on. Defining the factors impacting negatively or positively to the basic training conducted by the PLS trainers. The evaluation and analysis of the effects of the learning methods used and knowledge transfer as well as the channels being used to deliver this knowledge. How the participants receive the new KM tool and acceptance of the new technology to use both time as well as other resources efficiently. The content of the basic training is also under revision and their involvement with other concepts they include such as the lego exercises. The study is based on both theoret-

ical and desk research, qualitative as well as quantitative research methods are used to reach the final goal.

The other related objectives are to find out if the training influences on the usability of the PLS system on their workplaces later on. Arguing the how effective the training are done in relation to qualification and standardization, this then encouraging the participants of the trainings to use PLS to help solve daily problems in their workstation and generate documents. To find out also if the learning process and teaching are consistent and that KMS and learning is effective. After the evaluation and analysis to be able to provide the PLS team with recommendations for possible improvements for the optimization of the PLS Basic Training overall.

1.5 The structure and the overview of the study

Learning in the workplace is something that has been done for many years now, however now being done more than ever due to lack of enough qualification prior to the work allocation. The diversity exposed allows us to have different and broader views of things and this consequently making the learning effect sometimes different from the objectives of the teachers/trainers.

The four main parts can be described as follows: the introductions in the first chapter and background as well as the existing theories. Followed by the body of the paper which is the research part and then the two last part are made up of the finding and final conclusions and recommendations. In the first part there is a detailed literature on KM, learning theories and qualifications described in the current situation and the state of art. With the KMS, learning effects and standard qualifications through PLS to transfer this knowledge. The main objectives and goals are also defined here with the connections to the other parts of the paper, also define how PLS is seen in reality compared to the assumptions.

In the second part the main body is concentrated on the research, the focus is on the PLS basic Training case using the methodology of two research methods. Qualitative and quantitative methods to evaluate the training with the aid of two questionnaires (one for the participants of the trainings and another for the trainers in International Plants where PLS is also implemented). For a better understanding with up-to-date facts, and all the procedures and the approach used to conduct the training are explained. In the third part the findings of the research are revealed with the aid of a SWOT analysis. Feedbacks are also briefly mentioned and how the two feedback forms help with the evaluation of the trainings.

In the fourth part, the recommendations and conclusion are discussed. Along the entire study paper, you will be able to find a connection directly to the PLS Basic Training. The literature used is referenced at the end of the paper, which supports and backs up the research study. In the appendices part there is there are some facts in brief about the Daimler AG Company on itself, and then some illustrations and examples of PLS for your better understanding of PLS. The sample questionnaires sent out to the participants and to the International Plants can be found here also.

Below is the overview of the whole study paper divided into parts and their relationships:

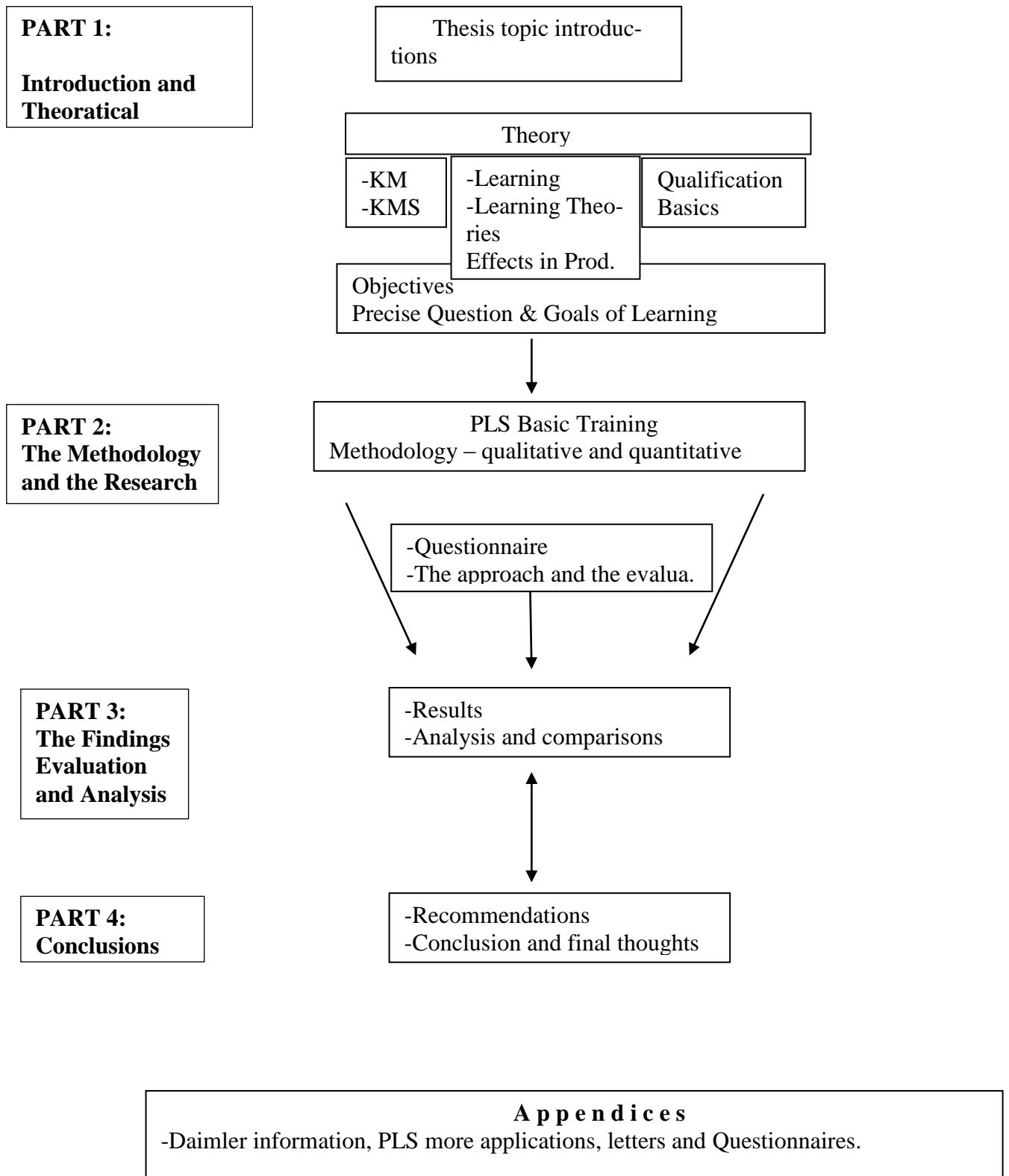


Figure 1 - The structure overview of the study paper.

1.6 Introduction of the ProductionLearningSystem at Daimler AG

PLS is a software system that first of all serves as a guide for new employees, allowing them to learn from one another and shares knowledge. Furthermore, with the system the employees can generate standard documents, have cyclechecks and suggest start-ups for their respective departments. The system has many advantages and benefits and these can be seen below as well as the philosophy. The information below is taken from the manuals and presentations of PLS for customers. This was elaborated by the team members, therefore giving direct reference to them. This information is all the time being updated and improved with the changes happening.

1.6.1 What is PLS?

PLS stands for ProductionLearningSystem is a software system that enables a quality control and maintenance and future improvements in the engines production plants. PLS is about acceptance of technology and sustainability of knowledge. The objective of the system is to build an infrastructure for the production department, which enables both a standardized documentation of the work processes and a standardized training for the employees by using the defined standards.

PLS has **7 Modules**, which offer an entire concept of Qualification on shopfloor. The Modules 1 to 4 consist of the standard documents SWI/JES, which ensures the standardization, Module 5 to 6 - which ensures the standardized qualification process in production areas. The Module 7 – concentrates on start-ups during the new production due to trainings by the machine manufacturers before the SOP (Start of Production).

1.6.2 The objectives and benefits of PLS:

1. PLS standardize SWI format throughout Daimler
2. PLS allows the generation of SWIs, JESs, photographs, attachments, and any other helpful documents accessible to all employees electronically
3. PLS makes it easy to work , simpler tasks, safest environment, and most efficient as possible
4. To share knowledge between operators and generations
5. To be a tool for continuous improvement
6. Helps guide new employees and their integration into the job.

The benefits of PLS are:

- Less downtime for training employees at an early stage, Method: Documentation of the training content and training of employees before the SOP.

- Selection and documentation of knowledge, which is useful for developers, Method: Inclusion and production planner to determine the objectives and content of training.
- Ensure the availability of the method of knowledge: Standardization of both project staff training and training documents.
- Quality control of operator's training
Method: Evaluation and approval of trainings according to fixed criteria
- Detectability of operator's training for TCO relevant components
Method: Documentation of the training contents

1.6.3 The PLS Philosophy

The PLS has a Philosophy that consists of four parts. From the trainers point of view, these are very important to know so that the whole concept can be understood better. These points were firstly mentioned by the two founders of PLS (2006) and later on more discussed and explored by the team and here below are explained in detail:

Workers are Experts

Most of the expert's knowledge is based on their experience. Hence there can be no better expert for a work station than the experienced worker, who executes this job every day. That is why in order to define the standard process in PLS, the best practice issues and the experience of the worker are taken into consideration.

Trust

PLS was developed together with production staff and it supports the production. The employees make the documentation of their personal know-how and experiences in order to share them with their colleagues and to learn from each other. Trust is essential for the willingness to share knowledge. This trust has to be protected any time.

Flexibility

PLS offers a framework for a standardized implementation which is flexible enough and which may be easily adapted to different employees who provide their knowledge. Sustainability and acceptance can only be achieved if PLS is adapted to the customer's needs.

Holistic

PLS is not a single concept but a holistic approach, which supports activities concerning continuous improvement (e.g. Shopfloor Management, Kaizens). It is synchronized with other projects (e.g. expert workshops, benchmarks) with the objective of optimizing the resources and supporting the principles of the production system.

PLS was considered to be a power train of production by the ISO-TS audits. This is considered to be one of the best KM transfer. On the appendices 1 and 2 there is the introduction of the Daimler Company as a whole,

as well as more example of the PLS documents and functions with illustrations.

2 THEORITICAL FRAMEWORK

In this chapter of the study, theories of Knowledge Management and Organizational Learning are elaborated. First there are definitions and the state of art of the terms and then knowledge transfer is investigated in relation to the PLS Basic Training. Furthermore, the focus is put on Organizational Learning discussion, followed by the factors of success, barriers and the ways to reduce risks. Lastly there is a referenced example of the company Config with explanations and the similitude to PLS.

2.1 Knowledge Management (KM)

Knowledge Management (KM) consists of tools and strategies being used to identify and create best practices within organizations. KM is becoming important now more than ever because of the regular changes occurring and globalization. There have been many research studies done on this subject of managing information to enable best practices as well as comprise experiences. The main objective of this is to ensure that knowledge is saved and managed well so that it can become available at all times and in an effective way to all. Another big subset of this subject is the knowledge transfer, which is how this necessary information is passed along the channels from the expert to the relevant staff, using the example of the PLS Basic Training.

2.1.1 The current situation of Knowledge Management

Knowledge as itself is defined as cognitive expectancies, and observation that have been meaningfully organized, accumulated through communication and for an intended purpose as personal beliefs. While management is considered to be the act of getting people and the resources provided to achieve the desired objectives. These two put together become much more than just meaningful expectations and getting people together for a purpose. With that being said, the combination of knowledge and management is now more seen as a technology-based technique for making tacit knowledge available more widely typically through individual and corporate databases which can be accessed through organizations intranet software. KM comprises a range of strategies and practices that are used in an organization to identify, create, represent, distribute, and enable adoption of insights and experiences. KM is all about converting the available raw data into understandable standard information that all relevant people involved can understand it. And it was only in the past few years that the world in general but specifically the business world has understood and begun to recognize the importance of knowledge safe guarding and its management as a renewable resource.

Around two centuries ago, according to Thomas Carlyle (1881) “Man is a tool using animal... Without tools he is nothing, with tools he is all” defining that man needs tools for survival. This is no different now because the reality is being recognizing even more now, and because it is seen how much one can be at their fullest with the tools provided by technology and the knowledge of today. On the other hand, as the notorious saying states “knowledge is power” one needs to be very careful of how he/she uses this knowledge now available. Also considering that too much knowledge cannot always be seen as beneficial, therefore handling this knowledge carefully is vital. This is why in organizations privacy has become very important, to protect their most valuable resources and documents so that not anyone can have access of them.

The process of KM is considered to include the many processes such as: planning, organizing, motivating, controlling of people and systems within the organization to ensure that the knowledge-related assets are improved and effectively employed for a determined final goal said (King William, 2009). Knowledge-related assets include knowledge stored in the form of printed documents such as patents and manuals, or knowledge stored in electronic repositories or systems such as “best-practices” databases as PLS. Employees knowledge about the best way to do their jobs in the most efficient manners and also the knowledge that is held confidentially by some can be found in these storages. Knowledge that is embedded in the organization’s products, processes and relationships can also be stored in these systems safely. In the article of (Hubert and Stuart Dreyfus, 1986), he argued that “why computers may never think like people” so even though computers and tools of technology may be very correct and accurate systems, humans have the ability to adapt to changes and react to it in given circumstances different from computers. This serves as the most important counterpoint of KM versus technology in our favor. It also states that without the ability to make intelligent decisions according to the dynamic environment that is exposed to and the incorporation of know-how and know-what, computers can be no more than conduits of human intelligence, devoid of context, distinctions, or true judgment. On the other hand technology helps us to handle this acquired or new knowledge better and easier, with storage and improvements.

As a complimentary part of KM there is Knowledge Management Systems (KMS) which are applications of the organization’s computer-based Communications and Information Systems (CIS) that support the various KM processes. KMS are typically not technologically distinct from the CIS, however more involved with databases, such as “lessons learned” repositories, directories and networks, such those designed to put employees in easy contact with the experts on the field to allow efficiency. In this world of constant change, the organizations have to learn to become smart, quick, agile and responsive towards this change in knowledge and technology to be able to survive long into the future. To a great extent, the successes or a failure that a person experiences in life depends on the decisions that one makes both consciously and unconsciously. And what makes the difference between a good or a bad decision logic. The more we

know, the more we understand what we do not know, and that knowledge increases, which causes the paradox that the more an organization knows the more knowledge it demands which in turn leads to a less efficient daily operations according to Schneider (1996, 7f).

However there are controversial sides to KM, some managers believe that KM is dying and if not well maintained the whole concept can die. There are arguments that back up their assumptions for example, Roan Yong (2012), stated “The biggest problem with KM is it is too broadly defined. Too many “KMers” step forward and offer their version of KM and as a result, KM is pulled in different directions. To make matters worse, these different versions add up and give the impression that KM is the super-antidote that can solve every panacea in the vast world of management and leadership”. He also continued saying that if everyone keeps on giving their own definitions and not specify it as much as possible it can be very difficult to overcome these expectations that are placed on KM as a whole. Hence the results are not as we would like, then organizations tend to move on to something else and forget all about KM. To keep ahead of the competition and survive in the market organizations must encourage creativity and be innovative, by using KM to aid them through these processes.

2.1.2 The state of Art of Knowledge Management

KM is based on the premise that, just as human beings are unable to draw on the full potential of their brains. Organizations are generally not able to fully utilize the knowledge that they possess, that can avoid resources wastage. Through KM organizations seek to acquire or create potentially useful knowledge and to make it available to those who can use it at a time and place that is most appropriate for them to achieve maximum effective usage in order to positively influence organizational performance. For knowledge in general to be meaningful it needs to induce change, so if there is a lot of knowledge being passed down from experts to the workers they should use this knowledge to change their approach to the work.

If all of these yet to be utilized or undiscovered resources the employees possess could somehow be recognized with the aid and use of KM tools combined, there is a great chance that the effects of KM can very well influence on the final results of the company’s performance. Organizational Learning (OL) is complementary to KM as (Levitt and March, 1988, 319) argues “as it encodes the inferences from history into routines that guide behavior” which has to do with embedding what has been learnt into the fabric of the organization. For a better understanding of KM and OL one must first understand knowledge in general, and then the processes and goals of KMS. One must know that knowledge in these terms is a vast pool of what our brains can store and then reflect to situations at all times. And learning is one of the ways we attain this knowledge/skills from the wise or experts. KM has become an important concern for organizations because they do not want the knowledge to be lost nor that there is a misusage. This allows people to learn, improve and maintain the know-how and efficiently use this knowledge for their overall benefit. There have

been so many software systems created in the last 20 years, based on how to improve or best use the given resources to best operate in specific departments in companies. One of these software systems that is well known is SAP which is an enterprise software to manage business operations and customer relations such as ERP and SAP itself and many others accordingly. SAP has had a very good reception in the market and it is considered to be one of the best in the field as well as reliable in general. Nevertheless, not many have been invented on qualification and learning methods and that is how the idea of PLS came about. That would focus more on the standardization of this stored information as well as to make knowledge available to everyone at all times in a safe system. This is because the experts are not always available nor do they explain things the same may all the time.

Nowadays it is assumed that because of the internet search engines such as Google or Wikipedia we can access all the information we need and want. However what is not pondered upon for future occurrences is that behind all of this technology based information, is that these are manmade and nobody is perfect. So when reflecting about how to make sure that one day we do not lose all this information we need to come up with plan B. In cases of misusages and or loss of this information on the internet, nowadays intranet systems such as PLS which can safeguarding information are the solution. Above all it should not be forgotten that to manage this information effectively specially the one that organizations consider to be mostly valuable and needed.

Know-what is another term in KM that specifies what actions to take when one is presented with a set of stimuli. Not only know-how is vital but know-what is also the part of KM that can be considered sometimes with much importance because firstly one has to know what they are dealing with, and then to know how to manage or work with. For instance, a salesperson who has been trained to know which product is best suited for various situations has to have the know-what factor. How much of this known information he can deliver to the potential customer to lead him to a purchase, is the next level of knowledge the know-how. In this case we can use the example of knowing how to decide on the best suitable responses to a certain stimulus according to the current situation. Such knowledge is required when the simple programmable relationships between stimuli and responses, which are the essence of know-what knowledge is inadequate. This might be the case for instance, when there is considerable noise in symptomatic information so that the direct link between symptoms and a medical diagnosis is uncertain. Know-how type knowledge permits a professional to determine which treatment or know-what action is best, even in the presence of significant noise.

Lastly the highest level of knowledge which is know-why. With Know-why factor an individual has a deep understanding of causal relationships, interactive effects and the uncertainty levels associated with observed stimuli or symptoms. This will usually involve an understanding of underlying theory and or a range of experiences that includes many instants of anomalies, interaction effects, and exceptions to the norms and conventional wisdom in general. Know-why is the level of knowledge when

know-what and know-how are accomplished and there is a need for reasoning what one is doing and for what purposed with a defined goal.

2.1.3 Factors influencing Knowledge Management

KM and OL consists of many different factors influencing them, and these put together and well managed can ensure that the knowledge is well received and effectively transferred. Below are the different points that influence in these processes:

- Creation and acquisition of knowledge in a well-organized manner that allows sustainability of this knowledge and that can allow the learners to get as much as possible within a small period.
- Refinement of this information because not all the information that we acquire might be relevant to the specific tasks, so one has to be able to define exactly what is important and what is not so relevant.
- The storage of the knowledge has to be safe and where the relevant people can have good and easy access to it in the time needed. PLS is a very good example of this because it is ready and available as well as protected because access is given only to the people who have had the training and with access provided.
- Transfer and sharing the knowledge are two very important and difficult things to do, however one can make this easy by finding out exactly who and what needs to be transferred or shared.
- Utilization of the knowledge at requested places first, and ensuring that this is done effectively to avoid having to go back to redo things which this then avoids wastage of resources.
- Checking the organizational performance regularly is good as well as having clear communication channels to allow improvements is advisable. Once one has done the training it is good to check how this has caused a change in behavior and how this has been maintained.

The knowledge can be embedded in organizational routines, procedures and structures, which this same knowledge assets are bundled in order to contribute directly or indirectly to the creation of value of this knowledge and therefore allow learning within one another. On a Delphi study with Chief Knowledge officer (King William, 2009) raised many concerning issues in KM and put focus on the ones below:

- How to use KM to provide strategic advantage
- How to obtain top management support for KM
- How to maintain the currency of organizational knowledge
- How to motivate individuals to contribute their knowledge to a KMS
- How to identify the organizational knowledge that should be captured in KM systems.

There were more issues raised however not so much involved in what this study focuses on (so if you are interested in reading more about this please check in the references list). These were raised to come up with solutions for the issues mentioned, there needs to be a forecast done to find out how

KM will be different in the future. In addition, KM being such a broad topic needs to be dealt with much delicacy if not then it can be at risk if we do not manage it well now. The environment is viewed as a well-defined stimulus or system of stimuli and each stimulus (e.g. an administrative orders) evokes in the individual to whom it is directed a well-defined and predictable psychological set. When a stimulus is of a kind that has been experienced repeatedly in the past, the response will ordinarily be highly routinized explained (March and Simon, 1958). Until today we can see the same things happening. For example, how employees in the production department tend to become more of a machine like individual because of their repeatedly daily activities forcing them to become perfect robots. One can begin to see the dehumanization process occurring now more than ever and there is less and less human interaction which is very bad. As with this interaction occurring more often one can recognize the unknown or utilized resources of one another and therefore act upon them. PLS allows this interaction to happen by helping employees not to become these machines first of all, and by sharing their experiences, giving suggestions, checking and editing information from others and increase their amount of knowledge letting the organization learn. Efficiency in the work can be noticed as everyone has the access of what they need and what their colleagues provides also and all of this done in a standard form.

Recently it could be noticed that how humans are becoming machines with emotions that can induce change, in the way that the world can adapt to our likes for progress. According to (George B. Shaw, 1903) “The reasonable man adapts himself to the world, the unreasonable one persists in trying to adapt the world to himself. Therefore all the progress depends on the unreasonable man” from we need to be unreasonable if we want to induce progress. However we also might cause a lot of damage to our environment if we do so without thinking about reliability to find the balance. Also not to contradict with Charles Darwin’s ideology that we need to adapt ourselves to the nature of the world to survive, and that we humans now use more resources than ever in history. We destroy more, we are more selfish and the worst is that we are expecting the population numbers to grow which means that there is going to be an even bigger demand for space and already now scarce resources. One could say that the world is in big trouble. On the other hand, we seem to know and do so much more now, but we are still failing to understand the simpler things and this expectation that we rely on someone else to do something about it is increasing.

2.2 Knowledge Transfer and the components

Unlike information, knowledge is not easily transferred between settings, because the costs and resources for the transfer or the distribution of knowledge can be higher compared to just any information. It takes time for one to deliver know-how or expertise, in addition the learning process can be more complex to others and the social phenomena. Just like the above subjects, Knowledge transfer has been receiving a tremendous amount of publicity with advance of technology and tools designed to en-

able the better flow of information among both groups and individuals. The final goal of this is that we use such tools to ultimately share this knowledge and have a common understanding. This is also a big challenge as knowledge is dynamic, rich and alive.

Knowledge is shared and distributed with the help of multiple channels which include: personal interaction at any place at anytime, through tele-communications channels, emails, newsgroups, bulleting points, classrooms, TV, documents and more. The transfer of redundant knowledge with the help of several channels supports the learning process, and that is why nowadays we have the new quick and efficient communication channels introduced in KMS. However, this should not be used as replacement just as aid and improvement of previous ones. When dealing with humans acquiring and delivering know-how, for example most of us know how to ride a bicycle or how to fry an egg. However, that does not mean we can formulate specific rules or standard guidelines to teach someone else to do so. This is due to the differences in how our minds work and how can it can be difficult to explaining the feeling of falling when riding a bike or the feeling of possibly being off-balance when turning. Another example would be when frying an egg, how can one best explain how close to drop the egg on the frying pan of hot oil, that if the egg is dropped too close ones finger might end up inside the pan or if dropped from too far the oil might jump and burnt ones fingers. In most of all cases do we really know what to do or act until it is presented on the actual situations, one might argue that it is difficult to evaluate. This makes it very difficult to find guidelines that are standard to teach someone else to do something. Most who already know how to ride a bicycle or fry an egg, possess what is called “know-how” acquired from previous experiences and practice or inner talent.

According to the researcher John Brown” The next breakthrough won’t be in the individual interface but in the team interface“ this statement was mentioned on one of his organizational studies. This statement being proven true, as it is noticed now that more teams and groups rather than individually are working together to accomplish a goal. With collaborations between one another can result on better, broader, quicker and richer content results. With globalization, we can see that happening right before our eyes, how many companies are deciding to merge (not only because of the crises) also because working together allows them to share ideas, customers and provide products or service to the customer in an easier manner. Many organizations are introducing trainings to better qualify their staff in their different departments, first to be able to keep up-to-date with their competition, as well as the meaning of qualified staff means products with quality and increase in demand accordingly. However, there are always obstacles when we dealing with collaborations because people may have different perceptions or reactions towards same things and this is one of the negative sides of collaborations. Therefore to avoid bad collaborations one has to be sure of double benefit for both before collaboration and that the negative points are minor.

During this knowledge transfer one should consider the protection of this know-how. One of the most frequently faced challenges in KM is protection of valuable knowledge while conducting the transfer and to whom. To avoid unwanted use of organizational instruments if so, knowledge is in a sense provisional and is held until better knowledge is generated and updates are necessary. The qualification problem is a concerned of the preconditions required for a real-world action to have its intended effect. It might be posed as how to deal with the aspects that prevents one from achieving intended result accordingly with the given resources and people who can access to this information to best be managed. To support this knowledge flow there should be a balance on the pull and push factors of knowledge and relationship between the seekers and the providers using the tools given at their best. The main goal is to make the knowledge available in the points of most action, therefore there should be a planned structure for this process to occur to cause best practices.

The success of knowledge transfer can be determined by the extent to which the sources of knowledge are recreated at the recipients end for example. Consequently, the concept of knowledge transfer is measured by variables such as contribution of transferred knowledge to other projects, tasks or processes, extension of the knowledge base or reduction of dependency or reliance on partner knowledge. In some cases important knowledge is kept from some employees. This can be for a specific reason and must not be transferred. However, there are cases where there is just bad relationships and or jealousy within the employees in the different levels of the organizational charts and that means that even very important information. Which then this allows success of the company are kept and this is very bad and can cause failure.

Diffusion of ideas is a study done under social anthropology, and is the process of spreading innovation led more and more to the spreading of ideologies and therefore became the center of attention for the subject of OL. It was proven that these ideologies do travel as tangible things do, however it is the method of locomotion that remains in doubt argued (Czarniawska and Joerges, 1996). For that reason the attempts of changing from the physical metaphor of transfer into intangible and to make it flow smoothly. It is true that people speak about ideas as if they were objects moving in time and space by virtual properties. In this case the diffusion process has an economical value, rendering the less known terms of these material. This richness of meaning, evoking associations with both movements and transformation, embracing both linguistic and material objects, makes translation a key concept for understanding organizational change said (Czarniawska and Sevon, 1996). And this embraces the relationship between humans and the locomotion of their ideas at its best.

Another big subject in knowledge transfer is imitation. Whereby people tend to bring across things that are very easy to just copy how to do it and that is it. However this process is very dangerous in the sense that, it locks people in a box and that they cannot or are not bothered to think outside that box which that brings no innovations or improvements (Sevon G.

1996). If this process of imitation is done wrongly, it is very challenging to switch it to the correct way so we should be careful in imitating people. On the other hand as Wheately (2004, 53) argues, “The availability of information is changing everything and it is creating the greatest mass empowerment of all time”. Due to the constant changes occurring constantly organizations need to learn to be adjust in these dynamic markets. However one needs to remember that organizations are made of people and not machines, so we need to consider factors influencing us to work at best. Furthermore knowledge cannot be quantified or given a specific value/amount, and this complexity grows into one of the greatest challenges of KM and the ability of organizations to embrace and grow accordingly.

KM initiatives will always face budget limitations, these potential goals provided might not be feasible, moreover even though most abstract KM activities seem to complement each other. Knowledge diffusion means that we can now have unintended access to sensitive data by unauthorized persons and this is becoming so common now with the internet. This is dangerous and protection against these is rising consequently.

2.3 Organizational Learning (OL)

Researchers explain that the process how new-comers learn in the workplace is apprenticeship, based on the centuries-old arrangement in which knowledge is passed from a master to a novice. Traditionally this process was more practical than theoretical which we can see also in the recent days, apprenticeship model described exactly how new-comers gained know-how skills and knowledge in general. OL is the process of knowledge acquisition, information distribution, information interpretation and organizational retention, using information to adapt successfully to changing circumstances. Everything that has advantages has disadvantages and we should be able to measure the difference between them to analyze the viability of things. So it is vital to check even before we implement something that the successes will overtake the failures for it to be sustainable and viable process.

OL is considered the part of the organization that is involved with Organizational Development which is the learning and adaption of the staff. Therefore organizations are already able to detect both internal and external changes in the environment and they can adapt to them accordingly. Since the first OL models were proposed by the two researchers Argyris and Schön (1978) about facilitating organizations with learning and qualifications for the staff, all the other models just followed based on their work. What Argyris and Schön found was that humans tend to learn in loops, first comes the single-loop learning where individuals, groups, or organizations change their actions according to the difference between expected and obtained outcomes. Whereas in second called double-loop learning the entities (individuals, groups or organization) question the values, assumptions and policies that led to the actions in the first place. If they are able to view and modify those, then the double-loop learning has taken place. Thus meaning that the double-loop learning is complementary

learning about single-loop, so we need to know the basics or backgrounds to be able to get to the other learning loop and have a greater understanding of it.

There are key dimensions of time that influence OL according to Weber and Berthoin (2003, 354) and these include: time perspective and orientation, time pressure, simultaneity, synchronization and windows of opportunity, learning cycles and lifecycle. "All organizations suffer when key employees cannot effectively influence the upper management" as Goldsmith, Morgan and Ogg (2004, 20) mentioned that what is missing is the ability to influence and affect regardless of the position. The usage of leaders as teachers is being adopted by many organizations nowadays, because there is already a relationship build between the employees and their supervisors making the process easier at least to most. From studies done in the past, we can see that employees show that they appreciated more learning that is endorsed or taught to allow new initiatives, changes in processes and continuous improvements with someone who they had a relationship with already. Since these leader teachers also knew exactly the current situation of the organization, call these "Leaders Learn". There are three main critical factors in OL, and these are: creating meaning, management of the learning process and how to measure these learning experiences. "The goal of organizational learning is to foster critical and reflective attitude towards information being processes, and that lead to actions to which organizational actors feel internally committed" (Nonaka, 2003, 757). This way a problem is overcome and this way induce innovation also. The most discussed and meaningful goals of KM are constantly being changed and differ within organizations in the areas that they most need them. However the most recognized ones are: transparency in the business, reduction of costs and risks, improvements in all areas and departments of the company. OL has then applications that when qualifying their staff to ensure that most important information is transferred so that their main goals in KM can be reached.

In 2004, there was a research done by three universities in the United States of America on "Two Models of Modern Workplace Learning" focused on engineers and ship designers. And these researchers came up with a very interesting the theory of "Learning Instance" which represented a situation in which knowledge was presented to an engineer and to a ship designer. The use of learning instances as a unit can help us analyze the methodological difficulty of not being able to determine with certainty when or if one has "learned". In other words, it is not easy to observe one (which in that specific case was engineers) internalizing knowledge, but what we can detect when one is faced with a situation in which learning is a clear possibility. Therefore, the theory of these learning instances was able to provide a mechanism to focus on learning opportunities rather than outcomes. Learning instances also could be seen when an engineer received unsolicited information and that is why learning instances were finally better described and demarcated by five factors. Four of these factors concerned *how* learning occurred: (1) the social nature of the knowledge exchange, (2) the direction in which knowledge was transferred, (3) who

initiated the learning instance, and (4) the method by which knowledge was transferred from one individual to another. The last which was the fifth factor described as the *what* was learned. The preponderance of observed instances of learning about technical skills and knowledge suggests that to define learning solely as a role socialization process is to miss a major portion of the picture of the on-the-job learning. One can also say that depending on the profession one is in, there are different behaviors towards learning and what the knowledge acquisition is for. For example training for him/her to become a master or guru in the field or just to become a field worker doing basic tasks the trainings are conducted differently. Another factor that was of importance in those study results was how paying attention to learning about skills and knowledge is important for understanding the social dynamics of the workplace. For example, why status is associated with experience among some people but not among others, and a focus on learning provided the means for them to discover and understand why the difference in fundamentals. And the last highlighted point was from (Brown and Duguid, 1991) who argued that much of conventional learning theory separates learning from working to its detriment, lobbied for the importance of paying attention to the details of work when investigating OL and the innovations. Beyond the social nature of learning exchanges, models of learning may also vary in terms of which individuals primarily learn and teach who initiates learning, and the methods by which knowledge is transferred.

The question of what and to *whom* is given the information to in the organization depends on the openness and choice from the management most of the time, which they create and provide the best resources for the channels of information distribution in OL. There are three main communication channels which include: the internal part that consists of the senior management and the project teams and the external part which are the customers, suppliers, competitors and network partners. This junction of all parts makes the commerce happen, however if the communication channels are not efficient we can observe the need for trainings or better flows of information. During the process of job analysis when dealing with the job specification, there is personal knowledge, skills and abilities being evaluated in the sense of the employees qualifications so that it is taken into consideration when analyzing ones skills of learning in the job.

2.4 Factors of success, barriers and risks of KM and OL

The most common challenges of KM are desire and motivation, and if the individuals within the organization do not possess these then information sharing is dead. Another issue concerning this transfer, is that we define knowledge as power and if we share it and everyone has access of it then there will be no hierarchies and people are somehow scared of that, because one would be giving up individual power versus best interest of the organization. For one to manage something you must have some kind of an understanding of it and the ability to control to some extent, and for this reason KMS's are very tricky. However (Wheatley, 1999) said during this process of attaining, gathering and sharing of knowledge everyone is a

knowledge worker and by sharing this information we can ensure that support within the organization and uplifting. The way organization handle knowledge is vital for the survival in the global market, management has to ensure that KM as well as having many factors of success it also has risks and barriers that result in negative consequences. We influence the ones above us and below us in an organization no matter what specially nowadays with globalization the relationships between subordinates and managers is more open and people in the organization have a voice. Leadership or management should be very careful on what they do because without being conscious they influence as well as get influenced by imitation, so whatever the manager is doing wrong the employ will also. Therefore empowerment of the employees plays a critical role in leading knowledge management in an organization, and all the staff should have personal responsibility for contributing to the overall growth of the organization.

2.4.1 Factors of success

Previous research studies found numerous failures and biases in ones perception of both their organizations in general and their environment. Therefore one cannot expect employees in the organizations to come up with improvements and optimizations for the provision of products and services if they do not well understand and know their surroundings. There are various factors that influence the two aspects, which if taken into consideration can work as a bridge between organization and the best practices as a result.

On the grounds that people are able to generate appropriate responses to moderate successes and failures, urged people defined problems in ways that can allow them “small wins” and or “small flops” Weick (1984). Success does not always mean that organizations are doing well, however it may explain the slowness in adaption to environmental changes, which because directly the difference between the resources available and the necessary ones to keep the organization existing or surviving in the competitive markets. It also provides elaboration of new strategies subjective to performance evaluations. The process of continuous improvement supports the notion of always challenging status quo even if it is good to allow innovation and great beneficial outcomes. When discussing about KM chronic success factors the study done by Miller (1994) was the best where he inferred that lengthy periods of success foster on the following factors: (a) structural and strategic inertia, (b) extreme process orientations, (c) inattention and (d) insularity, that success breeds simplicity and purity not complexity. So consequently organizations should be aware of this when judging their successes.

In the book of Information and Communication Technologies for KM, it is stated that from a management perspective, ensuring success of such an initiative requires the systematic consideration of success factors and barriers to KM. A supportive organizational culture is one of the most important factors for a successful KM initiative, because an open and com-

municative atmosphere can allow trust and sharing of knowledge and identification, hence acquisition of new knowledge. Having management support is vital because they are the decision makers and can allocate sufficient budgets for the improvements and better knowledge acquisition and transfer.

Clear goals and definition of these terms such as KM, information and learning so that the perspective on what is and what is not KM is clearly communicated with the employees of the organization. To provide motivation for seeker as well as for the knowledge providers otherwise there will be no connection between them and not much will be getting across. Knowledge itself is not stable, and a creation of a sort of stable knowledge is vital, however always taking into consideration the dynamic environment. Organizations have to allow a certain amount of flexibility in the evolution of their knowledge structures in order to avoid rigid and outdated knowledge structures and sources.

Management support should be entirely committed to reinforce KMS with sufficient budgets because managers should recognize (or should know) the importance of KM. The economic benefits should maintain and dependent on success factors and channels of knowledge distribution for better knowledge transfer. The support of know-how and communication effectively, networks, net groups and systems. The extent of participation should be of very much commitment and willing.

2.4.2 The focus on reducing the barriers

These barriers could be in individual learning processes, in limiting space and time as well as other negatively influencing factors. These barriers could be the followings:

- Lack of motivation from both providers and seekers of knowledge - lack of enough skills, competency or even cultural differences affecting the motivation can be a barrier. Without these it would be close to impossible for the processes of KM and OL to occur in both sides. Also one has to understand that not only being motivated can allow you to reduce the barriers but it is a good way to start.
- Conservative tendency to avoid innovative learning – this is due to an orientation towards the individual history and also being aware that not always what has happened in the past successfully can also would work well now. In the businesses of today one can expect innovations to be the best solutions to overcome certain obstacles and generate growth competing with the diverse market.
- Unproven knowledge to be effective for their long-term or short-term benefits – because by always ensuring that things will work at best for one's organization these barriers can already be avoided and this also allows a verification of the knowledge because not everything that competitors are using can also work for others.

- Organizational context and inflexible power structures – so meaning that the support from above levels of managements is not so strong and reliable. And if the management levels do not agree then there will be no further drive for the processes to occur because they are the decision makers and if they do not understand or believe in these concepts then there will be no money neither invested nor provided for such purposes.
- Reinforcement frequency – so how often is the reinforcement of KMSs are done and this affects the speed of learning and the retention of things, and this happens after random repetitions but not all produce in the same rate so learnt behaviors are kept.

Another challenge in KM is the assurance that knowledge will prevail by ensuring that knowledge employees are given a voice, and that they share this knowledge with the others. These workers are the experts, the masters, leaders and the experienced workers. Most of them have a voice, however that does not mean that they are able to share and pass on their knowledge to the new workers in time and effectively and the lack of downward influences may be a barrier.

2.4.3 The risks of KM and OL initiatives

The main focus on this increasing dependency on intangible resources particularly knowledge assets as primary sources are the competitive advantages in the global markets. KM helps codify knowledge, eases the access to knowledge and enhances knowledge sharing in order to improve, re-use of these assets, however this bears a risk that knowledge based competitive advantages are diluted. Knowledge risks are a subset of operational risks of loss resulting from inadequate or failed internal processes, people and systems or from external events. One should be aware of these risks when implementing these processes of KM and OL in their organizations. The main risks found so far that mostly can influence negatively on KMSs and OL initiatives according to Maier (2007, 139) are:

- Dependency – meaning how people are or get dependent on these qualification processes to occur at best and results also. If not well conducted and they can be seen an enormous disappointment and direct the organization in a decline of production for example if we talking about production department.
- Limited quality – if there are standards set and these have limits can cause a small amount of growth and limiting other departments also to grow accordingly.
- Insufficient knowledge transfer – not all the knowledge might or even should be delivered and or well received by the learners. So there will always be a deficit of the knowledge transfer. Therefore that should be considered since everyone has different ways of learning and so the information varies a lot and it is very difficult to close the gaps of all individuals.
- Loss of knowledge – with experts and experienced employees leaving the organizations for one or the other reason, much of the

knowledge can be lost along the way so to avoid that we need to ensure that this does not happen by documenting the information (PLS allows this to happen).

- Feedbacks given or received – both positive and negative feedbacks may influence negatively and can shift the performance to lower levels depending on how it is being received, so it is important for organizations to define well how their staff receives the feedbacks given.
- Diffusion - meaning that unintended access to sensitive knowledge by unauthorized persons can reduce the value of the knowledge due to losing its exclusivity and the protection, which this can cause serious problems to the organization.

On the other hand “there are compromises of identifications, assessments, control and evaluation as core processes or basic steps that are executed in a lifecycle that targets and revolves around the main media of knowledge assets” according to Archbold (2005, 32). First the identification the different risks involved should be done, and then the assessment of this identified knowledge based on the value of knowledge assets and also interactions and resulting possible losses. And governing the measures have to be selected to control knowledge risks to reduce dependencies and maintain policies, to and lastly evaluate the probabilities, severity as well as the efficiency of governance measures. Overtime with the developments of KM there comes risks along and there has been a wide recognition of the concept “Know-Risk”. Meaning that being aware of what can threaten the organization is a good way of avoiding these possible risks. As it is commonly said it is good to know your friends but better know your enemies not to let them defeat you.

2.5 The Config Company example and the relation to PLS

“CONFIG was a software system designed to help salespeople select from literally thousands of possible combinations those component parts of a complex computer systems that would satisfy their customer needs. CONFIG promised to enhance completeness and accuracy of the sales orders and thereby avoid costly configuration errors. For instance, sales representatives often forgot to include in the order cables or connectors – which then had to be included at no cost to the customer. Alternatively, representatives inadvertently suggested to the customer a particular linkage of systems that were actually incompatible or redundant, when the mistake was discovered potential financial benefit to the corporation. However the system offered little direct benefit to the sales representatives. The developers of CONFIG spent a total of eight years improving it incrementally. However, they were never able to address either of its most fundamental flaws: (1) it did not fit the configuration task as actually performed by sales representatives, and (2) the sales representative’s performance criteria did not include any reward for accuracy and completeness. An application support specialist for the program observed: the people responsible for developing CONFIG were trying to breathe life into something that should be allowed to die. They had to start fresh – instead of

building on top of what they have now. CONFIG has failed miserably. The problem is that nobody wants to shoot it in the head and accept how things can change after that”.

The above example passage was taken from the book of Ruggles (1997, 224f). This example shows how software companies like CONFIG fail miserably from lack of evaluation and analysis of their process. There is no sustainability and that is why they said they should have let it die and start fresh and updated after an in-depth plan of implementation to solve the problem. It is also mentioned that for the software to succeed, managers should have revisited some very basic design decisions underlying the software architecture. So just like the company Config, PLS is a software system that has the aim of improving and solving basic as well as complex problems within departments in the organization, however the difference between them is that PLS is sustainable. The PLS as a whole consists of 7 modules, each one focuses on specific topic and together they ensure to provide all benefits. The maintenance and control of the processes allow start-ups and innovation within the organization.

3 LEARNING OBJECTIVES AND THEORIES

In this chapter of the study, learning theories are introduced and three theories are explained in detail. Discussion on these theories will be explained in relation to KM and the connection to the PLS Basic Training. Towards the end of the chapter learning in general is briefly described using challenges and constraints and the relation to the objectives during the PLS Basic Training.

3.1 Learning Theories

Recently learning using technology has become very common and has made learning easier for many. People promote learning in various ways using the tools that technology provides us with, and the most common way is through computers and IT. The internet is a pool of available information waiting to be used and exploited by us at anytime, anywhere for any purpose. This availability could to some extent influence us to be very lazy and not limiting our learning, because we do not have to think much nor be creative because everything is in Google nowadays. Learning is also often defined as process of constructing meaning and enduring change in behavior that results from experience according to (Starbuck and Milliken 1988). They also mentioned the statement “Learning usually changes what is noticed” meaning that the change noted may be either involuntary or voluntary. These phenomena occur due to the broader awareness one is subject to now.

However another study according to the book of Merriam and Caffarella (1999, 261) argued differently stating that “Learning is a process of active construction of meaning, it is how people make sense of their experiences”. Therefore learning being considered to be a long-lasting and to some

extent an infinite process of change in the learners knowledge attributable to the experience. There are many learning theories found until now, however there are three that could be used to this study and these are: behavioral, cognitive and social. The behavioral theory can be traced back to the time of Aristotle. This theory believes that the mind at work cannot be observed, tested or understood, thus behaviorist are concerned with actions as the sites knowing, teaching and learning. However this latterly been criticized as overly simplistic. The stimulus-response method is used frequently in adult learning situations, which fit perfectly for on-the-job training also. This learning is oriented therefore by repetitive actions based on rewards. And the goal of this learning method is to transform the learner's behavior to another desired behavior, and this can be established by managing blocks or barriers built previously. And according to (Kearsley, 1994) he identified these fundamental principles in the behaviorist learning: (a) positive reinforcement of the desired behavior will most likely prompt the same behavior, (b) learning should be presented in small manageable blocks and (c) the stimulus generalization of learning can produce secondary conditioning.

Depending on the environment learning can be very much influence by the attendance as well as the attention. These two aspects should work together to be able to provide positive results, because just being present does not mean one is paying the necessary attention and learning something. And in order for organizations to learn, the people must learn relevant skills that can aid the organization to get qualified as a whole. The nature of the learning process, although learning both of individuals and organizations can be defined in various ways. Emotions play a very big role in learning and it goes in phases as the study of Dierkes, Antal, Child and Nonak (2001, 374) mentions "readiness to learn the search for and processing of new information, conferral of significance, storage in memory, transfer and generalization and lastly disposition to reproduce". PLS is considered to be an instrument that is suitable to fix weaknesses and increase the confidence of workers in workplace using the standardized procedures. The learning in organizations concepts became popular as managers began to recognize the strategic need for more highly skilled or qualified and trained workforce that reflects on the better flexibility, creative and therefore better results overall. For example, the learning or training processes at Daimler are consistent of the model of the six main procedures to follow before during and after. These procedures are: informing, planning, decision-making, executing, monitoring and evaluating cycle, and these are done in a standard manner to ensure that all the employees are trained in the same manner so that everyone in a department has the same and relevant amount of knowledge for their specific job.

Another related theory understood to be involved with learning is the Teaching-Learning-Based Optimization (TLBO) of based algorithms method according to (Savsani and Vakharia, 2011). Whereby there are two parts – trainers and the trainees and this is based on natural phenomenon of teaching-learning process. This can be seen as the influence of a teacher on learners and what are the impacts of this is. The process of TLBO is di-

vided into two parts: the first part consists of the “Teacher Phase” which means learning from the teacher and the second part consists of the “Learner Phase” which means learning by the interaction within the learners. These researches are still being done to improve and complement the findings and conclude with the TLBO theory of learning to define how we really learn and at what optimum.

3.1.1 Behavioral Learning Theory

The behavioral theory defines learning as a straightforward process from stimuli to response. A perspective which argues that we learn through chain muscles movements and mental processes which then this behavioral approach portrays learning as a mechanism of involuntary process over which learners can exert little control. Psychologists assume that these actions are determined by hypothetical stimulus-response links. There can be pleasant results – rewards and successes or unpleasant results – punishments and failures and one can either be more likely to recur or less likely to recur the certain response to the stimulus. Behavioral theories put much emphasis’s on repetition of the same stimuli that can result in better results accordingly. They are less persuasive as descriptions of behavior in changing environments because of the dynamics.

Successes reinforce prior behaviors, failures inhibit prior behaviors, and actions do not reflect learner’s global understandings, so the innovations remain mysterious and inexplicable to us.

The behavioral learning theory maintains a focus on the change in observable behaviors as the manifestations of learning occurring accordingly. It emphasizes change in behaviors due to the influence and control of the external environment rather than the internal thought process of the subject according to (Merriam and Caffarella, 1999). All learning processes occur when behavior is influenced by external change factors. We need to consider in what cultural environment the training is taking place. There are assumptions that adults have the need to know why and for what they are learning something for and for what specific problem this learning will allow them to solve for them to pay sufficient attention and therefore learn something, argued the andragogy (Knowles, 1968).

The main principles in behavioral learning are: (a) behavior is determined by learned material – meaning that we respond to an action accordingly to the environment and the tools that were given to us to satisfy the stimulus. (b) we learn from habits – that the more we do something the better we learn and understand things. (c) we tend to solve problems by trial and error – which is learning by trying and making mistakes, and amending them. (d) routine, mechanist and direct research done by the learner – which means that with much interest the learner tends to want to know more about a certain thing and therefore researches for more knowledge about it to seek for a better understanding. The learner’s prior knowledge is also an important determiner of how much and to what extent he or she is going to be able to intake the new knowledge and this should be considered by the teacher. To help learns become more metacognitive (the

thought or feeling of what one is thinking is correct) aware by modelling your thinking as a problem is solved.

Under the behavioral theory we can find physiology theories such as from the Russian physiologist Ivan Pavlov (1849-1936). Where he made a researched on conditioned stimuli and response where he used dogs salivating at the sight of food. Then he discovered that we make associations which cause us to generalize our response to one stimulus onto a neutral stimuli paired with another. So he added other associative stimulus such as the sound of a bell as well as the arrival of the trainer becoming a classical conditional stimulus to provoke salivation in dogs. His findings support the idea that we develop responses to certain stimuli that are not naturally occurring due to the relations that our minds make accordingly in learning processes. These variables are called unconditioned stimulus and unconditioned response respectively. Remembering is very important during the learning process and if each individual knows their own capability of learning during a period of time then we are able to remember it and learn through natural consequences after that.

Another theory under behavioral is from the field of psychology and is called reinforcement. The term to reinforce means strengthening which is used to refer to stimulus, which strengthens or increases the probability of a specific response to be repeated. This is a simple description of a reinforcer (Skinner, 1938) and we all apply reinforcement everyday most of the time without even realizing it. There are four types of reinforcements: “positive” – when one adds a treat to increase responses, “negative” – used by taking something away, “punishment” – this when a punishment is given in order to decrease a certain behavior, and lastly there is the “extinction”- this is done by removing something valuable in order to decrease the certain unwanted behavior. Out of these four, the positive one is most powerful and with best results, however it has to have schedules or a frequency ratio so that learners do not get confused and keeping standards that everyone can follow them. In the behaviourist theory, feedback is very meaningful because it contributes to the learning process by providing reinforcement, and identification of a certain behavior one wishes to change, altering the situational cues which then goes on to trigger that desired behaviour, and establishing support.

3.1.2 Cognitive Learning Theory

Cognitive learning can be described as the mental processes in learning that are considered beyond the “what” factor, because it takes more thinking and time and in addition it requires reasoning by including paying close attention to the subject. Memorizing for future analysis, planning and producing an understanding to be able to come up with a response or action to the stimulus is a requirement. This process goes in phases of perceiving, analyzing, planning and finally choosing the best possible response for the certain stimulus. According to this approach learning modifies cognitive maps that form the bases for analysis guides to actions taken. Learner’s mental processes integrate and interpret perceptions, analyze situations and propose alternatives for the following behavior. People

build increasingly complex cognitive structures to analyze situations and to form responses to recurring problems (Schroder, Driver and Streufert, 1967). To varying degrees, learners can choose what to perceive, how to interpret perceptions, and which actions to take, thus the effectiveness of their behavior depends on how well they read their environment and upon how rapidly they discover the occurring changes. In addition, this dependency is upon factors such as curiosity, playfulness, willingness to experiment new things, no fear of innovation and change, analytical skills and perseverance as argued by (March, 1973).

These are the beliefs on cognitions about ones learning. Researchers have been trying to develop a model without changes about how learning works and this is very much dependent on the response-strengthening views of how one reacts towards certain situation in learning. There is an ideology that learning occurs when the learner builds a cognitive representation of the presented material based on his or her past experiences. One has to make sense of the presented material while the teacher uses a cognitive guide to help the learner during the learning process. In the cognitive science there are three main principles used: (a) dual channels – the two channels of processing visual and verbal material because people learn more deeply when they are encouraged to build connections between words and pictures for a broader view. (b) Limited capacity – people can process only small amounts of material in each channel at once, and (c) Active processing – this is the process in which learners engage in appropriate cognitive learning using the material given to them. These principles are consisting of memory stores that our mind separates to intake the different materials that are exposed to us when learning. In cognitive learning we can also find the science of instructions which is how we cause changes in the learner's cognitive process of in taking information. These instructions are a way of standardizing things in the sense of manipulating the environment in order to foster learning and grant learners with a better understand acquisition of the information. During this process the teacher's objective is to transfer the knowledge effectively and promote meaningful learning that results in good or better performances. The most visible challenge of instructions through technology is support of and from both parties the learners as well as the teachers. Due to rapid environmental changes and uncertainty about future conditions managers have to rely on their memories and to deemphasize the significance of new data, to refine their knowledge rather than to reformulate it, as was stated by (Horvat, 1996). On the other hand, in other cases, keeping this knowledge on a system such as PLS that people can access at any time however without the presence of a teacher which can affect also on the cognitive learning.

The cognitive processing aimed at mentally organizing the material and integrating them with other relevant knowledge we have been exposed to in the past to make sense of it. Moreover, even when the learner has sufficient cognitive capacity, there is a need to give some exerts effort to allow this reflection to happen and therefore foster generative processing. However, in learning there are limits and sometimes it occurs that the cognitive

capacity of the learners is overloaded and when that happens one should not insist because it just does not allow any more information to be acquired even with the aid of technology so the learner should be aware of their limits. The disadvantage of cognitive learning is the degrees to which behaviors depend upon realistic understanding and inability to explain how learners can improve even though they misunderstand their environment of causal relations between actions taken and outcomes. From the many researches done we can see that meaningful learning occurs when learners engage in appropriate cognitive processing during learning, and this being done without overloading his or hers cognitive system.

3.1.3 Social Learning Theory

Social learning theory argues that we learn values, beliefs and behavioral patterns through experiences, through observation and modeling. This socialization can be informal which means that this occurs involuntary or it can be formally organized through induction and training programs. The social learning theory argues that we learn correct behaviors through experiences and through the examples or role models that others provide. And it is seen as the process through which individual's behaviors, values, attitudes and motivators are influenced to conform to these seen as desirable in a given setting. The psychologist (Bandura, 1962) argued that we learn through social experience, through observation and modeling, does not deny the importance of reinforcement. This can happen informally just by processes of observations and imitating or can be done formally organized through induction and training programs.

Many people ask how these social learning theories apply to organizational settings. And the reason is for that is organizations should first accept the different social backgrounds that their staff has, even though within the company there is the corporate culture, and they should encourage different standards concerning: work performance, social interactions at work, dressing and appearances, different activities after work and attitudes towards the work, colleagues, superiors and customers. These standards should be learnt and therefore behave in those norms even if he/she does not believe in them. For example, often new comers learn unwritten rules just by watching other colleagues and socialization, thus achieve without planned intervention, strong encouragements, and promotion of "correct" behavior. Alternatively, sometime in organizations or companies they use "buddy system" for the orientation of new-comers. This is very effective way of orientation however each person does it in their own way and perception of this. While with a standard system such as PLS one can ensure that from the beginning everyone gets the exact same orientation as all.

From the above theories, one can notice that there are many ways that people can learn, both consciously and unconsciously. That there are various factors affecting the learning process such as the personal background, emotions, environment, method of teaching, the trainers relationship with the learners and others. Despite these barriers, it is possible to overcome

these using the tools provided such as technology and in this specific case systems like PLS.

3.2 Implementation of the theories on the trainings

In the process of knowledge acquisition nowadays media and technology play an important role to aid in the learning processes. In order to ensure the success of these processes organizations must consider two factors when selecting from various communication mediums such as face-to-face, through the computer and these two should balance in richness and scope. A considerable difference between beginners and more competent or qualified staff is their further level of involvement is noticed. The learner of a new task or skill reflects on various options after making choices. People learn about events through slow and careful reasoning during which they formulate ideas and reach to conclusions influenced by the atmosphere and environments in which they have learnt.

By allowing employees in the production line for example to get their hands and minds outside of the machines or robot like activities and routines, PLS allows them to be creative. With PLS they can also think without fear of contradictions, not being scared of making mistakes and being laughed at because one problem might not only be from one employ but faced by many and everyone is just afraid to raise them up in fear of peer pressure. The social intelligence that we humans possess is priceless and is one of the most important entities that differs us from machines. A big difference between behavioral and cognitive learning is the reasoning factor, in which the cognitive learning allows that to happen. Meanwhile in social learning is more concentrated on the background and behaviors of the worker influencing on the learning. After learning something one has to put these skills into practice and training on the job is one of the examples of doing this. There are advantages as well as disadvantages and these include:

Table 1 – Advantages and disadvantages of on-the-job training (Pettinger 2002, p.62)

Advantages:	Disadvantages:
-Immediate full familiarization with the work content and environment	-Disruption of regular workflows and patterns
-Learning is directly linked to practice	-Variable costs of training instructions
-Immediate apparentness of job development opportunities	-Fixed costs in terms of priority and attitude -Meeting shifts

For example there are companies such as Kaizen Trainings that focus on training of leaders or supervisors of organizations as externals, to create and or better their relationship with the staff, as well as other types of trainings, and these are put into practice in the workplace. The theories can also be seen at the workplace through other aspects.

3.3 Challenges and constraints of Learning

From the three theories described in this chapter, it can be concluded that to keep an organization running and updated with the dynamic markets, it has become increasingly important to improve and or conduct on-the-job training for better staff qualification and therefore better performance. However this can be a very expensive entity for all departments of the company, but worthy. When conducting an on-the-job training we need to consider that the unique selling point is that this instantly gets over a particular barrier that one is trying to overcome and better products or services provision. Nevertheless, the staff is not always qualified enough or do they have the will/motivation to take part in an on-the-job training. With these factors combined we can see that staff is the most important resource in the organization and they “should” have the right skills. Knowledge and experiences in the right volume to match the scale of residents needed their best performance and the growth of both the company and the employee as an individual. Training is seen by most as costly in both time and resources not to mention the provided type of training needs to maximize both factors, which this then highlights the urgency of appropriateness of good training plans and methods.

On-the-job training is known for being an actual practice rather than an ideal thing and it should meet the best practices standards with whatever the sector or occupation is. It teaches the staff directly on what to improve or change in their daily tasks. This is to establish a positive outcome but one has to consider that is not always the case and the trainers much be very careful when conveying this information as well as the relationship build during this process because it can result on a negative outcome and that is exactly the opposite of reasons for training staff.

The success of training on-the-job is reliant upon the commitment, attitudes and values of the trainers in delivering the training as well as the competence of the participants, adding to that the ability of the trainer to observe, analyze and evaluate the training for future use is vital. The trainer should always be aware that people learn in different styles, tempo and manners due to their different personalities. Finally, the willingness and ability of the new comer to apply the learnt skills into their work and the rate they do so is something that cannot be controlled and is a big disadvantage especially for immediate result trainings.

As the notorious quote states “Time is money”, we need to be aware that trainings can take a lot of time in organizing conducting and concluding with the feedback and the costs should be considered and well evaluated so that one can be efficient. Furthermore, training well done can considered to be a reliable invested tool to develop, increase and improve one’s company performance and provide positive results. According to Training Standards Council – TSC, final annual report (2001) “Employers training their own staff performed consistently better than other types of providers” meaning that employees are more willing and better respondent to expert trainers that they already have a relationship with. For this and other reasons the PLS team has chosen their team members to conduct the basic trainings. Understanding that this is vital for organizations in any industry

and to analyze this subject closely on the way change can impact their businesses or organizations in different manners. And now with globalization it is even more dynamic with the cultural factor, which this in itself can be a complex system of beliefs and practices that determines how people act in organizations in fraught with difficulty. Knowledge when acted upon can induce change that can have consequential impact on organizations. There is a passage from the book (Lowyck, 2008, p8) that states “The rise of personal computers and network facilities in the second half of the 20th century eventually...revolutionized information development and exchange. In contrast to the gas-fuelled engine, information and communication technologies suggest sensitivity toward lifelong learning issues”. This means that learning is a continuous process and that due to the sensitivity and factors influencing it there are always going to be issues in concerning learning.

Another challenge would be when taking notes, one can rarely if ever get a perfect transcript because of the inevitable discrepancies between what is said and what is heard. In a conversation people generally respond to what is just been said not to something said several minutes earlier. People take turns in exchanging knowledge and have a memory to store all that exposed information. Nevertheless, from the past decade with the help of technology, people have become more virtual creatures than ever, so for us to keep up we need to adapt to the circumstances of the environment and also use the tools technology provides us to communicate and share/transfer new or already existing knowledge. PLS is one of the systems that allows this to happen, through the intranet software the staff can access all of the files containing relevant information and know-how necessary and documented.

To talk about qualification we need to also be aware that with different background it is very difficult to qualify staff and ensure that they all have the same skills and main content that is to be transferred. Now with globalization there are people from different countries and backgrounds working together. With challenges that are being overcome now, however we do not pay sufficient attention needed to the fact that during trainings not many organizations consider the personal background or if sometimes considered and trainings are separated for example because some might define this discrimination. For example even though it is thought that education systems in Europe “are or should be” standardized, the fact is that each country has their own standard. However according to their own basics, such as in Scandinavian countries such as Finland have different educational system that the ones in Southern Europe, but they are all considered to be European standardized. A classic example is how direct and informal things can be in education and also business life in Finland compared to Germany, where everything is very formal while in Finland where things are more informal. On this basis one has to consider these aspects when conducting a training or teaching the staff from the different backgrounds. One can define qualification as a term used to describe an accomplishment that makes someone suitable for a particular job or activity, however the trainer can only be responsible for what he teaches not

what the learner learns. When one learns, he/she is qualifying themselves to be able to do something and with practice making it better every day. And this concept of qualification goes well with perception, because one can qualify himself but he/she needs also to organize and interpret the data exposed to them into a common or standard manner according to how the organization best practices desires.

3.4 Trainings overview compared to learning

According to Sommerville (2007, 208) “training is the process that provides employees with the knowledge and the skills required to operate within the system and standards set by the management”. From this definition one can understand that training different from learning in general is done to staff within an organization. Many times these trainings are done without any good recognition of each individual’s background. These training are done to qualify employees because there can be introduction of new equipment, system, or to promote the staff so it is very important that they be done accordingly to the resources and the final goals.

Trainings have as benefits for improvement and recognition of the employees’ individual skills and abilities. However, the individual’s attitudes, motivation and empowerment also influence during this process of qualification. The main objectives to be reached after trainings are:

- Enhancing employees’ capabilities to improve the quality of products or services provided.
- Strengthening of their competitive advantages the given tools such as using computers or a system of communication within themselves to learn from one another from tips and tricks.
- Helps employees to become good professionals and independent problem solvers.
- Notice an improvement in the productivity and standardization increase that can cause also general transparency and communication.
- Ensure that the training had influenced directly or indirectly in the reduction of resource wastage.

Another theory of training was by (McClelland, 2007, 7) who argued that “Training in the most simplistic definition is an activity that changes people’s behavior”. However, that might not always be the case as seen with the PLS Basic Training that is not always there is a change in behavior. The usability is still not so high after the trainings are conducted due to the various factors influencing this change in behavior. Even though the system can be tempting and encouraging to use and it can help them very much there are factors that unable this to happen.

Moving on to teaching which is commonly defined as “to cause or to acquire something by impacting on the learner’s knowledge through creating basic instructions, examples, perceptions or experiences”. While to train is defined as “to use these basic instructions the learners already have to

discipline or drill them into a certain direction or skill desired". Noting that training focuses on skills more than learning which focuses more on knowledge as well as in the timeframe difference. Teaching and training have different goals:

- Teaching is to know something and transfer that knowledge or information to someone else.
- Training is for one to be able to do something after the training, special skills, to directly solve a problem.

One can learn a lot during school or university in general however, that does not mean that when one gets a job he/she will have the exact skills for the designated job. This is where training comes into place with the specific and in time needed skills for something. For trainings there are three types of categories – knowledge based, skilled based or both together where employees are trained for both theoretical and practical skills. The relation here is that, even though the employees get the training he/she has to have some kind of basic background to understand it which this information one gets from early school or university.

4 METHODOLOGY

In this chapter of the study, quantitative and qualitative methods are introduced, and the how they were used during the research process. The evaluation of the questions in the questionnaires sent out to the participants of the trainings are here discussed to find out the lessons learnt. The Quali & Quant hybrid method of research is described, starting with the quantitative methods in details and the model used for the analysis. Furthermore, the qualitative methods used to get opinions and thoughts from the participants are described. Lastly, the data collection process is explained in details.

4.1 Quantitative Research Method

The quantitative research method has been in existence since recorded history, but it was Frederick Taylor who in the early 1900s pioneered the principle of the scientific approach to management. Quantitative research is scientific approach with the objective to develop and employ mathematical models, theories and or hypotheses pertaining to phenomena of managerial decision making. The process starts with the collection of raw data, and then the manipulation of this data into meaningful information that is valuable to people making decisions. One of the quantitative analysis approaches can consist of many steps divided into main parts such as the model below, according to the book of quantitative analysis for management according to the book of Barry, Ralph and Hanna (2008, 22).

Seen in the model below:

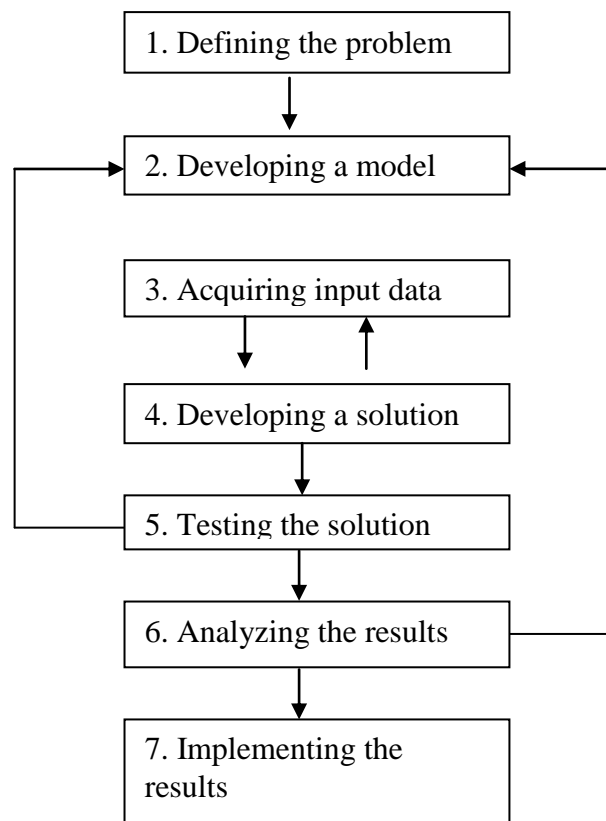


Figure 2-The Quantitative Analysis Approach (Render, Stair and Hanna, 2009, 23).

When following the model, one step does not have to be finished completely before the next is started but it is good to follow the order. One might prefer to work on the first and second part together in bits and then the last ones separate to finalize. In most cases one or more of these steps will be modified to some extent before the final results are implemented. In some cases one is able to test the solutions already which these might reveal already that the model or the input data collected is wrong or not in the right track. To know exactly what one needs to know is very important because then it is easy to develop a model and start acquiring information and analyze the problem to develop a solution.

The first step in the approach analysis is the definition of the problem where one has to develop a clear concept. And sometimes this one problem may have other related problems and these have to be solved also. However organizations should not try to solve all of these at once, it is usually good to develop solutions few at a time and putting their goals first, which then this could result in profit increase and or reduction in company costs. The importance of selecting the right and real problem to solve cannot be overemphasized, because from the past experiences we can see that bad problem definition could be a major reason for failure of management science or operations research. Therefore it is necessary to develop SMART goals, to ensure that these goals will or may solve the real problem at the end of the day.

For the PLS Basic Training there was no real problem defined because it is a case of checking (evaluating) if the trainings are being well received and if all the necessary content is being well passed down from the trainers to the participants of the trainings. Another purpose for this research is to analyze the data collected and work from those results for future researches and recommendations. With the help of the questionnaires to check the differences between knowledge being transferred and the one actually acquired. To understand the difference in content and from that evaluate the problem and define possible optimization solutions.

The second step is to develop a model after analyzing the real problem. Even though we may not be aware but we tend to use models most of our lives and for almost everything. These models help us get from a problem to a solution and there are very many types of models for these however not always we find the best one to solve our problems at best. For the quantitative approach, one normally uses the mathematical models (numbers and statistics) because they provide us with hard factors and it is easier to work with. Setting parameters is vital to be able to measure the quantity that is inherent to the problem, so that the model can be solvable, realistic and easy to understand and follow.

After recognizing the problem, which in this case was the small differences on lessons learnt existent in the knowledge transfer process and the learning effects seen after the training and then influences on the usability, the analysis began. Using the hard factors (numbers in the questionnaires) to evaluate how many people get the training in a certain period of time and how much they use the PLS system and for what content.

The third step consists of the process of acquiring input data, and obtaining accurate data. This is essential because even with the best models developed improper data can result in misleading results and a wrong approach of it all. It is considered that for larger problems, collecting accurate data can be one of the most difficult steps in performing quantitative analysis. There are various ways to do so and these may include surveys, interviews, questionnaires, internal research and by experience and observations along the way to better understand the current situation and to know what and where one desires to be.

To acquire the data from the participants of the trainings questionnaires (see appendix 4) were conducted and another sent to international plants to trainers there to get a feedback from a trainer's views as well as cultural influence. Lastly, from Mannheim an interview with one of the trainer to analyze the other end of this transfer. The questionnaires are better explained in the next chapter (5.4.1 the interpretation of the questionnaires) where each question is explained in details. Both face-to-face methods as well as virtual methods, such as emails and telephone conferences were used to acquire this data. There were some obstacles due to flexibility of the people to answer the questionnaires, however at the end everyone was willing to help and the information was acquired.

The fourth step may occur after or during the second and third step of developing a model then a solution for the problem. Manipulating the model to arrive at the best or optimal solution for the real problem is one of the ways of accomplishing this. Before implementing these possible solutions, one has to test them, perhaps by trying to solve the related problem to have a forecast of how the real problem will be solved. Trying various approaches and picking the one result in the best position possible that can bring most benefits. And this process can be called complete enumeration. Repetition is very important when dealing with complex problem and the related issues and following the steps so that nothing is forgotten or left behind. The accuracy of the solution depends on the input data you have collected previously.

After acquiring the raw data from the respondents which was in German language, first it had to be translated into English to be able to analyze it. It is always a challenge to work with translated material because there are some terms or special description that if directly translated might not mean the same thing. Therefore, much care needs to be put when dealing with these cases not to evaluate the wrong information that the participants were trying to convey. The evaluation of the results and after that to do the analysis which resulted in possible recommendations (7.2 main practical recommendations) for the optimization and improvements of the trainings could be deduced.

The fifth step which consists of testing the solution is done straight after a possible solution is defined, and this process should not be done in a rush because this is the stage where one can check if the solution can also be implemented and work well in practice. This includes running a series of tests on the data and model using known data to make sure that the data and model reproduced results consistent with the current situation. One model of testing can be done if the data collected needs additional data from or other different sources is by direct measurements or samples used to example ones tests between the primary data and the additional. This could determine the inconsistency and give you an opportunity to make changes and improvements.

Testing the data was a bit of a challenge because there was not much to compare it with, but the results from previous research studies were very helpful in the guidance for this evaluation. However, the goal was to identify the knowledge transfer, and through the interview the difference in content could then be compared from both ends. From the questionnaires analysis of the content and the transcribed interview (see chapter 5.6).

The sixth and seventh step come as the last together, where the analyzing of the results starts with the determining the implications of the solutions. In most cases, this possible solution to the real problem may cause some kind of action or change in the organization operating system. It is very important to put emphasis on the analysis process and how sensitive this could be. Putting all the steps together to analyze them and if decided that the solution is adequate then implementing it therefore incorporating the

solution into the company. This can be more difficult than organizations imagine, because of occurring changes in the environment and even if the solution is optimal if not well implement it can result in a disaster. Therefore to ensure that all the factors affecting these possible solutions are well examined before the implementation. This implementation process can be done successfully but it has to always be monitored because over time numerous changes can modify the original solution causing a repetition of the same problem.

There are various benefits for using this method of research, however this does not only it brings advantages but might also generate some disadvantages. And these include:

- ✓ It is easier to work with hard factors such as concrete numbers, but the disadvantage of quantitative research is that sometimes it does not have limitations making it very broad and the difficult to handle in a short period of time.
- ✓ A good model defined on the second step of the method can help save time and money, however if one works with numerous samples there is no way for the organization to save time or money so they have to make it worth the resources being used for the certain purpose.
- ✓ The analysis process can be also used to communicate other related problems and solutions to other departments, but sometimes when the organization is concentrated only in the real problem and all these other related problems can cause a distraction and instead of finding solutions in steps the organization the organizations try to solve all at once and most of the time makes an even bigger mess of things.

Reliability is something that can helps businesses to determine the quality of their products and or services. If it is found that something is reliable and it can be well maintained then organizations should opt for that. The data collected should be reliable and therefore this also shown in the tests. Validity is another issue that should be considered accordingly because of the changes in the environment, because it asks and should also answer the question if monitoring what is wanted being done to measure in the appropriate time. And putting these two influencing factors together can allow both reliability and sustainability of the end results. After find the best solutions and found to be the best for the optimization then this can be implemented.

4.2 Qualitative Research Method

The qualitative research is referred to the method used to collect data that identifies the quality of products or services, the staff and other resources in the company. It aims to gather an in-depth understanding of human behavior and the reasons that govern such behavior. This type of data is understood to be carried out for specific objectives to be reached and also to improve organizational performance. In most cases this is not clear

enough, there are many conditions and factors that influence this method, but the data contains details in which one can use for the better understanding also they are closer to everyday life situations. Depending on the purpose of the investigation normally qualitative data collection consists mostly of opinions and personal thoughts rather than hard facts. While clearly in studies with quantitative data, the target position at the beginning must be set in the course of the investigation itself. Qualitative research often categorizes data into patterns as the primary basis for organizing and reporting the results. In qualitative research the aspects of “why” and “how” are investigated with open spaces to be filled with person opinions that are then evaluated with the focus on developing an initial understanding of the research through thoughts and not based on statistics.

There are two main types of qualitative research: the participating observation when data is gathered in a natural environment by observing the behavior and therefore judging the quality. The second one is the in-depth questionnaires or interview of open-ended questions to get as many details as possible, to gather opinions and personal feelings more freely. In qualitative research we can expect features such as seeking to know where, when, how and in what circumstances behaviors come into being, as a consequence of historical factors and current information. Each act, word, gesture and sound is relevant for the judgment of qualitative research, meaning that nothing is taken for granted during this process because every detail enriches the collected data. This method of research cannot be considered as a scientific research method, because it does not meet the requirements of being a systematic data based inquiry and it involves more details compared to the quantitative research which is considered scientific method.

For the gathering qualitative data, in the questionnaires are directed specifically to the PLS Basic Training content. The goals for qualitative part of the research include seeking improvements for the PLS Basic Trainings, using the recommendations given and the evaluation. The one thing that is considered controversial for the qualitative research is the researcher ability to judge and being neutral during this process. This process of judging the respondents opinions on a certain subject compared to the others could be very difficult because of the influences such as personal background, educational basics and the current situation. On this basis, one might argue that the research can be leaned to a certain direction as a consequence. For this reason when analyzing and evaluating the results the researchers have to be as neutral as possible just focusing on the main goal. Therefore, for this specific case the findings were judged and evaluated by four persons to ensure that there was a neutral judgment of it all.

4.3 The Data Collection process

The primary data collected was from both the trainers and the participants of the trainings. This was done through one interview with one of the trainers in the Mannheim Plant and through electronic mail to three other trainers in International Daimler Trucks Plants where PLS is implemented.

The process of this primary data collection can be seen on the figure below:

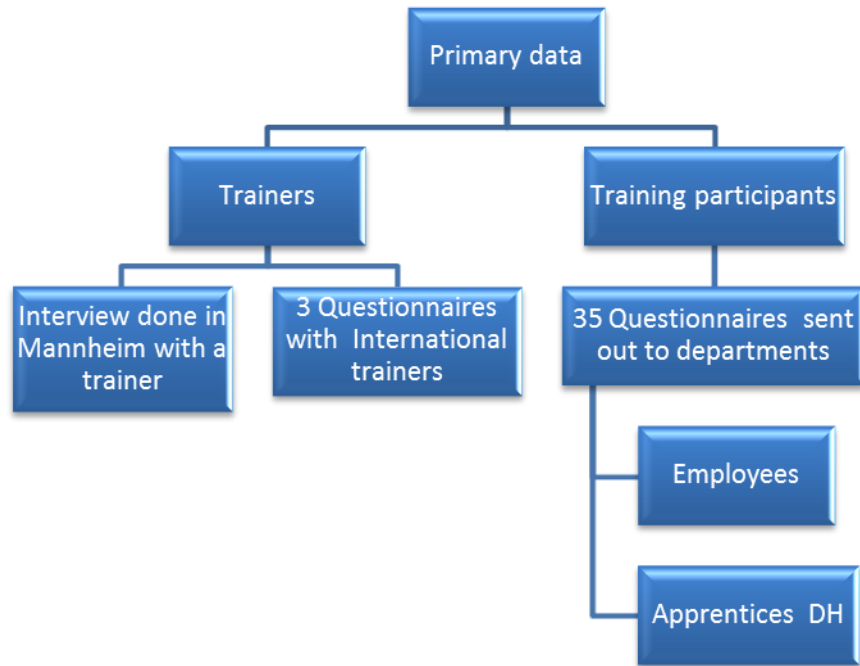


Figure 3 - The primary data collection chart.

The secondary data collection was from the previous research studies done on PLS in general. The feedback forms responded by the participants immediately after the training also contributed a lot on the evaluation process.

4.4 The evaluation of the methods used

The hybrid research method was used here in the interest of evaluating both the quality of training and the differences in learning of during the PLS Basic Training. The hybrid (Qual & Quant) method, allows a mixed form available in the way that qualitative data can be quantified subsequently waived in some of its meanings, and they are transformed into a more abstract form. The hybrid method can also give the sense that within the same study, both quantitative and qualitative data can be collected equally or to some extent of one another. However organizations need to keep in mind that this method of data collection and the analysis will vary from one part of the abstracted data to another, therefore it can be tricky to evaluate it.

The questionnaire served for the following purposes: collect the appropriate data to make the comparison of the content from both ends, make the analysis of the results found and get opinions for suggestions for the improvement of the trainings. The questions elaborated were as precise as possible in both standard form as well as personal views or opinions forms. The open-ended questions aimed to find out the participants lessons learnt and their satisfaction with the training and the acceptance. While the

closed-ended questions aimed to find out in hard factors what were the goals of the training and for how many of the participants use PLS and for what content.

It was noticed also that most of the work is done in time and as a team and therefore there is always help during the trainings where everyone does a little and together they can improve the training with the close monitoring of each member.

The trainings were conducted by PLS team members who do not possess professional skills in training, however who best to explain about the PLS system then them. Also another argument the PLS team members to conduct the trainings was that the participants felt comfortable because being work colleagues there was already a relationship built and the acceptance is expected to be higher.

4.5 The interview description

The interview with one of the trainers was conducted to gather data from the teaching side of training. For this the red-line with semi-structured method of interviewing was used. Some fixed questions were elaborated beforehand and given to the trainer to allow them to get prepared in those topics. This was done in relation to the questionnaires handed out to the participants of the trainings to be able to compare the differences in the knowledge transferred and being received. Just like the questionnaires, the interview questions were divided into three main sections. The first section was about some demographic data from the interviewee (background information, positions, work experience and daily tasks). The second section about purposes and goals of the training and find out the current situation of the trainings. The third and last section which focused on the feedbacks received from the participants and the usability of PLS.

The interview was audio recorded and later on transcribed and can be found in the next chapter of this paper. This was done with the aim of finding out from the trainer's point of view the objectives to be reached compared to the ones actually reached by the participants later on.

5 RESEARCH PROCESS

In this chapter of the study the research process and training are the focal points. The research process is explained as well as the procedures of the trainings. The PLS Basic Training and the addressed issues in the basic training are described. The research approach and the findings from the data collected from the trainers (the example of the International Plants and the interview with one of the trainers) are elaborated in this chapter.

5.1 Short description of the PLS Basic Training

Training is defined as the process of acquisition of knowledge or skills to reach a goal at best according to (businessdictionary.com). Normally training is done with a specific goal in mind such as improving ones abilities and performance. Trainings such as the PLS Basic Training are referred as professional development practices. Five years ago the PLS Basic Training the so called “Grundlagenschulung” was first conducted in the Mannheim Plant. A standardized training process for the employees, covering information about PLS in general with benefits, the software functions and qualifications. The PLS database is designed to provide the necessary information as step-by-step instructions at any time and at any location via intranet. The PLS trainers use the database as medium of instruction for the (new) employees, training them in order to instruct the latest standards to be observed. There is standardized knowledge that is available for everyone in the departments use. These as well as other topics are included in the 3-4 hours basic training. It is introduced with some comments and basic topics in a presentation then a short film follows. A small discussion about the short film just watched starts right after, to get the participants to express their opinions and break the ice. The practical phase of the training with the lego exercises begins write after the discussion when the participants are more open and free. This is when the trainers instruct the participants what to do, putting their lessons learnt in practice. To finalize the trainings the theory and the software functions are explained. For more information on the trainings procedures (see appendix 3). These basic trainings now conducted are very much improved compared to the previous version which did not include much of the practical side such as the short film or the lego exercises. This is why the participants are more satisfied with the trainings now and most have good feedbacks to report. With this study the PLS team will get more construct feedbacks that their can analyze on and if found to be good idea for the improvement then act upon these possible improvements for optimizations.

5.2 The addressed issues on the training

During the training sessions there were specific topics being put focus on and meant to reach the participants particularly. These were all in relation to what the trainers had investigated and found to be most important for the participants to understand better during the trainings and to then be able to work or use comfortably. These can be divided into three main parts: the qualification and standards in general so the training on itself (ensuring that the participant understood what PLS was and the benefits of using it). The second part was the knowledge transfer from experts to new comers in the documentation of step-by-step procedures and how to safeguard viable knowledge from leaving experts for example. Lastly part the PLS software functions for them to know how to navigate the system.

The concepts of qualification, standards and know-how transfer are the ones with most emphasis so that the participants can be aware of the importance of these. The better qualified employees the more chances the or-

ganization has of succeeding with best practices. Always with tricks and tips from the more experienced employees who can pass this knowledge through the PLS system to other employees and can always be accessed in a standard way for all. Meeting their individual goals as well as organizational goals is vital for the employees and there are always differences in these but if one can meet these at best practices and document it then others can also follow the steps.

However the marketing of PLS system as a whole does not provide sufficient selling points that encourages the employees to use it after the trainings. In their workstations, to help other employees with tips and tricks or suggestions, and for the employees they can always consult PLS for this information in PLS using an updated information. The employees need to understand the strategic goals and the importance of know-how they need to perform at best and learn within each other for their individual development and growth. With that being said, the addressed issues are clarified and are somehow being reached from the trainers end to the participants of the trainings.

5.3 The approach of the research

The practical part of this research process, was done in a more individual way for the employees while with apprentices the questionnaires were conducted all together at the same time in groups. This was better and easier to gather the information when everyone was there, but this was not possible for the employees because of the different shifts and the summer holidays starting.

It was observed that some had difficulties in expressing themselves in the writing and expressing their opinions. From what was noticed the respondents first stated other points that they learnt in the training only later they specified one from the goals of the basic training listed in one of the closed ended questions. This research evaluates the trainings as well as raise awareness on topics of KMS and OL. These are important for us to keep standards, qualifications and knowledge moving all the time so that it does not get lost in the future. To reach these goals the analysis of the findings can then result in recommendations for the improvement of the trainings and increase qualification accordingly.

One example of the difference there is between teaching and learning, can be seen in the lego part of the training when trainer explained with the actual model in his hand. How to assemble the lego toy truck with visual and words and the participants had to write down how they understood into their own words on a manual to later on assemble it. However what the participants did not know was that after they finished writing these instructions everyone had to change them around so that everyone had a different manual of instructions from their own and had to assemble the lego truck from those given to them. And what could be clearly seen was that everyone can hear the same thing but understand it and writing in a totally different way to others. Some were able to assemble the lego truck from

those give instructions from others, or they just remembered from what they had just written or heard. But others could not read the handwriting for example, others just draw pictures of the parts joining and so on making it difficult for others to understand it. This proved that no matter what we do, we are all different and tend to do things differently. In PLS the data is documented in a standard way so that the majority of employees are able to understand it easily and efficiently.

5.4 The evaluation of the questionnaires

It is very important as a trainer to keep in mind the background of the participants of the trainings, so that the best teaching method can be used to reach the desired content across to them. This is so as the success and development depends on the acceptance and receptability of each individual performance. The questionnaires were designed to gather opinions as well as facts about the trainings, in the next chapter are explained the purposes of each and every question.

5.4.1 The interpretation of the questions in the questionnaires

The questionnaire consists of both standardized or closed ended questions and open ended questions in which hard and soft factors from respondents can be acquired. There are also some demographic questions to find out their background. Next specific questions about the basic training are asked, these are both in closed ended and open ended to get an idea of how well and what they learnt during the training. In the last part there is the evaluation of the usability on the workplace and these questions were to find out if after the training if the participants actually use the system to solve problems, to use for checking tips and tricks, or suggest for improvements and or learn from each other therefore.

In the first part of the questionnaire, there are demographic questions to find out how their background affects their learning and acceptance of technology as a whole. The apprentices belonging to a younger age group are more open for innovations compared to the older experienced employees. Four different age groups were standardized, the first one youth, the second adults group and the last two groups for the older generation who might not be so open for the new things that they have to learn and work with for a short period of time if they are close to retirement.

The gender question was to check the diversity of the participants of the trainings. One could argue that this could be a factor to consider when training because woman learns in different rates compared to man. The nationality was not only to find out where the participants come from, but also to evaluate what they have learnt differently with their background affecting them and if the language can be considered as a barrier. PLS is implemented and being used in different departments in Mannheim, and it is important to find out in what departments the participants come from. This way also promoting PLS in the other departments where it is not used nor known. The question about the length of time worked at

Daimler, is important to check how long the employees have been at Daimler and how familiarized they are with the systems such as PLS. Therefore it can be expected that the employees who have been longer in the company to be more open and willing to have qualification trainings such as PLS. The last question in this part was to determine their experiences with trainings as a whole inside the company. The entire first part is made of closed ended questions to respect their privacy and to get a basic idea of their backgrounds.

On the second part of the questionnaire, the basic training is the focal point. The first question aimed to evaluate the training as a whole using a scale of (1- Excellent) to (5- Very poor), to get a general idea of what the participants thought of the training. Next are the more qualitative oriented questions to evaluate from their opinion of what was the main message or what was put most emphasis to later on compare to what the trainers say. During the training session there was a short film (in a few words this was a short film about a trainer and trainee aliens in a spaceship, the trainee without any instructions has a table full of buttons to operate the spaceship and the trainer is just there showing no emotions nor saying a word). It is an interesting video that shows how not to do things and the question aimed to find out if they understood the reasons for the trainers to show the video, and if after the discussion they learnt something new. In the training the second part is the practical one where lego exercise were used to somehow relate the step-by-step procedures to their work, the question here was addressed to find out if that helped them understand the training better. The trainers have certain goals to reach during the training and to find out if these matched between with the ones the participants recognized the two questions were asked, one open ended and the other closed ended with the specific PLS technical names. To end this second part of the evaluation of the training it is the question of standardization and the benefits is asked in an open form.

The third and last part of the questionnaire, was made of questions focused on the usability on the workplace. It starts with the frequency of the usability to find out if the participants after the trainings use it daily, weekly, monthly or if they do not use it at all yet. The next question is addressed to find out if the participants use PLS to search for solutions for daily problems occurring in the workplace given the scale of (1- yes, I always use it to 5- no, I never use it). With a list of some of the most commonly used content to ease their responses but also including the option “others” that the respondents can choose from to find out what content they use PLS for. To check if the participants find the content of the training relevant to the daily work a question is asked. To finish up it is asked from the respondents some ideas or suggestions for improvements for the PLS Basic training and any other comment related.

5.5 Example of PLS Basic Training in International Plants of Daimler Trucks

Regardless that globalization is increasing rapidly, we cannot ignore that culture and background still have influences on the business world. These

factors should be respected if organizations wish to succeed elsewhere outside their normal markets and adaptations have to be made.

The PLS system is also being implemented in other International Plants of Daimler Truck in Detroit- United States of America, in Aksaray- Turkey and in São Bernardo do Campo- Brazil and therefore the Basic Trainings are conducted in these Plants also. Also in these locations the PLS emphasizes on qualification, standardization and knowledge transfer, however the trainings differ due to some cultural adaptations.

In order to detect these cultural adaptations first a request letter to conduct the questionnaires was sent out to the trainers (see appendix 5), and then a short questionnaire made out both closed and open-ended questions was sent to the three International Plants mentioned above.

There are similarities and differences noticed in the trainings compared to the ones conducted in Mannheim.

The similarities noticed and the procedures that were the same both in the Mannheim Plant and in the International Plants are the followings:

- The strategic goals to be achieved with the trainings are the same everywhere. These goals include: qualification, standardization, knowledge transfer and process of improvement
- A trainer from Mannheim conducted the first trainings in those locations to train the trainers there.
- The trainings are conducted when necessary and with the availability of resources required, and the average time frequency of trainings occurring is 2 to 3 months.
- The trainings are done when there is availability of participants and when there are new employees or new apprentices.
- Normally the participant number for a single session of training is 8-10, because this way they can make sure that all the participants get sufficient information about PLS in general and of the software functions.
- PLS was firstly intended for the production department but now being implemented at other departments at the Plants, for example in Turkey-Aksaray they have implemented PLS to all their production departments in the company.

The following table shows the differences in the procedures and content for the PLS trainings for the international Plants:

Table 2 – Data gathered from the trainers in International Plants

Case study of the evaluation and analysis of learning effects, using the PLS Basic Training at Daimler as an example.

	International Plant 1	International Plant 2	International Plant 3
Agenda	2-3hrs divided into 3 sessions *The trainings here are conducted for employees getting the roles of editors only	1hr per session	1.30hrs-2hrs depending on the availability of the training rooms schedules
Content	Depending on the type of the training session the content is: -login -navigate and review of documents -open and generate documents -basics of PLS with advantages and to do's -mention the goals and objectives -team management	The content includes: -the PLS Organigram -PLS basics and the PLS presentation -Purpose and benefits of PLS -Information on how to use PLS -Explanations of the different roles and manuals	The content includes: -the structure and explaining what is PLS -the tools, suggestions, and other functions -explaining and answering questions from participants
Objectives	Ensure that the employees: -know how to view, print and use the documents in PLS -can make updates and give suggestions -know the features of PLS and advantages of using it -are comfortable navigating through PLS -know that there is always support available from the PLS contact persons.	Ensure that the employees: -get relevant information concerning PLS -know how to use and generate the standard documents -know why it is important to use PLS for their own benefits as well as learning with one another	Ensure that the employees: -know the applications and importance of PLS using tools showing specific examples -know how updates can be seen by all as long as they are documented -know how to do multiplication of the knowledge they have -knows that with documents such as Cyclechecks they can minimize numbers of failures -know how important is auto-learning
Cultural aspect influencing	-Training was developed there to account for the influencing cultural aspects -Less material is available compared to Mannheim -More management support is desired in specific topics	-Employees levels of educations count a lot in the ease of understanding of the procedures -Depending on the role of participant, there are different manners for training him/her	-The hierarchies are very strong and should be respected -There should be individual will and motivation to use PLS and learn from it
Feedback received	<u>Negative:</u> -The editor tools are not so easy to use and should be	<u>Negative:</u> -Sometimes documents are not appro-	Until now they have only had positive feedback:

Case study of the evaluation and analysis of learning effects, using the PLS Basic Training at Daimler as an example.

	<p>improved <u>Positive:</u> -Enthusiastic -Very good in theory but not in practice, if employees do not have time to use it.</p>	<p>ropriate or specific enough <u>Positive:</u> -It is good to have information stored in a database, which enables them to work independently -Good access and communication with the PLS team members.</p>	<p>-The system is very good, and it gives a lot of details that helps them to overcome problems -The software functions are easy to handle and fun to use.</p>
Usability	<p>Very low in general around 25% But this rate can vary depending on the need to use it, from 1-5 times a month. -The content mostly used is to maintain and update documents in general *The operators are using the print copies of the standard documents that can be generated in PLS.</p>	<p>The usability rate varies according to the need. -The frequency increases when there are new employees searching for job instructions. -All departments have PLS therefore more use and as often as needed -Normally employees use it for following the failures and single point lessons.</p>	<p>At the moment it is very difficult to measure these figures because PLS is still in the process of data collection and it is not implemented yet. -The data collectors use it daily, once a week, and more in cases of job rotations.</p>

From the table above it is possible to say that even with the adaptations made in the International Plants, the goals are reached effectively, using the different resources available and adapted cultural factors. The trainings are adjusted according to the time availability and the need for qualifications as shown above in the structures and the standards set as a basis where possible.

Even with the adaptations made now in the trainings abroad, from the findings as a conclusion to standardize the PLS Basic Trainings at all locations, one could suggest that the Mannheim Main Office could host workshops where all the trainers would meet and discuss how this could be done taking into consideration their cultural influencers. This could also serve as a channel of networking and communication within the trainers to share information (positive or negative experiences) as well as learn from each other.

A good example that contributes for improvements is done in the Aksaray Plant in Turkey which is regular trainings sessions to all employees once a year to refresh their memory and improve in their communication channels between the employees.

After all the feedbacks received for the optimization of the software during several years, the PLS team has created a new software version under the considerations of all the remarks and suggestions. This new version of the software will be available next year.

5.6 The interview with one of the trainers

The semi-structured interview below transcribed was conducted with one of the trainers in the Mannheim office, with the purpose of acquiring data from the trainer's side. With this information it is possible to compare the content of the training and evaluate the transfer accordingly. The questions addressed during the interview were related to the questions asked in the questionnaires for the participants of the trainings. In addition the interview also included questions specified on what skills the trainers had to be able to conduct the trainings, the challenges of the trainings, how the practical exercise idea was raised, and what kind of feedbacks they received for the optimization. These topics were dealt with in detail and provide some insight of how the trainers were chosen and how the training process is evaluated by them.

The questions in the interview were discussed a bit within the trainers before, so that a general idea from all of the trainers could be drawn stating all point of views from them all. The transcribed interview labels are as follows: the researcher asking the questions labeled (RE) and the trainer answering labeled (T).

RE: Hello! Good Morning. Welcome to this interview which will help me with my thesis study about "the evaluation of learning effects for the PLS Basic Training" here in Mannheim.

RE: 1. Please could you introduce yourself in a few words. Your name, nationality, work title, how long have you been working at Daimler, what do you do either than training?

T: So, thank you for the opportunity. My name is ..., I'm coming from Turkey, Istanbul. I have been living in Germany since 10 years. I have been working in Daimler since 7 years now and my position is: I am responsible for implementation of PLS in International Locations – what means being responsible? I conduct trainings, I coordinate the projects, I have regular contact to the project members and team members and I am reporting to my superiors about the current status. And this is really exciting.

RE: 2. What skills did you have then (when the trainings started) that allowed you to be chosen as a trainer? (Background, learning methods you use, expertise and so on).

T: First of all it is important to know the system, because many questions are arising during the training and you have to be sure by responding them. And you can also face some system problems during the training. So

you should be able to overcome all these problems without disturbing the participants. So that is why the first thing or the first prerequisite is to know the system and second thing is to have language skills – I mean you have to be able to use languages well. The third thing is, I think maybe at the beginning you can be excited, so nervous a little but once you have enough experience, you can also conduct the trainings in a much more relaxed way.

RE: 2.1 And the other trainers are more or less from your side of work or are they totally different?

T: No we are all the same since we started making trainings. During the basic trainings there are two trainers: the first one is responsible as a moderator and the other one takes the role as a PLS coach and I think we are all experts enough to conduct good PLS trainings. But if someone for instance makes his or her first training then we have a matter like the new team member gets first the role of a PLS coach, so PLS coach does not have a big part in the basic training and by the second or third training again they get a coach role or they can also start conducting trainings for instance which only the apprentices are participating. I think the apprentices do not have so many questions like people using it in the production for many years. We have also such methods in order to train the future trainers.

RE: 3. Thank you. When did you first start conducting the PLS Basic Training?

T: I started to conduct the first basic training... the basic training that we have now – we have it since 4 years and I did it from the beginning so.

RE: 3.1 And was it very challenging or difficult to do it?

T: No it was nice, but maybe for me a little because I had to explain lego models parts in a foreign language. So there are special words you have to use but it was ok later on.

RE: 3.2 Specific system words?

T: No not system words but for instance lego parts. It was maybe at the beginning a little bit difficult but once you make it two times you are used to do it in a foreign language.

RE: 3.3 How often do you conduct these trainings?

T: The first years I conducted many (many) trainings. For instance we had around 120 apprentices – and I had to conduct trainings each week, each day. And then also conduct trainings in international plants. I had a basic training in Turkey with many managers and many colleagues from several departments; I brought all the legos to Turkey. And I conducted the same

training also. My colleague conducted the same training for the colleagues in Brazil, so...

RE: 3.4 And there is always one or two trainers – not only one?

T: Yes, when I was in Turkey – there was just one – I was it. But when we make it here, there are two. And I mostly had the role of moderator. And sometimes you can also do both when there are not so many people in the office. You can also combine the roles. And the trainings take around three to four hours.

RE: 4. Could you somehow briefly explain the process?

T: We start with an introduction and we have a video. After the video we have some feedback questions and then we start with legos. There are two different legos, used for different matters. The first legos are used in three to four exercises and the second lego serves to show the variants – the effect of variants. And after legos we have the presentation part and the last part is the software functions – we have also some breaks inside so 1 to 2.

RE: 5. What were the main Objectives/aims and message you try to transfer to the participants or bring across?

T: We would like to show to the participants that the standardization is important that the qualification, training, job instruction training, via standardized documentation is important and we want people to see – to recognize by themselves – how easy it is to learn new topics by using standardized documents.

RE: 6. How did the lego concept idea arise?

T: I think it is a very good tool and actually we looked for something which can be used by everyone. I mean lego every child has experiences with legos. And we also wanted to have not a traditional training so just a presentation. But also something which or that relates to people. To allow a great atmosphere that they can enjoy the training, to make it exciting.

RE: 7. Could you tell me your first impression about the training atmosphere, emotions and the participant's attitude towards the training at the beginning, during and at the end of the training?

T: When they come, they are very silent. They just sit, once we explained the agenda – they start to laugh. So I think they see legos, they find the idea good. So I face a lot of participants laughing or showing their emotions for instances when we tell them now you have your own manual, but now you have to change it with the other ones. So many of them start laughing and say “ahh no I cannot do that” So all those things show their emotions and the motivation of the people. And I think they like the basic training and also when we said that we can always help them after the training, so they feel themselves better. Because I never want people to

think “ok now we have done the training and then we are alone”. They should know that they can call us any time once they have a question. The continuous improvement process.

RE: 8. Could you please, name the goals of the training? Points that you want the participants to remember after the training.

T: For me or for us the main goal of the training is to understand the idea of PLS “why we have PLS? What is PLS?” And to understand why it is important or what are the benefits of the system. And to stress the points like standardization, qualification and process of continuous improvement.

RE: 8.1 And something practical you want them to remember such as “with PLS you can do this and that and that is important for your work”?

T: Yeah, for instance we show them how they can share their ideas in PLS – making suggestions and also one of the most important aims for me is to create a kind of confidence between the participants and the office in terms of, once you have a question we are there!

RE: 8.2 This is to build relationship between the employees?

T: Yes this is very important!

RE: 9. From my point of view, I would say that you stressed more on the topic of standardization. With the lego concept this could also be seen, why is that, if my assumption is correct?

T: Actually our focus is qualification. But once you start with the topic “qualification”. But I always say that standardization is the heart of the production – so once you want to convince the people – with things that are very (very) important for them – I mean qualification is also very important for the production – standardization is the first thing which should be done in order to allow other points to be implemented. In order to qualify the people you need a clear documentation, and this is standardization. I think standardization for many people is a prerequisite of qualification of the trainings. That is why we try to convince people and then mention mostly this issue.

RE: 10. From your perspective, how frequent and for what content do you think the new employees use PLS for after the training? Could you justify it please?

T: It depends. There are people who... I mean there are new employees who use it more often than the others. Or there are people who know everything. I mean they have the same job since many years, so they don't have to. Maybe just to suggest and check for tricks, there are people who have less time – they have a cycle so they have to consider the Tact time. So it is comprehensible that they do not have time this is maybe an issue. But everyone having questions can just go there and check the answers.

We never expect people to stay the whole day in front of the terminal. I mean they have their job. But I am sure that when there is clear documentation in the system, and if people know the system is up-to-date, why shall they not use it? But as I said, the most important thing is that they know here is the information clear, correct and up-to-date. When I make a suggestion it is checked – I get answers – so and then as I said the system can be used any time.

RE: 11. After the trainings do you receive many feedbacks forms? Are they positive and or negative?

T: We get feedback after the basic training – we get feedback after the editor training. I think the feedbacks of the PLS basic trainings look most of the time very positive. Because as I said people enjoy the time – and they make practical exercises – as I said we have a presentation part. We do not show 100 slides to the people, just the most important information. That is why I think it is not boring – they will enjoy it. Especially the lego parts where everyone has fun. And also many participants think the time (duration) is also ok, so three to four hours. But for instance I mean I am talking about the real training – the training has specific time, because we send an invitation that specifies. But there are also discussions going on after the trainings. But for instance after the editor training we can also get some – I think we never got negative feedbacks. But there are some improvement suggestions. Like in the editor training since the training content is just teaching someone how to use the functions – because in the basic training you are talking about standardization, qualification – different things. But in the editor training – we just try to show how to document into PLS. And I think the content of the training is much more specific that is why for some people the content is ok, like how often we repeat the topic is okay, but for some people they think “I can understand this issue when you explain to me only one time!” or “Why do you explain two times the same thing?”. But as I said the participants group is so mixed, there are always people who use everyday a computer and there are other people who just use it once a week or never, I do not know and that is why it is maybe never possible to find a consensus.

RE: 11.1 Do you get a lot of suggestions of how to improve the training?

T: We get most of the time suggestions like: “the training is ok”. I think we rarely get topics like you also have to add this topic. Or maybe never, I do not know! That we get such suggestions, like adding a new topic. I just remember suggestions like “you don’t need to emphasize this topic so much”.

RE: 12. To conclude would you have any last comments to conclude the interview?

T: I think these trainings are very interesting in the terms of the customer behavior. And also establish a relationship to the people. And it is also that all the PLS team member should conduct trainings in order to better rec-

ognize the effects of the PLS on the people. Because you are not training about something only but you are also hearing and sharing many ideas to improve the system.

RE: That is all from me, Thank you very much!

T: You are welcome.

To briefly summarize the interview with the trainer, one can say that the information gathered about the content of the PLS to be transferred from the trainers to the participants were the five main goals of PLS. These goals were: emphasizing on the concepts of qualification, standardization and knowledge transfer effectively and the last two were to introduce PLS as a whole with benefits/advantages and showing the software functions. The trainers affirmed that the content they think is mostly used by the employees are the generated and printable documents, the step-by-step procedures, tips and tricks as well as checking or giving suggestions. From the trainers point of view, they are not expecting the employees to use PLS all the time nor everyday but when necessary. It was concluded that the usability rates change with the need and the arrival of new-comers.

6 THE EVALUATION AND ANALYSIS OF THE FINDINGS

In this chapter of the study, the findings from the questionnaires are presented. First, the raw most highlighted points from the results are presented and then evaluated, followed by the integration of these results in relation to PLS. With the aid of a SWOT analysis of the results to compare the current situation to what can be done is also in this chapter. The gap between learning and teaching is better explained with a table showing the possible differences in content. Lastly, there is the evaluation of the feedbacks received and their effectiveness.

6.1 The results of the research

The research was done so that both participants and the trainers could express their opinions about the trainings objectives and content for the comparison and evaluation. From the data collected it was found that most of the goals were reached however in different ways. The technology acceptance and of the training was not seen as a barrier by most participants. The main message was conveyed and well received by the participants of the training. However, that did not directly mean that PLS is used on their workplace. PLS is viewed as a good tool for employees for generating standard documents, learning with each, to solve daily problems in their workstations, check tips and tricks and more. Motivation from the employees to get PLS training was very good because PLS provides them with a lot of benefits both individual and as a company.

6.1.1 Results from the questionnaires

The questionnaires were responded by 20 apprentices from the Dual Academy (mechanical engineering students) and 6 employees from different production departments of the company. These respondents had received the PLS Basic Training two months before this research. Find the questionnaires sent the participants of the trainings (see appendix 4).

For the apprentices there was a session hosted for them to answer the questionnaires altogether, and during this process a psychology Doctorate student and the researcher were carefully observing their comments, gestures and attitudes towards the questionnaire. They tended to communicate with each other at the beginning, but as they got to the open-ended questions they seemed to reduce the conversations and had to think individually. Towards the end, they discussed a bit more with each other about the questions which are on the second part of the questionnaires. For the last part of the questionnaire about the usability, most of apprentices explained why they cannot currently use PLS as often as they wished.

Unfortunately the same procedure was not possible to host with employees because of their different shifts and times they had available to answer the questionnaire, so arrangements had to be made to adjust to the respondents best times for them to answer separately.

The findings of the questionnaires are shown through each item and separated between the apprentices and the employees. The information presented is the summary of the most highlighted points from the responded questionnaires. In each item the purpose is first defined, followed by the evaluation with the similarities. Last the main differences are explained. The bullet points displayed are the ones mostly emphasized by the respondents and consistent within them.

A - The first part of the questionnaires on the demographic data of the respondents:

In this section the purpose was to find out the age, gender, nationality, the departments the respondent works in and the working experience at Daimler. With this information we could analyze what factors affect the knowledge transfer during the trainings such as possible language barrier, experience with trainings and background of the participants.

In this part the similarities found for both apprentices and employees were that there was no language barrier noticed since all respondents were of German nationality. In both apprentices and employees there were more male than females respondents.

The difference for the apprentices group noticed was that all were between the ages of 18 to 25 years old, which meant that they were young and were open to learn about the new software system PLS. They had contact with computers in a daily basis so it was easy for them to follow the training.

Another aspect noticed was that they were in their first months of apprenticeship so they were not so much experienced with trainings.

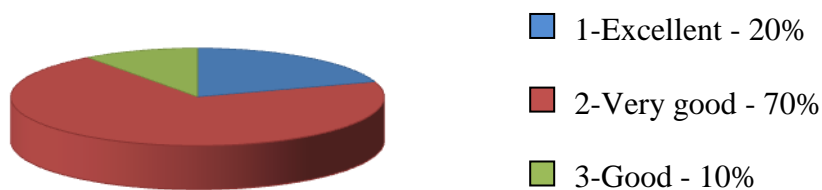
While the employees were of 34 years old and above, they had more experiences with trainings as they have been working at Daimler for at least 5 years. They were also keen to learn about PLS due to the various benefits PLS provides them with.

B - The second part of the questionnaire on the evaluation of the PLS Basic Training:

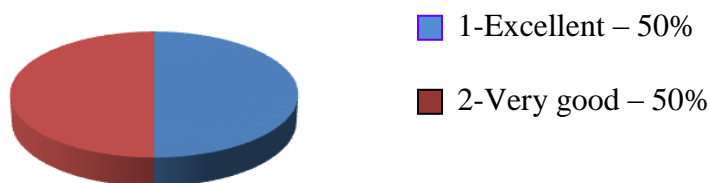
In this section the purpose was to evaluate the training in general, the satisfaction and the goals of the basic trainings. This was done to gain a better understanding of what the participants learnt during the training, their views on the topics covered and the satisfaction overall of the trainings.

B1) The objective of this item was to find out the satisfaction of the participants of the PLS Basic Training in general by using the scale (1-Excellent, 2-Very good, 3-Good, 4-Poor and 5-Very poor). As shown in the charts below, it was noticed that everyone was satisfied with the training and that it provided enough information for the participants to use PLS comfortably later on.

The apprentices graded the PLS Basic Training as shown in the chart:



The employees graded the PLS Basic training as shown in the chart:



B2) The objective of this item was to obtain the participants opinions on what were the most important issues dealt with and what was put most emphasis on during the training. With the information gathered from both trainers and participants it will be possible to compare the content elaborated by both.

The apprentices thought there was most emphasizes focused on the following points:

-Instructions on how to use the system,

- The basics of PLS and additional information for their better understanding,
- Standardization as well as knowledge transfer.

Different from the apprentices the employees thought that the followings points were mostly emphasized on the trainings:

- The importance of standard documentation,
- The importance of clear standard instructions for the processes,
- The theory and practical side of PLS,
- The systematic explanations of why there is PLS in accordance to their work.

B3) The objective of this item was to find out the opinions of the participants about the purpose of the short film (about qualifications and the need of instructions for new-comers) shown at the beginning of the training session. This was justified by the participants as being an ice breaker first of all, and the discussion afterwards was very constructive and focused on the importance of instructions.

Both the apprentices and the employees evaluated the video in the following way:

- The short film showed reference that in order to operate complicated machinery one has to have instructions.
- The short film stressed the need and importance of guidelines and ensures that employees need to be well trained before operating machinery.
- The short film showed that one needs illustrations and explanations before using heavy machines or should face the consequences of the damages caused.
- The short film was a very good example of how things should not be done so that one can understand the amount of damage or destruction this can cause.
- The short film provided a good introduction for the participants to see things in other perspectives but to relation to what they do.
- The short film also provided good insight for the new-comers about regulations. These should be respected otherwise chaos can be expected.

B4) The objective of this item was to find out if the part of the training where they had to build lego models, worked better for their understanding of standardization and qualification concepts. Both apprentices and employees mentioned that they enjoyed that part very much and that the lego concept worked better for their understanding of the training. The respondents added that having instructions alone is not enough but that these needed to have standards. Because it is impossible to ensure that someone can explain procedures of a certain process using the same methods every time.

The apprentices justified their answers with the following reasons:

- The legos exercise showed how processes can be done with or without instructions and the differences on the outcome.
- The legos exercise stressed the importance of reading instruction carefully because usually the most important points are not as highlighted as they should be.
- The legos exercise aided in the understanding of how step-by-step procedures work and how they make ones life much easier.
- The legos exercise enabled them to see where PLS helps them in the production with continuous improvement processes.
- The legos exercise also showed that with standard instructions and guidelines the dependency on the experts at work decreases.

The employees justified their answers with the following reasons:

- The legos exercise was a practical concept that helped them better understand the need of standards and qualification.
- The legos exercise was a good example that showed how processes can be done in an appropriate manner.
- The legos exercise was a very interesting idea because most people have already played with legos before at some period of their life. However not everyone really paid attention to the details in instructions and now they understand the importance of that point.
- The participants interesting reactions, after being told to switch manuals with someone else, with the ones they have just created. Since everyone hears and writes things in different manners and does not know if the others will understand their explanations. This exercise showed how standard processes can help in their work and stress the importance of that.

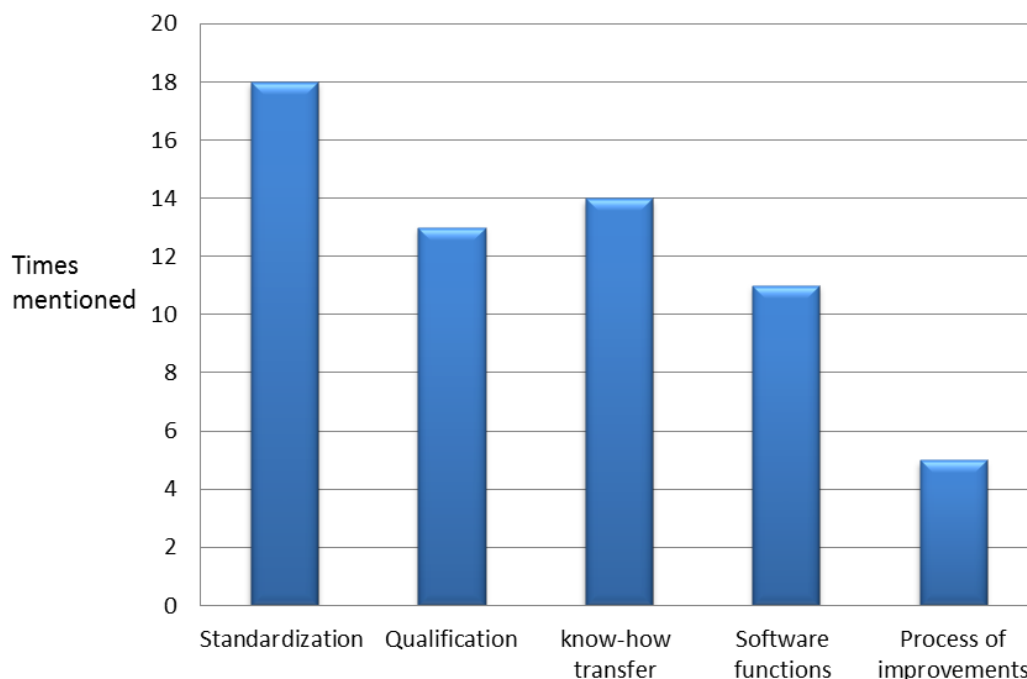
B5) The objective of this item was to check the consistency on the goals of the PLS Basic Trainings from the participants point of view, to later on check if they matched with the trainers. The table shows the participants opinions about the PLS Basic Training goals.

<u>Apprentices</u> thought the PLS Basic Training goals were:	<u>Employees</u> thought the PLS Basic Training goals were:
Making them understand the importance of self-sufficiency, by explaining how PLS works and that dependence on experts decreases.	Showing them how employees as well as new-comers can work less dependent on experts due to standard instructions.
Showing how important communication and transparency at work is, and being sensible with the new/old methods of working.	Showing how they can have clear processes in the different departments and how knowledge transfer to new-comers is important to keep the standards.
Making sure that new-comers can learn the job faster -Older employees to use PLS for the glossary, giving and reading sugges-	Making sure that the employees know what they can do with PLS and its benefits in general.

tions, tips and tricks and viewing information updates.	
Showing the applications of PLS and standardization of learning processes and know-how transfer.	Showing the importance of safe guarding knowledge.
Showing how standardization and knowledge transfer works efficiently through PLS.	Showing how knowledge can be transferred through PLS to new employees or after absence
Explaining the PLS basics and the importance of instructions.	Explaining the PLS basics and functions (systematic explanations).

B6) The objective of this item was to acquire from the participants the points mostly mentioned during the training and what had most impact on them from a defined list of points they could choose from. Standardization, know-how transfer and qualification were the points mostly emphasized by both apprentices and employees. The last two points “software functions and process of continuous improvement” were mentioned just not as much as the other points as seen in the graph.

Points with most emphasis on the training



B7) The objective of this item was to find out from the participants what was positive or negative during the training, to get a general idea of what they think of the training.

The apprentices mentioned the arguments below:

<i>Positive arguments:</i>	<i>Negative arguments:</i>
The short film was good.	The introduction was too long.
The lego part was good.	There was too much theory at the end.

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The training was done in an understandable manner.	There was too much information given all at once for them to learn in a 4hours session.
There was a friendly atmosphere and environment for learning.	Sometimes it was hard to follow when the trainer explained it very fast.
The software functions of PLS are easy to use.	Not enough time for the practical functions of PLS and exercises.
Overall good and fun training.	The presentation and the theory part had too much information.

The employees mentioned the arguments below:

<i>Positive arguments:</i>	<i>Negative arguments:</i>
The training had a good and logical structure, and was well organized.	The training had too many participants for a single session.
The legos exercise was a good approach.	The theory part was not very specific.
The content was relevant and provided some relation to their workplace processes.	The group of participants was too mixed. If separated (by apprentices / employees / departments) would be better.
Good and friendly environment that allowed them to ask questions and get the answers.	

B8) The objective of this item was to find out if the participants perceived the same message which the trainers were trying to bring across, with standardization and its benefits.

The apprentices defined standardization as “the norms that each individual has and the basics he/she has been given, but general standards are needed for people to be able to work together”. They mentioned the following benefits for having standard documents:

- Standardization decreases the time needed for documents searching and simplifies knowledge transfer.
- Standard documents allow new employees to start their work in the company and in their departments using updated and involving approved information and from many points of view.
- Standards documents allow employees to check and monitor their work and improve the job processes.
- Standard documents allow employees from different parts of the world to work together easily using the same standards.
- Standardization provides employees with many advantages in the workplace in general.

Whereas the employees defined standardization as “a general tool to simplify the work no matter in what department he/she is working in”. They mentioned the following benefits for having standard documents:

- Standard documents allow saving time in job processing and therefore promote efficiency.
- Standardization eases the transfer of information and knowledge from the more experienced employees to the new-comers.
- Standardization worldwide contributes to quality and eases the work by allowing knowledge transfer within departments or even through International Plants.
- Standards provide employees with step-by-step procedures and know-how for the job processes.

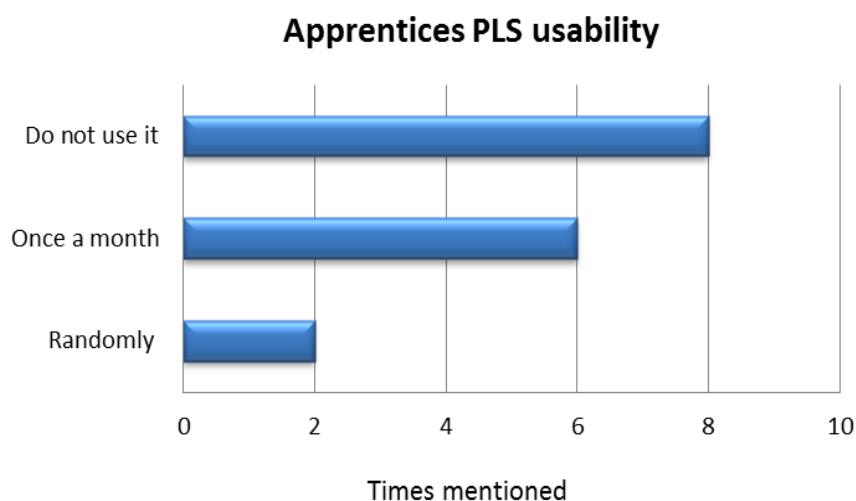
C - The third part of the questionnaire focused on the usability of the PLS Basic Training:

In this section, the purpose was to find out if after the training the participants used PLS at their workstations. Since all participants responded positively for the satisfaction with the training, it would be expect that they use PLS.

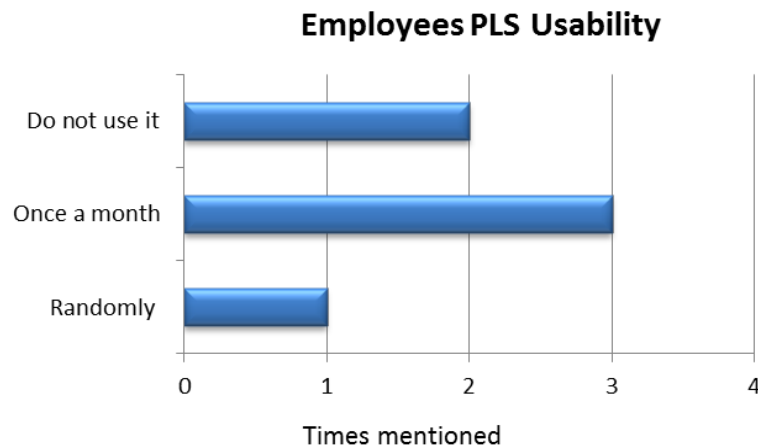
The information gathered in this item will allow an analysis of a possible influence on how the satisfaction with the training can affect the usability. Unfortunately, some of the apprentices still did not have a chance to use PLS since they received the training.

C1) The objective of this item was to find out the frequency the participants used PLS at their workstations, by choosing one of the options available which included: daily, weekly, monthly, randomly or if they did not use it at all. However, in the graphs shown below it is more generalized using three categories: once a month, more randomly or do not use it.

The apprentices that did answer this part of the questionnaire answered that their PLS usability frequency increased when they had more chances to use it and that they would surely use it in the future. Another aspect that they explained for not using PLS more often was that they had their supervisors present at all times so they had the necessary assistance available. The graph below shows the frequency they used PLS:



The employees affirmed that they have some time availability problems to access PLS as often as they wished. However, they also said that PLS is very well received by new-comers because it is recognized as a very good instrument for instructions, generating and updating documents, checking the glossary or checking tips and tricks. The graph below shows the frequency the employees used PLS:



C2) The objective of this item was to analyze if the participants use PLS to search for answers for their daily questions at their workstations. Using the scale given: (1- Yes always, 2- Often, 3- Sometimes, 4- Not really and 5- No, I never use it) they could choose the best answer that fitted for them. Taking into considering that in PLS employees can check the glossary for definition of new terms, to check frequently asked questions with answers, this way learning from one another also.

The apprentices graded this item with an average (3-Sometimes), considering that if they had questions they could either use PLS to find the solution or ask their supervisors.

The employees (70%) graded this item with more regularity (2-Often), that they used PLS for finding answers for the questions encountered during their work and checking for tips and tricks to ease their work.

C3) The objective of this item was to find the exact content used in PLS. With this item it was possible to find out what the employees and the apprentices use PLS in their work. Taking into consideration the enormous amount of data available in PLS to find out the consistencies on the content used and advise the topics to focus in future research.

The apprentices use PLS for the following content (the percentages represent the repetition on the answers):

- To check for updates and new information after being absent to - 30%
- To read job elements and check step-by-step procedures - 25%
- To learn overall how to run machines - 20%

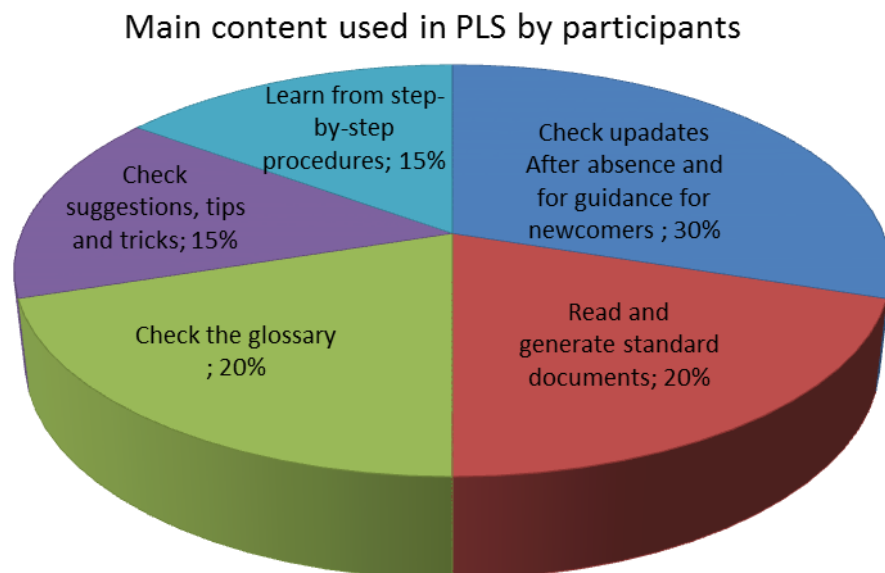
Case study of the evaluation and analysis of learning effects, using the PLS Basic Training at Daimler as an example.

- To give and check suggestions, tips and tricks - 15%
- To check information in the glossary - 10%

The employees use PLS for the following reasons (the percentages represent the repetition on the answers):

- To generate documents such as: Cyclechecks, Standard Work Instruction (SWI), Job Element Sheets (JES) and other standard documents – 30 %
- To check standard procedures to ensure that the employees are receiving the basic know-how skills - 25%
- To read job elements and check to step-by-step procedures – 25%
- To search for instructions and standards in order to help apprentices – 10%
- To check information in the glossary – 10%

The pie chart below shows in general the content used in PLS by all participants:



C4) The objective of this item was to find out if the content taught during the training was relevant to the issues the participants faced on their workplace.

The apprentices were not sure if the trainings content was relevant to them yet, due to the amount of experiences they had at the workplace. They justified the relevance of the content with the following points:

- Standard documents being interesting to them, but the content in practice was not clear to them yet.
- The tips and tricks are very important for the new-comers. This way they find out what they should know in advance.
- Good to know the benefits which the use of standards can provide them.

- Good to know that with PLS employees are able to share documents, make suggestions, generate necessary documents easily.
- Good to know that there is a contact person in PLS available to always help them with any possible difficulties.

The employees confirmed that the content of the PLS Basic Training was relevant to their daily tasks and issues faced in the workplace. They justified the relevance of the content with the following points:

- After the training they could easily find answers to their questions and generate necessary documents for their job processes in PLS.
- PLS provided them with good instructions.
- With the suggestions, tips and tricks sections, they could learn a lot from one another.
- The used examples provided a relation to their workplace allowing an easier understanding of the training content.

C5) The objective of this item was to gather suggestions for the optimization of the PLS Basic Training from the participants opinions.

The apprentices suggested the followings for the improvement and optimization of the PLS Basic Training:

- There should be more practical examples like the lego part which may allow direct relation between the training and the workplace activities.
- A handout containing the most important information of the training is advisable, for checking the training content both during and after the trainings.
- The use of more pictures, graphs, videos was advised.
- Provide more time for the software functions, for the participants to know more in details what can be done and how.
- The presentation slides contained too much detailed information.

The employees had other suggestions for the improvements and the optimizations of the PLS Basic Training. These included the followings:

- The smaller the groups of participants per training session the better, so that there is special attention paid to each participant.
- The groups of participants could be separated by different departments, this way more specific examples could be given.
- More exercises like lego should be included so that the participants could relate to their daily work.
- More examples of knowledge transfer could be introduced for participants to always make some relation to their departments.

C6) This was the last item in the questionnaire. The objective here was to get any extra comments on the trainings, usability and or any other criticism/appraisal from the participants.

According to the apprentices, they were very satisfied with the PLS Basic Trainings. The PLS trainers should continue conducting the trainings the same way as it is a very good introduction for them as new-comers.

The employees commented giving suggestions such as: if possible it would be a good idea to host a small tour to the production departments. With that to see the exact connection of what is taught during the training, and the practical reality on the workplaces. The last point was about more advertisements and promotion of PLS both in the implemented locations for more usability, and in the other locations where PLS is not yet implemented.

6.1.2 Discussion and Analysis of the results

Based on the results found from the research it was observed that in general the trainings are very satisfying for all participants. However there were some aspects that influenced the usability and the content of the training. These factors included the training sessions being conducted when needed “ Just in Time Trainings”, and not only when the resources are available. In addition, one could argue that the new-comers are provided with much information during their first months. If they do not exercise on this information they are provided with, it can be difficult to remember the system in general.

Furthermore, the goals between the trainers and the participants matched and there was not much difference between the teaching and learning. It could be noticed that the employees answers were more specific and related to their work and the documents related, compared to the answers from the apprentices who were generalizing things more.

According to the participants of the training they thought standardization was the main point of training. On the other hand, the trainers acknowledged that qualification was the main point and standardization was part of this process of knowledge transfer. The content and the time provided for the training was considered relevant and with relation to their work especially for the employees. All of the participants of the training agreed that the practical part with legos was fun and gave them insight of how things can be done, with and without standards as well as the importance of qualification and instructions with details in the workplace.

During the analysis of the responded questionnaires, it could be noticed that the employees were more experienced compared to apprentices because of the different ways of putting and expressing their opinions with specific examples and were more integrated in the topic. Nevertheless, in almost all cases they had similar meanings in their answers. The main research questions raised (in chapter 1.3 in page 5) can now be answered in short with the points below:

KM tools acceptance during the PLS Basic Trainings

From the responded questionnaires, it was found that technology in general is accepted by the participants. Considering that nowadays almost

everything is being done electronically, so using computers has become a fundamental personal skill and requirement. Therefore, one can say that technology acceptance could not be used as an argument against the PLS Basic Training and the usability

Factors influencing the outcomes and the learning in the workplace

The factors found to influence the learning effects on the participants of the training and therefore also the outcomes were: the background and educational basics, the culture and the need to have the qualification at that certain time. These factors were leaning their behavior and response towards the training into a certain direction. However most of the time this was not a problem because at the end of the day the participants got the sufficient information needed to get across to them.

The transfer of the content during the training

All participants showed satisfaction with the relevance of the content of the training, on the other hand they also wished that there was a bit more time available for exercises to allow them to be more comfortable with the system during the training. For cases of difficulties and or problems with the system or generating documents the participants can always contact the PLS responsible.

The trainers goals compared to the participants of the trainings

The main objectives of the trainers matched the participants acquired knowledge. This was reached by using the tools provided by PLS. With the aid of other concepts and exercises such as the discussion after the short film and the legos model this knowledge transfer was possible. Both the participants and the trainers were happy with the outcomes of the training.

The content and usability frequency of PLS after the training

The usability can be influenced by training performance to some extent. Once the participants get the training they now know how PLS can help them. However, the time availability or the need to use PLS at their workstations does not allow them to use PLS as often as they wished yet. All participants agreed that the training had sufficient and relevant content for them to be able to use PLS comfortably afterwards.

6.2 The SWOT analysis of the findings

The SWOT analysis matrix is used here to show the position of the result in the current situation of the training after the evaluations. This is also defines what is good and what can be seen as a weakness or threat for the trainers to focus on and improve. To better deliver the training so that it is best received by the participants.

Table 3 - SWOT analysis of the findings

	Strengths	Weaknesses
Opportunities	<ul style="list-style-type: none"> • The system is very well received and accepted by the departments • PLS provides standards which can be very effective and beneficial for the employees • The participants are very satisfied with the training and find it to be exciting, fun to learn. 	<ul style="list-style-type: none"> • PLS is not enough encouraged by the managers to be used in the workplace but with more collaboration this obstacle can be overcome • This basic training now is much better and improved compared to the previous one.
Threats	<ul style="list-style-type: none"> • Some people accept the PLS system only as a theoretical frame and not really practical tool. • Even if the employees would like to use PLS more, most participants say that they do not have enough time provided. • Resources for the training availability can be a challenging sometimes. 	<ul style="list-style-type: none"> • The training are not being done to apprentices in the time that they need it. • Cause of a need of another training done in future which takes time and other resources. • Some participants think that the training contain too much information for them to get only in 3/4hours of training.

6.3 The gap between teaching and learning

The anonymous quote that states “I am only responsible for what I say, not for what you understand” and that is true, one can only be held responsible to what he/she says and not what others understand. We are all different individuals and a single word can mean so much to one and not at all to another. This is something we all experience in our daily lives, when working with people from very different backgrounds and of other culture, language or ethnicity this can be seen as an even bigger challenge to overcome. Myself coming from an African background now living in Europe had to adapt myself very much to the way of living here which is different from what I was used to. So it is no different with training different groups of people using the same tools and ways to reach the information through. Some adaptations need to be made for these to be accomplished by the participants at best, and according to (Gibb S, 2002) to overcome these gaps between the pre-instruction level performance to the exit level performance you first have to know where is the gap and why.

From the presented learning theories in the third chapter in the study, the learning effects noticed during the PLS Basic Training were positive. The characteristics of the theories presented were shown as follows:

(a) the behavioral theory could be recognized immediately through the enthusiasm and positive feedback given after the training,

(b) the cognitive learning theory also since the employees were very much interested to know more about the standard documents they could generate, the suggestions tips and trips.

(c) the social learning theories which argues that we learn values and beliefs was mostly recognized within the apprentices interaction with each other and openness. Social learning theories also states that organizations should respect the differences in beliefs and values to be able to get across to their employees better, even though the training are conducted to mixed groups there are some adaptations made so that all understand it well. With that being said table below shows with the exact objectives of the training how the gap stands now. The table can be better understood by using the middle title “gap” and the sides topics addressed in the training to see from both sides the trainers and the participants where was the exact gap and if big or small.

Table 4 The differences in learning and teaching

	Trainer	Gap	Participants	
Goals to reach	Conduct a satisfactory training	No	Participants satisfied with outcome	Goals received
Points to emphasize	Qualification & standards	Small	Standardization & KM transfer	Point taken
Purpose of lego	Importance of instructions	No	Importance of instructions	Purpose of lego understood
Standardization and qualification	Objectives understood	Small	Discussions of importance and benefits	Standardization and qualification
Usability expectation	Always when necessary	Some	Average rate very low	Real use of PLS in workplace
Software functions	Comfortable to work with	Small	Not enough exercises	Software functions

6.4 Taking in Feedback

Here the focus is the reception of feedback from the respondents about the training and the software in general. In these feedbacks the participants of the training articulate their thoughts (criticisms and or praises), judgments and suggestions for possible improvements. The PLS provides two main feedbacks forms after the basic training. The first one immediately after training session conducted directly by PLS trainer and the second one after

some weeks conducted by Daimler's personnel Internal Association. These two have different purposes and content, the one conducted after the training is responded by all, this is directed to grade and give improvement suggestions for the PLS basic training. While the second one is not compulsory (only very few people respond it and resend the mail so there is a low rate of feedbacks received) and this tries to get a wider perspective of the training conducted as in general.

6.4.1 First Feedback

The first feedback forms, which are the end of the training section are short and faster to answer, they are for the participants to express their opinion about the training. However there are good and bad aspects with having a feedback right after the training. The good point is that the trainers get an opinion of everyone who participated on the training and suggestions for improvements right away. Nevertheless, one can say that the answers might be influenced by the situation given the case that the participants would be tired and just respond in a positive way not to have to think further for any reasons for the training not to be satisfactory enough. The reasons mentioned by the trainers for this feedback include: getting immediate feedback of the training, and how the trainers could improve also in presenting given the grades. After the training, the learning effects cannot be seen yet but depending on how comfortable the participants are with using the system is vital to know.

6.4.2 Second Feedback

The second feedback is normally sent via automatic email by the company's administration office for Personnel Development, two after the training was conducted. However not all of the participants have access to email in the company and there is no way for them to be reached this way. This can justify part of why these feedbacks have a very low response rate. Therefore, it can be assumed that most of the respondents are new-comers with access to email and apprentices because they have time. This feedback is done to get an overall feel of the training being conducted by all the departments at the company. These serve to check how the training was, positive and negative points in order to ensure that the standards are kept and that the employee is being well treated. Then report back to the department and make the possible optimization changes.

Nevertheless there is some feedback received and these are used to improve the trainings and the staff development. There has been not much criticism from the feedback received. Another point important to mention is that one has to be open to taking in criticism and being able to react positively towards them for improvements. A vital thing to do is performance check, because this then allows them to check if it was worth and if there is change noticed after the suggestion for improvements have been made.

7 CONCLUSION AND RECOMMENDATIONS

In the last chapter of the study, the summary and recommendations for improvements for the PLS Basic Training are explained. The study summary and conclusion are here presented consisting of the different views the KM and OL respectively in relation to training in general. Suggestions for further researches and the implication for it are discussed here. The limitations faced during research study are justified here and the last regards as final thoughts.

7.1 Summary of the study

Nowadays even with the tools provided by technology it can be seen that the process of transferring information/knowledge from “person A” to “person B” is still difficult. In addition Paul Watzlawick argued that “One cannot not communicate” meaning that everything we do somehow is an action of communication, making it impossible for one not to communicate. This exchange of thoughts, messages, or information through speech, visuals, signals, writing, or just behavior are to some extent seen as the basis of learning and teaching. One can only do so much in terms of delivering or receiving information on each end, and we can only expect that with the different mechanisms for knowledge transfer this can be even harder.

For managers to understand the importance of reliability is crucial in the dynamic world of today. Changes are happening all the time and to keep up with these changes one needs to regularly make evaluations and analyze these processes as well as keeping well informed of what the best practices are. If the improvement suggestions are used they should be checked after a period of time to find out if these improvements are causing positive outcomes. The current situation shows that the training is well conducted and the content is being well delivered by the trainers and well received by the participants. With the suggestions received for the improvement one needs: time, willingness and cooperation and KM to allow that to happen at best.

7.2 Main practical recommendations

From the findings it was seen that the difference between content transferred was very small. This showed that the trainings are conducted well meaning that there were very few remarks and improvement suggestions. Despite the satisfying results found, the suggestions provided by participants were very good and can be acted upon. These implications from the findings should result in the optimization of the PLS Basic Trainings and this for the PLS Team to take all aspects into consideration. There are a number of different ways to ensure that the lessons learnt are at best and so is the usage of this knowledge causing a change. The study focused on three main objectives and the recommendations are as follows.

7.2.1 Recommendations for the optimization of the trainings

The PLS Team also conducts other trainings for employees with different roles. However, compared to the basic trainings they are longer and consist mostly of either data collection and documentation or the software functions. Therefore one could say that basic trainings are very interactive, fun and the short and for the employees with the role of users only.

In chapter three, learning theories were introduced and described in relation to learning effects seen. It was found that all three theories were well satisfying in comparison to the learning effects caused during the trainings. For the behavioral theory it was found that the participants learnt from the stimulus of getting more information, suggestions, tips and tricks and learn from one another and the response was seen through using PLS for this. For the cognitive and social theories was seen that the “what and why” factors for reasoning were present to complement the first basic learning from their experiences and individual beliefs. In addition to cause better outcomes of the knowledge transfer using the risks of the KM and OL initiatives more explained in the recommendations, to maintain and improve the PLS Basic trainings.

From the evaluation and analysis of the findings from the participants of the trainings the suggested given for the optimization of the trainings are:

- Create a handout with extra information
Some participants, mentioned that there was too much information to be learnt in one day. Therefore, a handout with the extra information and more details of certain procedures was suggested. This will reduce the information given to the participants and shorten the time, providing them with a handout that they could have at all times. In addition it is commonly argued that during learning, one could be exposed to as much information but not be able to learn it all. Therefore it is important to be able to have some material that one can go back to and check.
- Separate the groups of participants of the trainings
At the moment the participants groups are very diverse in terms of different employees from different department, apprentices, participants from very different backgrounds. Therefore separating them would mean that the groups would not be so diverse, therefore allowing their common features to help them better understand the content and to learn with each other easily. As mentioned in learning theories that the more focus put into the individuals the better outcomes can be expected. Examples: separate the participants groups by departments, age groups, and ethnics.
- Provide more and detailed questions for the feedback forms
As discussed in chapter 2, to avoid the risk of KM and OL initiatives, the feedbacks received should be carefully prepared including as much details as possible. In addition, when the feedbacks

are received, that these are evaluated also carefully and provide some feedback that the PLS Team can work with. There should be more detailed feedback forms that provides the PLS Team with constructive information for the improvement of the trainings both short term as well as long term. As described in chapter 6.4 about the two feedback, one can understand better that the immediate feedback acquired and the follow up feedback together could ensure that all participants are reached and heard if the suggestions ideas were acted upon.

- The trainers should have basic information on participants prior
Before the training session, the trainers could have some information about the groups (possible separated by using similarities). This way the trainers can consider the factors influencing the participants to choose the best approaches and different teaching methods. This information could include: their background, age, previous education, nationality and department working in to best bring the information across.
- Implement PLS internally (in offices also)
Since PLS is not only for the production departments, the idea or concept can be applied also to other departments such as offices. There were suggestions that PLS could also be implemented internally for office departments, because with PLS they can generate documents, share information and allow exchange of experiences just as it is being done in the productions.
- More management support
In the hierarchy of organizational structures everyone has a role and it matters, as discussed in the state of art and the current situation of KM and OL management support is vital. Since they are the decision makers they need to believe and agree with the initiatives so that they support. And if this provided could allow the employees more time to interact with each other and to come up with best practices tools, and together document these in PLS. This could be done also after the training to gather example of experiences that are not already documented in PLS.
- Planning the trainings according to the needs
If there is a possibility to influence on the time the trainings are conducted, then suggest that these trainings are conducted close to the time when the employees need and can use PLS the most. Also trainers should take into consideration the availability of resources (the trainers, the participants and the material).

7.2.2 Recommendations for the content check

The content of the trainings learnt by the participants was considered to be relevant to the employee's workplace. On the other hand PLS can be considered to be a pool of information, therefore one could say that not all the

content is used. To find out the content mostly used is important, because with this information the PLS members would know on what to concentrate and this way provide sufficient knowledge to transfer as argued as a risk of OL in the current situation.

For this part the recommendations suggested included the followings:

- Create software to track the content and usage
By creating software that can track how much and for what content PLS is mostly used for. This way to analyze why the other data is not being used as much, and work accordingly to promote usage.
- Put most focus to the content in need to promote PLS
Taking into consideration the research about Two Models of Modern Workplace learning which focused on engineers and ship designers. The Learning Instance theory, which represented a situation in which specific knowledge was presented, shows how here the necessary content could be the focus to promote PLS more.

7.2.3 Recommendations to increase the usability frequency

From the evaluation of the findings, it was noticed that the usability frequencies vary from the need and the different departments in company. With more management support and collaborations happening these rates could increase. In the International Plants the cases are the similar except from one where PLS is implemented in all of the productions departments and there is more usable there. However, from the trainers point of view (see chapter 5.6 transcribed interview) the usability frequency is normal because they do not expect the employees to be on PLS all the time.

The recommendations to encourage the employees to increase the usability frequency:

- Collaborate more with the department supervisors
Working together with the supervisors of the department and the responsables for the apprentices groups to ensure that there is enough time provided for them to use PLS. This way allowing them to practice and benefit from all the advantages PLS can provide them with forget the system and not need to get trained again in future when needed.
- Improve in the appearance of some PLS terminals
The presentation of some PLS terminals could be improved or just changed to new computers in order to encourage the employees to use PLS. The mobile devices and tablets is an idea that has had great acceptance from the employees because they are portable and allows them to use PLS at anytime and in any place.
- Checkups sections
Provide non-compulsory regular checkup sections between the trainers and employees that would like to participate to give some

feedbacks on the trainings, the usability and the content to be put focus on. The KMSes should always be checked due to the dynamic world we are living in as argued in the current situation of KMS.

7.2.4 Recommendations for future researches

On the basis of the results found, for further researches the PLS Team should take into consideration the analysis and recommendations and act upon them. The trainings in general were conducted well and with the possible changes they could be optimized according to the findings. From the research done and the it is clear that employees are willing and do learn in their workplace to improve their qualifications and their work. This occurs not only through trainings but also with each other through communication and KM software such as PLS.

There are very small differences in the content taught and learnt during the trainings, as shown on the feedback received for the PLS Basic Trainings. Both feedbacks complement each other in certifying this. In the second and third chapters, both OL and learning theories were investigated and that learning in the workplace nowadays has become very popular for both benefits of the organization and individual qualifications. With that being said organizations should always check that this is happening at best.

For this research the timeframe was considerably short to be able to cover more aspects and gather more respondents for the questionnaires. A longer timeframe could have allowed the research to get an even broader view of the points. Although for this research it was just enough covered, it is recommended for the next researches to allow them more time and resources and data collection. Reaching a broader sphere of respondents, and that these would be focused more on the usability and the content of PLS being used, to be able to analyze why the other content is not as much used.

The researchers could start by using the material and results from the previous research studies done about the related subjects as a continuation to the work already done. In KMS it is said that the past data and information is vital for the good management of the present and future knowledge. On the other hand, one should be very carefully in using this past information due to updates in the current situation. In addition, the research can also check if all the suggestions from the feedbacks from the participants (see page 65 in findings, suggestions from improvements) if all of these were taken into consideration already. Not forgetting that changes could have occur during the period in between the researches, because the validation of the information can influence on the final outcome.

In addition, to have clear goals and definition of these terms such as KM, information and learning so that the perspective on what is and what is not KM is clearly communicated with the employees of the organization. The research objectives could be more specific so that they the approaches can be as specific as possible. This will allow them to best reach their objec-

tives efficiently and effectively, using all the resources available and allow learning in the workplace, management of the knowledge and staff.

7.3 Limitations

The biggest limitation encountered during this research study was the language barrier. Finding literature in English was a bit difficult therefore used some German being very careful in interpreting the data. Working in English language first (with the questionnaires elaborations and analysis) and then to translate everything into German language which took a lot of time was difficult. As well as trying to compromise the standards from both universities of Finland and Germany.

Another limitation was in reaching the questionnaires respondents, because the research study took place during the summer time and most of the employees were in holidays. Therefore the apprentices were also addressed and there was a better number of respondents, and through these plus the rest of the employees reached it was possible to get an overall picture of what they thought of the PLS Basic Trainings.

The support from everyone around was enormous that made the research study easier to accomplish and the obstacles overcome.

7.4 Final thoughts

As the paper focused on learning on the workplace, that is clear now that qualification of staff has become very important within organizations and many are investing in it. When conducting trainings to their staff organizations should taking into consideration the factors affecting their learning, to best transfer the desired new knowledge.

For the PLS Basic Training, we found that there is little or no difference in the content transferred from the trainer to the participant of the training. Therefore one could say that the PLS well qualifies the employees through the guidelines of standardization and learning within each other. However after a training a change in behavior is expected, and in this case that the employees use PLS in their workstations for their benefit and keeping standards.

It is commonly said “the less we know the more we must be open to all possibilities” and in business it is very important to evaluate and check the current situation of things to survive in the markets and keep up-to-date with best practices. With that being said, with qualification one can benefit individually as well as contributing for the organizations growth. Therefore, the concepts of qualification/learning on the workplace and the use of technology based tools are becoming very notorious and we as the body of the organization should use these opportunities for the overall improvement.

SOURCES

The literature used for this research study can be found in this chapter. It is divided in three main parts: physical literature, journals papers and online sources. The databases used were the following: Business Source Premier, ERIC (Educational Research Information Center), Google scholar, OECD i-library and EBSCO (electronic journals service).

PHYSICAL LITURATURE – BOOKS

Bradburn Norman, Sudman Seymour and Wansink Brian 2004, Asking Questions – The Definitive Guide to Questionnaire Design, Revised Edition.

Beurra-Fernandez Irma and Leidner Dorothy 2008, Knowledge Management – An evolutionary view.

Buchanan David & Huczynski Andrzej 2010, Organizational Behaviour, Seventh Edition, Harlow, Pearson Education.

Czarniawska Barbara & Sevon Guje 1996, Travel of ideas, Czarniawska and G. Sevon edition, Translating Organizational Change – Berlin.

Denzin K. Norman & Lincoln S. Yvonna 2000, Handbook of qualitative Research, Second Edition – Sage publications.

Dierkes Meinolf, Antal Berthoin, Child John & Nonaka Ikujiro 2003, Handbook of organizational learning & knowledge - Oxford University Press.

Effron Miles 2004, Knowledge management involves neither knowledge nor management.

Foot Margaret and Hook Caroline 2008, Introducing Human Resources Management, Fifth edition, Harlow, Pearson Education.

Kandola Pearn & Fullerton J. 1998, Diversity in Action: Managing the Mosaic, Second Edition, London, CIPD.

Kearsley G 1994, Explorations in learning & instruction: The theory into practice database.

Knowles Malcom 1980, The modern practice of adult education: From pedagogy to andragogy, Second Edition - Cambridge Book.

Kornmeier Martin 2008, Wissenschaftlich schreiben leicht gemacht, fur Bachelor, Master und Dissertation.

Levitt Barbara & March G. James 1988, Organizational Learning, Gregory Daneke edition – Systemic Choices.

March James and Herbert Simon 1993, Organizations – Second Edition.

Maier Ronald 2007, Knowledge Management Systems - Information and Communication Technologies for Knowledge Management, Third Edition.

Mayer Richard 2008, Learning and Instruction, Merrill Pearson Prentice Hall, Upper Saddle River, Second Edition.

Merriam Sharan & Caffarella Rosemary 1999, Learning in adulthood: A comprehensive guide, Second Edition - Bass.

Nonaka Ikujiro 1998, The knowledge creating company: Harvard Business Review on management -Harvard Business School Publishing.

Prange Christiane 2002, Organisationales Lernen und Wissenmanagement, Fallbeispiele aus der Unternehmenspraxis, P97.

Raab-Steiner Elisabeth & Benesch Michael 2010, Der Fragebogen, Second Edition.

Render Barry, Stair Ralph Jr & Michael E. Hanna 2009, Quantitative Analysis for Management, Tenth Edition – Pearson International.

Rosenberg Marshall 2004, The role of change management in knowledge management, Leading organizational learning: harnessing the power of knowledge, First Edition.

Ruggles Rudy L. 1997, Knowledge Management Tools-Resources for the Knowledge Based Economy.

Schermerhorn John, Hunt G. James, Osborn N. Richard and Uhl-Bein Mary 2011, Organizational Behavior- International Student version, Eleventh Edition.

Sommerville Kerry 2007, Hospitality Employee Management and Supervision, concepts and practical applications, John Wiley & Sons.

Trompenaars Fons, & Hampden Turner 2004, Five Dilemmas of Knowledge Management, Jossey-Bass.

Watzlawick Paul and Beavein H. Janet 2011, Menschliche Kommunikation Formen Störungen Paradoxien.

Weber C & Antal Berthoin 2003, The role of time in organizational learning - Oxford University Press.

Wheatly Margaret 1999, Leadership and the new science: Discovering order in a chaotic world. Second Edition - Berrett-Koehler Publishers, Inc.

Woods Robert H. 2006, Managing hospitality Human Resources Four Edition. USA Educational Institute American Hotel & Lodging Association.

JOURNALS AND REPORT PAPERS

Bandura Albert 1962, Social Learning through Imitation. University of Nebraska Press: Lincoln, NE.

Behrens Christian 2008, Erklärung und Vorhersage des Nutzungsverhaltens eines e-Learning-Systems am Beispiel des ProduktionsLernSystems bei der Daimler AG, Universität Mannheim.

Breitsch Felix 2011, Managing Workplace Diversity, Leeds Metropolitan University.

Engert Volker 2006, Das ProduktionsLernSystem als Instrument der Arbeitsplatznahen Qualifizierung, Universität Koblenz-Landau.

Goldsmith M, Morgan H & Ogg 2004, Leading Learning organizations: Harnessing the power of knowledge, San Francisco Jossey Bassa.

Jawahar M 2006, Correlates of Satisfaction with Performance feedback, Illinois State University, Normal.

King R. William 2009, Knowledge Management and Organizational Learning, University of Pittsburg.

Otsekin Kerime 2008, Eine empirische Untersuchung zur akzeptanz des ProduktionsLernSystems der Daimler AG, Vergleichende Betrachtung der Produktionsstandorte Mannheim und Aksaray, Universität Hamburg

Mayer Richard 2010, Learning with technology, University of California – Santa Barbara.

McClelland Susan 2002, A Training Needs Assessment for the United Way of Dunn County Wisconsin.

Muijs Daniel 2011, Doing quantitative research in education with SPSS, Second edition, Google books.

Nonaka Ikujiro 1991, the knowledge creating company, Harvard Business Review 69.

Peace S. and others 1997, Re-evaluating residential care Buckingham, Open University Press.

ON-LINE SOURCES

Behavioral learning theory

<http://www.learning-theories.com/behaviorism.html>

CMS-Wire KM in 2012? Probably dead

<http://www.cmswire.com/cms/social-business/knowledge-management-in-2012-probably-dead-014352.php>

Computer-Aided Design by V.J. Savsani and D.P. Vakharia - TLBO

<http://www.sciencedirect.com/science/article/pii/S0010448510002484>

Daimler homepage, general information, updated 2012

http://sustainability.daimler.com/reports/daimler/annual/2010/nb/English/404020/learning-on-demand-with-the-production-learning-system-_pls_.html

Dictionary online

<http://dictionary.reference.com/browse/knowledge>

Guidelines for Writing a Scientific Paper, Stanley Maloy, 2001

<http://www.sci.sdsu.edu/~smaloy/MicrobialGenetics/topics/scientific-writing.pdf>

Hochschule Ludwigshafen online library

<http://www.fh-ludwigshafen.de/bibliothek/>

Kaizen Trainings

<http://www.kaizen-training.com/what-we-do>

Learning Theories

http://upload.wikimedia.org/wikimedia/en-labs/5/5a/Learning_Theories.pdf

Ron Young - From knowledge to innovation 2012.

<http://www.knowledge-management-online.com/from-knowledge-to-innovation.html>

The virtual Psychology classroom

<http://allpsych.com/psychology101/conditioning.html>

Two models of modern workplace learning

http://web.mit.edu/sloan/osg-seminar/s04_docs/Bailey%20Learning%20Paper.pdf

Webropol the Intelligent Way (for the questionnaires)

<https://www.webpolsurveys.com/>

Wikibooks Learning Theories 2006

http://en.wikibooks.org/wiki/Learning_Theories

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Last but not least, I would like to express my sincere gratitude to my parents William and Mónica Sousa for everything. And for all my friends and relatives, who were always present no matter what and for the ongoing support and encouragements.

Yours Sincerely
Larissa Sousa

Daimler AG Facts and Figures

Official name	Daimler-Benz
Type	Joint-Stock Company (Aktiengesellschaft)
Industry	Automotive
Founded on	1926
Headquarters	Stuttgart, Germany
Area of work	Worldwide
CEO	Dieter Zetsche
Main Products	Automotives, commercial Vehicle, Trucks, Vans and Buses
Revenue	106 billion (2011)
Income	8.755 billion (2011)
Profits	4.498 billion (2011)
Employees	267,274 (by the end of 2011)

Daimler is a German Multinational automotive corporation, who is placed as the 13th largest car manufacturer and 2nd largest truck manufactures, and in addition Daimler also manufactures buses and provides services. Daimler AG is one of the world's most successful automotive companies. With its divisions Mercedes-Benz Cars, Daimler Trucks, Mercedes-Benz Vans, Daimler Buses and Daimler Financial Services, the Daimler Group is one of the biggest producers of premium cars and the world's biggest manufacturer of commercial vehicles with a global reach.

In 1998 the Daimler-Benz AG group merged with the American automobile manufacturer Chrysler in a "Merger Of Equals" where there was an exchange of shares, and formed DaimlerChrysler AG. However after 9 years the companies split up and in 2007 due to varies reasons and today working separately.

Daimler Financial Services provides financing, leasing, fleet management, insurance and innovative mobility services. At Daimler, sustainability is an important asset as they are corporate responsible in their actions in which it allows a long-term business success and is in harmony with society and the environment.

Daimler's ambitious vision for the future is to make emission-free and accident-free driving a reality, while enhancing individual driving comfort with the aid of their fascinating products. And from the start they state that "Our passion is to make people mobile".

Further information on PLS with examples

Referred from the experts in the team, PLS is defined as an electronic database stored online, used to create & store Standard Work Instructions, Job Element Sheets, and other support items for operators. PLS is a new, world-wide Daimler standard being implemented in Germany, Turkey, Brazil, and United States of America. PLS allows access to documentation from the process via the local PLS terminals, to ensure the transfer of the developed improvements as fast as possible to the others.

<i>Advantages</i>	<i>Disadvantages</i>
<ul style="list-style-type: none"> • All information will be in one place that can be accessed by everyone. This will make it easier to train new operators and to share new ideas. • PLS allows operators to directly input suggestions and updates. This will make it easier to maintain forms so they are always up-to-date and accurate. • All support documents are located in one central location. • If any updates are made, they can be seen immediately by everyone with access to PLS. 	<ul style="list-style-type: none"> • New system has to be must learnt • Current SWI's need to be copied into PLS one at a time and this is time consuming • In some cases translations are necessary and uploading documents with an understandable language for the workers. • Only employees of departments that have PLS implemented have access to it.

Below are some illustrations of the PLS terminals and some examples of the standard documents that can be made and generated on PLS:

Standard Work Instructions (SWI) and Job Element Sheets are the two basic standard documents created on PLS with the objectives providing workers with standard information and process of improvement. These documents can be accessed on the PLS by the workers at any time. The benefits of having these are: efficiency, transparent and audit secure processes. Below are the PLS terminals:

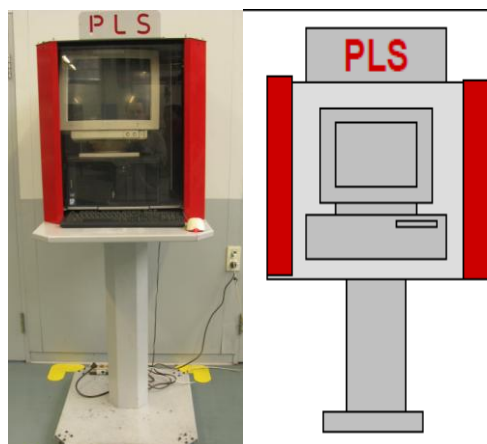


Illustration 1: PLS terminals in reality and as a model

Case study of the evaluation and analysis of learning effects, using the PLS Basic Training at Daimler as an example.

Standard Work Instruction				
Plant / Center	Department	Cost Center	Group, Line, Station / Operation or Machine	
No.	Job Element ("Verb-Object")	Details to Job Element		
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
Created by - Date:		Approval (Name, Date)		
Version/No:				

Illustration 2: Part of a Standard Work Instruction (SWI)

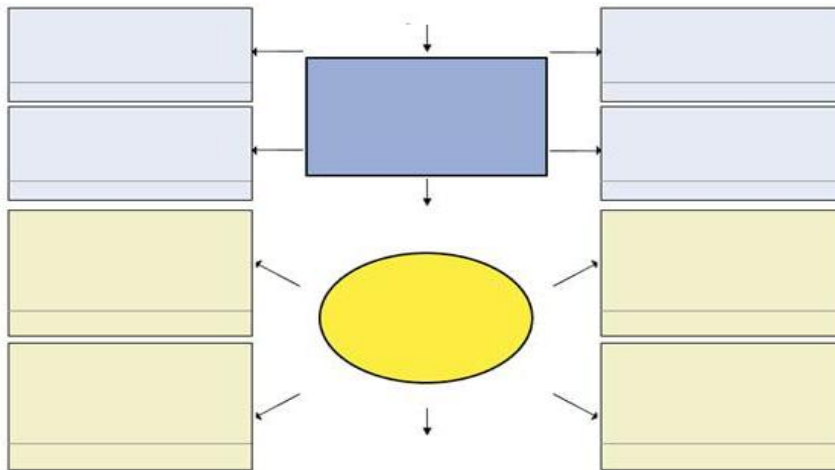


Illustration 3: A blank Job Element Sheet (JES)

The PLS system has 7 Modules, which offer concepts directed to workers primarily which are from Module 1 - SWI/JES which ensures the standardization, Cyclechecks, Change Management and integration and generation of more documents, to Module 5 - which ensures the standardized qualification process in production areas.

Case study of the evaluation and analysis of learning effects, using the PLS Basic Training at Daimler as an example.

The 7 PLS Modules

Standard Work Instruction-SWI / Job Element Sheet -JES	CycleCheck	Change Management	Integration of further Documents : (A3PLB, Links, etc)	Qualification at Shopfloor	TPM - Total Productive Maintenance / Preventive Main.	Start-ups
Module 1	Module 2	Module 3	Module 4	Module 5	Module 6	Module 7
Standardized documentation of work processes on the Shopfloor	Permanent check of uptodate status of standards and compliance	Just in Time communication of uptodate standards to the employees	Centralized storage of department documents	Workshops and qualification concepts for employees on the Shopfloor	Documentation of preventive maintenance activities & Total Productive Maintenance	Documentation of PLS by Machine-Manufacturers, Planning & Production
<ul style="list-style-type: none"> Standardisation of processes together with experts Storage of the know how in the company Ensuring standardised Trainings Audit secure processes 	<ul style="list-style-type: none"> Evaluation & solution of quality and qualification requirements (CIP) Comparison of the current and required status Storing the results / measures in the system 	<ul style="list-style-type: none"> Just in time ensuring the uptodate status and sustainability of existing standards 	<ul style="list-style-type: none"> Centralized document storage Reduction of time used for searching documents Reduction of necessary updates Reduction of print copies and space 	<ul style="list-style-type: none"> Optimization of the instruction process in shopfloor Standardized documents for training Positive effects on quality and number of errors 	<ul style="list-style-type: none"> TPM activities are centrally stored Increased technical availability of machines Stabilisation of TPM Processes Transfer of knowledge from Maintenance to Production 	<ul style="list-style-type: none"> Training content is available before SOP Reduction of the time needed for training & increased technical availability of machines.

Illustration 4: The 7 modules of PLS

The Shopfloor Management in the PLS is an architecture that allows for the input of expert knowledge from all relevant areas within the company, as well as the inclusion of expertise from our suppliers of machines and facilities.

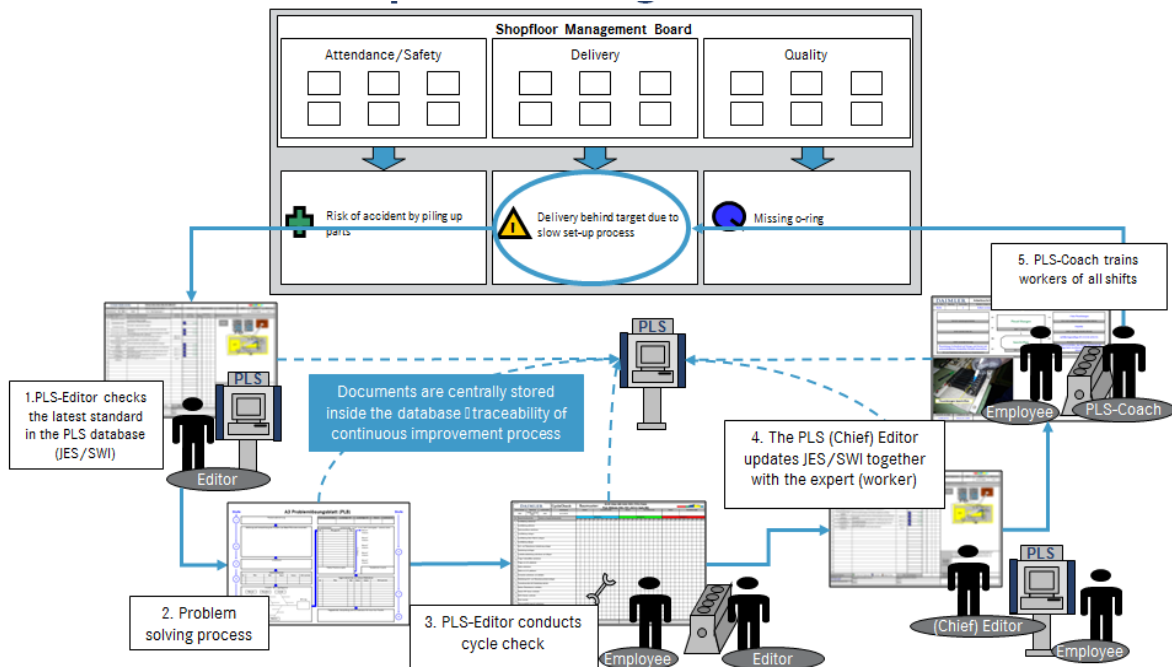


Illustration 5: PLS as part of Shopfloor management

The PLS Basic Training procedures

The process of training new employees on PLS goes as follows, described by the PLS trainers:

Phase 1 – Introduction

- Welcome remarks and introductions
- Short film is shown and the feedback about the film are discussed

Phase 2 – Practical Exercises

- Practical exercises with legos
- Presentations of Standard Work Instruction and Job Element Sheet

Break

Phase 3 – Presentation

- Presentation on the ProductionLearningSystem
- PLS as a Method of Qualification, Standardization and Process of Improvement.

Phase 4 – Software Functions

- Show how to use the software functions
- Last regards and conclusion about the training
- Questions and Answers

The questionnaires answered by the participants of the training
*English version first, then the compressed German version.

Dear Sir/Madam,

Thank you for your support, in taking time to answer this questionnaire which is an essential part of my thesis study. Be sure that all the information you provide me with will be handled confidentially. The results of my research thesis will contribute to both the improvement of PLS and the efficiency of the basic training.

Please see below some basic information about the study and the questionnaire.

Research topic: “Exploring learning in the workplace.

Evaluation and analysis of learning effects on the basic training using ProductionLearningSystem at Daimler Trucks as an example”.

Questionnaire objective:

1. Analysis of the learning effects and the factors of success in order to improve the trainings.
2. Evaluation and detection of differences between the expectations of the participants of the training and the outcomes training.
3. Detection of further optimizations on the followings: acceptance, content, usability and efficiency of the PLS system in general.

Duration: Ca.15-20 minutes

A. DEMOGRAPHIC QUESTIONS

A1. What is your age?

- Between 18-25 years old
- Between 26-37 years old
- Between 38-50 years old
- 51 years old and above

A2. What is your gender?

- Male
- Female

Case study of the evaluation and analysis of learning effects, using the PLS Basic Training at Daimler as an example.

B. QUESTIONS ON THE PLS BASIC TRAINING

B1. Please evaluate the PLS Basic Training by using the scale below?

1 (Excellent), 2 (Very good), 3 (Good), 4 (Poor) and 5 (Very poor)

	1	2	3	4	5	
Excellent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very poor

B2. Please describe briefly, what were the most important issues mentioned and which information was emphasized by the trainer during the whole training session?

B3. Please describe briefly, what you think was the purpose of the video "Pixar - Lifted" shown at the beginning of the training?

B4. In your opinion, did the Lego concept work better for your understanding of the training?

Yes

No

Please give reasons (such as the ones below):

Childish

Complicated

No relation for me to understand

Case study of the evaluation and analysis of learning effects, using the PLS Basic Training at Daimler as an example.

B5. According to you, what were the goals of the PLS Basic training?

B6. From the points below what was mentioned more and with most emphasis on the PLS Basic Training?

- Standardization
- Qualification
- Know-how transfer
- Software functions
- Process of improvements

Other: _____

B7. What do you think in general about the PLS Basic Training?

What was good and what can you criticize.

B8. What does “standardization” mean to you? What are the benefits of having standard documents?

C. EVALUATION OF FURTHER USABILITY OF PLS ON THE WORKPLACE

C1. How often do you use PLS in your workplace?

- Daily
- Once a week
- Several times a week
- Several times a month
- Randomly / less frequently
- I do not use it

Please give 1/2 reasons:

C2. When you have a problem at the workplace do you search for a solution on PLS? Please use the scale.

1 (Yes always), 2 (Often), 3 (Sometimes), 4 (Not really) and 5 (No, never).

	1	2	3	4	5	
Yes, I always use it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	No, I never use it

C3. What is the main content you use PLS for?

- Read daily updates and new information
- Read job elements and check step-by-step procedures
- After being absent I use it to check updates and new information
- Checking information in the glossary
- Generating documents such as: CycleCheck, JES, SWI, standard documents
- Give and check suggestions, tricks, etc
- Other: _____

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C4. Do you think that the content of the training is relevant to your daily tasks in the workplace? If so, to what extent?

Yes

No

Please justify your answer with the scale(1-very relevant to 5-not relevant at all):

C5. In your opinion, what should be done to improve the PLS Basic Training?

C6. Do you have any other comments, please write them here.

Thank you for your support.

Case study of the evaluation and analysis of learning effects, using the PLS Basic Training at Daimler as an example.

Fragebogen zur Grundlagenschulung des ProduktionsLernSystems (PLS)

Sehr geehrter Damen und Herren,

vielen Dank dass Sie sich die Zeit nehmen, um diesen Fragebogen aus zu füllen. Sie leisten damit einen wesentlichen Beitrag zu meiner Studie. Ich versichere Ihnen, dass alle Informationen streng vertraulich behandelt werden. Die Ergebnisse meiner Forschungsarbeit werden sowohl zur Verbesserung des PLS, als auch zur Steigerung der Effizienz der Grundlagenschulung beitragen.

Thematik der Studie: *“Lernen am Arbeitsplatz. Eine explorative Studie über Lerneffekte am Beispiel der Grundlagenschulung des ProduktionsLernSystems.”*.

Ziele des Fragebogens:

1. Wissenschaftliche Analyse der PLS - Grundlagenschulung hinsichtlich elementarer Lerneffekte & Erfolgsfaktoren
2. kritische Auseinandersetzung bezüglich der Trainingsziele und ihrer Wirksamkeit
3. Differenzierende Begutachtung der Items Akzeptanz, Inhalt, Effizienz, ... , Feedback und Optimierungspotenzial.

Zeitdauer: ca.15-20 Minuten

A. Basisdaten

A1. Wie Alt sind Sie?

A2. Welches Geschlecht haben Sie?

A3. Welcher Herkunft Sind Sie?

A4. In welchem Funktionsbereich arbeiten Sie?

A5. Wie lange arbeiten Sie schon bei der Daimler AG?

A6. An wie vielen Weiterbildungsmaßnahmen bzw. Trainings haben Sie bis jetzt im Rahmen ihrer Tätigkeit bei der Daimler AG teilgenommen?

B. PLS GRUNDLAGESCHULUNG

B1. Auf einer Skala von 1 (sehr gut) bis 5 (sehr schlecht), wie würden Sie die PLS-Grundlagenschulung bewerten?

B2. Welche Schwerpunkte wurden ihrer Meinung nach von dem PLS-Trainer in der Grundlagenschulung gesetzt?

B3. Warum war ihrer Meinung nach zu Beginn der Schulung das Pixar Video „Lifted“ zu sehen?

B4. Hat das Lego-Konzept ihrer Meinung nach zu einem besseren Verständnis beigetragen?

Bitte Begründen:

Case study of the evaluation and analysis of learning effects, using the PLS Basic Training at Daimler as an example.

B5. Was waren ihrer Meinung nach die wesentlichen Ziele der PLS Grundlagenschulung?

B6. Welche der aufgeführten Punkte wurden als die wesentlichen Schwerpunkte ziele des PLS genannt?

(Mehrfachnennung möglich)

B7. Was hat ihnen an der Schulung gefallen und was hat ihnen nicht gefallen?

Positiv:

Negativ:

B8. Was können Sie über den Stellenwert von Standardisierung sagen? Was sind die vorteil von Standard-Dokumenten?

C. BENUTZER NUTZBARKEIT AM ARBEITSPLATZ

C1. Wie oft verwenden Sie das PLS?

C2. Wenn Sie auf Probleme an ihrem Arbeitsplatz stoßen, verwenden Sie das PLS?

1 (Ja, immer), 2 (Oft), 3 (Manchmal), 4 (Nicht wirklich) and 5 (Nein, niemals).

C3. Was ist der hauptsächliche Beweggrund warum Sie das PLS verwenden?

C4. Denken Sie, dass das was Sie bei der Grundlagenschulung gelernt haben, hilft ihnen bei ihrer täglichen Arbeit?

C5. Was ließe sich an der Grundlagenschulung verbessern?

C6. Haben Sie noch weitere Anmerkungen die Sie zum Thema PLS anmerken möchten?

Vielen Dank für ihre Unterstützung

The letter and the questionnaires sent to the International Plants

Mannheim,
23/08/2012

Dear Sir/Madam,

I am studying business administration at the University of Ludwigshafen – Germany. I am working currently in PLS Team Mannheim in order to write my Bachelor Thesis, which is about evaluating “Trainer and Trainee behavior during the PLS Basic Training”.

My research question asks “does the content of the PLS Basic Training matches the objectives of the training participants?”. In order to have a broader overview, I decided to investigate my research question also in international Daimler Truck locations, where PLS is being implemented.

Your answers will be used only for my research study, and in an anonymous way. The results will contribute to the improvement of the training methods overall. The information you will provide me will not be used to evaluate the training in your plant but to detect the cultural differences and to allow learning from one another.

I would ask you kindly to send me the results until the 31.08.2012.

Thank you in advance for your kind support.

Please feel free to ask me to send you the completed research paper, if you are interested in the final results.

Yours Sincerely

Larissa Sousa
Bachelor Student, PLS Office Mannheim

Email:
Larissa.Sousa@daimler.com



Case study of the evaluation and analysis of learning effects, using the PLS Basic Training at Daimler as an example.

Evaluation of the PLS Basic Training in International Daimler Truck Plants

1. How often do you conduct PLS Basic Trainings?

- Once a Month
- Several times a month
- Once in three months
- Once in six months
- Once a year

2. Which factors does the frequency of the training depend on?

- Availability of the participants
- Need for training (new comers)
- No time available
- Availability of material to be trained
- Others

3. How many people participate in each single PLS Basic Training?

- 10 or Less
- 15-20
- 25-35
- 40-50
- 60-90
- 100 or More

4. Can you briefly describe the structure of the PLS Basic Training in your plant?

Position and department of trainer:

Agenda and duration of training:

Content of the training:

5. What are your objectives with the training and what is the message you would like to deliver to the participants?



