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Deming Cycle for the Integrated Management System in Educational Organizations

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წარდგენილია ბიზნესის ადმინისტრირების დოქტორის აკადემიური ხარისხის მოსაპოვებლად

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Thesis Topic: Deming Cycle for the Integrated Management System in Educational Organizations

I hereby declare, as the author of the submitted work, that this submission is my own work and it contains no materials previously published to the best of my knowledge, accepted for publication or written by another person, or substantial proportions of material that have been accepted for the award of any other degree or diploma, except where due acknowledgment is made in the dissertation.

Salome Chkheidze

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Deming Cycle for the Integrated Management System in Educational Organizations

Abstract

This Thesis is devoted to Educational Leadership and role of Deming Cycle in Education. Specifically, the purpose of the study is to investigate the most effective ways of Educational Leadership and role of PDC(S)A cycle in Educational Organizations.

Relevance of the Topic

The importance of integrated management systems (IMS) is growing more and more for organizations' interest in this subject indicates that IMS are seen as 'management systems of the future'. IMS is one of the most effective tools to lead effectively and make processes in the organization fluent.

An integrated Management System (IMS) includes all aspects of an organization's systems, processes, and standards into one smart system. This system allows a business to have effective management tools, save time and increase efficiency. IMS is a combination of all elements as a whole system.

During the COVID-19 Pandemic, we observed the challenges, which the educational system faced with and how much important it is to have an effective management system to survive.

Education is a basic human right that works to rise men and women out of poverty, level inequalities and ensure sustainable development. However, worldwide 244 million children and youth are still out of school for social, economic and cultural reasons (UNESCO, 2023). Education is fundamental human right and is one of the most powerful tools to decrease level of poverty. It is the most sustainable investment. Hence, education was, is and will always be actual topic for the society and today, in the post-pandemic period, when the world of the business is changing

rapidly, we need to think about new ways of educational leadership and set appropriate strategies for educational development.

Goals and Objectives of the Thesis

This work aims to show the importance of Deming Cycle in integrated management systems for effective governing of the educational organization.

William Edward Deming, a prominent American researcher, believed that management staff and all employees should be involved in the process of continuous improvement. He created 14 principles that later became the basis of the philosophy of quality in the organization and continuous improvement cycle PDCA (Plan - Do - Check - Act), called the Deming wheel. The Deming cycle is a sequence of actions that aim at improvement. This cycle is also designed to solve quality problems and implement new solutions. PDCA model is extremely versatile and can be successfully used in any business (Harrington, n.d.).

Hence, in this work, I will demonstrate the most effective ways of educational leadership and how the appropriate implementation of Deming Cycle can develop management system in education organizations.

The main goal is to analyze and recommend an integrated management system for educational organizations based on Deming cycle, which will make principals more flexible to lead effectively.

Following it, below are the defined objectives:

- to analyze the effective integrated management system for educational organizations;
- to define PDCA cycle for integrated management system (in the context of each step of PDCA);
- to specify integrated management style and forms, sense of problem-based management, risk assessment and analyzing the data for continual improvement of the organization;

- to identify the needs and necessities for educational organizations' management within the Deming cycle;
- to reveal the existing management forms within the PDCA cycle in educational organizations in Georgia;
- to deliver the relevant recommendations for educational organizations (schools) in Georgia.

Research Methodology and Results

To achieve this aim I used both, quantitative and qualitative research method, where I interviewed private and public educational organizations, specifically schools in Tbilisi and regions. I used both quantitative and qualitative methods of the research. For quantitative research, I interviewed 71 respondents. (30 – from private school and 41 – from public). For the qualitative research, I interviewed 42 respondents: 19 – from private sector and 23 – from public sector. The interviewees are leaders, manager, academic and technical personnel of the private and public schools.

When the direction of the study was established based on the qualitative research, it became necessary to test the feasibility of the hypothesis to analyze how literature review and qualitative research are connected to the performance which is increased by educational organizations management and for this reason it became necessary to appeal to the quantitative method. The questionnaire was conducted (71 respondents: leaders, managers, personnel of the schools, 30 – from private schools and 41 from public schools). The hypotheses used in this dissertation are formulated as follows:

1. At the stage of Planning, educational organizations do not consider risk assessment and interested parties expectations.
2. Processes are not managed effectively and action plan does not work properly.
3. Monitoring/Measurement is not systematic and oriented on professional development

4. Educational Organizations do not analyze the importance of management review and reporting
5. At the stage of Analyzing, educational organizations do not consider influence of external factors.

The first 4 hypotheses are formulated as follows:

$$H_0: \mu \leq \mu_0$$

$$H_1: \mu > \mu_0$$

where μ_0 is taken as a predefined threshold level. The test statistics is computed as

$$t = \frac{\bar{x} - \mu_0}{\frac{s}{\sqrt{n}}}$$

for which the rejection rule is to reject H_0 if $t > t_{n-2,\alpha}$ for some significance level α. s denotes the standard deviation and n is the sample size.

Considering the m number of questions for each respondent in the given questionnaire, where the respondent answers each question based on the Likert scale from 1 to 5, we compute

$$\bar{x} = \frac{1}{71}\sum_{i=1}^{50}\left[\frac{1}{m}\sum_{j=1}^{m} q_j\right]_i$$

where the answers have been collected from 71 respondents in total. μ_0 is taken to be 3. So, the above hypothesis reduces to

$$H_0: \mu \leq 3$$

$$H_0: \mu > 3$$

The table below shows the results for each hypothesis listed in the beginning of this section.

Hypothesis 1

$\bar{x}$	3.54
s	0.57
n	71
t	7.95
$t_{n-2,\alpha} = t_{48;0.05}$	1.67

Since $t = 7.95 > 1.67 = t_{69;0.05}$, we reject the hypothesis.

Hypothesis 2

$\bar{x}$	3.14
s	0.83
n	71
t	1.5
$t_{n-2,\alpha} = t_{48;0.05}$	1.67

Since $t = 1.5 < 1.67 = t_{69;0.05}$, we do not reject the hypothesis.

Hypothesis 3

$\bar{x}$	3.18
s	0.67
n	71
t	2.25
$t_{n-2,\alpha} = t_{48;0.05}$	1.67

Since $t = 2.25 > 1.67 = t_{69;0.05}$, we reject the hypothesis.

Hypothesis 4

$\bar{x}$	3.63
s	0.72
n	71
t	7.33

$t_{n-2,\alpha} = t_{48;0.05}$	1.67

Since $t = 7.33 > 1.67 = t_{69;0.05}$, we reject the hypothesis.

Hypothesis 5

The fifth hypothesis is based on proportions. The organizations use either SWOT or PESTEL analysis.

Let P denote the population proportion of PESTEL and $\hat{p}$ denote the sample proportion. The following hypothesis is tested

$$H_0: P \leq 0.8$$

$$H_0: P > 0.8$$

If the null hypothesis is rejected, this way we conclude that the PESTEL analysis is widely employed. The procedure is as follows. The tests statistics is

$$z = \frac{\hat{p} - 0.8}{\sqrt{\frac{0.8(1-0.8)}{71}}}$$

which is compared to the critical value z_α (for $\alpha = 0.05$) which represents the standard normal quantile corresponding to the given significance level. As a result, we obtain

$\hat{p} = 0.08$ which makes it simply to guess that the hypothesis will not be rejected. Obviously, since $z = -78 < 1.65 = z_{0.05}$, we cannot reject the null hypothesis.

Results Discussion

According to the survey results, Hypothesis 1 is rejected, which means that educational organizations mostly make risk assessment at the stage of planning. Almost all the representatives from the educational organizations noticed they

make risk assessment, however when it came to the systematic approach, the results showed that in most schools there is not a systematic approach of risk assessment and not all the fields are included in this process.

Based on the survey results, Hypothesis 2 is not rejected, which means that in educational organizations processes are not managed within the integrated management systems and actions plans are mostly ineffective. Based on this, we may conclude that the stage of doing from the PDCA cycle, does not work effectively and there is a need of implementing integrated management system in the educational organization.

According to the results of the Hypothesis 3, we may say that this hypothesis is rejected, which means that the measurement process is systematic and the personnel consider the monitoring process oriented on professional development. If we make a comparative analyzes with the qualitative survey results, based on the fact that most respondents did not remember the recommendations and the feedback from the observation reports, we may conclude that even though the hypothesis is rejected, educational organizations still need to think about more goal-oriented and systematic approach of Check cycle.

As Hypothesis 4 is rejected, it means that Educational Organizations analyze the importance of management review and reporting. Hence, the leaders and managers are involved in this process and engage the staff to be involved too.

The results of the Hypothesis 5 are tightly connected with the fourth hypothesis. To make it clearer, I will try to make a short comparative analyzes of these two hypotheses. As we see from the results of the Hypothesis 5, mostly educational organizations use SWOT analyzes and PESTEL is rarely or not used at all. If we consider the results of the Hypothesis 4, where we see that educational organizations consider reporting and management review quite an important stage and they are actively involved in this process, however the form they use for analyzing the work, does not cover all those fields, which are vitally important for

business development. Specifically, if PESTEL is not used for analyzing, then it means that leaders and managers of the educational organizations do not consider such external factors, as political, economic, social, technological, legal and environment factors. In today's rapidly changing world, without analyzing of above mentioned external factors, risks of having high quality and effective management system in the educational organizations, is really high.

To sum up the analyzes of all these five hypotheses, we may conclude that mostly schools in Georgia are aware with the use of PDCA cycle in the management system. Moreover, they implement almost all stages in the working procedures. However, not all of these stages work effectively and there is more need for implementing integrated management system. If, for example, the stage of planning is implemented by all educational organizations, still there is not a systematic approach for risk assessment at this stage. As for the Doing circle, we may see that the action plans are mostly formal documentations for educational organizations, rather than a guidebook for implementing changes for development. Stage Check is implemented in every school and the personnel is actively involved measurement process. Finally, stage of Act is also implemented in all educational organizations, however there is no analyzes of the external factors, which may highly effect on organization management development.

Scientific Novelty

The scientific novelty of this thesis is to define the existing management system in educational organizations in Georgia. Based on this there are provided recommendations and a conclusion for implementing an effective integrated management system in educational organizations, specifically in private and public schools. Provided hypotheses are checked in private and public schools in Georgia.

Structure of the Thesis

The thesis consists of introduction, three chapters, which are divided into different sections, conclusion, recommendations, bibliography and 2 appendices. Overall 143 pages. Bibliography consists of 119 sources.

In the introduction part, I describe the goals and objectives of the thesis and research methods. The first chapter is named as Deming Cycle (PDCA) for Integrated Management System in Business and Education and consists of three (3) main sections: Deming Cycle; Deming Cycle in organizations (Business and Education) and Integrated Management System in Education.

Chapter 2 is dedicated to Educational Leadership for Integrated Management System. This Chapter is divided onto six sections. The first section is about the PDCA Cycle with Quality Management in Educational Organization. The second section is connected with educational leadership for effective integrated management system. The third section is the beginning of the occupational health and safety system which generally describes the role of Occupational health and safety in the educational management and further in the following five (5) sections describes different fields of the occupational health and safety system. Last section of Chapter 3 is about the role of leader of Occupational Health and Safety Service. The fourth section of this chapter is about the role of technologies in Integrated Management System.

Chapter 3 is dedicated to the research design, practical findings and results analyses. Here three sections are divided, from which the first is about the research framework: Deming Cycle for the Integrated Management System in Educational Organizations. The second and third sections are the research design and research findings.

The end of the thesis is a conclusion and recommendations. The report includes a final summary and some recommendations for educational organizations leaders, managers and the personnel.

დემინგის ციკლი საგანმანათლებლო დაწესებულებების
ინტეგრირებული მენეჯმენტისათვის

აბსტრაქტი (რეზიუმე)

ინტეგრირებული მენეჯმენტის სისტემის მნიშვნელობა თანამედროვე მენეჯმენტში მუდმივად იზრდება. ის აღიქმება როგორც მომავალის მენეჯმენტის ძირითადი და ყველაზე ეფექტური საშუალება საგანმანათლებლო დაწესებულებების მართვისათვის.

ინტეგრირებული მართვის სისტემა მოიცაბს ორგანიზაციის სისტემის, პროცესებისა და სტანდარტების ყველა მიმართულებას და თავს უყრის მათ ერთ ეფექტურ სისტემაში. ეს კი აძლევს ორგანიზაცის იმის საშუალებას, რომ ჰქონდეს ეფექტური მართვის სისტემა, დაზოგოს დრო და გაზარდოს ხარისხი. ინტეგრირებული მართვის სისტემა არის ყველა ელემენტის, როგორც ერთი მთლიანი სისტემის კომბინაცია.

უილიამ ედვარდ დემინგი, გამოჩენილი ამერიკელი მკვლევარი, ისევე როგორც იაპონელი მკვლევარები, ფიქრობს, რომ მენეჯმენტის წარმომადგენლები და ყველა თანამშრომელი ორგანიზაციაში უნდა იყოს ჩართული მუდმივი გაუმჯობესების პროცესებში. მან შექმნა 14 პრინციპი, რომელიც შემდეგ გახდა ორგანიზაციებში ხარისხის ფილოსოფიისა და მუდმივი გაუმჯობესების პრინციპის ფუძე და დაერქვა მას PDC(S)A ციკლი, რომელიც გულისხმობს დაგეგმარებას - კეთებას- შემოწმებას/შესწავლას-

ქმედებას (Plan-Do-Check/Study-Act). დემინგის ციკლი არის იმ ქმედებათა რიგი, რომელიც მიზნად ისახავს მუდმივ გაუმჯობესებას, ამასთანავე ორიენტირებულია ხარისხის პრობლემების მოგვარებასა და სიახლეების დანერგვაზე. დემინგის ციკლი არის მრავალფუნქციური და შესაძლოა იყოს გამოყენებული ნებისმიერ ორგანიზაციაში.

ეს ნაშრომი მინზად ისახავს ინტეგრირებულ მართვის სისტემაში დემინგის ციკლის მნიშვნელობის ჩვენებას საგანმანათლებლო ორგანიზაციის ეფექტური მართვისთვის.

ნაშრომის მიზნები და ამოცანები

ნაშრომის მიზანია აჩვენოს დემინგის ციკლის მნიშვნელობა საგანმანათლებლო დაწესებულების ინტეგრირებული სისტემის ეფექტური მართვისათვის.

უილიამ ედვარდ დემინგი, ამერიკელი მკვლევარი, მიიჩნევდა, რომ მმართველი რგოლი და თითოეული თანამშრომელი უნდა იყოს ჩართული ორგანიზაციის მუდმივ გაუმჯობესებაში.

მან შექმნა 14 პრინციპი, რაც შემდგომ გახდა ორგანიზაციის ხარისხის მართვის და მუდმივი გაუმჯობესების ციკლის (PDCA) საბაზისო ფილოსოფია სახელწოდებით დემინგის ციკლი. დემინგის ციკლი წარმოადგენს ქმედებების თანმიმდევრობას, რომელიც მიზნად ისახავს გაუმჯობესებას. ასევე PDCA ციკლი შექმნილია პრობლების აღმოფხვრისა და ახალი გადაწყვეტილებების დანერგვის მიზნით. PDCA ციკლი არის საკმაოდ მრავალმხრივი და შესაძლებელია იქნას გამოყენებული ნებისმიერ საქმიანობაში.(Harrington, n.d.).

აღნიშნულიდან გამომდინარე, ნაშრომში მოვახდენ საგანმანათლებლო დაწესებულებებში განათლების მართვის ყველაზე ეფექტური გზების დემონისტრირებას და ამ გზების დანერგვის შესაძლებლობას დემინგის ციკლთან მიმართებაში .

ნაშრომის მთავარ მიზანს წარმოადგენს დემინგის ციკლზე დაფუძნებით საგანმანათლებლო დაწესებულებების ინტეგირებული მართვის სისტემის ანალიზი და რეკომენდაციბის გაცემა, რომელიც ხელს შეუწყობს იმ პრინციპების შექმნას, რაც უფრო ეფექტურს გახდის საგანმანათლებლო დაწესებულებების მართვას.

აღნიშნულიდან გამომდინარე, ქვემოთ მოცემულია შედმეგი მიზნები:

- საგანმანათლებლო დაწესებულებების ეფექტური ინტეგრირებული მართვის სისტემის ანალიზი
- PDCA ციკლის განსაზღვრა ინტეგრირებული მართვის სისტემაში (ციკლის თითოეული ეტაპის განხილვა)
- ინტეგრირებული მართვის სტილისა და ფორმების განსაზღვრა, პრობლემაზე დაფუძნებული მართვის, რისკების შეფასებისა და მონაცემთა ანალიზის განსაზღვრა ორგანიზაციის მუდმივი გაუმჯობესების მიზნით.
- დამინგის ციკლის ფარგლებში საგანმანათლებლო ორგანიზაციების მართვის საჭიროებების განსაზღვრა
- საქართველოს საგანმანათლებლო დაწესებულებებში მართვის სისტემის და PDCA ციკლის გამოყენების განსაზღვრა
- შესაბამისი რეკომენდაციების გაცემა საქართველოს საგანმანათლებლო დაწესებულებების (კერძოდ, სკოლების) ეფექტური მართვის სისტემის დანერგვის მიზნით.

კვლევის მეთოდები და შედეგები

დისერტაციაში გამოყენებულია როგორც რაოდენობრივი, ასევე თვისებრივი კვლევის მეთოდები, მათ შორის ინტერვიუები და გამოკითხვა მონაცემთა რაოდენობრივი ანალიზისთვის.

გამოკითხულ იქნა როგორც კერძო ასევე საჯარო სკოლების წარმომადგენლები თბილისის მასშტაბით. რესპოდენტებს წარმოადგენენ საგანმანათლებლო დაწესებულებების ლიდერები, მენეჯერები,

აკადემიური და ტექნიკური პერსონალი. თვისებრივ გამოკითხვაში მონაწილეობა მიიღო 42-მა რესპოდენტმა. აქედან 19 რესპოდენტი წარმოადგენს კერძო სექტორს, ხოლო 23 - საჯაროს. როდესაც კვლევის მიმართულება დადგინდა თვისებრივი კვლევის საფუძველზე, საჭირო გახდა ჰიპოთეზების მიზანშეწონილობის შემოწმება იმის გასაანალიზებლად, თუ როგორ არის დაკავშირებული ლიტერატურის მიმოხილვა და თვისებრივი კვლევა იმ საქმიანობასთან, რომელიც იწარმოება საგანმანათლებლო დაწესებულებებში და ამ მიზეზით საჭირო გახდა რაოდენობრივი კვლევის ჩატარება. გამოკითხვაში მონაწილეობა მიიღო 71-მა რესპოდენტმა, რომელსაც წარმოადგენდა საგანმანათლებლო დაწესებულებების ლიდერები, მენეჯერები, აკადემიური და ტექნიკური პერსონალი. 30 - კერძო სკოლა, ხოლო 41- საჯარო).

ნაშრომში ჰიპოთეზები ჩამოყალიბებულია შემდეგი სახით:

1. საქმიანობის დაგეგმარების ეტაპზე არ ხდება რისკების შეფასება და დაინტერესებულ მხარეთა მოლოდინების გათვალისწინება
2. პროცესები არ იმართება სისტემურად და სამოქმედო გეგმა არ მუშაობს ეფექტურად
3. მონიტორინგი/გაზომვა არ ხდება მიზნობრივად და არ არის პროფესიულ განვითარებაზე ორიენტირებული.
4. საგანმანათლებლო დაწესებულებების მიერ არ არის გათვალიწინებული მენეჯმენტის მიმოხილვის აუცილებლობა
5. საქმიანობის შეჯამებისა და ანალიზის დროს, საგანმანათლებლო დაწესებულებები არ ითვალისწინებენ გარე ფაქტორების გავლენას.

პირველი 4 ჰიპოთეზა ჩამოყალიბებულია შემდეგნაირად

$$H_0: \mu \leq \mu_0$$

$$H_1: \mu > \mu_0$$

სადაც μ_0 აღებულია როგორც წინასწარ განსაზღვრული ზღვრული დონე. სტატისტიკა გამოითვლება როგორც

$$t = \frac{\bar{x} - \mu_0}{\frac{s}{\sqrt{n}}}$$

რისთვისაც უარყოფის წესია უარყოფილ იქნას H_0 თუ t>t_(n-2,α) გარკვეული მნიშვნელობის დონის α. s აღნიშნავს სტანდარტულ გადახრას და n არის ნიმუშის ზომა

მოცემულ კითხვარში თითოეული რესპოდენტის კითხვების m რაოდენობის გათვალისწინებით, სადაც რესპოდენტი თითოეულ კითხვას პასუხობს ლიკერტის სკალაზე 1-დან 5-მდე, ჩვენ გამოვთვალეთ

$$\bar{x} = \frac{1}{71}\sum_{i=1}^{50}\left[\frac{1}{m}\sum_{j=1}^{m} q_j\right]_i$$

სადაც პასუხები შეკრებილია ჯამში 71 რესპოდენტისგან. μ_0 აღებულია როგორც 3. აქედან გამომდინარე, ზემოაღნიშნული ჰიპოთეზა მცირდება

$$H_0: \mu \leq 3$$

$$H_0: \mu > 3$$

ქვემოთ მოცემული ცხრილი აღწერს ამ თავის დასაწყისში ჩამოთვლილი თითოეული ჰიპოთეზის შედეგებს

ჰიპოთეზა 1

$\bar{x}$	3.54
s	0.57
n	71
t	7.95
$t_{n-2,\alpha} = t_{48;0.05}$	1.67

ვინაიდან $t = 7.95 > 1.67 = t_{69;0.05}$, უარვყოფთ ჰიპოთეზას.

ჰიპოთეზა 2

$\bar{x}$	3.14
s	0.83
n	71
t	1.5
$t_{n-2,\alpha} = t_{48;0.05}$	1.67

ვინაიდან $t = 1.5 < 1.67 = t_{69;0.05}$, არ უარვყოფთ ჰიპოთეზას.

ჰიპოთეზა 3.

$\bar{x}$	3.18
s	0.67
n	71
t	2.25
$t_{n-2,\alpha} = t_{48;0.05}$	1.67

ვინაიდან $t = 2.25 > 1.67 = t_{69;0.05}$, უარვყოფთ ჰიპოთეზას.

ჰიპოთეზა 4.

$\bar{x}$	3.63
s	0.72
n	71
t	7.33
$t_{n-2,\alpha} = t_{48;0.05}$	1.67

ვინაიდან $t = 7.33 > 1.67 = t_{69;0.05}$, უარვყოფთ ჰიპოთეზას.

ჰიპოთეზა 5

მეხუთე ჰიპოთეზა ემყარება პროპორციებს. ორგანიზაციები იყენებენ SWOT ან PESTEL ანალიზს.

მოდით P აღვნიშნოთ PESTEL-ის პოპულაციის პროპორცია და p^აღვნიშნოთ ნიმუშის პროპორცია. შემოწმებულია შემდეგი ჰიპოთეზა

$$H_0: P \leq 0.8$$

$$H_0: P > 0.8$$

თუ ნულოვანი ჰიპოთეზა უარყოფილია, ამ გზით დავასკვნით, რომ PESTEL ანალიზი ფართოდ გამოიყენება. პროცედურა ასეთია. ტესტების სტატისტიკა არის

$$z = \frac{\hat{p} - 0.8}{\sqrt{\frac{0.8(1-0.8)}{71}}}$$

რომელიც შედარებულია z_α კრიტიკულ მნიშვნელობასთან (α=0.05-ისთვის), რომელიც წარმოადგენს მოცემულ მნიშვნელოვნების დონის შესაბამის სტანდარტულ ნორმალურ კვანტილს. შედეგად, ჩვენ ვიღებთ $\hat{p} = 0.08$ რაც აიძულებს უბრალოდ გამოიცნოს, რომ ჰიპოთეზა არ იქნება უარყოფილი. ცხადია, რადგან $z = -78 < 1.65 = z_{0.05}$, ჩვენ არ შეგვიძლია უარვყოთ ნულოვანი ჰიპოთეზა.

ვინაიდან კითხვარის პასუხები მოიცემა დისკრეტულად დაყოფილ შკალაზე, ვიყენებთ ვილკოქსონის რანჟირების ტესტს ჰიპოთეზების შესამოწმებლად რომელმაც უნდა უპასუხოს საერთო კითხვას, თუ რამდენად არის გამოყენებული დემინგის ციკლი საგანმანათლებლო დაწესებულებების ინტეგრირებული მართვისათვის. ამისათვის მოცემულია 5 ჰიპოთეზა და თითოეულ ჰიპოთეზასთან დაკავშირებული

შეკითხვები, რომლის საერთო რაოდენობაც არის ცამეტი(13). ზემოთაღნიშნული ჰიპოთეზები განისაზღვრება შემდეგნაირად:

H_0: *ამოკრების წყვილებს შორის არ არის სხვაობა* (*საშუალო ცვლილება ნულოვანია*)

H_1: *ამოკრების წყვილები განსხვავდება* (*საშუალო ცვლილება არანულოვანია*)

შედეგების საფუძველზე შეგვიძლია დავასკვნათ, რომ ნულოვანი ჰიპოთეზა პირველი ოთხი ჰიპოთეზებიდან უარყოფილია პირველ , მესამე და მეოთხე ჰიპოთეზებში:

1. საქმიანობის დაგეგმარების ეტაპზე არ ხდება რისკების შეფასება და დაინტერესებულ მხარეთა მოლოდინების გათვალისწინება
2. მონიტორინგი/გაზომვა არ ხდება მიზნობრივად და არ არის პროფესიულ განვითარებაზე ორიენტირებული.
3. საგანმანათლებლო დაწესებულებების მიერ არ არის გათვალიწინებული მენეჯმენტის მიმოხილვის აუცილებლობა

აღნიშნულიდან გამომდინარე,

კვლევის შედეგების მიხედვით, ჰიპოთეზა 1 უარყოფილია, რაც ნიშნავს, რომ საგანმანათლებლო ორგანიზაციები ძირითადად რისკების შეფასებას დაგეგმვის ეტაპზე აწარმოებენ. საგანმანათლებლო ორგანიზაციის თითქმის ყველა წარმომადგენელმა აღნიშნა, რომ ისინი ახორციელებენ რისკების შეფასებას, თუმცა როდესაც საქმე სისტემურ მიდგომას ეხება, შედეგებმა აჩვენა, რომ სკოლების უმეტესობაში არ არსებობს რისკის შეფასების სისტემური მიდგომა და ყველა სფერო არ არის ჩართული ამ პროცესში.

კვლევის შედეგებიდან გამომდინარე, ჰიპოთეზა 2 არ არის უარყოფილი, რაც ნიშნავს, რომ საგანმანათლებლო ორგანიზაციებში პროცესები არ იმართება ინტეგრირებული მართვის სისტემების ფარგლებში და სამოქმედო გეგმები უმეტესად არაეფექტურია. აქედან გამომდინარე, შეიძლება დავასკვნათ, რომ PDCA ციკლიდან განხორციელების ეტაპი არ მუშაობს ეფექტურად და საჭიროა საგანმანათლებლო ორგანიზაციებში ამ მიმართულებით მართვის

ეფექტური გზების დასახვა და ინტეგრირებული მართვის სისტემის დანერგვა.

მე-3 ჰიპოთეზის შედეგების მიხედვით შეიძლება ითქვას, რომ ეს ჰიპოთეზა უარყოფილია, რაც ნიშნავს, რომ გაზომვის პროცესი სისტემატურია და პერსონალი მონიტორინგის პროცესს პროფესიულ განვითარებაზე ორიენტირებულად მიიჩნევს. თუ ხარისხობრივი კვლევის შედეგებთან შედარებით ანალიზს გავაკეთებთ, იმის საფუძველზე, რომ რესპონდენტთა უმრავლესობას არ ახსოვდა რეკომენდაციები და უკუკავშირი დაკვირვების ანგარიშებიდან, შეიძლება დავასკვნათ, რომ ჰიპოთეზის უარყოფის მიუხედავად, საგანმანათლებლო ორგანიზაციებში სასურველია PDCA ციკლის ეს ეტაპი გახდეს უფრო მეტად მიზანზე ორიენტირებული და აძლევდეს თითოეულ თანამშრომელს იმის საშუალებას, რომ მეტად განვითარდეს პროფესიულად და მიიღოს ობიექტური შეფასება.

ვინაიდან მე-4 ჰიპოთეზა უარყოფილია, შეგვიძლია დავასკვნათ, რომ საგანმანათლებლო ორგანიზაციები ადასტურებენ მენეჯმენტის განხილვისა და საქმიანობის ანალიზის მნიშვნელობას. ამრიგად, ლიდერები და მენეჯერები თავადაც ჩართულნი არიან ამ პროცესში და უზრუნველყოფენ თანამშრომლების ჩართულობას.

მეხუთე ჰიპოთეზის შედეგები მჭიდროდ არის დაკავშირებული მეოთხე ჰიპოთეზასთან. მეტი სიცხადისთვის, შევეცდები ამ ორი ჰიპოთეზის მოკლე შედარებითი ანალიზი გავაკეთო. როგორც მე-5 ჰიპოთეზის შედეგებიდან ვხედავთ, ძირითადად საგანმანათლებლო ორგანიზაციები იყენებენ SWOT ანალიზს, ხოლო PESTEL იშვიათად ან საერთოდ არ გამოიყენება. თუ გავითვალისწინებთ მე-4 ჰიპოთეზის შედეგებს, დავინახავთ, რომ საგანმანათლებლო ორგანიზაციები ანგარიშგებასა და მენეჯმენტის განხილვას საკმაოდ მნიშვნელოვან ეტაპად თვლიან და ისინი აქტიურად არიან ჩართულნი ამ პროცესში, თუმცა ფორმა, რომელსაც იყენებენ გაწეული საქმიანობის ანალიზისთვის, არ მოიცავს მენეჯმენტის ყველა

სფეროს, რომლებიც სასიცოცხლოდ მნიშვნელოვანია ბიზნესის განვითარებისთვის. კერძოდ, თუ PESTEL არ გამოიყენება ანალიზისთვის, ეს ნიშნავს, რომ საგანმანათლებლო ორგანიზაციების ლიდერები და მენეჯერები არ განიხილავენ ისეთ გარე ფაქტორებს, როგორიცაა პოლიტიკური, ეკონომიკური, სოციალური, ტექნოლოგიური, სამართლებრივი და გარემო ფაქტორები. დღევანდელ სწრაფად ცვალებად სამყაროში, ზემოაღნიშნული გარე ფაქტორების გაანალიზების გარეშე, საგანმანათლებლო ორგანიზაციებში მაღალი ხარისხის და ეფექტური მართვის სისტემის არსებობის რისკი ნამდვილად მაღალია.

ამ ხუთივე ჰიპოთეზის ანალიზის შეჯამების სახით, შეიძლება დავასკვნათ, რომ ძირითადად საქართველოში სკოლები აცნობიერებენ მართვის სისტემაში PDCA ციკლის გამოყენების მნიშვნელობას. უფრო მეტიც, ისინი ახორციელებენ სამუშაო პროცედურების თითქმის ყველა ეტაპს. თუმცა, ამ ციკლის ყველა ეს ეტაპი არ მუშაობს ეფექტურად და უფრო მეტი ქმედებაა საჭირო ინტეგრირებული მართვის სისტემის დანერგვისათვის. თუ, მაგალითად, დაგეგმვის ეტაპს ყველა საგანმანათლებლო ორგანიზაცია ახორციელებს, ამ ეტაპზე რისკის შეფასების სისტემური მიდგომა მაინც არ არსებობს, კერძოდ კი უმეტეს შემთხვევაში, არ არსებობს შემუშავებული რისკების შეფასების სისტემა და ხდება რისკების პრევენციული ღონისძიეების სამოქმედო გეგმაში გათვალისწინება და შედგომ კი ამ პრევენციული ღონისძიებების შესრულების ანალიზი. რაც შეეხება საქმიანობის განხორციელების/კეთების ეტაპსს, ჩატარებული კვლევის თანმახმად, შეიძლება დავინახოთ, რომ სამოქმედო გეგმები ძირითადად ფორმალური დოკუმენტაციაა საგანმანათლებლო ორგანიზაციებისთვის და არა განვითარების სახელმძღვანელო ცვლილებების განხორციელებისთვის. სწორედ ამიტომაც მეორე ჰიპოთეზა არ არის უარყოფილი. შემოწმების/კვლევის ეტაპი ყველა სკოლაში ხორციელდება და პერსონალი აქტიურად არის ჩართული პროცესების ხარისხის გაზომვის პროცესში. PDCA ციკლის ბოლო ეტაპი, ქმედების ეტაპი, ასევე დანერგილია ყველა

საგანმანათლებლო ორგანიზაციაში, თუმცა არ არსებობს გარე ფაქტორების ანალიზი, რამაც შეიძლება დიდად იმოქმედოს ორგანიზაციის მენეჯმენტის განვითარებაზე.

სამეცნიერო სიახლე

ნაშრომის სამეცნიერო სიახლეს წარმოადგენს საქართველოს საგანმანათლებლო დაწესებულებებში არსებული მართვის სისტემების დადგენა, რის საფუძველზეც შემუშავებულია დასკვნა და რეკომედნაციები საგანმანათლებლო დაწესებულებების, კერძოდ სკოლების, ეფექტურის მართვისთვის დემინგის ციკლის ინტეგრირებული მართვის სისტემისთვის გამოყენება. ამისათვის შესაბამისი ჰიპოთეზები შემოწმებულია საქართველოს კერძო და საჯარო სკოლების მაგალითზე.

ნაშრომის სტრუქტურა

ნაშრომი შედგება შესავალი ნაწილისგან, სამი (3) ძირითადი თავისგან, რომელიც თავის მხრივ დაყოფილია სექციებად, დასკვნის, რეკომენდაციების და ბიბლიოგრაფიისგან. სადისერტაციო ნაშრომი შედგება სულ 143 გვერდისგან. ბიბლიოგრაფია კი შედგება 119 წყაროსგან.

შესავალ ნაწილში აღწერილია ნაშრომის მიზნები და ამოცანები და ასევე კვლევის მეთოდები. პირველი თავი, სახელწოდებით დემინგის ციკლი ინტეგრირებული მართვის სისტემაში ბიზნესის სფეროებსა და განათლებაში, შედგება 3 ძირითადი ნაწილისგან: დემინგის ციკლი; დემინგის ციკლი ორგანიზაციებში (ბიზნესი და განათლება) და ინტეგირებული მართვის სისტემა განათლების სფეროში.

მეორე თავი ეძღვნება განათლების მართვას ინტეგრირებული მართვის სისტემით. ეს თავი დაყოფილია ექვს ძირითად ნაწილად. პირველი ნაწილი ეთმობა PDCA ციკლის განხილვას საგანმანათლებლო ორგანიზაციების

ხარისხის მართვის სისტემაში. მეორე ნაწილი კი დაკავშირებულია განათლების მართვასთან ინტეგრირებული მართვის სისტემის გამოყენებით. ამავე თავის მესამე ნაწილი სრულად ეთმობა შრომის უსაფრთხოებისა და ჯანდაცვის სისტემას განათლების მართვაში. შემდგომში მესამე ნაწილი ჩაშლილია 5 ძირითად ნაწილად, რომელიც მოიცავს შრომის უსაფრთხოებისა და ჯანდაცვის სისტემის სხვადასხვა მიმართულებების განხილვას განათლების მართვის დროს. ამ თავის ბოლო ნაწილი კი ეძღვნება განათლების მართვისას შრომის უსაფრთხოებისა და ჯანდაცვის სამსახურის ლიდერის როლს.

მესამე თავი წარმოადგენს კვლევის დიზაინს, პრაქტიკულ აღმოჩენებს და შედეგების ანალიზს. მესამე თავში აღწერილია სამი (3) მიმართულება, სადაც პირველი ნაწილი არის დემინგის ციკლი ინტეგრირებული მართვის სისტემაში საგანმანთლებლო ორგანიზაციების მართვის დროს; ხოლო მეორე და მესამე წარმოადგენენ კვლევის დიზაინსა და შედეგებს.

ნაშრომის ბოლოს კი განხილულია დასკვნა და რეკომენდაციები. სადისერტაციო ნაშრომის დასასრულს აღწერილია კვლევის მიმოხილვა, დასკვნა და რეკომენდაციები საგანმანათლებლო დაწესებულებების ლიდერებისთვის, მენეჯერებისათვისა და თანამშრომელთათვის.

Introduction

Educational management is the implementation of management principles in the education field. Educational management is an applied field of management. One can therefore deduce that educational management refers to the application of theory and practice of management to the field of education or educational institutions. Educational management is called a science or process which is based on resources managing to reach the productive education goal according to planning effectively and efficiently. (Eacott) The process of educational management consists of three basic functions, namely planning, implementing, and controlling. A manager uses these functions to achieve educational organization goals and objectives. Hence, PDC(S)A Cycle or Deming Wheel can be considered one of the most effective ways for educational organizations to govern an effective management system.

An integrated system in education combines the integration of an effective quality management system (QMS), occupational health and safety system (OHSAS), and Information Technologies systems (ITS). Especially during the pandemic situation, when the educational system in the world had to turn online, we obviously have seen the importance of technologies not only in teaching, but also in educational leadership and management.

Robert Kreitner, a distinguished expert in management, defines management as a problem-solving process done to effectively achieve the organizational objectives via efficient use of resources in a changing environment. (Kreitner, Kinicki, & Cole, 2003). Education is one of the most diverse and agile industries where the environment is constantly changing and decision-makers at every level have to take extremely cautious, calculated, and well-planned decisions. Further, every educational institution requires efficient and reliable management to ensure productive working and optimal organizational functioning.

Educational Management is the process of planning, organizing, directing, and controlling the activities of an institution by utilizing human and material resources so as to effectively and efficiently accomplish functions of teaching, extension work, and research. (Tomlinson, 2004) The scope of Educational Management is wide and includes the history and theories of management science, roles, and responsibilities of an educational manager along with the requisite managerial skills (Pal, 2021).

Implementation of integrated management system in universities and schools provides an active, safe and healthy environment toward sustainable development and it also causes increase in their quality levels. Implementation of IMS not only causes continual improvement, but it also familiarizes the public with new management systems, which would be a good pattern for using efficient management and policies.

Integrated Management system in education combines integration of effective quality management system (QMS), occupational health and safety system (OHS) and information Technologies systems (ITS).

In my work I will show the importance of the combination of the Integrated Management System with PDC(S)A cycle of Deming.

The first, Plan cycle in integrated management, is one of the most important as far as it takes a longer period than the other cycles and requires more work. "*A man who does not think and plan long ahead will find trouble right at his door.*" – *Confucius.* In PDCA Cycle Plan includes such important business components as analyzing previous work with strong and weak sides; setting effective preventive actions; risk assessment; design and revising business process components to improve results. So planning in IMS for Quality Management, Occupational Health and Safety and IT directions should include all the components for effective

planning. Planning in IMS of Education organization includes results of analyzing previous work, which can be considered as the following:

- Analyzing students' academic achievements
- Analyzing Employees' evaluation results
- Analyzing Customer satisfaction results
- Analyzing KPIs achievement
- Analyzing Incidents and non-conformances and their root causes
- Analyzing Customers and other interested parties' expectation
- Analyzing Market research results

  It is obvious that to start planning, it is vitally important to analyze the previous work in order to set an appropriate action plan, oriented on continuous improvement.

Analyzing the results of all these lead us to the correct planning stage. And the planning itself includes:

- setting priorities (areas, which need to be taken as a priority to improve its quality)
- Setting new products and changes (if needed)
- Actions for developing, which should include responsible person for each action, resources for implementing, deadlines of implementation
- Risk Assessment of the action plan and Preventive Actions

And what the most important thing is, that educational leaders should involve their team in planning, otherwise all the goals may remain just theoretical. If the team analyze and agrees with the organization goals, if they feel as part who should bring success to the organization, then going together towards the aim will bring more success to the educational organization.

At this step of the Deming Cycle a determination is made as to what changes need to be made or what programs need to be reworked. Questions that can be asked during this stage include:

- What improvements need to be made?
- What are we going to try to accomplish?
- How are we going to accomplish it?
- How will we know whether or not we have accomplished it?

The next step of Deming Cycle is Do. Here the top management of the education organization needs to implement all the planned processes. Here is very important the term of teamwork as far as the teachers, lecturers, technical personnel and other employees should be involved in doing process. For the first sight, Do stage may seem simple, as the staff needs to put into action all, what was planned. From the other sight, Do stage requires analytical and critical approach in order to follow the plan and measure its effectiveness systematically. Getting and delivering education is a life process and it is important to analyze the changes executed during the do stage. Sometimes the actual implementation in the field often varies from the previously designed plan and educational managers need to analyze "Do" stage and document the changes in order to make the action plan more effective and move towards the improvement.

PDCA cycle itself is a life process too and every single step is like a part of a machine, which needs to be checked in order to guarantee an effective working process of the machine.

So, every process in business should be studied or checked. Within PDCA (Plan – do-check-act) Cycle Deming also uses PDSA (Plan-Do-Study-Act) cycle. In order to study or check, we should first have effective measurement tools. By this I mean, objective and reflective employees' observation forms; appropriate customer

satisfaction questionnaires, etc. At the stage of Check/Study, we should make a clear and obvious feedback as far as this stage is tightly connected with continuous improvement. Our Academic Personnel's professional development is based on an effective evaluation system. At the same time, incidents, non-conformances, risks, and near misses should be studied and investigated deeply in order to set effective preventive actions and avoid them in the future.

In education, the check stage maybe considered by two different directions:

First, it is students' academic achievements monitoring and second, processes and employees' evaluation.

As the name suggests, this stage verifies the artifacts produced at the prior stage. After the evaluation is complete, the students become aware of the difference between the desired solution and what they actually accomplished. The instructor is responsible for providing feedback to the students about their work, so they can clearly understand the reasons of either failure or success. That means that teachers, instructors and students all should analyze their failure and success. If students analyze their achievements in order to improve them then, teachers and instructors analyze the achievements not only to inform the students, but also to plan their further work. It may consider changing teaching methods, attitude towards students, changes in curriculum etc. And it can be different for each group of students depending on their interests, age, characteristics etc. So, analyzing academic achievements is directly connected with teachers'/instructors' professional development. If they analyze all the work appropriately, they may require some training or other professional development assistance and the managers should be ready for that. Check/Study should focus on:

- Did the strategies implemented bring about any change?
- If so, was the change positive or negative?

- Were the desired results achieved?
- Did change happen where change was needed?
- Were there any unexpected side effects that need to be addressed?

As for the processes, system and employees' evaluation, Quality Assurance Department plays a huge role. Both in daily life and in the business field, we find many cases in which we do not improve as much as we could, simply because we do not use the right tools or are not sufficiently aware. Measuring quality in educational organization needs to be transparent and very objective.

The British physicist and mathematician, William Thomson Kelvin, among his statements, left us a phrase as revealing as the following: 'What is not measured, cannot be improved. What is not improved, is always degraded' (Morales, 2020). So, the stage of check or study from the PDCA cycle is a measurement of everything we have done, in order to assess the effectiveness of our plans, systems, and processes and set appropriate preventive actions for further development. For making measurement more transparent and objective, one of the best tool is a checklist. Checklists are collections of items, purpose of which is to verify if individual requirements of the work were done. Checklists help to create an atmosphere of fairness, since personal opinion would have no impact in the evaluation. (Sergio Mergen). Checklists play a crucial role in measuring processes in educational organizations. They may be used in all fields, from lesson planning to the measurement of any process and evaluation of employees. The key activities at this stage include:

Firstly, measuring performance: In the check stage, performance is measured and tracked against the established goals and objectives. Data and metrics are collected to assess the success of the implemented plan.

Secondly, comparing results with expectations: the results are compared with the expectations and goal set in the Plan stage to determine the effectiveness of the implemented plan.

Moreover, it is evaluation the process: The process used to implement the plans, is evaluated, with a focus on identifying areas for improvement

Finally, gathering feedback: feedback from stakeholders, including employees, customers, and other stakeholders, is gathered to gain insight into the impact of the plan on their experience and to identify potential issues.

To sum up, stage Check or Study in the PDCA cycle is crucial in providing organizations with information to continuously improve their processes and decision-making (Educational Management, 2011).

The Final stage of the Cycle is Act, which includes taking actions based on the results of measurement. Setting effective actions in order to reduce the risks and avoid incidents and/or non conformances is a path to continuous improvement. Act is a part of the cycle, which analyses all other stages and leads to improvement. From the PDC(S)A Cycle, A and P cycles are tightly connected to each other. If the analysis is not done appropriately, planning will not be effective. This is the reason why top management should be highly involved in analyzing the processes in order to work with continuous improvement and set an effective action plan for development.

According to mentioned above, PDCA Cycle is a tool of an integrated management system (IMS), where all stages are tightly connected to each other and each of them needs deep studying. Effective connection of all these stages provides an effective management system.

In order to prove the importance of the PDCA Cycle in Integrated Management Systems of Educational organizations in this work, there will be raised several main research questions:

So for the first hypothesis, which is formulated as follows: At the stage of Planning, educational organizations do not consider risk assessment and interested parties' expectations, respondents were asked to assess from on a scale 1 to 5 how often they assess risks at the stage of planning. The second question for the first hypothesis is how often they consider interested parties expectations in their action plans. For the second hypothesis, which is formulated as: Processes are not managed effectively and action plan does not work properly, respondents were asked to assess on scale from 1 to 5 how often they use the action plan during the academic year, where 5 indicates they use it systematically and 1 is they never use the action plan. In addition, the second question for the second hypothesis is in case of any changes in the action plan whether they make any corrections or not.

For the third hypothesis, which is formulated as Monitoring/Measurement is not systematic and oriented on professional development, the respondents again were asked to assess on scale from 1 to 5 and answer the following 3 questions: How often they have observations of their works; do they know the calendar/plan of the observations; how would they evaluate effect of observations on their professional development.

The fourth hypothesis (Educational Organizations do not analyze the importance of management review and reporting) was checked by the question: How much important is it to analyze and report work? Respondents again were asked to assess on scale from 1 to 5, where 1 is not important and 5 is highly important.

For the last, fifth hypothesis (At the stage of Analyzing, educational organizations do not consider influence of external factors) we used the question, which demonstrated what types of reporting the educational organizations use. The

question was formulated as the following: What types of work reporting and analyzing do you use? And respondents were given three choices:

a) SWOT b) PESTEL c) Any other type.

Theoretical and Practical Importance of the Research

There have been a lot of researches on topic of Educational Leadership, but very few on use of Deming Cycle in Educational Leadership and understanding educational organization as a business, which needs to have an effective integrated management system and where a role of leader is crucial. Moreover, Pandemic COVID-19 and crisis management of Educational organizations demonstrated the importance of effective management system of educational organizations. Those who managed to create an effective crisis management plan, survived, the rest did not.

Theoretical part of the research was important to me, because the process started with theoretical background and analyzes of educational leadership and educational management. How is educational leadership defined, what is the difference between the educational leadership and educational management. What are the ways for effective management, educational organizations use.

The most important part of the interview was about identifying how school managers and leaders see each stage of Deming Cycle and implementing Integrated Management System in their organizations.

For the hypothesis testing there was used a survey with the quantitative data analysis. Very specific and realistic answers were the results of quantitative research. School managers, leaders and academic personnel, all were involved in the research. All hypotheses were tested statistically and at last generalized to the whole educational organizations leadership system.

This Thesis shows the importance of effective educational system in Georgia. It demonstrates the ways of efficient educational leadership and aims to assist Georgian Educational system to change for better. The conducted research, gathered data and analysis of the study results, along with given recommendations, will be practically interesting for business administration field experts and educational managers and leaders.

Chapter 1. Deming (PDCA) Cycle for Integrated Management System in Business and Education

Nowadays organizations and managers in them try to find more effective methods for planning and control mechanisms, to get more quality and provide more value to customers. The world is changing at a rapid pace, and only those who understand what those changes mean, will be poised to prosper under the new rules. Old paradigms will be replaced by new ones. Unfortunately, the old assumptions have outlived their usefulness. We must therefore rethink the assumptions and formulate new ones more in line with the 21st century realities.

First of all, there is not only one right organizational form. Every organization should have its own style of leadership. There must be a leader of every organization, and we must have an organizational structure in place. Also 'team' concept and CEO 'personality cult' is not so common today the one answer. Teams sometimes lack the ability to make decisions, and 'personality cult' leaders need successors. Each organization must therefore find its own form rather than grab one off the rack (Drucker, 2000).

Another dying paradigm is the idea that you must manage employees. Instead, you must lead workers. One reason for the shift from managing to leading is the simple fact that a manager today likely does not know the area of expertise for which the subordinate is responsible. In addition, employees today need to be treated as if they are volunteers, not employees. They want more than a paycheck; they seek interesting and rewarding work. You inspire them by leading, not commanding (Drucker, 2000).

Moreover, innovations are one of the most important factors of 21st century management. Innovations do not necessarily come from within that industry. Managers and Leaders should not only focus on present customers to determine policy and management for their organizations, but also see the market globally,

research deeper into the future demands and requirements from the customers, and set an effective policy (Drucker, 2000).

Innovations are tightly connected with changes and changes are management factors, which are unavoidable in the 21st century. Especially the pandemic has demonstrated obviously the importance of change management in order to survive the organization. According to Peter Drucker, we cannot manage change, we can only stay ahead of it. In times of upheaval, such as the times we are approaching, change is the norm rather than the exception. The manager who becomes a change leader will help ensure that his or her organization will survive or even thrive. Pandemic demonstrated that the educational system was not really ready for the change and in some countries it took a long or did not manage at all to provide customers with effective service. The aim of Change leaders is to look for and find the right changes and know how to make change effective both inside and outside the organization (Drucker, 2000).

Until now, the information revolution has centered on data; collecting, storing, presenting and transmitting it. In other words, the focus has been on the technology of data gathering rather than on the use of that information. Nowadays, the focus is about to shift from the 'T' in 'IT' to the 'I'. The information revolution has made possible the gathering of massive amounts of data, but until now, much of it has gone unused. The information needed to make decisions is there, but the decision-makers have, until now, not had the information available for their use. The first step is to think differently. What is needed, is not rawer data, or computing speed, or technology. What is needed are new concepts (Drucker, 2000). In addition, IT today is not only gathering the information, but using this information for implementing new ideas in our organization.

Therefore, the world develops fast and we need to follow and adapt to changes. Hence, the organizations need to have an effective Integrated Management Systems and Deming Cycle is one of the best tools, which does not teach us how to

lead or give one specific method of management, but demonstrates the correct direction how to lead and the implementation is up to the managers and/or leaders. The Deming Cycle teaches us what is important to have in the organization for an effective integrated management system, but how to do it in the organization, leaders and managers should organize.

1.1. Deming Cycle (PDCA cycle)

The Plan Do Check/Study Act (PDC(S)A) cycle provides a method for structuring iterative development of change, either as a standalone method or as part of wider Quality Improvement (QI) approaches, such as the Model for Improvement (MFI), Total Quality Management, Continuous QI, Lean, Six Sigma or Quality Improvement Collaborative.

During his lectures in Japan in the early 1950s, Deming noted that the Japanese participants shortened the cycle‘s steps to the traditional plan, do, check and act. It is interesting to note that Deming preferred plan, do, study, and act because the translation from Japanese to English has connotations closer to study and analyze rather than check. This model has been around for 60 years and it is relevant in today continuous improvement for all processes. In 1993, Edwards Deming modified the Shewhart cycle and called it the Shewhart Cycle for Learning and Improvement or in its more known format, the PDCA cycle (Moen, 2009).

The PDCA cycle contains the following steps (see Figure 1):

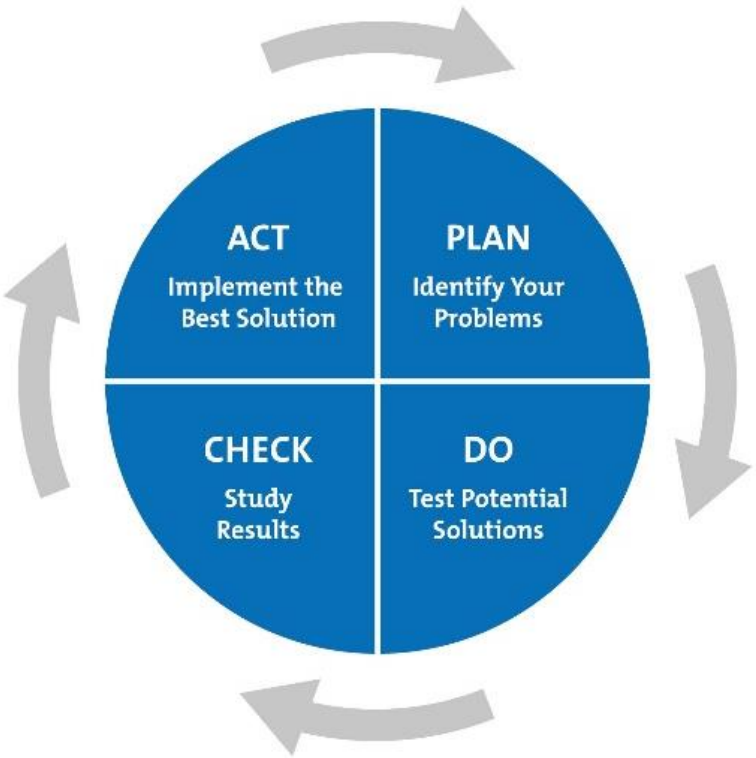
- Plan: Planning includes a change and is aimed on improvement.
- Do: Doing stage includes implementing change into practice or testing it
- Check/Study: This stage includes measurement of the results, analyzing the strength and weaknesses and ways for development.
- Act: Finally, this stage aims to implement the conduct preventive actions and ways for development.

The PDCA Cycle is an accumulation of changes to the original Stewart cycle introduced in 1950 that contained the three steps Specification, Production, and Inspection (Moen, 2009).

The cycle subsequently evolved into the Deming Wheel with the following steps (Moen, 2009).

- Design the product (with appropriate tests).
- Make the product and test in the production line and in the laboratory.
- Sell the product.
- Test the product in service and through market research. Find out what users think about it and why non-users have not bought it.
- Re-design the product, in the light of consumer reactions to quality and price company.

Figure 1: The Plan-Do-Check-Act Cycle



Source: (PDCA Plan Do Check Act, 2022)

PDCA cycle is an effective business tool for any type of organization. The PDCA/PDSA cycle is a continuous loop of planning, doing, checking (or studying), and acting. The approach begins with a Planning phase in which problems are clearly identified and understood, and a theory for improvement is defined. Potential solutions are tested on a small scale in the Do phase, and the outcome is then studied and Checked.

This model is effective for integrated management systems, as it provides a simple and effective approach for solving problems and managing change. The Deming Cycle is good for continuous improvement, hereby integrated management systems in any organization will be effective and focused on improvement if the PDCA cycle is implemented properly in the organization.

1.2. Deming (PDCA) Cycle in Organizations (Business and Education)

PDCA (Plan-Do-Check-Act) cycle plays an important role in business as a tool for continuous improvement. The cycle helps organizations identify areas for improvement, plan and implement changes, and monitor the results to ensure that the improvements are sustainable. PDCA cycle is a tool for solution different problems for the business companies. For example, problem solving, which is the most common and mostly spread challenge for any business company. If we consider problems solving in frame of PDCA cycle, then at the stage of Plan of the Deming Cycle, Business Company identifies the problem and creates an action plan for solution. At the stage of Do, the company implements the solution. Stage Check evaluates the results of the solution and determines if it was effective. And finally Act stage gives a business company an opportunity to implement a preventive action permanently, if it was effective and if not, return to the planning stage and develop a new solution. Hence, the Deming cycle provides a structured approach

to problem solving, helping organizations to systematically identify and address issues that are affecting their performance.

Another very important challenge, which all business companies are faced with, is employee empowerment. By using the cycle, employees can be empowered to identify problems, develop solutions, and implement changes in their own work areas. This not only helps to improve processes, but also provides employees with a sense of ownership and responsibility, which can increase job satisfaction and motivation (Goetsch & Davis, 2014).

For example, in the Plan stage, employees can be encouraged to identify areas for improvement and propose solutions. In the Do stage, they can be given the opportunity to implement the solutions they have proposed. In the Check stage, they can participate in evaluating the results of their solutions and determining their effectiveness. This collaborative approach not only helps to drive continuous improvement, but also empowers employees to take an active role in shaping the future of the company.

Overall, the cycle encourages employees at all levels to take an active role in improving processes, systems, and products, which can foster a culture of continuous improvement and employee engagement.

The third important area of all businesses is Customer Focus. The PDCA cycle can be used to identify customer needs and expectations, implement solutions that meet those needs, and measure the effectiveness of those solutions in satisfying customers (Goetsch & Davis, 2014).

For example, in the "Plan" stage, companies can gather feedback from customers to identify areas for improvement in the customer experience. In the ‘Do’ stage, they can implement changes to meet customer needs, such as improving product quality or streamlining processes. In the ‘Check’ stage, they can measure customer

satisfaction through surveys or other metrics, and use the results to determine the effectiveness of their efforts. Finally, in the 'Act' stage, they can make any necessary improvements and continue the cycle.

By continuously improving the customer experience through the PDCA cycle, companies can increase customer satisfaction, loyalty, and retention, which can lead to increased revenue and success. By using the PDCA cycle, companies can continuously align their efforts with customer needs and stay focused on delivering value to their customers.

By continuously improving its products, processes, and systems, an organization can better meet the needs of its customers and provide a higher level of customer satisfaction.

Many large and famous companies use the PDCA cycle (also known as the Deming cycle) in their business. Here are a few examples: Toyota - One of the largest automobile manufacturers in the world, Toyota has been known for its commitment to continuous improvement, and it uses the PDCA cycle as a cornerstone of its quality control processes. Toyota's implementation of the PDCA cycle is known as the 'Toyota Production System' (TPS) and is a key aspect of the company's success. The PDCA cycle helps Toyota in several ways:

1. Continuous improvement: The TPS emphasizes continuous improvement through the PDCA cycle, allowing the company to continuously identify areas for improvement, implement solutions, and measure their effectiveness.
2. Efficient processes: By using the PDCA cycle to continuously improve its processes, Toyota is able to optimize its production lines and increase efficiency, leading to lower costs and higher profits.

3. Quality control: The TPS emphasizes quality control through the PDCA cycle, helping Toyota ensure that its products meet customer expectations and maintain high standards.
4. Employee empowerment: By involving employees in the PDCA cycle, Toyota empowers them to identify problems and suggest solutions, which can improve the overall performance of the company.

In conclusion, the PDCA cycle and the TPS play a crucial role in Toyota's success by providing a systematic approach to continuous improvement, ensuring efficient processes, maintaining quality control, and empowering employees. (https://www.ineak.com/how-toyota-utilizes-pdca/, 2020)

Another example is GE: General Electric, which has a long history of innovation and efficiency, and it uses the PDCA cycle as a key tool for continuous improvement across its many business units. The company uses the PDCA cycle to drive change and innovation in all areas of its business, from product development to customer service. The use of the Deming Cycle helps GE to continually improve processes and drive innovation, which can lead to increased efficiency, lower costs, and higher customer satisfaction. By using the PDCA cycle, GE can stay focused on delivering value to its customers and achieving its business goals. (https://www.comparably.com/companies/general-electric/mission, 2023)

Another consumer goods company, Johnson & Johnson uses the PDCA cycle to continuously improve its products and processes in order to better meet the needs of its customers. One more famous and successful computer technology company Dell uses the PDCA cycle to drive continuous improvement in its manufacturing processes, supply chain management, and customer service. And, the list can be endless, however, it is important to notice that PDCA cycle in integrated management system is more effective if the companies build their business based on standards, mentioned previously – ISO 9001 Quality Management Standard,

ISO 45001 – Occupational Health and Safety Standard and others depending on the field and production of the company.

As mentioned before, ISO 9001 is a mother of all standards in business and give companies a chance to build effective management system within the PDCA cycle. Having ISO 9001 certification means that a company has implemented a quality management system that meets the requirements of the standard and has been independently audited and certified by a third-party certification body. This shows their customers and stakeholders that they have a systematic approach to ensuring the quality of their products and services, and that they are continuously working to improve their operations. For example, companies like Toyota, Samsung, Microsoft, Coca-Cola, GE (Genera Electric), Honda, BMW, Mercedes, Dell, Intel, Johnson and Johnson and others are good representatives of successful businesses with ISO 9001 and PDCA cycle. These companies have demonstrated their commitment to quality by implementing and maintaining the ISO 9001 standard, which helps them to improve their processes, products, and services, and maintain customer satisfaction. The adoption of ISO 9001 shows their customers and stakeholders that they are serious about quality and that they have a system in place to continuously improve their operations. (ISO, 2015)

These are just a few examples of the many large and famous companies that use the PDCA cycle to drive continuous improvement in their businesses.

1.3. Integrated Management System in Business and Education

As for the integrated management system (IMS), which is a comprehensive approach to managing an organization's various management systems, such as quality management (ISO 9001), environmental management (ISO 14001), and occupational health and safety management (ISO 45001), is the most effective

method of managing and leading a business. The IMS approach combines these individual management systems into one single, unified system, which allows the organization to align its policies, objectives and processes across all its operations. Integrated Management System (IMS) is effective for business due to several reasons: Firstly, it is *improved efficiency* as an IMS can streamline processes, reduce duplication, and improve communication between different departments; Secondly, it is consistent management. IMS ensures that all management systems are aligned, so the organization an achieve a consistent level of performance across all its operations. Moreover, better risk management, which, as we have already observed in Chapter 1. discussing the PDCA cycle, plays a huge role in successful business. By integrating management systems, an IMS can help an organization identify and manage risks more effectively not only in one specific field, but in all management systems. The last and the most important is enhanced reputation. An IMS can demonstrate to customers, stakeholders, and regulations that the organization has a systematic approach to managing its operations and its committed to continuous improvement. Companies mentioned above, are good demonstrators of Integrated Management Systems (IMS).

Toyota uses IMS to ensure consistent and efficient management of their quality, environmental, and safety processes across their global operations. (Monden, 1997).Toyota uses IMS as a means to integrate various management systems, such as quality management (ISO 9001), environmental management (ISO 14001), and health and safety management (ISO 45001), into a single, integrated system. By integrating these management systems, Toyota is able to streamline processes, reduce duplications, and improve the overall efficiency of its operations. This Results in better alignment of its operations with its goals and objectives, and a more consistent approach to meeting the requirements of various regulations and standards. (Monden, Toyota Management System, 1997)

IMS also helps Toyota to identify opportunities for continuous improvement and to monitor and measure its performance. This allows the company to improve continuously its processes and systems, reducing waste, and ensuring that all operations are aligned with its mission, vision and values. In summary, the use of IMS by Toyota helps the company to improve efficiency, align its operations with its goals and continuously improve its processes, resulting in better overall performance. (Monden, Toyota Management System, 1997)

Samsung uses IMS to integrate their management systems for quality, environment, and safety, allowing them to align their policies and objectives, and improve the overall efficiency of their operations. Microsoft uses IMS to integrated their various management systems, such as quality, environmental, and security, to ensure that they are working together to achieve their business objectives and to improve their overall performance.

To sum up, by having an integrated management system, those companies can ensure that their various management systems are aligned, and they can streamline their operations, reduce costs, and improve their overall performance, Additionally, an IMS can also demonstrate to customers, stakeholders, and regulators that the company has a systematic approach to managing its operations and is committed to continuous improvement.

All mentioned above, is a good example that Integrated management system (IMS) is effective for managing and leading a business and huge companies use this method to remain successful on the international market.

Educational Field is not an exception and it needs to be managed and led with effective management. Aim of the educational organizations may be different depending on the specific organization and its mission, however, there is one unique mission for any educational organization – to promote and facilitate learning and the acquisition of knowledge, skills and values. This means that

education is a root of country's development. If the educational organizations are not led effectively, this will have a negative effect not only on the organization itself as a company, but the results will be much more global as it is connected with growing new generations and government's development.

Hence, effective management of education is vitally important. Integrated Management System and the PDCA cycle can be used by educational organizations to manage and organize their educational activities, such as student enrollment, course offerings, teacher schedules, staff management, implementing all the processes with the PDCA cycle etc. Some well-known educational organizations that have implemented IMS include:

- The Open University, UK
- Harvard University, USA
- The University of Cambridge, UK
- Massachusetts University of Technology, USA
- Stanford University, USA
- The University of Melbourne, Australia
- The University of Sydney, Australia

It is also important to notice that these top educational organizations have implemented Quality Management International Standard ISO 9001. It is obvious that the Integrated Management System and Quality Management Standard are the steps towards successful educational organization.

To sum up, why the educational organizations need IMS for effective management, we can conclude that the benefits of using the PDCA cycle in educational organizations include:

1. Continuous improvement: The PDCA cycle and Integrated Management System provide a structured approach to continuous improvement,

allowing organizations to continually evaluate and improve their processes and practices.

2. Evidence-based decision making: By collecting data and evaluating the results of their actions, organizations can make informed decisions based on evidence, rather than assumptions or intuition.
3. Increased efficiency and effectiveness: The PDCA cycle and Integrated Management System help organizations identify and eliminate waste and inefficiencies, leading to improved efficiency and effectiveness.
4. Improved quality: The focus on continuous improvement and data-driven decision making helps organizations to improve the quality of their educational programs and services.
5. Increased engagement and empowerment: The PDCA cycle and Integrated Management System encourage active participation and involvement of all stakeholders, including students, teachers, and staff, leading to increased engagement and empowerment. (ISO9001 Certification for Education Industry, 2021)

By using the PDCA cycle, educational organizations can continually improve their processes, programs, and services, leading to better outcomes for students, staff, and the wider community.

Chapter 2. Educational Leadership for Integrated Management System

Educational Leadership for Integrated Management System (IMS) is considered as the strategic leadership, which aims to combine various aspects of an educational institution's operations into one smart system. An Integrated Management System combines different management disciplines, such as quality, health and safety management, and information security management, into a single cohesive framework. (Sebastian, Huang, & Allensworth , 2017)

Deming Cycle (PDCA Cycle) is one of the best tools for implementing an effective integrated management system in the educational organizations. Quality Management, Health and Safety Management and Information Security Management, all may be combined into one smart integrated system, where PDCA cycle will be fit all these management directions and make the system more effective to manage.

Later in the chapter I will discuss deeper the importance of PDCA Cycle in Integrated Management systems of Educational Organizations.

2.1. PDCA Cycle within Quality Management in Educational Organizations

Quality management in education refers to the systematic process of improving and maintaining the quality of educational services and programs. It involves implementing measures to ensure that educational institutions meet the needs and expectations of their stakeholders, such as students, teachers, and parents, and that they continuously improve their practices. (Scheer, 2021)

We may consider several key components of quality management in education. Firstly, it is curriculum development. This involves developing and regularly updating the curriculum to meet the changing needs of students and the job market (Adamson, 2010). A well-designed and regularly updated curriculum helps to

ensure that students receive a comprehensive education that meets their needs and prepares them for the future. Curriculum development is very important for quality management in education due to several reasons. First of all, a well-designed curriculum ensures that students are learning *relevant* and up-to-date information that prepares them for their future careers and life in general (Turning Points: Transforming Middle Schools, 2001).

Secondly, a well-structured curriculum helps to engage students by providing clear learning outcomes, meaningful assignments, and a variety of learning activities that keep students interested and motivated. In addition, a well-designed curriculum provides teachers with clear and consistent expectations for what students should learn, making it easier for them to plan and deliver effective lessons (Bacchus, 2006). The aim of the educational organization is to improve students outcomes. Therefore, a well-designed curriculum helps students achieve better outcomes by providing them with a clear path for learning and by focusing on their individual needs and abilities. As said before, something that is not measurable, may not be improved. A well-designed curriculum provides a framework for assessing student learning, making it easier to measure the effectiveness of teaching and to identify areas for improvement (Pillai, 2022).

By prioritizing curriculum development, educational institutions can ensure that their students receive a high-quality education that prepares them for success in the future. This, in turn, helps to improve the overall quality of education and the learning experience for students

The second key component of quality management in education is Teacher training. Teachers play a critical role in the quality of education, so ongoing professional development and training opportunities are essential. Investing in teacher training helps to ensure that teachers have the skills, knowledge, and resources they need to effectively educate students and meet their diverse learning needs. Teacher training helps teachers develop and refine their teaching skills, such

as classroom management, lesson planning, and assessment strategies, so they can deliver more effective instruction. In addition, it is important to notice that teacher training helps teachers deepen their understanding of the subjects they teach and stay up-to-date with the latest research and best practices. Research has shown that teachers who receive regular training and professional development are better equipped to improve student learning and achievement. Moreover, nobody wants to be frozen professionally, especially, teachers who should always catch up with the time and speed of life, so effective teacher training can help teachers feel more confident and competent in their jobs, leading to increased job satisfaction and reduced turnover. With trainings, teachers stay up-to-date with changes in education, such as new technology and pedagogical approaches, so they can continue to provide high-quality instruction. (Nasri, 2022)

Investing in teacher training is essential for quality management in education. By providing teachers with ongoing opportunities for professional growth and development, educational institutions can ensure that their students receive the best possible education.

Student assessment is another crucial tool for measuring student learning and the effectiveness of teaching. It helps to identify areas for improvement and provides feedback to students, teachers, and administrators. It helps to measure student learning and the effectiveness of teaching. Assessment provides important information about student performance, strengths, and weaknesses, which can then be used to improve the quality of education. (Edwards, 2005)

Here are some of the key reasons why student assessment is important for quality management in education. Measuring student learning helps to determine what students know and what they need to learn. If we compare it with any other business company, for example, Toyota, which produces a final product, as a car, measuring student learning in quality management is like measuring quality of working of any part of the car for Toyota company. This information can be used

then to inform instructional decisions and to measure progress over time. Afterwards by using assessment data to identify areas of student difficulty, teachers can make changes to their instruction to meet the needs of their students better. Assessment provides students with important feedback on their learning, which can be used to motivate and encourage them. When students understand the purpose and importance of assessment, they are more likely to engage in their own learning and to take responsibility for their own progress. Finally, assessment data can be used by administrators, teachers, and parents to make informed decisions about student placement, program design, and resource allocation.

So, to demonstrate the chain of students assessment importance for quality management in education is the following: measuring students learning → improving instruction → providing feedback →encouraging student engagement → making informed decisions.

To sum up, students assessment is an integral part of quality management in education. By regularly and accurately assessing students' learning, educational institutions can ensure that their students are receiving the best possible education and that their programs and services are continuously improving (Scheerens, Glas, & Thomas, 2005).

Performance allocation is another important direction for quality management in education. It helps to measure the effectiveness of teachers and administrators and to identify areas for improvement. First of all, performance allocation helps to establish accountability for educational outcomes. This means that resources, responsibilities and expectations are assigned to specific individuals or departments, and their performance can be evaluated against these expectations (Vries, 2011).

By tracking performance, it is possible to identify areas where resources are used effectively and where they can be used more efficiently. This can help to ensure

that resources are used in the most effective way to achieve educational outcomes. Moreover, performance allocation provides valuable information that can be used to inform decision-making at all levels of an educational institution. For example, it can be used to evaluate the effectiveness of particular programs, identify areas for improvement and allocate resources accordingly. Ultimately, the goal of performance allocation is to improve student outcomes. By monitoring and evaluating the performance of educational institutions, it is possible to identify areas where improvements can be made to support student learning and success. Hence, performance allocation is a crucial aspect of quality management in education as it helps to ensure that resources are being used effectively, decision-making is informed and student outcomes are improved (Hou, Volodina, & Huo, 2019).

Resource allocation refers to the process of allocating resources, such as funding and materials, to support quality education. It is important for quality management in education because it has a significant impact on the ability of educational institutions to deliver high-quality educational experiences to students. Resource allocation is a key factor in ensuring that educational opportunities are distributed fairly and equitably across different schools, programs, and students. The goal of resources allocation in education is to ensure that resources are used in an effective and efficient manner to achieve maximum impact on student learning and educational outcomes. In practice, resource allocation in education is a complex process that involves multiple stakeholders, including government agencies, school boards, teachers, parents etc. Decision about resource allocation must take into account the diverse needs and priorities of these stakeholders, as well as broader economic and political considerations. Some of the factors that are typically considered in resource allocation in education include student population demographics, academic performance, existing infrastructure and technology, and the availability of funding. When resources are allocated effectively, all students have the opportunity to succeed and reach their full potential. Allocating resources

to the areas that have the greatest impact on student success is crucial for improving educational outcomes. For example, investing in effective teaching, technology, and facilities can help to support student learning and development. Educational institutions typically have limited resources, and making the most of those resources is critical for success. Resource allocation helps institutions to prioritize spending in areas that will have the greatest impact and to avoid wasting resources on initiatives that are unlikely to succeed. Resource allocation is a critical factor in the effectiveness of educational programs. By allocating resources to support high-quality teaching and learning, educational institutions can ensure that programs are delivering the intended outcomes for students (Smith, 1971).

Resource allocation in education is critical for ensuring that students have access to high-quality educational opportunities and the support they need to succeed. By making informed decisions about how to allocate resources, educators and policymakers can work to promote equity and improve educational outcomes for all students.

Hence, resource allocation is a key aspect of quality management in education because it helps to ensure that resources are being used in the most effective way to support student success, maximize limited resources, and improve program effectiveness.

The last key factor for quality management in education is stakeholder involvement. Stakeholder involvement in education refers to the active engagement and participation of all parties who have an interest or stake in the education system in the process of improving the quality of education. This includes students, teachers, parents, administrators, government agencies, community organizations, and other groups (Paine & McCann, 2022).

The goal of stakeholder involvement in quality management is to ensure that the education system is responsive to the needs and priorities of the community, and

that decisions about resource allocation and program design are informed by the perspectives of all stakeholders. This can lead to more effective and efficient use of resources and improved educational outcomes for students.

Stakeholder involvement is important for quality management in education for several reasons: First of all, it is improved decision-making. Involving stakeholders in the decision-making process ensures that their perspectives, needs, and expectations are taken into account. This leads to more informed and effective decisions about how resources should be allocated and how programs and initiatives should be designed and implemented (Paine & McCann, Stakeholders, 2002). As it was mentioned in the chapter 1.2, at stage of planning from the Deming Cycle, analyzing of customers and interested parties expectations and crucially important in order to satisfy their expectations later. Involvement of stakeholders in decision making leads to prioritization of needs and issues. Stakeholders can provide valuable input and feedback on the needs and priorities of the education system. This information can help decision makers to prioritize resources and allocate funds in a way that is most effective for students and the education system as a whole.

Another reason is increased accountability. When stakeholders are involved in the quality management process, they are more likely to take ownership of the outcomes and be held accountable for the success of educational programs and initiatives. If the parents and students and other interested parties are involved in the stages PDCA cycle, their role in achievement of educational organization's success increases. Hence, involving stakeholders in quality management helps to promote transparency and accountability, as all parties have a better understanding of the goals and processes involved. When stakeholders are involved in the quality management process, they are more likely to understand and support the decisions that are made. This can help to build trust and foster a sense of collaboration and partnership between stakeholders. Therefore, it will be one united community

going towards the aim of the educational organization instead of two different parties, where one is educational organization and another other interested parties, including parents and students.

In addition, by involving stakeholders in the quality management process, educational programs and initiatives are more likely to be designed and implemented in a way that is responsive to the needs and priorities of the community. This can lead to improved educational outcomes and a more positive impact on students.

When we come to Check or Study stage of the PDCA cycle, we need to analyze the crucial importance of transparent and objective monitoring and evaluation system. Stakeholders can play an active role in monitoring and evaluating educational programs and initiatives. By involving stakeholders in this process, decision makers are held accountable for the success of these programs and initiatives.

Stakeholders can provide valuable input and feedback on the methods and tools used to collect and analyze data on educational programs and initiatives. This can help to ensure that data collection and analysis processes are effective and efficient, and that the data collected is of high quality and relevant to the needs of the education system. By involving stakeholders in the monitoring process, decision makers can increase transparency and accountability in the education system. This can help to build trust and confidence in the quality of educational programs and initiatives. Moreover, stakeholder involvement in the monitoring process can help to ensure that evaluations of educational programs and initiatives are more comprehensive and inclusive. This can help to identify areas for improvement and support more effective and efficient decision making.

Lastly, by involving stakeholders in the monitoring process, decision makers can foster a sense of community engagement and ownership. This can help to build support for the education system and increase accountability for the outcomes of

educational programs and initiatives. By involving stakeholders in the monitoring process, educational institutions can foster collaboration and partnerships between different groups, leading to better outcomes for all involved.

In summary, stakeholder involvement in the monitoring process in education can have a significant influence on quality management by improving data collection and analysis, increasing transparency and accountability, fostering engagement and ownership, and ensuring that evaluations of educational programs and initiatives are comprehensive and inclusive. This helps to ensure that the education system is effective, efficient, and responsive to the needs and priorities of the community.

Methods of stakeholder involvement can take many forms. The most common and spread method is surveys and feedback. Collecting feedback and opinions from stakeholders can help to identify areas for improvement and to inform decisions about resource allocation and program design. Another way is establishing advisory committees. Establishing committees made up of stakeholders can help to ensure that the perspectives and needs of different groups are taken into account in the quality management process. Holding meetings and forums can provide an opportunity for stakeholders to voice their opinions and provide feedback on educational programs and initiatives. Working collaboratively with stakeholders to make decisions can help to build trust and ensure that all parties are invested in the success of the education system. Hence, the ways educational organizations can use for involvement of stakeholders in quality management are survey and feedback, establishing advisory committees, holding meetings and forums; collaborative decision-making.

Quality management in education is an ongoing process that requires commitment and collaboration from all stakeholders. By implementing quality management practices, educational institutions can improve the learning experience for students and prepare them for success in the future.

According to mentioned above, quality management means that the organization's culture is defined by and support the constant attainment of customer satisfaction through an integrated system of tools, techniques, and training. Deming Cycle (PDCA cycle) is a part of quality management approach. This involves the continuous improvement of organizational processes, resulting in high quality products and services. According to Deming, a system of quality improvement is helpful to anyone who turns out a product or is engaged in service, or in research and wishes to improve the output of the organization (Pratt, 2022).

2.2. Educational Leadership for Effective Integrated Management System

Before discussion the importance of Educational leadership for effective integrated management system, it is important to notice the difference between the Educational leadership and Educational Management, which are two distinct but related concepts in the field of education.

Educational leadership refers to the process of inspiring and guiding individuals or groups within an educational organization to achieve common goals and objectives. This can involve setting a vision and direction for the organization, as well as creating an environment that promotes learning, innovation, and collaboration. Educational leaders may include school administrators, department heads, or teacher leaders.

Educational management, on the other hand, refers to the administrative aspects of running an educational organization. This includes the efficient and effective use of resources, the development and implementation of policies and procedures, and the management of personnel and finances. Educational managers may include school administrators, district administrators, and other administrative personnel (Connolly, James, & Fertig, 2017).

Management by Result is no longer sufficient to deal with the problems educational organizations are facing. In order to promote quality management, there is a need to change management philosophy. Basically, educational management is the implementation of management principles in education field. According to Louis Cohen, it is quite clear that educational administration and educational management are applied fields of study (Cohen, Manion, & Morrison, 2007). Educational management is an applied field of management. One can therefore deduce that educational management refers to the application of theory and practice of management to the field of education or educational institutions. Educational administration is a process of acquiring and allocating resources for the achievement of predetermined educational goals. The new management philosophy focuses on achieving quality, which is defined as meeting and exceeding the needs and expectations of clients. A second focus is on the acceptance and pursuit of continuous improvement as the only useful standard or goal. The philosophy holds that example and experience teach little about theory, and that experience is not always useful knowledge. However, the philosophy is based on the acquisition and application of knowledge. This knowledge referred to as profound knowledge (Patel, 2012).

In short, educational leadership focuses on setting the vision and direction of an educational organization, while educational management focuses on the day-to-day operations and administration of that organization. Both are important for the success of an educational institution and typically overlap to some degree, with effective educational leaders also possessing strong management skills and vice versa.

Educational leadership plays a crucial role in creating an effective integrated management system within an educational institution. A renewed drive to develop and improve school leadership is currently under way, and has been so for some time in many countries. Initiatives aimed at improving school leadership have

taken place in previous decades, especially in the USA and the UK (Brundrett, Burton, & Smith, 2003).

Due to the globalizing and internationalizing of leadership development, Australian states, Hong Kong, China, Singapore, the UK and the USA demonstrate a good method of promoting models of principal development for school improvement and encouraging reciprocal visitations and exchanges between principals. In order to develop and widen the concept of leadership development, at least three new aspects warrant consideration. The first concerns the stronger conception than hitherto, being given to the connectivity between leadership and other key processes, activities and goals of schools, such as learning and teaching (Dimmock, 2011).

The second considers the distributed leadership in schools and its emergence at teacher and middle management levels, alongside more traditional conceptions centering on senior management and the principals. The third distinguishes senior or principal leadership in terms of phases, identifying at least three – aspiring, newly appointed/induction and experienced.

Powerful global and transnational tendencies in education policy are resulting in more similar leadership environments. School-based management, outcomes-oriented curricula, market forces and competition, the desire to build united school communities, and an emphasis on standards and accountability are all commonplace conditions in which school administrators are required to operate. (Brundrett, Burton, & Smith, 2003)

The industrial analogy that compares workers and managers to students and teachers/lecturers is accurate and appropriate. In schools, students are the workers and products. Teachers and administrators are managers. The hierarchy may look like this: students are the workers and the products. The difference between success and failure of the educational organization depends on the quality of their

work. Teachers are the first level managers. Therefore, the teacher will be leader of the class, emphasizing quality through non-coercive management featuring student as worker and teacher as coach, provoking the student to learn how to learn and thus to teach themselves. Heads of Departments/Deans are the middle and upper level management. The productivity of any educational institution depends mostly on the skills of those who directly manage the workers, i.e. the teachers/lecturers. According to Deming, their success in turn depends on how well they are managed by the administration above them. Therefore, any attempt at educational quality are best centered around organizational improvement efforts. The Board of Education is the board of directors thus responsible directly to the clients, and board members are overseers of the administration.

In England, the NCSL has published a five-stage model of career leadership as follows (NCSL, 2011). The first stage is recognized as emergent leadership, which is meant to apply to teachers who begin to take on management and leadership responsibilities and perhaps aspire to become head teachers. There is some equivocation here, because subject or specialist teachers are distinguished from emergent leaders and are regarded as middle leaders. Clearly, the membership of both groups will overlap, even if the purpose of their tasks is ostensibly different. A second stage of established leadership comprises assistant and deputy heads, who are experienced leaders, but who do not intend to pursue headship. A third stage is recognized as entry to headship and this stage combines the professional preparation for headship with the induction of new heads, a process seen as continuous and seamless. A fourth stage of 'advanced 8 Leadership in Education leadership' applies to mature leaders who are looking to refresh and update and widen their experience. Finally, a fifth stage, known as 'consultant leaders', are those who are sufficiently able and experienced to act in the capacity of trainer, mentor or inspector and to put something back into the profession. (NCSL, 2011)

The role of a leader in educational leadership for leading an effective integrated management system requires many important skills, is multifaceted and complex, and can involve many different responsibilities and tasks. I would highlight seven (7) key elements for a good educational leader to lead an effective integrated management system of educational organization.

The first and most important is setting the vision and direction. A leader in educational leadership is responsible for creating a shared vision for the organization and inspiring others to work towards that vision. Setting the vision and direction is an important role for an educational leader because it helps to guide and focus the efforts of everyone within the organization towards a common goal. Having a clear and shared vision and direction can also provide a sense of purpose and direction for teachers, staff, students, and other stakeholders, and helps to create a sense of unity and collaboration within the organization. While discussing the PDCA cycle and the stage of Planning, I mentioned that the involvement of the team in planning process is vitally important in order to make the employees feel part of the team and motivate them going towards the aim of the organization together.

Additionally, setting the vision and direction helps to ensure that resources are used effectively and efficiently, and helps to prioritize initiatives and projects. This can help to avoid duplication of effort and ensure that resources are being used in the most impactful way possible.

Having a clear vision and direction can also help to create a sense of accountability and transparency within the organization, as everyone is aware of the goals and objectives they are working towards. This can help to build trust and confidence among stakeholders, and foster a sense of ownership and responsibility for the success of the organization.

Finally, having a clear vision and direction can help to drive change and improvement within the organization, and can provide a framework for continuous learning and growth. This can help to ensure that the organization is adapting to the changing needs of its students, teachers, and the wider community, and is always striving to continual improvement (Martin, et al., 2017).

Second key element is building a positive school culture. A leader in educational leadership must foster a positive and inclusive school culture that promotes learning, collaboration, and a sense of community. A positive school culture can help to create a supportive and inclusive environment that promotes learning, collaboration, and a sense of community. This, in turn, can have many benefits, including: increased student achievement as a positive school culture can help to create a supportive and engaging learning environment, which can improve student motivation and academic performance. Also, it will lead to improved teacher retention. Creating supportive work environment for teachers will reduce teacher turnover and improve teacher satisfaction. As mentioned in previous chapter 1.3. The PDCA cycle within Quality Management in Educational Organizations, parents' involvement plays a crucial role in development of educational institution. So, increased parent involvement can be a result of building a positive school culture, as it will increase parent involvement and support for the school. A positive school culture can provide a welcoming and supportive atmosphere that fosters open communication and collaboration between parents, teachers, and the wider school community. Parents' effective involvement will lead to increased trust and confidence and improved communication. By creating a positive school culture, an educational leader can help to establish open and effective lines of communication with parents, which can foster greater collaboration and understanding. This, in turn, will lead to Enhanced parent satisfaction (Brooks, 2019).

Besides that, positive school culture will lead to better student behavior. Educational leaders should lead to creating an environment where students feel valued and supported, which can lead to improved behavior and reduced disciplinary problems. Nowadays, ancient methods of students' punishment and prohibition are useless. If a student does not feel a member of society, he/she will never have trust towards the educational organization; he/she spends the most time. So building a positive school culture is vitally important for making students feel good, comfortable, motivated, what in its turn will lead to respect and love of the school community.

Building a positive school culture is important because it helps to create a supportive and inclusive environment that promotes learning, collaboration, and a sense of community, and can have a positive impact on student achievement, teacher retention, parent involvement, student behavior, and community partnerships.

The third key element of effective educational leader is ability to develop and implement policies and procedures. Developing and implementing policies and procedures is an important responsibility for an educational leader because it helps to ensure the smooth operation of the organization and supports the achievement of its goals and objectives. Policies and procedures help to provide clarity, structure, and consistency in decision-making, communication, and problem-solving, which can have many benefits, including:

1. Improved efficiency: By having clear policies and procedures in place, staff and teachers can more easily understand what is expected of them, which can help to streamline processes and improve efficiency.
2. Enhanced accountability: Policies and procedures help to establish clear lines of responsibility and accountability, which can help to ensure that everyone within the organization is aware of their responsibilities and is held accountable for their actions.

3. Improved communication: Policies and procedures help to ensure that information is communicated clearly and consistently, which can help to avoid misunderstandings and miscommunications.
4. Increased fairness: Policies and procedures help to ensure that decisions are made in a consistent and equitable manner, which can help to reduce the potential for conflicts and grievances.
5. Compliance with legal requirements: Policies and procedures help to ensure that the organization is in compliance with applicable laws and regulations, which can help to avoid legal and financial risks.
6. Promoting safety: Policies and procedures help to ensure that the organization has appropriate safety measures in place, which can help to reduce the risk of accidents and injuries.

Overall, developing and implementing policies and procedures is important for an educational leader because it helps to ensure the smooth operation of the organization and supports the achievement of its goals and objectives, while also promoting efficiency, accountability, communication, fairness, legal compliance, and safety.

Key element Number four (#4) is Managing Resources. Effective resource management involves allocating resources in a way that supports the organization's goals and objectives, while also ensuring that resources are used efficiently and effectively. A good educational leader should understand that managing resources leads to several benefits, like, for example, improved student outcomes as by allocating resources effectively, an educational leader can support initiatives and programs that have a direct impact on student learning and achievement. Moreover, it can lead to better financial management. Effective resource management can help to ensure that the organization has a sustainable financial model, reducing the risk of financial difficulties and ensuring that resources are available to support ongoing operations. Next, effective resource management leads

to improved teacher and staff morale. By allocating resources to support professional development and other initiatives that improve the working conditions of teachers and staff, an educational leader can improve morale and job satisfaction (Gendron & Faherty).

Overall, managing resources is important for an educational leader because it directly affects the success and sustainability of the organization, and can have a positive impact on student outcomes, efficiency, financial management, teacher and staff morale, and community support.

Promoting professional development is an important responsibility for an educational leader and I will consider it as the fifth element of effective educational leadership for effective Integrated Management System. The reason it that it directly affects the quality of education and the success of the organization. By providing opportunities for teachers and staff to improve their skills, knowledge, and expertise, an educational leader can help to improve the quality of education and support the achievement of the organization's goals and objectives. Promoting professional development leads not only to raise of qualification of the staff, but also to improved student outcomes as by providing opportunities for teachers and staff to improve their skills and knowledge, an educational leader can support initiatives and programs that have a direct impact on student learning and achievement. Also, professional development leads to enhanced teacher and staff satisfaction. Moreover, by promoting professional development, an educational leader can demonstrate a commitment to excellence and continuous improvement, which can help to improve the reputation of the school and attract high-quality teachers and staff. Without thinking out of box, there is very little chance for innovation and creativity. Sometime routines, which educational institutions staff are involved in, ruins creative thinking skills and as a result we receive frozen curriculums, which are not student oriented, dissatisfaction of students, parents and employees and other negative outcomes. To avoid that, educational leaders

should provide opportunities for professional development, an educational leader can encourage teachers and staff to explore new ideas and approaches, create an appropriate infrastructure and atmosphere, where employees will be able to have team works, different workshops, have space and time to think for innovation. Moreover, leaders should encourage, motivate and push the staff to creative thinking and innovation.

Overall, promoting professional development is important for an educational leader because it directly affects the quality of education and the success of the organization, and can have a positive impact on student outcomes, teacher and staff satisfaction, school reputation, innovation and creativity, and staff retention (Mizell, 2010).

The sixth element of effective educational leadership is holding oneself accountable. It is an important responsibility for an educational leader because it demonstrates a commitment to integrity and transparency, and helps to build trust with stakeholders. When an educational leader takes responsibility for their actions and decisions, it sends a message that they are committed to doing what is right, even in difficult circumstances (Larson, 2011). Holding oneself accountable can bring many benefits, including:

1. Improved credibility and trust: By taking responsibility for their actions and decisions, an educational leader can build trust and credibility with stakeholders, including students, teachers, staff, parents, and the wider community.
2. Increased accountability and transparency: When an educational leader holds themselves accountable, they can help to increase accountability and transparency within the organization, which can lead to better decision-making and problem-solving.

3. Improved student outcomes: By taking responsibility for their actions and decisions, an educational leader can ensure that initiatives and programs are designed and implemented with student success in mind.
4. Enhanced teacher and staff morale: Holding oneself accountable can help to create a supportive work environment in which teachers and staff feel valued and respected, which can improve morale and job satisfaction.
5. Better risk management: By taking responsibility for their actions and decisions, an educational leader can help to manage risk and minimize negative consequences, which can protect the reputation of the organization and ensure its long-term success (Perry & McWilliam, 2007).

Overall, holding oneself accountable is important for an educational leader because it demonstrates a commitment to integrity and transparency, and helps to build trust with stakeholders, while also improving credibility, accountability and transparency, student outcomes, teacher and staff morale, and risk management.

A leader in educational leadership must hold themselves accountable for the success of the organization, including taking responsibility for any challenges or failures that may arise.

Overall, the role of a leader in educational leadership is to inspire and guide individuals and groups within the organization to work towards a common vision and to create an environment that supports learning, innovation, and collaboration.

A key feature of contemporary leadership is a commitment to computer technology as an integral and embedded part of learning and teaching, and of school decision-making (Key element Number 7). Leaders need to be conversant with the capabilities and potentialities of technology. They aim to achieve the twin goals of access for all, and integration across the whole curriculum. Computer technology

is central to the delivery of the curriculum program and the attainment of student outcomes in the learning centered school (Afshari, Bakar, & Luan, 2008). Its intrusiveness into the classroom means that traditional notions of teaching and learning have to be reconfigured. Leaders have a responsibility to ensure the visions, goals and policies concerning technology are adopted and implemented across all faculties. If leadership is focused on core processes of learning and teaching, it has also to be concerned with the organizational structures that enable the processes. The configuration of structures should support, not hinder, the delivery of a quality curriculum to all students. In traditional schools, structures such as standard lesson times, inflexible standardized curricula, regimented timetables and school routines have come to govern decisions about core technology. Leaders may thus need to dismantle existing dysfunctional structures. This calls for an understanding of alternative structures and their likely impact on, and ability to allow flexibility in furthering, the cause of promoting learning (King, South, & Stevens, 2017).

To fully utilize technology to revolutionize learning, strong leadership is required, capable of developing a shared vision in which all members of the community feel a part. Leaders who assume they can delegate the creation of a vision for how technology can help them achieve their learning objectives to a chief information officer or chief technology officer fundamentally misunderstand how technology affects learning. Technology does not transform learning; rather, it facilitates transformative learning. The vision starts with a conversation about how and why a community wishes to transform learning. Once these objectives are established, technology can be leveraged to unlock previously unattainable options for realizing the vision. Moving to. (Education U. D., 2017)

Education leaders create a unified vision for how technology may assist learning and how to acquire the funding to sustain technology programs. Leaders seek advice from a varied group of stakeholders in order to adopt and convey clear goals

for teaching, leading, and learning that are aided by technology. They serve as role models for risk-taking and experimentation, and they foster a culture of trust and innovation.

Leaders connect with all stakeholders using suitable media and technology platforms, and they develop successful feedback loops. Leaders employ technology as a learning tool for both students and teachers as they implement the vision through a cooperatively crafted strategic plan. Leaders are innovative and forward-thinking in securing sustainable streams of people and capital resources to support their initiatives, including suitable collaborations both within and beyond the organization.

In order for education research to have the most impact on practice, it is critical for practitioners at the school and district level to use and understand research. The Institute of Education Sciences supports two National Research and Development Centers on Knowledge Utilization, tasked with learning how research is used in schools and districts during decision-making (The National Center for Research in Policy and Practice, 2022); (R4S: Rethinking Research for Schools, 2022). Early results suggest that district leaders value education research and use it to expand their understanding of education issues and when making decisions about professional development and curriculum adoption.

Through active and collaborative learning activities, technology allows tailored pathways for student learning. Instruction is guided by clearly defined sets of learning outcomes. The outcomes, as well as the aligned curriculum, instruction, and assessment, reflect the multidisciplinary nature of knowledge; prepare students for our participatory culture by focusing on digital literacy and citizenship; and address general skills and dispositions like reflection, critical thinking, persistence, and perseverance. (Education U. D., 2017)

Leaders ensure that policies and resources equip teachers with the right tools and ongoing support to personalize learning in their classrooms.

Teachers work together to make instructional decisions based on a diverse data set, which includes student and teacher observations and reflections, student work, formative and summative assessment results, and data from analytics embedded within learning activities and software, which is aided by real-time data and visualizations, such as information dashboards. (Budhwar, 2017). Student voice and choice in the design of learning activities and the ways of demonstrating learning are supported by leadership policy and teacher techniques. Students are typically required to complete a series of self-directed, collaborative, multidisciplinary projects and enquiries, which are evaluated through a profile or portfolio. Most learning designs use technology, which is utilized everyday in and out of the classroom for collaboration, investigation, and composition, as well as interacting with others across the world. Teachers act as instructional designers, coaches, and facilitators in the classroom, helping students through their unique learning experiences. (Courville, 2011).

To summarize the benefits that leaders will have if they use technologies for improvement of education quality. First of all, leaders should demonstrate their commitment to computer technology in order to have an easy access to Information. Also, leaders should understand that using technologies leads to improved learning - Technology has enabled a more interactive and engaging learning experience. For instance, educational software and online simulations can help students understand complex concepts in a more visual and hands-on manner. Technology has made it possible for individuals to receive education from anywhere in the world through online courses and distance education programs. Moreover, it makes studying easier and more personalized, as technology has allowed for personalized learning experiences, where students can learn at their own pace and receive tailored feedback. For example, learning management

systems can track student progress and adapt to their learning style. Collaborative Learning is another very important benefit of using technologies in education. Technology has made it easier for students to work together and collaborate on projects, regardless of their location. For example, online collaboration tools like Google Docs and Microsoft Teams allow students to work together on group assignments. In addition, technology has allowed for more accurate and efficient assessment of student learning. For instance, online assessments and grading systems can provide immediate feedback to students and teachers, helping to identify areas that need improvement.

As for the role of technology in education for integrated management systems, technology can help streamline and automate many administrative tasks, enabling schools and educational institutions to operate more efficiently and effectively. Some of the ways technology can support an integrated management system in education include:

1. Data Integration: Technology can help integrate data from various sources, such as student performance, financial information, and human resources data. This information can then be used to support decision-making and track progress over time.
2. Automation of Administrative Tasks: Technology can automate many administrative tasks, such as scheduling, grading, and attendance tracking, freeing up time for teachers and administrators to focus on other tasks.
3. Communication and Collaboration: Technology can facilitate communication and collaboration among teachers, administrators, and other stakeholders, making it easier to coordinate efforts and share information.
4. Improved Student Record Management: Technology can improve student record management by enabling schools to store and access

student information electronically. This information can be used to track student progress and make informed decisions about student support and interventions.

5. Distance Learning Support: With the rise of distance and online learning, technology is increasingly important for integrated management systems in education. Online learning management systems and virtual classrooms can help educational institutions manage and monitor student progress, provide support and feedback, and ensure that students are able to access resources and complete assignments.

Overall, technology can play a key role in supporting an integrated management system in education by streamlining administrative tasks, improving data management, facilitating communication and collaboration, and supporting distance learning programs. Technology has greatly impacted education by providing new and innovative ways for students to learn, collaborate, and be assessed.

To summarize part of this chapter about the role of leader in educational integrated management system, it is important to notice that concern for culture is acknowledged as one of the key roles leaders play. Tight coupling and synergy are achieved when all parts of a school share common values, goals and practices. A strong, tightly knit organizational culture helps dismantle the barriers and internal divisions, which often characterize schools (Firestone, 2016). New configurations of teaching and learning are dependent on building a culture that supports learning for all and values productive human relations.

Effective leadership of human resources is likely to be supportive of improved levels of learning productivity in schools. Such leadership motivates effective teaching and learning, enthusing people to capitalize on the virtues of working collaboratively. Leaders provide teachers with the opportunity to develop collaboratively and individually as reflective practitioners. Human resources are

used to maximum effect, securing synergy of effort through collaboration. Good leaders connect school-based management with school improvement and core technology. Thus, financial management is conceived more in terms of how it can influence resource allocation to enhance the core technology and student outcomes than for its intrinsic importance (Burgess, 2016).

Resource levels are carefully considered in relation to student need and learning outcomes. Schools perform well when leaders recognize the need for agreement on goals, when resources are allocated to support goal achievement and when all parts of the school work consistently and collaboratively towards the same ends. Purposeful professional development is accorded a key role in resource allocation. Effective leaders monitor and review performance at whole-school and sub-school levels. (Dimmock, 2011). They realize the importance of monitoring and reviewing as prerequisites for providing feedback and positive reinforcement, both of which are consistently found among the factors contributing highly to learning. In their capacity as leaders, they give abundant feedback and positive reinforcement to teachers and students, and at the same time build the culture for these behaviors to permeate all levels and members of the school community. In the learning-centered school, leaders deliberately and consciously demonstrate in their own professional work the core values and behaviors they wish to promulgate in others. With the leader as role model, desirable values and practices are deliberately replicated at different levels.

Leaders will need to ensure that their schools engage cultural diversity through the curriculum, in teaching and learning, and in the social, spiritual and aesthetic life of the school. For most leaders, the above functions present not only a formidable challenge, but a requirement to undergo training and to develop knowledge and skills in new directions. Hence, the task of mapping contemporary leadership involves more than identifying a set of functions. Account also needs to be taken

of the qualities needed to fulfil the functions. Accordingly, these are the focus of the next section.

In order to provide leadership for quality management and mostly for integrated management, people in leadership must be able to understand and apply these concepts:

Systematic Thinking – this is the interdependence of functions with their sub-processes and of the organization with its people.

Theory of variation – this is the understanding of the difference between common and special causes. An understanding of variation will enable educational leaders to work toward quality within the framework of individual differences. The existence of variation is why a state of zero defects does not occur and why numerical goals are not feasible. (Schochet, Puma, & Deke, 2014)

Theory of Knowledge – only through a theory of knowledge can one understand the past and predict the future. A major component of total quality management is prediction. Only through prediction and long-term perspective can educational organizations expect to succeed over a long period of time (Lo, 2012).

Knowledge of Psychology – the new philosophy is based on the understanding of people and their differences, and a commitment to applying systematic thinking to the people system. School leadership's aim is to free-up the potential of the different attributes of the people of the organization (Schochet, Puma, & Deke, 2014).

Quality comes not from inspection but from improvements of the process. In education, teachers/lecturers need to involve the student as a worker to evaluate the quality of his/her work, product or outcome. When students buy into the self-evaluation process the quality of their work is greatly enhanced. Using reality

therapy techniques to find out what students want and what they are doing to get what they want sets the stage for this process of self-evaluation.

To sum up, while having different management systems in the organization, managers need to make them integrated and have an effective tool for managing. PDCA cycle is a dynamic cycle that could be implemented in each process throughout the organization. It combines planning, implementing, controlling and continual improvement. Managers would achieve continual improvement once you implement the PDCA cycle. This applies all kind of processes: management's review, corrective actions, product realization, resource management etc. You can determine implementing the PDCA at the core process, at a minor process or even at several processes together.

2.3. Occupational Health and Safety System in Education

The integration of occupational safety and health (OSH) into the educational system is an essential aspect of the development of risk prevention culture. This allows everybody, teachers/lecturers, students and parents alike, to learn how to live and work in a safe and healthy environment. (Bollmann, Gründler, & Holder, 2018). The educational staff must be aware of the risk factors in their working environment, must realize the importance of accurate investigation of any incidents and near misses. They must also become acquainted with the legal regulations on safety and health at work in order to prevent accidents at the workplace. An educational institution must be a safe and healthy working environment for all the staff, students and other persons involved with it to make it suitable for the teaching and learning process.

Occupational Health and Safety in Education ensures that students, teachers, and other staff members have a safe and healthy environment to work and learn in. Occupational Health and Safety impacts education in different ways. First and the most important, it is *protection of health and safety*: OHS ensures that students and

staff are protected from potential hazards, such as unsafe buildings, dangerous equipment, and hazardous materials. This protection can help prevent accidents, injuries, and illnesses that could disrupt education and put people at risk. By Protection of health and safety, Occupational Health and Safety standard considers identification of hazards or risks, incidents or near misses, which may bring harm and damage to staff, students, parents, interested parties and the organization itself. Risk Assessment is another method of protection health and safety. Once identified, OHS professionals can assess the level of risk associated with each hazard and prioritize corrective actions to mitigate the risks. This may include modifying existing procedures, introducing new safety protocols, or even changing the design of the physical environment. Training and Education and Ongoing Monitoring are vitally important ways of Protection Health and Safety. OHS professionals should provide training and education to students, teachers, and other staff members to raise their awareness about potential hazards and how to mitigate them. As for the Monitoring, Regular inspections and audits to identify hazards, monitor compliance with safety protocols, and evaluate the overall effectiveness of safety measures.

Occupational Health and Safety in Education also effects in a way of *Compliance with regulations*. Educational institutions must comply with local, state, and federal regulations related to OHS. If the institution holds the international Standard of Health and Safety (ISO 45001), then it must be in compliance of this standard too. These regulations establish minimum standards for safety and health, and educational institutions must meet or exceed them to ensure compliance and avoid penalties.

In addition, Occupational Health and Safety in Education may *prevent absenteeism*. A safe and healthy environment can help prevent absenteeism due to illness or injury. When students and staff are healthy, they are more likely to attend school regularly, which can improve academic performance and educational

outcomes. OHS can also improve productivity among staff. When staff members feel safe and healthy, they are more likely to be motivated and engaged, which can improve their productivity and job satisfaction. (Occupational Safety and Health Branch, 2008)

Educational institutions can also integrate OHS into the curriculum, teaching students about the importance of OHS, and preparing them for safe and healthy work environments. This can help promote a culture of safety and health that extends beyond the classroom.

Overall, OHS is critical to ensuring a safe and healthy environment for learning and teaching. By promoting safe and healthy practices and integrating OHS into the curriculum, educational institutions can help prepare students and staff for safe and successful futures.

Implementation of Occupational Health and Safety into the integrated management system of education is not as simple as it may seem. First of all, it is mostly connected with educational organization staff's philosophy and mentality. Employees and top managers should feel and understand the importance of integrated management system within OHS as a path to effective management system. A very good and effective way to implement OHS Standard is ISO 45001. Many educational institutions have implemented occupational health and safety management systems. (Safety, 2023) In many countries, including the United States, Canada, the United Kingdom, Australia, and New Zealand, OHS standards are established by government agencies and regulatory bodies. (Education D. f., 2022) Educational institutions are required to comply with these standards to ensure a safe and healthy environment for students, teachers, and staff.

Figure 2: Role of Occupational Health and Safety in Schools

Source: (Occupational Health, Safety and Wellbeing Management in Schools, 2023)

In the United States, OHS standards are established by the Occupational Safety and Health Administration (OSHA), a federal agency that sets and enforces workplace safety standards. OSHA standards apply to all types of educational institutions, and include requirements for the handling of hazardous materials, the use of personal protective equipment (PPE), and the maintenance of safe buildings and facilities. (Finn, 1978)

In Canada, OHS standards are established by the provincial and territorial governments. Each province and territory has its own OHS legislation, which applies to all types of educational institutions. The legislation sets out requirements for hazard identification, risk assessment, and the implementation of safety measures. (Safety, 2023)

In the United Kingdom, OHS standards are established by the Health and Safety Executive (HSE), a government agency that sets and enforces workplace safety standards. HSE standards apply to all types of educational institutions, and include

requirements for the management of health and safety, the handling of hazardous materials, and the maintenance of safe buildings and facilities.

In Australia, OHS standards are established by state and territory governments, which have their own OHS legislation. The legislation sets out requirements for hazard identification, risk assessment, and the implementation of safety measures, and applies to all types of educational institutions.

In New Zealand, OHS standards are established by Work Safe New Zealand, a government agency that sets and enforces workplace safety standards. Work Safe standards apply to all types of educational institutions, and include requirements for hazard identification, risk assessment, and the implementation of safety measures.

While many educational institutions have implemented occupational health and safety management systems, there are certainly educational institutions, which have obtained ISO 45001 Certification, demonstrating their commitment to maintaining a safe and healthy work and study environment. For example, the University of Manchester in the UK; the University of Twente (UT) in the Netherlands; RMIT University in Australia; the University of Northern Iowa in the United States.

In order to ensure occupational health and safety in educational institutions managers must implement an occupational health and safety system. This should be part of the overall management system and include the following elements:

- development of an occupational health and safety policy
- a management system which clearly allocates responsibilities in the field of occupational health and safety
- a risk assessment of health and safety at the workplace to be reviewed whenever conditions change

- occupational health and safety auditing
- training, information and instruction on health and safety at work
- emergency procedures -periodical analysis of the system in order to ensure that it is efficient
- storage of documentation and records in order to ensure continuity

OHS system in educational organizations include the following directions:

2.3.1 Medical service. It is one of the most important parts of the system, which consists of doctor and phycologist's work. When we talk about educational institutions, medical service is vitally important for schools, as the school age is regarded as the most important phase of childhood life during which the child enters the society training system and emerges as a contributing member of the community. (Diane Allensworth, 1997). If the child doesn't maintain adequate health, the benefits of education will be lost because of absenteeism or lack of attention due to ill health and consequently a poor academic performance.

School health services are concerned with health evaluations, communicable disease control, record keeping, and the health of schoolchildren and workers. This element is concerned with objectively assessing an individual's health. The healthcare service allows school administrators to detect indications and symptoms of common ailments as well as signs of emotional disturbances that may interfere with children's learning activities.

Psychologist should have a big role in the process of observing students and employees' psych-climate, evaluate students and employees' mental health and give effective consultations to both students and employees. (Olugbenga Temitope Kuponiyi, 2021). There are many fields, which must be studied by the educational organization's psychologist, from students and teachers relationship to psych-climate between the employees inside the institution. Another very important object for psychological service is parents of students in schools. Unfortunately,

many parents have wrong attitudes towards children's raising methods and psychologist should be an intermediary link to build a correct relationship between parents and children.

Health services are both preventive and therapeutic in nature, and they aid in informing parents and school officials about the health state of their children. It also offers advice and therapy to the school community and parents. Pre-entry medical screening, routine health screening/examination, school health records, sickbay, first aid, and referral services are all part of it. Other services provided include health observation (physical assessment of students'/children's physiology and habits), health examinations (screening tests and medical diagnoses), and health records (keeping records of students'/children's health histories). (WHO & UNESCO, 2021)

Health education has another important role in schools and this service may be offered by the Medical Service too. Health education can cover a range of topics, including personal and mental health, which include topics like stress management, emotional regulation, healthy relationship, self-care. All these topics may be vitally important for students' mental health as they are faced with a lot of challenges, like exams, midterms, relationships between each other. (Victoria, 2017)

Nutrition and physical activity can be another topic, covered in the frame of health education. This topic may include healthy eating, physical activity, and the prevention of obesity. Nowadays, when students spend a lot of time with gadgets instead of walking or doing sport, health education should assist schools to raise students' awareness about the importance of healthy lifestyle.

Safety and injury prevention may be another important topic for health education and it can include first aid, emergency preparedness, and strategies for preventing accidents and injuries. There may be different other topics, which may play a huge

role in raising of students' awareness and knowledge and the schools should take it into consideration that medical service and health education is one of the biggest cycle of the Occupational Health and Safety in educational institution.

2.3.2 Security Service. This is the second biggest department in OHS for educational institutions. This service should work due to regulations for keeping safety in educational institutions. The aim of this service is to strengthen security and emergency preparedness best practices; reduce safety risks and liabilities; improve students' and employees' perception of safety. Security service should not only guarantee security in all aspects in educational organization, but also lead the process of incidents and near misses investigation, set together with other responsible employees effective preventive and corrective actions and conduct trainings for the employees and students in order to keep safety and make people understand the importance of it.

By most schools security service is perceived as only the service, responsible for emergency preparedness and drills, however it has much more responsibilities, like access control, surveillance and monitoring, security personnel, training and education. Below I will discuss what each responsibility considers itself.

Access and control includes measures such as monitoring and controlling access to school buildings, classrooms, and other areas to ensure that only authorized personnel are allowed in. This is important to ensure the safety and security of students, staff, and faculty. By controlling access to school buildings, classrooms, and other areas, schools can reduce the risks of incidents such as violence, theft, damage (Mussington, 2022).

Surveillance and monitoring systems can help prevent and respond to security incidents. By monitoring school premises and activities, schools can quickly detect and respond to potential threats and ensure the safety and security of students, staff and faculty. Moreover, surveillance and monitoring systems can provide valuable

evidence in investigations of security incidents, near misses and/or threats. This can help schools to resolve disputes quickly and fairly and prevent future incidents.

Training and education includes providing training and education to students, staff and faculty on topics such as emergency preparedness, personnel safety, and security awareness. Effective training and education programs can help schools to create a culture of safety and security, increase awareness of security risks, and empower students, staff, and faculty to take action to prevent security incidents. Moreover, training and education programs can help promote good security practices, such as password management, access control, and incident reporting. By promoting these practices, schools can reduce the risk of security incidents and ensure a prompt response to any incidents that do occur (Occupational Safety and Health Branch, 2008).

2.3.3 Facility Management is another important cycle of the Occupational Health and Safety of the educational institution, ensuring that the physical environment is safe, healthy, and conducive to learning. The International Organization for Standardization (ISO) defines facility management as the organizational function, which integrates people, place, and process within the built environment with the purpose of improving the quality of life of people and the productivity of the core business. (ISO, What is Facility Management, 2019)

When it comes to education, the function of facility management is to keep the building in good condition and to suit the needs of those who use it. Any school or campus that wishes to give a high-quality education to its pupils must provide suitable school facilities, resources, and maintenance services that will, in reality, contribute to a more effective learning environment for their users. (School Facilities Management Handbook, 2022)

As a facility manager, one must deliver the needs of students, staffs and guests by constantly maintaining the buildings and exceeds their high expectations of the

services rendered. Students and parents nowadays have high expectation of the education system, the learning atmosphere and the education premises as well.

Today, the education institution is developing new modern design rooms for social and academic activities. Educational institutions not only force students to memorize texts, but also include them in hands-on activities and knowledge application through experiments in laboratories or other venues. (The Role of Facility Management in Education Sectors, 2019).

Furthermore, multipurpose facilities are offered not just for student academics but also for members of the surrounding community, particularly after school hours, when they can access and use the school facility areas. The educational establishment wishes to bring communities closer to schools. Tools, supplies, and equipment are required for educational purposes and perform a variety of functions that help students learn, such as providing computers in computer labs, microscopes, tubes, chemicals for experiments in laboratories, and even sports equipment. Restrooms, cafeterias, workshops, offices, labs, classrooms, and other facilities were utilized by teachers and students. It is also crucial to provide a full and complementary furniture system in the school building since it can inspire creativity and flexibility in pupils and staff.

The right furniture layout and style can inspire pupils to learn and encourage individuals to manage their own learning, as well as improve communication and focus.

Facility management is responsible for the maintenance of school facilities, including buildings, classrooms, restrooms, and outdoor spaces. This includes routine maintenance such as cleaning and repairs, as well as major repairs and renovations, ensuring that equipment is in good working conditions. In addition, it includes repairing damage caused by accidents or natural disasters, as well as upgrading facilities to meet changing needs or comply with regulations. Facility

management is also responsible for preventive maintenance to prevent larger problems from occurring. This includes conducting regular inspections of facilities and equipment, conducting routine maintenance on equipment and systems, and identifying potential issues before they become major problems. In addition, facility management includes the responsibility of compliance with regulations, ensuring that school facilities comply with all relevant regulations and codes, including those related to safety, health, and accessibility (Mussington, School Security Guide, 2022).

To sum up, facility management plays a critical role in ensuring that school facilities are safe, healthy, and conducive to learning. By maintaining facilities, managing resources, ensuring compliance with regulations, preparing for emergencies, and supporting learning, facility management helps to create an environment that supports the academic and personal growth of students.

2.3.4 Sanitary – Hygiene Service, which is responsible for keeping the whole infrastructure clean following the regulations and norm of the international and/or local standards and be involved in training students and staff how to keep their space and the school clean. The primary responsibility of sanitary hygiene services in schools is to ensure that the school environment is clean and free from dirt, dust, and germs. They clean and disinfect classrooms, bathrooms, and other common areas to prevent the spread of diseases. Sanitary hygiene services are responsible for the proper disposal of waste generated in the school. They ensure that waste is collected, segregated, and disposed of in an environmentally friendly way (UNICEF, 2011).

Moreover, sanitary hygiene services educate students on the importance of hand hygiene and provide handwashing facilities in the school. They also ensure that soap and water are always available in the bathrooms. Sanitary-hygiene service can also educate students and the staff on various aspects of hygiene, including not only the hand hygiene, but also personal hygiene, and the importance of maintaining

cleanliness in the school environment. (UNICEF, 2011). Educational Institutions do not pay proper attention at this service, just considering them only to clean the facility, however, the main aim of the school is to raise a child; hence, every single step should be made towards raising a proper member of the society. Students and the staff should respect and perceive the sanitary-hygiene service as one of the most important cycle of the occupational health and safety and be involved in different sessions, trainings and educational events, organized by this service. Moreover, sanitary-hygiene service may use different methods for educational purposes, like display posters and signage in strategic locations around to school to remind students and staff about the importance of maintaining hygiene practices and use different audiovisual aids with educational purposes; also they can conduct demonstrations on proper handwashing techniques and other hygiene practices in the school's bathrooms or classrooms (Custodian, 2021).

2.3.5. Food Service is responsible for providing employees and students with healthy food. Food safety is another and one of the biggest direction of occupational health and safety. Schools should have the most accurate, transparent, objective and clear approach of working this service as if the food service is not working properly, it may cause serious incidents and risks Food safety in schools involves several steps and measures to ensure that the food served to students is safe and free from contamination. Here are some of the steps involved in ensuring food safety in schools: (Yiannas, 2014). First and the most important if source of ingredients. Schools should obtain their food ingredients from reliable and reputable suppliers who comply with food safety regulations. This can include conducting regular audits of suppliers and ensuring that they meet all safety standards. Then the process of food preparation is something, schools and food managers should take into consideration. Food preparation in schools should follow strict guidelines, including maintaining proper hygiene, using clean and sanitized utensils, and storing food at appropriate temperatures (Yiannas, 2014).

Moreover, schools must store food at appropriate temperatures and follow the "first in, first out" principle, meaning that the oldest food is used first to prevent spoilage. Staff training is vitally important as the staff who handle food, should receive training on food safety measures, including proper handwashing, cooking temperatures, and storage procedures. Schools should conduct regular inspections of their kitchens and food preparation areas to ensure compliance with food safety standards and have a food safety plan in place that outlines all the steps involved in ensuring food safety, including procedures for handling food-related emergencies (Calberry, Lofgren, & Pivarnik, 2016).

The last is communication. Schools should communicate food safety measures to students, parents, and staff to promote awareness and ensure everyone understands the importance of following proper food safety protocols.

This is just a brief description of minimal requirements school food safety should meet. For school personnel, food managers and catering staff it will be much more systematic and simple if the school implements the international standards and/or strictly follows the local food safety requirements. As for the international Standard of food safety, one of the best way is to implement HACCP (Hazard Analysis and Critical Control Points). (Williams, 2003) HACCP is a preventive approach that focuses on identifying potential food safety hazards before they occur rather than relying solely on product testing.

Shortly, food safety in schools involves a comprehensive approach that covers all aspects of food preparation, storage, and handling, along with staff training and regular inspections. By following these measures, implementing an international standard and/or strictly meeting local requirements, schools can ensure that the food served to students is safe and free from contamination.

2.3.6. Leader of OHS Service in school plays a crucial role as this is a person who is responsible for all mentioned above services operational quality and occupational

health and safety in school. The OHS leader is responsible for ensuring that the school meets its OHS obligations, including developing and implementing OHS policies and procedures, identifying hazards and risks, providing training to staff and students, and maintaining records of incidents and injuries.

The OHS leader works closely with other staff members, such as teachers, custodians, and support staff, to ensure that all individuals in the school environment are aware of OHS policies and procedures and understand their roles and responsibilities in maintaining a safe and healthy work environment. They also work with external agencies, such as occupational health and safety regulators and workers' compensation boards, to ensure that the school is meeting its legal obligations.

The OHS leader should have a strong understanding of OHS legislation and regulations, as well as knowledge of potential hazards and risks in the school environment. They should also have strong communication and leadership skills, as they will need to collaborate with staff, students, and external agencies to ensure that OHS policies and procedures are implemented effectively.

Figure 3. Services of Occupational Health and Safety system in Schools

Overall, the OHS leader is a crucial employee in schools, responsible for ensuring that the school provides a safe and healthy environment for all staff and students. By identifying hazards and risks, developing and implementing policies and procedures, and providing training to staff and students, the OHS coordinator can help prevent accidents, injuries, and illnesses and create a positive and productive work environment.

To sum up, Occupational health and safety (OHS) is a critical component of any school environment. It ensures a safe and healthy work environment for all staff and students, and helps prevent workplace accidents, injuries, and illnesses.

The role of occupational health and safety in schools is to ensure a safe and healthy environment for all staff and students. This includes identifying potential hazards in the school environment, developing policies and procedures to mitigate risks, and providing training to staff and students on OHS. OHS is not just a legal requirement; it is also an ethical and moral obligation to protect the well-being of all individuals in the school environment.

Implementing OHS measures in schools has several benefits. First, it ensures the safety and health of staff and students, which is the primary goal of any educational institution. By preventing accidents, injuries, and illnesses, OHS measures can reduce absenteeism, promote a positive work culture, and improve productivity. In addition, OHS measures can improve the school's reputation in the community, leading to increased enrollment and support.

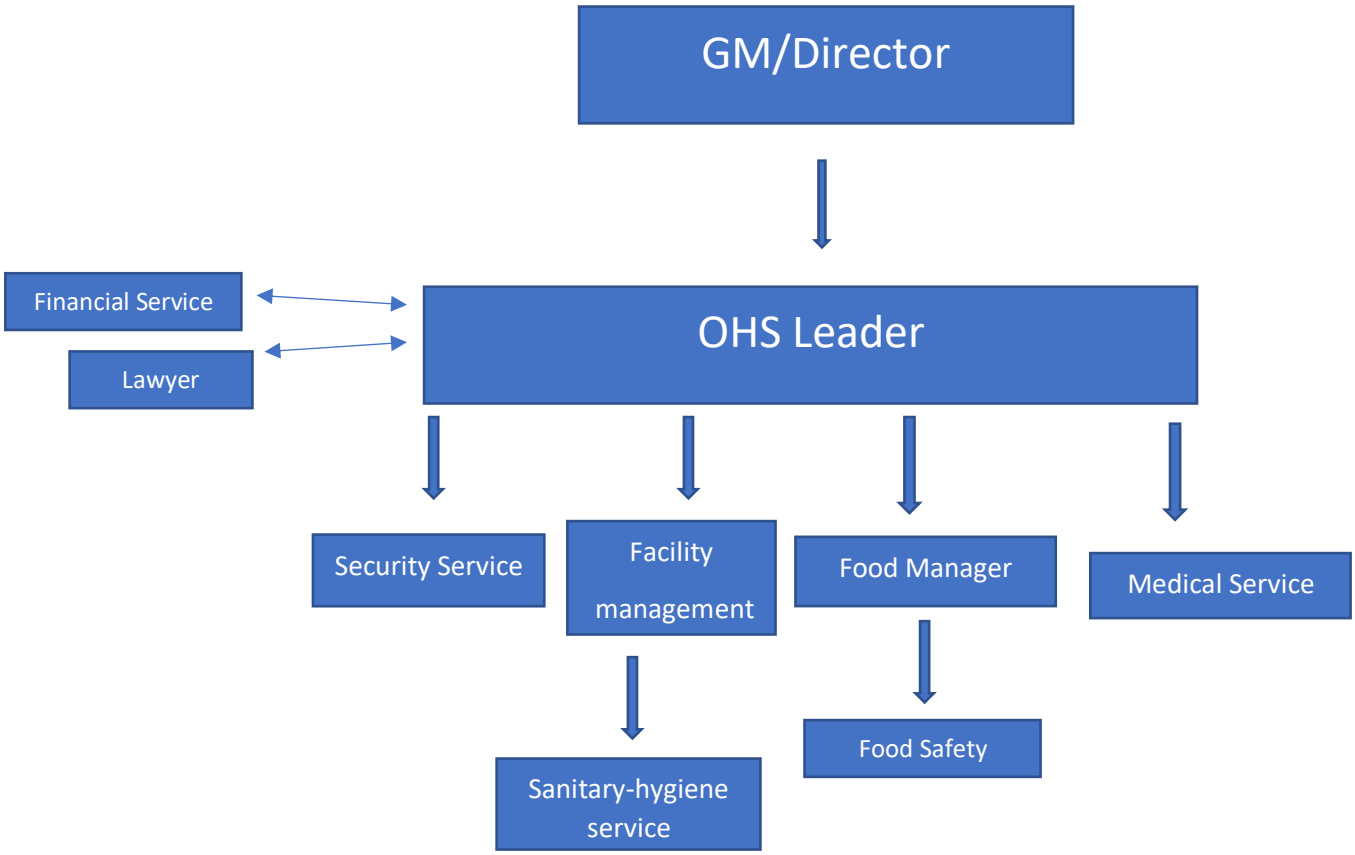
OHS is quite a big and important direction of school and any educational institution, which may include such services as medical service, security service, facility management, sanitary-hygiene service and food service.

Some examples of OHS measures that can be implemented in schools include regular safety inspections, hazard identification and risk assessments, emergency

preparedness plans, staff training on OHS, and the provision of personal protective equipment. Safety inspections can identify potential hazards such as tripping hazards, broken equipment, and hazardous materials. Hazard identification and risk assessments can help identify potential hazards and determine the likelihood of an accident or injury occurring. Emergency preparedness plans can help ensure that staff and students are prepared in the event of an emergency, such as a fire or natural disaster. Staff training on OHS can provide staff with the knowledge and skills they need to identify hazards, prevent accidents, and respond to emergencies. Finally, the provision of personal protective equipment, such as gloves, goggles, and masks, can help protect staff and students from exposure to hazardous materials.

In conclusion, occupational health and safety is essential in schools to ensure a safe and healthy environment for all staff and students. Implementing OHS measures can prevent accidents, injuries, and illnesses, reduce absenteeism, improve productivity, and enhance the school's reputation. By identifying potential hazards, developing policies and procedures to mitigate risks, and providing training to staff and students, schools can ensure the safety and well-being of all individuals in the school environment. OHS is not just a legal requirement; it is a moral and ethical obligation to protect the health and well-being of staff and students in the school environment.

Figure 4. Model of the Structure of Occupational Health and Safety Service



Relating Occupational Safety and Health to the PDCA cycle, it is of great importance to know the risks and health of the workers in the company, if the method is based on the PDCA cycle. Next, the problem is defined and then the cycle is applied. Finally, the changes executed, and the result of the control indicators are analyzed, which will serve to obtain the assessment of the company's situation, with the contribution of opinions and parameters of continuous improvement that will be made in actions that will be planned, to then start the cycle again. It is important to have reliable indicators to find the rate of compliance with the predicted actions and their effectiveness (Méndez, Ramírez, & Serrano, 2021).

OHS is totally integrated into the PDCA cycle as at the stage of plan the organization identifies the hazards and risks associated with the work activities and

implements controls to mitigate them. This involves developing OHS policies, procedures, and programs, such as hazard assessments, emergency response plans, and training programs. If the planning part for OHS system is not done properly, the whole system will be ineffective for the educational organization. As mentioned above, the aim of the effective OHS system in school is have a minimum number of incidents, near misses and have a high quality health and safety system. Hence, without having an appropriate planning, there is also a high probability that incidents will occur because of poor planning. The planning clause specifically addresses hazards identification, risk assessment, and the controls that need to be implemented. It is easy to see that this element is critical to the performance of your OH&S System. (Vidhya, 2018)

At the stage of do, the organization implements the OHS plans and programs that were developed in the planning phase, which include training employees on OHS procedures and providing them with the necessary personal protective equipment.

Stage of check in the school includes monitoring and evaluation the effectiveness of the OHS programs and procedures that were implemented in the previous phase. This part is concerned with measuring the performance of your arrangements and knowing how far it has fared. It could be positive or negative or poor or good.

Accident and incident investigations come under this section. Investigating the causes of accidents, incidents and near misses have to be investigated with documentation for reference.

This involves conducting regular workplace inspections, audits, and reviews of incident reports to identify areas for improvement.

In the stage of act, the organization takes corrective actions based on the findings of the previous phase to improve OHS performance. This may involve updating policies, procedures, or programs, providing additional training or resources, or making other changes to improve OHS.

The purpose of the Integrated Management System is the continuous improvement. Its results will be seen in the long term in terms of reduction of occupational accidents, to achieve certification. In addition, the joint evaluation, the safety culture, the work environment, the workload as well as the performance in the position, will favor the design of cycles of improvement of the safety of high efficiency in the organizations (Méndez, Ramírez, & Serrano, Relationship of the PDCA cycle in occupational health and safety management , 2021).

Overall, the PDCA cycle provides a framework for continuous improvement in OHS by ensuring that hazards and risks are identified and addressed, that controls are implemented and monitored, and that corrective actions are taken when necessary. By applying the PDCA cycle, organizations, including schools, can create a safer and healthier workplace for their employees, students and parents, to ensure that everyone is aware of the OHS policies and procedures and can contribute to a safe and healthy school environment.

2.4. Role of Technologies in Integrated Management System of Educational Institution

The final stage of integrated management system, discussed in this work is Information Technology. Technology has revolutionized the field of education. The COVID-19 pandemic has demonstrated why online education should be a vital part of teaching and learning. By integrating technology into existing curricula, as opposed to using it solely as a crisis-management tool, teachers can harness online learning as a powerful educational tool.

Technology has revolutionized the education sector, providing new opportunities for teaching, learning and collaboration. Technology has enabled the development of digital textbooks, educational software, and online courses, providing students with access to a wealth of resources that can enhance their learning experiences. Learning management systems, virtual classrooms, and collaboration tools allow

students with access to engage in interactive and immersive learning experiences. Moreover, technology has made it possible to personalize learning experiences to meet the needs and interests of individual students. Adaptive learning software can analyze student performance data and adjust content and instructional strategies to meet each student's needs. Technology has also made it easier for students to collaborate and communicate with peers, teachers, and experts from around the world. Social media, video conferencing, and online discussion forums provide opportunities for students to connect and learn from each other. Another big advantage of technology is accessibility. Technology has made education more accessible to students with disabilities or those who live in remote areas. Assistive technologies, such as screen readers, speech recognition software, and text-to-speech programs, can help students with disabilities access and engage with educational content (How Important Is Technology in Education? Benefits, Challenges, and Impact on Students, 2020)

Overall, technology has had a significant role in education, transforming the way students learn, teachers teach, and schools operate. Later, in this chapter, we will see how technologies can be used in integrated management system for more effective school management.

2.4.1 Technologies for effective school management

Technologies have been used as a major extent in governance and administration of educational institutions. Role of ICT has become one of the biggest in effective management of educational institutions. The globalisation of education has already necessitated the application of digital technologies. Online platforms were available for conducting classes, sharing resources, doing the assessment and managing the day to day activities of academic institutions. However, the use of these platforms was proactive. The COVID-19 Pandemic has forced the institutes to adopt the online teaching mode to sustain the education system. Developed countries were well equipped to deal with this crisis. However, developing

countries worked hard to meet this requirement. (Haleem, Javaid, Qadri, & Suman, 2022)

Educational governance today increasingly needs to be understood as *digital educational governance*. (Williamson, 2016) The monitoring and management of educational systems, institutions and individuals are taking place through digital systems that are normally considered part of the backdrop to conventional policy instruments and techniques of government. Technical systems that are brought into being and made operational by certain kinds of actors and organizations, and that are imbued with aims to shape the actions of human actors distributed across education systems and institutions.

In internal administration, the use of technologies has been recognized on a comprehensive scale. Educational administration is the process, by which methods, principles and procedures are put into practice within the educational institutions. It is vital for the individuals to carry out these functions in accordance to the goals and objectives. When the individuals are carrying out the governance and administrative functions, they need to ensure that they are able to achieve academic goals effectively. Today technologies in managing educational institutions can be used not only as a way of effective communication, but also correct time management, effective planning and decision making and objective measurement and monitoring tool (Education, 2017).

Nowadays, in the era of timeless, effective and fast communication is one of the most important in management. People should have a free and fast access to necessary information. The communication processes between the individuals within the working environment is an easy and less time-consuming process. The individuals are able to access various forms of technology. In other words, connectivity is promoted among departments through technology and they are required to work in greater collaboration and integration. Through the use of technology and internet, the individuals are able to acquire information and

augment their understanding in terms of concepts and fields. It facilitates organizational learning and adaptation to the changing global environment by the way of partnership, participation, information sharing and delegation. (Zink)

Digital technologies are a powerful instrument that can help improve education in various ways, such as making it easier for instructors to generate instructional materials and providing new methods for people to learn and collaborate. A new era has arrived with the Internet's worldwide reach and many intelligent devices connected to it. Thus, it will be up to instructional designers and educationists to use advanced digital technology's potential to revolutionize education such that effective and efficient education is available to everyone and everywhere. (Haleem, Javaid, Qadri Asim, & Suman, 2022)

Digital management of schools is the use of technology to manage and administer school operations, student learning, and communication. It involves the integration of technology into all aspects of school management, including administration, instruction, assessment, and communication. Digital management of schools has transformed education by providing new tools and platforms that enable educators to deliver high-quality education to students and engage parents, teachers, and other stakeholders. (Fahriye Altınay, 2016)

One of the key benefits of digital management of schools is improved efficiency and effectiveness of *administrative tasks*. Technology tools such as student information systems, learning management systems, and school management software help administrators to automate routine tasks such as attendance tracking, scheduling, grading, and reporting. This reduces administrative burden and enables school staff to focus on more strategic tasks such as curriculum development, instructional coaching, and student support. Later I will discuss deeper, how digital management can improve efficiency and effectiveness of administrative tasks. (M. Roblyer, 2018)

One of the most important aspects of school management is *attendance tracking.* Digital management systems can offer several advantages in this area. For instance, with a digital attendance tracking system, teachers can easily monitor student attendance and track patterns of absences. This allows them to identify potential issues early on and take proactive measures to address them. Automated attendance tracking systems can also notify parents and guardians in real-time if a student is absent or late to school, ensuring that they are aware of their child's whereabouts and can take appropriate action if necessary (Narra, 2021).

Digital management systems can automate the tracking process, making it easier for teachers and administrators to monitor student attendance. With an automated attendance system, teachers can quickly and easily record attendance, while the system automatically tracks and updates attendance records in real-time. This reduces the amount of time and effort required for manual attendance tracking, allowing teachers and administrators to focus on other tasks. Moreover, digital management systems can send real-time notifications to parents and guardians if their child is absent or late to school and automated notifications can help to reduce the number of unexcused absences, as parents are more likely to be aware of their child's attendance status. Moreover, by tracking attendance data over time, schools can identify patterns and trends that may be affecting student attendance. This allows schools to take proactive steps to address attendance issues, such as offering support services or interventions to help students improve their attendance (Allan Collins, 2018).

Digital management systems can automate the *scheduling of classes*, exams, and other school events, making it easier for administrators to manage their school calendars. This helps to reduce scheduling conflicts and ensure that students and teachers have the necessary resources and support they need to succeed. It also provides more flexibility in managing class schedules, allowing schools to adapt quickly to changing needs and circumstances. Digital management systems can

automate the scheduling process, allowing schools to create and manage schedules more efficiently (Vaishak, 2021).

With the click of a button, schools can generate schedules for classes, exams, and other school events. This reduces the time and effort required for manual scheduling, allowing teachers and administrators to focus on other tasks. Also, schools can easily make changes to schedules as needed, such as adjusting class times or locations, or rescheduling exams. This allows schools to adapt quickly to changing needs and circumstances, ensuring that students and teachers have the necessary resources and support they need to succeed. Digital management systems can reduce scheduling conflicts, ensuring that students and teachers are not double-booked for classes or events. This can be particularly important for schools with limited resources, as it allows them to make the most of their available space and time. Communication is another important component of use of digital management in scheduling, as digital management here can improve communication between teachers, students, and parents regarding schedules. Schools can provide students and parents with easy access to schedules, which can reduce confusion and ensure that everyone is on the same page. This can help to reduce the number of missed classes or events, as well as improve overall attendance rates (Williams C. J., 2011).

While discussing the administrative tasks and role of digital management, *grading* plays a huge role. Digital grading systems can automate the grading process, ensuring that grades are accurately calculated and recorded. This can save teachers a considerable amount of time and effort, allowing them to focus on other aspects of their work. Teachers can also use these systems to provide feedback to students in real-time, making it easier for students to understand their progress and areas for improvement. This can be particularly beneficial for students who are struggling, as it can help them identify areas where they need extra support. Digital management systems provide more consistency in grading, as they ensure that each

assignment is graded according to the same criteria. This reduces the risk of bias or subjectivity in grading, ensuring that each student is graded fairly and accurately. Another challenge in schools is real-time feedback, which can be effectively solved with digital management. Digital management systems can provide real-time feedback to students on their assignments and tests. This allows students to see their grades and feedback immediately, which can help them identify areas where they need to improve and take corrective action. By tracking grades over time, schools can identify patterns and trends that may be affecting student performance. This allows schools to make a correct analyzes and take proactive steps to address performance issues, such as offering support services or interventions to help students improve their grades.

Finally, digital management systems can generate reports quickly and efficiently, providing teachers and administrators with timely access to student data. This helps them to make informed decisions about student progress, academic needs, and other important factors affecting student success. By having access to accurate data, schools can identify patterns and trends that may be affecting student performance and take proactive steps to address them.

As mentioned above, digital management systems can play a significant role in improving attendance tracking, scheduling, grading, and reporting in schools. By automating these processes and providing timely access to data, schools can become more efficient, responsive, and effective in supporting their students. This can lead to improved outcomes for students, better communication between teachers and parents, and a more positive learning environment overall. As such, it is important for schools to consider the benefits of digital management systems and invest in them accordingly.

Another benefit of digital management of schools is improved *communication* between stakeholders. Communication in the workplace is now easier than ever before. With the use of communication tools such as social media, video chatting,

and cloud-based systems it is much easier to collaborate and reach people quickly within the workplace. Along with improving communication, technology has also improved workplace efficiency and productivity. Technology and digital communication have actually helped people with their communication skills and learning how to create messages that are understood in so many characters or less. Rather than just immediately saying what one is thinking, it now has to go through multiple processes before the world knows what someone is saying. (Dispatch, 2018). As George Bernard Shaw said, the single biggest problem in communication is the illusion that it has taken place. This happens quite often in many organizations, when the miscommunication has become the root cause of any issues. Digital management has revolutionized the way communication occurs in schools. The implementation of digital communication methods has allowed for more effective, efficient, and streamlined communication between parents, teachers, and administrators. Digital management systems allow for real-time communication, allowing parents, teachers, and administrators to stay informed and up-to-date on important information. This eliminates the need for slow and outdated methods of communication, such as letters or phone calls, and enables rapid response and resolution to issues. Digital management systems provide easy access to communication tools such as email, messaging, and video conferencing, enabling parents and guardians to interact with teachers and administrators in a timely and convenient manner. This is particularly beneficial for working parents or those with busy schedules who may not have the ability to physically attend school meetings or events. Technology tools such as email, messaging apps, and social media enable administrators, teachers, and parents to communicate quickly and easily. This improves collaboration, transparency, and engagement, and helps to build strong relationships between stakeholders.

Moreover, digital management systems can provide parents and guardians with visibility into their child's academic progress, attendance, and other important data. This allows for more transparent communication and provides parents with a

clearer understanding of how their child is performing in school. Digital management systems provide a central location for important documents, such as schedules, grade reports, and disciplinary records. This ensures that everyone involved in the student's education has access to the same information and promotes consistency in communication. School can customize communication tools and systems to fit the specific needs of their community, improving communication by providing information that is relevant and meaningful to parents and guardians.

Overall, digital management has significantly improved communication in schools by making it more timely, accessible, transparent, organized, and customizable. With the use of digital management systems, parents, teachers, and administrators can communicate effectively and efficiently, ensuring that students receive the support they need to succeed academically and personally.

Digital management of schools also enables *personalized learning experiences* for students. Technology tools such as adaptive learning software, digital textbooks, and online courses enable educators to tailor instruction to meet the needs and interests of individual students. This improves engagement, motivation, and achievement, and helps students to develop 21st century skills such as collaboration, critical thinking, and problem solving. Digital management systems can also offer adaptive learning experiences that adjust to learners' skill levels and learning styles. These systems use algorithms to evaluate learners' responses to various types of questions, which helps them identify areas where learners may be struggling and adjust the difficulty level of subsequent tasks accordingly.

Nowadays education's main aim is to develop global skills. Hence, creation of educational curriculum and programs, lesson planning and project management should be focused on developing such skills as, critical and analytical thinking skills and creativity, collaborative and communication skills; intercultural competences;

digital literacy. Digital management is one of the most important and needed tool to develop these skills in schools.

Digital management can play a significant role in developing collaborative learning by providing a platform for learners to connect, share ideas, and work together on projects. Digital management can create online discussion forums where learners can share ideas, ask questions, and engage in discussions with their peers. This can help to build a sense of community and encourage collaborative learning. It can also provide collaborative project management tools that allow learners to work together on projects, share files, and communicate in real-time. This can help learners to develop teamwork and collaboration skills. Virtual classrooms is another benefit of digital management, where learners can attend classes, participate in group discussions, and work on assignments together. This can help learners to feel more connected to their classmates and teachers, even if they are not physically in the same location. Learning with fun makes education process much more interesting and students more motivated. So, gamification techniques, provided by digital management, make learning more engaging and interactive. This can include creating leaderboards, badges, and other rewards that encourage learners to collaborate and work together.

Digital management can play a vital role in developing communication skills by providing learners with a platform to practice various forms of communication. Digital management can create opportunities for learners to engage in collaborative learning. Collaborative learning can help learners to practice communication skills, including active listening, constructive feedback, and expressing ideas clearly. In addition, digital management can provide learners with multimedia content such as videos, audio recordings, and presentations, which may lead students to practicing visual and auditory communication skills.

Finally, digital management of schools enables *data-driven decision making*. Technology tools such as data analytics, learning analytics, and assessment tools

enable educators to collect, analyze, and interpret data on student performance, teacher effectiveness, and school operations. This enables educators to make evidence-based decisions that improve student outcomes and optimize school performance. Digital management can provide educators with access to learning analytics tools that can be used to track student progress, identify areas of improvement, and personalize learning experiences. This data can be used to make evidence-based decisions that improve student outcomes. In addition, assessment data can be used to identify areas of strength and weakness in student performance. This data can be used to make evidence-based decisions about instructional strategies and interventions that can improve student learning. Moreover, digital management can provide educators with access to professional development opportunities that can help them to develop their data analysis skills. It will lead to making evidence-based decisions about teaching strategies, curriculum development, and student support.

Digital management can help with program evaluation by providing tools and resources that allow for the collection, analysis, and interpretation of data related to program outcomes. By data collection, digital management can provide tools and resources for collecting data related to program outcomes. This might include surveys, interviews, and other data collection methods that can be conducted online. Data analysis can play a big role for schools continual improvement. It can offer schools data visualization tools, statistical analysis software, and other tools that can be used to identify trends and patterns in the data, which will lead to setting correct preventive actions. Moreover, digital management can provide tools and resources for creating reports and presentations that summarize program outcomes. This might include dashboards, infographics, and other visualizations that help to communicate the results of the evaluation to stakeholders. Lastly, digital management can support ongoing program evaluation and improvement. By regularly collecting and analyzing data related to program outcomes, stakeholders

can identify areas of strength and weakness and make data-driven decisions about how to improve the program.

In conclusion, digital management can facilitate collaboration among educators, allowing them to share data, resources, and best practices. This can help educators to make evidence-based decisions by leveraging the expertise of their colleagues. Digital management can provide learners with a range of tools and resources to practice and develop communication skills. By creating a supportive and collaborative learning environment, digital management can help learners to build confidence in their communication skills and prepare them for success in their personal and professional lives. Digital management of schools is transforming education by improving efficiency, communication, personalization, and data-driven decision making. By leveraging technology, educators can provide high-quality education to students, engage stakeholders, and improve school performance.

It is obvious that small, medium and large-scale education technology companies have started proliferating in the future and are offering various new digital solutions to academic institutions. It will lead to improvement of the quality of digital infrastructure in educational system. E-learning provides students and teachers access to a vast pool of information content. While technology will play an essential role in shaping the future of education, ensuring that new teaching tools are used effectively will require a new generation of educators who understand the importance of human connection in the classroom. These can lead to a satisfying and engaging career in education. Students gain the knowledge and skills necessary to employ new educational technology to maximise their advantages for today and in the future. In upcoming years, education trends will ride the tide of growing internet capabilities and network capacity, making it easier to incorporate innovative technology into classrooms (Haleem, Javaid, Qadri Asim, & Suman, 2022).

School digital management can be integrated into the Plan-Do-Check-Act (PDCA) cycle as follows:

1. Plan: In the planning phase, school management can use technology to gather data, analyze trends, and set goals. For example, school management can use student data to identify areas of improvement and set performance goals for teachers. Management can also use technology to develop plans for professional development, allocate resources, and create schedules.
2. Do: In the doing phase, school management can use technology to implement plans and monitor progress. For example, teachers can use learning management systems to deliver instruction, assess student progress, and provide feedback. Management can use data analytics tools to track progress, identify challenges, and adjust plans as necessary.
3. Check: In the checking phase, school management can use technology to evaluate performance and gather feedback. For example, management can use surveys or online forums to gather feedback from parents, students, and staff. They can also use data analytics tools to monitor performance, identify trends, and evaluate progress against goals.
4. Act: In the acting phase, school management can use technology to make improvements and implement changes. For example, management can use data analytics tools to identify areas for improvement and develop action plans. They can also use collaboration tools to engage stakeholders and implement changes.

Overall, integrating technology into the PDCA cycle can help school management to gather data, analyze trends, set goals, monitor progress, evaluate performance, and make improvements. By leveraging technology, school management can improve the efficiency and effectiveness of the PDCA cycle, and ensure that they are making evidence-based decisions that improve student outcomes. Technology

is transforming education governance by providing new tools and platforms for data collection and analysis, communication and collaboration, planning and budgeting, monitoring and evaluation, and policy development and implementation. By leveraging technology, education leaders can improve the quality and equity of education systems and ensure that all students have access to high-quality education.

Chapter 3. Research Design, Practical Findings and Results Analysis

3.1. Research Framework: Deming Cycle for the Integrated Management System in Educational Organization

One of the most common Lean frameworks for Continuous Improvement (of quality) is the Deming Cycle –also commonly known as PDCA Cycle, Deming Wheel, Shewhart Cycle, or Continuous Improvement Spiral. The Deming Cycle consists of a logical sequence of four repetitive steps for continuous improvement and learning: PLAN, DO, CHECK (STUDY), and ACT. (Lukman Hakim, 2020)

It originated in the 1920s with statistics expert Mr. Walter A. Shewhart, who introduced the concept of Plan, Do and See. Deming modified the cycle of Shewart towards: PLAN, DO, CHECK, and ACT. The Deming Cycle is related to Kaizen thinking and Just-in-time (JIT) manufacturing. The concept of PDCA is based on the Scientific Method (which can be written as Hypothesis-Experiment-Evaluation-Do-Check), developed by Francis Bacon.

PDCA Cycle is adaptable and can be used in all businesses, including the educational organizations.

This research aims to identify the use of PDCA cycle in Georgian educational organizations and demonstrate the importance of implementing Integrated Management System in the educational organizations.

For this, I use the following hypotheses:

1. At the stage of Planning, educational organizations do not consider risk assessment and interested parties expectations.
2. Processes are not managed effectively and action plan does not work properly.

3. Monitoring/Measurement is not systematic and oriented on professional development
4. Educational Organizations do not analyze the importance of management review and reporting
5. At the stage of Analyzing, educational organizations do not consider influence of external factors.

3.2. Research Design

After reading the literature, it is critical to establish a structural framework. There are quantitative and qualitative research methodologies; however, for the research results to be improved and supported, a combination of them is required. (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). The quantitative method is based on statistical data analysis procedures, whereas the qualitative method is based on the reported story. (Berrios & Lucca, 2006).

Individuals, their relationships with the environment, and the motives that drive individual behavior are all examples of qualitative methodologies that can be utilized for non-quantitative analysis and evaluation. (Strauss, 1990). There are two views on qualitative methods, according to Berios and Luca (2006), which provide a "better understanding of human development", while Gerdess and Conn (Gerdes & Conn, 2001) think that they allow us to look at "whole rather than the parts ".

The use of numerical data necessitates the application of a quantitative procedure. As a result, these methods rely on surveys and experiments to collect data and generate statistics. (Creswell, 2003). The results are generalizable to bigger populations, which is its main advantage.

Both quantitative and qualitative data are collected and then utilized in research. This form of research is based on philosophical assumptions as well as Creswel and Clark's research methodology. (Creswell & Clark, 2017)

When both methodologies are used in study, they provide a better grasp of the problem than either alone.

According to Hurmerinta-Peltomakl and Nummeia, while studying complicated situations, only one method delivers a limited view of the entire picture. (Hurmerinta-Peltomakl & Nummeia, 2006). The mixed technique begins with a qualitative methodology in which the topic matter is deconstructed in order to assist appropriate interpretation of the study results.

At first, in order to gain some information about the existing management system in Georgian educational organizations, specifically in schools, I decided to make interviews (see the questions in Appendix 1) with the following people: leaders, managers of the schools, teachers (academic personnel) and technical personnel (safety, medical service, food safety service etc.) In order to get the full information about both, private and public sectors, I decided to conduct my research in both sectors. So totally 42 respondents participated both from private and public schools. From these 42 respondents, 19 were from private sector and 23 – from public sector. For my research the most important was to get information about the real existing management system in educational organizations, use of PDCA cycle in integrated management system and interested parties engagement level. So, the questions in my questionnaire were organized in the way to gather information about how each step of PDCA Cycle is implemented in the management systems of the educational organizations and whether the schools have integrated management systems or not.

The qualitative research employed an interview research design. At this point, determining the amount of samples for the investigation was undoubtedly necessary. As previously stated, for qualitative analysis, a smaller sample size may be used than for quantitative analysis. If research participants are added, this does not always result in new information; in this situation, the information is saturated. To attain the optimum sample size in a qualitative study, Glaser and Strauss

advocate the idea of saturation (Glaser & Strauss, 1967). Morse suggests about 30-50 interviews (Morse, 1994), while Creswell offers only 20-30 (Creswell, 1998).

For qualitative research, however, the sample size can be best determined by the appropriate resources, time allocated, and research objectives (Patton, 1990).

A minimum number of participants is necessary when the goal of the research is narrow, the combination of participants is specific to the objective of the research, the interview dialogue is robust, and the analysis comprises in-depth study. However, when the study's objective is broad and the combination of individuals is less particular, the interview dialogue is weak, and cross-analysis is performed, a high number of participants are required.

For the interviews, I selected managers, teachers (academic personnel) and technical personnel (security, medical service, food safety personnel etc.) of the educational organizations from both private and public schools. Totally, five private schools and eight public schools were involved in the interviews. In the interview, I tried to keep the cycle of PDCA in order to combine then the result of Quantitative and Qualitative Research findings for better analyses. Therefore, the first question in the interview was whether the managers, academic personnel and technical personnel used risk assessment at the stage of planning and what kind of risks they would remember from this academic year. In addition, I asked them to describe the preventive actions they used for avoiding risks and the system how they generally assess risks. The next question was connected with the Doing stage from PDCA Cycle and I asked the respondents to remember how much the action plans really help them during the working process. The third question, which gave me a lot of important information, was about monitoring and measurement. Here I tried to combine several questions, like how often the personnel has the monitoring; do they find observations useful for their professional development and how mush stressful is the process of monitoring for them. Here was very interesting that I made a cross check using these questions, as first I gathered

information from the managers how they conduct the stage of Checking and then I checked this information with the academic and technical personnel. The last question, connected with the last stage of PDCA Cycle, Act, was about the importance and types of reporting. I asked the respondents to remember the last reporting they did and describe the way that they worked on that.

After that I started moving the notes to Microsoft Excel and analyzing them.

3.3. Qualitative Research Findings

The most interesting part was analyzing the respondents' answers. As for the first question about the risk assessments, answers were divided onto two categories. Almost everyone from both public and private schools, answered positively that they make risk assessment at the stage of Planning, however, all of the public schools managers were not able to demonstrate the exact systematic approach, which they use for this process. Mostly managers discussed risks orally; however, they mentioned that the action plan for academic year does not include written risk assessment. As for the teachers and academic personnel, they noticed that the risk assessment usually considers students' academic achievements and they are not involved in management risk assessment processes. It was interesting to analyze that some of the public schools' technical personnel, specifically, safety and security service, noticed that they assess safety risks in order to reduce or avoid them. As for the public sector, almost all managers answered positively that they assess risks at the stage of planning and two of the private schools demonstrated a clear method of risk assessment system. In addition, they noticed that they have included risk assessment in the written action plan. Moreover, it was interesting to hear that both of them make a survey of interested parties' expectations and consider them into the planning stage. Other three private schools also discussed that they use risk assessment in the planning stage and they demonstrated the safety, but not the management risk assessment. These three schools demonstrated

a good knowledge of safety risk assessment and they have trained special employees for safety, however, as for the education management risk assessment we could find nothing. It is important to notice that those two private schools, which demonstrated a systematic approach for risk assessment at the stage of Planning, hold International certificate of Quality Management, ISO 9001.

The second question of my interview, how does the action plan help the managers and employees and whether they follow them or not, mostly in both, private and public sectors, responses were positive. Almost everyone answered that there is a necessity of the action plan. Also almost everyone mentioned that the action plans are prepared before the beginning of the academic year and if not the plans, then their work would be spontaneous and not systematic. Discussing whether any changes or corrections are indicated in the action plan or not, led us to the concept that most schools managers think that it is a waste of time to make any formal written corrections in the action plan.

The answers for the third question were the most interesting for analyzes. As for the PDCA Cycle, the stage C – Check or S – Study has a huge responsibility, because according to William Thompson, if something is not measured, it can never be improved. I had three questions for this stage. For the first question of stage Check, which is as follows: How often do you have observations? The managers from both private and public schools answered that they have observations only by the school Authorization Council, which is traditionally once in 6 years and those who have international standards, additionally once a year from the auditing company. The academic personnel noticed that generally their observations are once a semester and this is usually attendance at their lessons. It was interesting that the technical personnel in public schools said that they never have observations, however in private schools, some of them noticed that their observations are conducted once or twice a year. The question whether the monitoring process is stressful or not, almost everyone answered positively and some of them even added that nobody likes when observed. The last question from this cycle was about the influence of

monitoring and observation on professional development. Manager from public schools answered that they find Authorization Council observation critically important for their organizations development. Teachers and technical personnel from the public sector also answered positively. It was interesting when I asked the academic personnel to think of any feedback they received from the last observation. Some of the representatives were confused and could not remember any of the feedback from their observation report. As for the private schools, here the picture was a bit different. Most managers claimed that they find important Authorization Council Observation, however, it does not significantly effect on their business development and management system. Those schools, which are ISO 9001 accredited, mentioned that they find their external annual audit very important for business, management and organization development. As for the academic personnel, mostly teachers noticed that they have observations at least once a semester and they find monitoring useful for their professional development as the feedback which is usually provided by the head of the department, mostly is oriented on development. As for the feedback, most of them could remember, however not all of them.

The last step of my interview is to analyze role and system of reporting in the educational organizations. For that, I asked the respondents what type of reporting system do they use and how often they make management review. Manager of the public schools claimed that SWOT analyzes is a form of reporting they use more often. Usually they make reporting once a semester. In addition, public sector representatives indicated that mostly they are oriented on academic achievements reporting. It was interesting that technical personnel is not actively involved in reporting process. As for the private schools, the answers about the type of reporting were almost similar. SWOT is mostly used for analyzes, however, besides the academic personnel, in public schools, technical personnel is also involved in reporting. Management Review is done at the end of each academic year.

To summarize all mentioned above, we can analyze all information in the table below:

Table 1: Research Results in Public Schools

Total number of respondents - 23

		Assessment not formal	**Not systematic**	**Not involved in action plan**	
PLAN	Risk Assessment	23	23	23	
		Follow the plan	**Indicating any corrections or changes if needed**		
DO	Doing with the action plan	20	0		
		Is held	**Knows feedback**	**Stressful**	
CHECK	Monitoring	21	9	19	
		Is conducted	**SWOT**	**PESTEL**	**different**
ACT	Management Review; Reporting	18	16	0	2
	Comment: in Public Schools Technical personnel refused the fact of being involved in reporting and management review				

Table 2: Research Results in Private Schools

Total number of respondents - 19

		Assessment not formal	**Not systematic**	**Not involved in action plan**	
PLAN	Risk Assessment	10	10	10	
		Follow the plan	**Indicating any corrections or changes if needed**		
DO	Doing with the action plan	19	10		
		Is held	**Knows feedback**	**Stressful**	
CHECK	Monitoring	19	16	15	
		Is conducted	**SWOT**	**PESTEL**	**different**
ACT	Management Review; Reporting	19	19		
	Comment: in Private Schools Technical personnel is involved in reporting and management review				

3.4. Quantitative Research and Results

For the quantitative research, I tested the defined hypotheses. For this purpose, I used the questionnaire (see Appendix 2), which were distributed among educational organizations, specifically public and private schools', leaders, managers, academic and technical personnel. There were totally 71 respondents in public and private schools. Out of these 71 respondents 30 were from the private schools and 41 from public schools. In all schools leaders, managers and personnel were involved.

The first 4 hypotheses are formulated as follows:

$$H_0: \mu \leq \mu_0$$

$$H_1: \mu > \mu_0$$

where μ_0 is taken as a predefined threshold level. The test statistics is computed as

$$t = \frac{\bar{x} - \mu_0}{\frac{s}{\sqrt{n}}}$$

for which the rejection rule is to reject H_0 if $t > t_{n-2,\alpha}$ for some significance level α. s denotes the standard deviation and n is the sample size.

Considering the m number of questions for each respondent in the given questionnaire, where the respondent answers each question based on the likert scale from 1 to 5, we compute

$$\bar{x} = \frac{1}{71}\sum_{i=1}^{50}\left[\frac{1}{m}\sum_{j=1}^{m} q_j\right]_i$$

where the answers have been collected from 71 respondents in total. μ_0 is taken to be 3. So, the above hypothesis reduces to

$$H_0: \mu \leq 3$$

$$H_0: \mu > 3$$

The table below shows the results for each hypothesis listed in the beginning of this section.

Hypothesis 1

$\bar{x}$	3.54
s	0.57
n	71
t	7.95
$t_{n-2,\alpha} = t_{48;0.05}$	1.67

Since $t = 7.95 > 1.67 = t_{69;0.05}$, we reject the hypothesis.

According to the survey results, Hypothesis 1 is rejected, which means that educational organizations mostly make risk assessment at the stage of planning. Almost all the representatives from the educational organizations noticed they make risk assessment, however when it came to the systematic approach, the results showed that in most schools there is not a systematic approach of risk assessment and not all the fields are included in this process.

Hypothesis 2

$\bar{x}$	3.14
s	0.83
n	71
t	1.5
$t_{n-2,\alpha} = t_{48;0.05}$	1.67

Since $t = 1.5 < 1.67 = t_{69;0.05}$, we do not reject the hypothesis.

Based on the survey results, Hypothesis 2 is not rejected, which means that in educational organizations processes are not managed within the integrated management systems and actions plans are mostly ineffective. Based on this, we may conclude that the stage of doing from the PDCA cycle, does not work effectively and there is a need of implementing integrated management system in the educational organization.

Hypothesis 3

$\bar{x}$	3.18
s	0.67
n	71
t	2.25
$t_{n-2,\alpha} = t_{48;0.05}$	1.67

Since $t = 2.25 > 1.67 = t_{69;0.05}$, we reject the hypothesis.

According to the results of the Hypothesis 3, we may say that this hypothesis is rejected, which means that the measurement process is systematic and the personnel consider the monitoring process oriented on professional development. If we make a comparative analyzes with the qualitative survey results, based on the fact that most respondents did not remember the recommendations and the feedback from the observation reports, we may conclude that even though the hypothesis is rejected, educational organizations still need to think about more goal-oriented and systematic approach of Check cycle.

Hypothesis 4

$\bar{x}$	3.63
s	0.72
n	71
t	7.33
$t_{n-2,\alpha} = t_{48;0.05}$	1.67

Since $t = 7.33 > 1.67 = t_{69;0.05}$, we reject the hypothesis.

As this Hypothesis is rejected, it means that Educational Organizations analyze the importance of management review and reporting. Hence, the leaders and managers are involved in this process and engage the staff to be involved too.

Hypothesis 5

The Hypothesis 5 is based on proportions. The organizations use either SWOT or PESTEL analysis.

Let P denote the population proportion of PESTEL and $\hat{p}$ denote the sample proportion. The following hypothesis is tested

$$H_0: P \leq 0.8$$

$$H_0: P > 0.8$$

If the null hypothesis is rejected, this way we conclude that the PESTEL analysis is widely employed. The procedure is as follows. The tests statistics is

$$z = \frac{\hat{p} - 0.8}{\sqrt{\frac{0.8(1-0.8)}{71}}}$$

which is compared to the critical value z_α (for $\alpha = 0.05$) which represents the standard normal quantile corresponding to the given significance level. As a result, we obtain

$\hat{p} = 0.08$ which makes it simply to guess that the hypothesis will not be rejected. Obviously, since $z = -78 < 1.65 = z_{0.05}$, we cannot reject the null hypothesis.

The results of the Hypothesis 5 are tightly connected with the Hypothesis 4. To make it clearer, I will try to make a short comparative analyzes of these two hypotheses. As we see from the results of the Hypothesis 5, mostly educational organizations use SWOT analyzes and PESTEL is rarely or not used at all. If we consider the results of the Hypothesis 4, where we see that educational organizations consider reporting and management review quite an important stage and they are actively involved in this process, however the form they use for analyzing the work, does not cover all those fields, which are vitally important for business development. Specifically, if PESTEL is not used for analyzing, then it means that leaders and managers of the educational organizations do not consider such external factors, as political, economic, social, technological, legal and environment factors. In today's rapidly changing world, without analyzing of above mentioned external factors, risks of having high quality and effective management system in the educational organizations, is really high.

To sum up the analyzes of all these five hypotheses, we may conclude that mostly schools in Georgia are aware with the use of PDCA cycle in the management system. Moreover, they implement almost all stages in the working procedures. However, not all of these stages work effectively and there is more need for

implementing integrated management system. If, for example, the stage of planning is implemented by all educational organizations, still there is not a systematic approach for risk assessment at this stage. As for the Doing circle, we may see that the action plans are mostly formal documentations for educational organizations, rather than a guidebook for implementing changes for development. Stage Check is implemented in every school and the personnel is actively involved measurement process. Finally, stage of Act is also implemented in all educational organizations, however there is no analyzes of the external factors, which may highly effect on organization management development.

Conclusion

The interest and the goals of the research are the following:

- To analyze the effective integrated management system for educational organizations;
- To define PDCA cycle for integrated management system (in the context of each step of PDCA);
- To specify integrated management style and forms, sense of problem-based management, risk assessment and analyzing the data for continual improvement of the organization;
- To identify the needs and necessities for educational organizations' management within the Deming cycle;
- To reveal the existing management forms within the PDCA cycle in educational organizations in Georgia;
- To deliver the relevant recommendations for educational organizations (schools) in Georgia.

Based on the results, we may make several conclusions. I will discuss the conclusions in frame of the PDCA Cycle in integrated management system in the educational organizations, based on the survey results.

Firstly, I will start with the first stage of PDCA Cycle, Planning. As for the planning stage, we may see that public schools assess risks, but the process does not have a systematic approach. This may lead to not effective planning, as the educational management cannot be effective if business risks, academic achievement risks, staff management risks and other types of risks are not assessed systematically and based on the specific risk assessment matrix. In case of effective risk assessment, the educational organization is able to set preventive actions, which will reduce or avoid the risks and make the organizational management much more goal-oriented and successful. It is also important that the risk assessment must be done at the stage of planning not at the stage of reporting or analyzing, as many educational

organizations think. As for the health and safety risks, public schools demonstrated in the survey that they do the health and safety risk assessment, as the government obliges them. Hence, if there is any kind of approach towards health and safety risk assessment, then it may be integrated with business and academic achievements risk assessment system. As for the private schools, here we have almost the same situation besides those two schools, which are certified with international Quality Management Standard, ISO 9001. Mostly all private schools have not formal risk assessment approach, however in contrary with the public schools, they all have health and safety risk assessment. Hence, it is quite simple for the educational organization to make an integrated management system and use the occupational health and safety risk assessment system for the academic and business development direction. ISO 9001 certified schools have the integrated management system of risk assessment and they demonstrate systematic approach of the integrated management system.

The research results of the next stage, doing, demonstrated that mostly both in private and public schools, the managers and the staff follow the action plan. However, by the public schools action plan is more understood and considered as the plan for managers and academic personnel. However, the technical personnel mostly works routinely and the importance of making the action plan is much less. This is a demonstration of not having an integrated management system in the educational organization, as the managers and leaders of the school should realize the importance of planning equally for both, academic and technical personnel. Not systematic and ineffective health and safety system in the educational organization may lead to demotivation of all students and staff. Not effective health and safety system can cause incidents, non-conformities, not appropriate working conditions etc. All these may negatively influence on the staff and customers even if the quality of the education is high. Hence, managers and leaders of the school should realize the importance of integrated management system of health and

safety and quality management, which will guarantee the systematic approach of organizational development.

The next stage of the Deming Cycle is Check. As the research showed, both public and private schools conduct teachers' observations, managers and leaders noticed that they have Authorization Council audit. Moreover, most teachers noticed that the observations are oriented on professional development; however, it was interesting when some of them did not remember the feedback they received after the observation. If the observations are oriented on professional development, then the feedback I,s the most important thing at this stage. I would even notice that the feedback and post observation stage is not less important as the measurement process itself. When we measure or monitor something, the aim should be continuous improvement, hence, the feedback and working on improvement is significantly important, otherwise the observation or measurement loses its sense.

It is also important to notice that in public and some private schools, the technical personnel does not have the systematic observation and mostly their monitoring is held when, as they mention, there is an urgent necessity.

To sum up the stage of Check, measurement and observations are systematically done in the educational organizations, however, not all the fields are under the monitoring and integrated management system is not used in the educational organizations. Moreover, if the feedback and preventive actions after the monitoring are not managed appropriately, effectiveness of this stage is very low. Hence, the educational organization is less oriented on continuous development.

The last stage of the Deming Cycle, Act, considers Management Review. Based on the results of the Check step, stage of Act requires taking appropriate actions to standardize the successful changes and implement necessary adjustments to improve the process further. (Wool, 2022)This can include refining the plan for the next cycle. Hence, this is the most important analytical part, which is a step towards the continuous improvement. As we see in the research, according to the

respondents answers, almost all schools, both private and public, make a reporting and even more, schools make analyzes using the SWOT. However, I need to notice that even though reporting and analyzes of conducted work during the academic year are done by almost all schools, the chain of the PDCA cycle still is not a solid circle and here is the reason why. If the school personnel, including the leader, managers, and staff are involved in reporting and they set appropriate actions for changes, then these changes must be led appropriately. As Henry Ford, American industrialist and business magnate, says if you always do what you have always done, you will always get what you have always got. So effective change management is crucially important for leaders and managers in order to lead the organization to continuous improvement. To lead change management appropriately, one of the most important step is to identify potential obstacles. Risk assessment helps in identifying potential obstacles and challenges that could hinder the change process. This allows the change management team to develop mitigation strategies and contingency plans to address these issues if they arise. (Ali Soylu, 2021). Moreover, according to the Deming Cycle, we see the PDCA stages are all connected with each other and eventually the circle leads to continuous improvement. However, what we see in the planning stage is that mostly in all schools, especially, public ones, there is not set a systematic approach towards the risk assessment and furthermore, the preventive actions of the risks are not included in the plan. Then, the stage of Act, which aims to change for better and set appropriate preventive actions for improvement after the stage of Check, is under a big question, whether it is effective in the educational organizations or not.

As for the Integrated Management System, based on the results, we see that technical personnel is not as included in the Check and Act stage, as the academic ones. From the first sight, it may seem logical, because educational organizations' main goal is to deliver teaching and tutoring and give the generation high quality education. However, when we consider the educational organization as a business, which should be oriented on continuous improvement. As discussed above, all

directions, academic and health and safety, are important for the organizations. Leaders of the educational organizations should realize the importance of implementing integrated management system and involving the health and safety field in all the processes of PDCA Cycle in order to make a systematic approach of Integrated Management System in the educational organization.

To sum up, the stage of Act, results of the survey showed that schools need to do into the depth of change management and understand its role for educational organization's development and involve the health and safety system in order to make an integrated management system of the educational organization. Otherwise, we will never go towards the continuous improvement. I will finish this chapter with Peter Drucker's words that the greatest danger in times of turbulence is not the turbulence; it is to act with yesterday's logic. Hence, education can never remain with yesterday's logic as this is the field, which raises generations and is a fundament of the country's development.

Recommendations

Based on the research results, I offer several recommendations for the educational organizations in Georgia for further development, implementing effective management systems and being oriented on continuous improvement.

There are the followings:

1. Educational organizations should use the Deming Cycle (PDCA) for effective organizational management. PDCA Cycle allows the leaders to implement effective management system with all the stages considered – planning, doing, checking processes and acting. Leaders should understand the role of PDCA Cycle for continuous improvement. Firstly, PDCA Cycle gives the educational organization systematic improvement. It encourages educators and administrators to plan, execute, evaluate, and refine

educational processes continually. Moreover, each phase of the PDCA cycle involves data collection and analysis. Leaders can make informed decisions based on evidence and data rather than relying on intuition alone. This promotes evidence-based practices, leading to more effective educational strategies. Quality Assurance is another benefit of the PDCA Cycle. By regularly checking and assessing the results of educational initiatives, the PDCA cycle helps in maintaining and improving the quality of education provided by the organization. It allows for the identification and resolution of issues before they become more significant problems. In addition, the PDCA cycle encourages a culture of continuous learning and professional development. It fosters an environment where educators seek out new teaching methods, share best practices, and continuously improve their skills. Through the PDCA cycle, educational organizations can set measurable objectives and track progress toward their goals. This helps leaders and stakeholders see the impact of their efforts and make data-driven decisions. At the stage of checking, we need to remember that the aim is to give a professional feedback, which aims on development of the staff and the whole organization. What is more important, to implement corrections, gained from the observation feedback to go towards the improvement.

2. If we consider each stage of the PDCA Cycle in the educational management, there are the recommendations for each stage of the Deming Cycle, which are oriented on development of educational management.

2.1. As for the Planning stage, educational leaders should understand the importance of effective planning, which includes actions, deadlines, people in charge, needed resources, risk assessment, preventive actions. Action plans must be specific, measurable, achievable, relevant and time-bound (SMART). Based on the research, educational organizations should implement a systematic approach of the risk assessment, assess risks and set preventive

actions in order to reduce or avoid risks, make the plan more efficient and work with continuous improvement approach.

2.2. As for the stage of doing, we observed that almost all schools use their action plans and consider them useful and goal-oriented. However, we need to be more systematic and accurate with corrections or changes in the plan. When there is a change in a strategic or action plan, there is always a reason why we need to make this change. Analyzing the root cause of the change, allows the leaders to set effective management approaches and implement these changes more efficiently. Moreover, these changes and their root causes later may become a part of standard operating procedure and assist the educational organization to impact on different aspects of a system, process or organization. Finally, not all changes lead to success. Analyzing changes provides opportunities to learn from mistakes or shortcomings. This helps avoid repeating the same errors in the future.

2.3. As for the stage Check, observations and their results play a huge role in educational management. Hence, leaders should implement more effective ways of making observations oriented on continuous improvement and professional development. Moreover, all fields, academic and technical should be involved in measurement process. Finally, management of recommendations, given in the feedback of the observation is vitally important for development. If the feedback is formal and not oriented on the improvement, if the staff does not remember the feedback and recommendations, then there is no sense of measuring, as it will never be improved.

2.4 As for the last stage, Act, leaders should lead the management review process and involve all the fields/department into the analyzing and reporting. As for the reporting forms, we observed that mostly SWOT is used in the educational organizations. I recommend educational leaders to consider external factors too and besides the SWOT analyzes use the PESTEL analyze form. COVID-19 Pandemic demonstrated clearly that external factors can have a huge influence on

business and only those can survive, which are ready for effective change management. Hence, in today's rapid world, analyzing of political, economic, social and technological factors on the educational management may lead to leadership that is much more successful and developed.

3. The last recommendation is implementing Integrated Management System in educational organizations. An integrated management system combines various fields of management into one smart system. This integration reduces duplication, eliminates redundancies, and streamlines workflows, leading to improved efficiency and productivity. With an integrated system, standard operating procedures and best practices can be established and followed consistently across different departments and fields. Moreover, Integrated Management System is designed to be adaptable and flexible. As educational organizations become larger, an integrated management system can accommodate new needs, programs and technologies without significant disruptions. As the results of the research showed, educational organizations in Georgia are lack of integrated management system, which makes the management more distributed. Hence, integrating of at least Quality Management and Health and Safety Management will lead to much more effective, adaptable and flexible management system. For that, educational organizations can implement international standards, mentioned before in this thesis, ISO 9001 for Quality Management or ISO 45001 for Health and Safety Management. However, I would like to notice that this is not the only one way of implementing integrated management system in the educational organizations due to its costs. With good leadership skills and professional staff, educational organizations can integrate management systems on their own without implementing international standards if they are not able to afford it financially.

Besides the Quality Management and Health and Safety Management, as mentioned before in this thesis, there is the third field discussed, which is technological management. Nowadays, in the technological era, it is impossible to have a good management of the educational organization without use of

technologies both in education, or in management. Hence, the third direction for implementing Integrated Management system within the Quality Management and Health and Safety Management in the educational organization, I would recommend the technological management.

To sum up, embracing the PDCA cycle and adopting Integrated Management System allows the educational organizations to survive in today's competitive and dynamic landscape. The PDCA cycle encourages continuous improvement, while an Integrated Management System combines the processes and enhances data–driven decision-making. Together, these powerful tools help educational institutions implement effective management system and be oriented on development.

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Appendix 1. Interview Questions (Georgian and English versions)

1. რამდენად ხშირად აფასებთ რისკებს?

2. გაქვთ დანერგილი რაიმე სისტემა რისკების შეფასებისა?

3.ხომ ვერ გაიხსენებთ რომელიმე რისკს და მის პრევენციულ ღონისძიებას?

4. როდესაც ქმნით სამოქმედო გეგმას, როგორც წესი, ხელმძღვანელობთ შემდეგ ამ გეგმით?

5. თუ თვლით, რომ გჭირდებათ სამოქმედო გეგმაში ცვლილების განხორციელება, აწარმოებთ ამ ცვლილების ანალიზს და ასახავთ მას სადმე დოკუმენტურად?

6. რამდენად ხშირად გიტარდებათ მონიტორინგი?

7. რამდენად საჭიროა თქვენთვის თქვენი მუშაობის შეფასება?

8. ხომ ვერ გაიხსენებთ რომელიმე რეკომენდაციას, რაც მიიღეთ მონიტორინგის შედეგად?

9. როგორ მუშაობთ საქმიანობის შეჯამებასა და ანალიზზე? (თუ ახორციელებთ ამ პროცესს)

10. საქმიანობის ანალიზის რა ფორმას იყენებთ?

1. How often do you assess risk?

2. Do you have any risk assessment approach/system?

3. Do you remember any risk and preventive actions after the risk assessment?

4. When you make an action plan, do you generally follow it?

5. If you feel you need to change something in your action plan, do you make any corrections in the plan? Do you make any analyzes of making changes in the plan?

6. How often do you have a monitoring?

7. How useful do you find the observations?

8. Do you remember any recommendations, which you received after the observation?

9. How do you work on analyzing and reporting, if you do?

10. Which for of the reporting do you use?

Appendix 2. Survey Questions (English and Georgian versions)

კითხვარი

დაგეგმარების ეტაპი (PLAN)

#1. 5-ქულიანი სისტემით შეაფასეთ, რამდენად ხშირად აფასებთ რისკებს საქმიანობის დაგეგმარების დროს?

(1 არ ვაწარმოებ რისკების შეფასებას, 5-მუდმივად ვაწარმოებ რისკების შეფასებას დაგეგმარების დროს)
1 2 3 4 5

#2. რამდენად ითვალისწინებთ მომხმარებლის / დამკვეთის ინტერესებსა და მოლოდინებს საქმიანობის დაგეგმარების დროს ? (1-არ ვფლობთ ინფორმაციას დამკვეთის მოლოდინებსა და ინტერესებზე; 5- ყოველთვის ვითვალისწინებთ)

1 2 3 4 5

#3. რამდენად განსხვავებულია წინა სასწავლო წელთან შედარებით დამკვეთის მოლოდინები და მოთხოვნები? (1- არგანსხვავდება; 5- აბსოლუტურადგასხვავებულია)

1 2 3 4 5

საქმიანობის წარმართვის ეტაპი (DO)

#4. რამდენადწარმართავთსაქმიანობას სამოქმედოგეგმის მიხედვით?

(1- როგორც წესი, გეგმითარვხელმძღვანელობ; 5- საქმიანობას წავრმართავ გეგმის მიხედვით)
1 2 3 4 5

#5. სამოქმედო გეგმის ცვლილების დროს, რამდენად ხშირად აწარმოებთ ცვლილების დოკუმენტურ აღწერას?

(1- არ ვაწარმოებ; 5- ყოველთვის ვაწარმოებ)

1 2 3 4 5

შემოწმების ეტაპი (Check)

#6. რამდენად ხშირად უტარდება თქვენ საქმიანობას მონიტორინგი? (1 -არ ტარდება მონიტორინგი; 5 - ძალიან ხშირად)

1 2 3 4 5

#7. **იცნობთ თუ არა წინასწარ გრაფიკს, თუ როდის ჩაუტარდება თქვენ მიერ წარმართულ საქმიანობას მონიტორინგი?**

ა) დიახ ბ)არა

#8. **როგორ შეაფასებდით მონიტორინგის შედეგად მიღებული უკუკავშირის გავლენას თქვენ პროფესიულ ზრდაზე?** (1- უმნიშვნელოა; 5- ძალიან მნიშვნელოვანია)

1 2 3 4 5

#9 **რამდენად სტრესულია თქვენთვის მონიტორინგი?** (1- არ არის სტრესული; 5- ძალიან სტრესულია)

1 2 3 4 5

ქმედების/ კორექციის ეტაპი (Act)

#10 რამდენად საჭიროა ჩატარებული სამუშაოს ანგარიშის წარდგენა? (1-არ არის საჭირო; 5-ძალიან საჭირო)

1 2 3 4 5

#11 ანგარიშის რა ფორმებს იყენებთ? a)SWOT b) PESTEL c) სხვა

#12. რამდენად ხშირად წარმართავთ საქმიანობის შეჯამებას? (1- არ წარვმართავ; 2-წელიწადში ერთხელ; 3- სემესტრში ერთხელ; 4- ორ თვეში ერთხელ; 5-თვეში ერთხელ)
1 2 3 4 5

#13. სადაისახება საქმიანობის შეჯამების დროს გამოვლეთილი სუსტი მხარეების პრევენციული ღონისძიებები?
.....

Questionnaire

Stage of Planning

#1. Please, indicate how often do you assess risks at the stage of planning?

1 – I do not assess risks; 5- I always assess risks at the stage of planning)

1 2 3 4 5

#2. How much do you consider the interests and expectations of the interested parties at the stage of planning?.

(1-I do not have enough information about the interested parties' interests and expectations; 5- I am informed and always consider)

1 2 3 4 5

#3. How much different are the customers expectations and requests from the previous academic year?

(1- is not different; 5- totally different

1 2 3 4 5

Stage of Doing

#4. How much do you follow the action plan? (1 – Usually, I do not guide myself with the plan; 5- I always follow the action plan)

2 3 4 5

#5. If you make any changes in the action plan, how often do you document them? (1 never ; 5-always)

1 2 3 4 5

Stage of Checking

#6. How often is your work observed and assessed? (1 never 5 – very often)

1 2 3 4 5

#7. **Do you know the observation schedule in advance?**

ა) Yes ბ) No

#8. **How would you assess the influence of the observations feedback on your professional development?** (1- not very useful; 5- extremely useful)

1 2 3 4 5

#9 **How much stressful is the monitoring for you** (1- is not stressful 5- very stressful)

1 2 3 4 5

Stage of Acting.

#10 How much important is it to make reporting and analyzing of conducted work? (1is not important 5-very important

1 2 3 4 5

#11 Which forms of the reporting do you use? a)SWOT b) PESTEL c) different

#12. How often do you make reporting? (1- never 2- once a year 3- once a semester 4- once in two months 5one a month) 1 2 3 4 5

#13. How do you use the preventive actions of those weaknesses, which were analyzed while reporting conducted work?

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