

NEW STUDIES IN EDUCATIONAL SCIENCES

Editor: Assoc. Prof. Dr. Buğra ZENGİN



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Chapter 1

Models and Principles of Quality Educational Management

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1. INTRODUCTION

Education exists for people. The purpose of education is to teach people behaviors through formal and desired learning or to shape existing behaviors. Education is obliged to meet the interests and needs of the locality in which it is located. However, since educational institutions are affiliated with the central organization, this integration becomes difficult. Although educational institutions are separate institutions, they are a part of the education system. For this reason, every school must act in accordance with the general goals of education.

The main factor of education is people. People are trained, inputs and outputs are human behavior. Education cannot remain indifferent to the needs of its environment and country. It is also affected by the region it is located in. Social expectations from education are always high. However, interest in education is low.

Principals and deputy principals, school administrators, working in educational institutions are selected from the teachers in the schools. The fact that teachers have not received training in school principalship and educational administration creates various administrative problems.

One of the main purposes of education is to create a critical perspective. The most important factor in the formation of this perspective is school. Schools are the application areas of the education system. The effectiveness of schools is very decisive in meeting expectations in education and achieving set goals. Schools are open systems where formal education is provided, consisting of school administrators, teachers, experts and students. School, family and environmental interaction is an important factor in achieving the goals and objectives of education and training activities. One of the important issues in achieving the desired picture in education is the effective functioning of schools, which are the application areas of the education system.

In order for schools, which are open systems, to become more effective organizations, a school management model that suits the needs of the age should be adopted. Unless schools are effective organizations, it seems difficult to implement even the most appropriate decisions in the education system. When evaluated within the framework of education management science, it is very important to participate in the decision-making process in terms of making the right decision and the applicability of the decision. For this reason, a new school management model must be developed in order for educational institutions, which form the backbone of the education system, to become more effective institutions.

2. EDUCATIONAL MANAGEMENT

Educational management is an interdisciplinary and applied field of study. The main purpose of educational management as a branch of science is to define the school as a social system: school, the process of learning and teaching at school, the structure and functioning of the school, individuals in schools, school culture, school climate, politics and power in schools, motivation in schools, conflict in schools, external environments of schools. It can be expressed as school improvement, school evaluation, decision making in schools, communication in schools, leadership in schools, and analysing and making sense of the daily and routine operation of the school in an application-centred scientific way. These topics, although controversial, also determine the field and scope of educational management. Educational management researchers try to formulate the principles and laws discovered as a result of their observations and experiments through theories, and try to establish, analyse and understand the link between theory and practice. The education administrator is the person who tries to understand and analyze the system, school and its functioning in the light of scientific knowledge and data produced in the field of educational management, produces policies and leadership in this direction, determines the direction and direction of the school, and at the same time directs all school employees and stakeholders towards the same goal. The ultimate goal of science and research in educational management is to develop theories regarding the subject of investigation. These developed theories try to reach generalizations by explaining the regularities in education and school life with some concepts and definitions. Thus, the theories in question are expected to guide practitioners, produce new knowledge, and guide researchers.

The main purpose of research in educational management is to develop and discover natural laws to predict and control events. Social reality pre-exists. The educational management researcher can uncover these facts by exploring them. Man is a rational being. He is guided by forces outside himself. There is no room for common sense in science. There is a clear distinction between scientific and non-scientific. Theory in educational administration is a set of interrelated definitions, axioms and laws. Truth can be explained logically through factual laws. In educational administration research, good evidence is based on observations that others can retest. Science is value-free. In educational administration research, the researcher is independent of values in choosing a topic and in the research process (Dutton and Kleiner, 2000; Winoto, 2020).

2.1 School Management and Educational Management

Ontologically, school management and educational management have the same meaning. Each has similarities that are difficult to distinguish. In particular, the scope of education management is also the scope of the working area of school management. Likewise, the business process also passes through the same function. School organization works through a structured management concept. Management in school organizations is generally called educational management. Educational administration is also defined as educational management. Educational management is the entire process of transferring and integrating everything personal, spiritual or material related to achieving educational goals.

The aim of effective and efficient education is a goal that uses clear, easy-to-understand operational languages, program preparation should be comprehensive and provide positive benefits to each other in a synergistic way with other programs. Management will be said to be good if it complies with the planned concepts and programs and achieves over 95% success. For this reason, school leaders who serve as administrators in their own environments and units need to ensure that the management operates in line with mutually agreed upon goals. Therefore, it can be concluded that management is an integral component and cannot be separated from the overall educational process. Quality school management is a management model that provides autonomy to the principals of educational institutions to directly make participatory policy decisions in accordance with the quality service standards determined by the central, provincial, district and city governments.

The definition of quality school management is the translation of school-based management. Quality School Management is a new educational paradigm that provides broad autonomy and community participation at the school level within the framework of national education policy. Quality School Management is a new alternative to the current education management that pays more attention to the creativity and independence of the school. It is an alternative form of education as a result of the centralization of education.

In general, school-based quality improvement management can be interpreted as a management model that provides greater autonomy to schools and encourages participatory policy making that directly involves all school members such as educators, students, principals, employees, parents of students, and community to improve school quality based on national education policy. Furthermore, the term school management is often equated with school administration (Handy, 1993; Edwards, Winter and Bailey, 2002; Gillen, 2002;).

2.2. Quality School Management

In the understanding of quality school management, the management of school relations with students' parents is expected to go hand in hand and in harmony. Harmonious relationships enable the community to take responsibility for improving the school. Building these relationships will provide a clear picture to the community and stakeholders. A clear picture can be presented to the public through reports sent to students' parents, school visits, visits to students' homes, statements from school staff, and annual school reports.

It is hoped that through a harmonious relationship, the goal of the school's relationship with society will be achieved, that is, to carry out the educational process effectively and efficiently, and to raise productive and quality graduates. Quality graduates will be seen from students' mastery/competence of knowledge, skills and attitudes that can be used as judgments when entering society.

Quality school management is a management model that provides autonomy to the principals of educational institutions to directly make participatory policy decisions in accordance with the quality service standards determined by the central, provincial, district and city governments (Davies and West-Burnham, 2003; Everard, Morris and Wilson, 2004)

The general aims of Quality School Management include:

- Quality education, that is, through school independence and school initiative in managing and strengthening existing resources,
- Good synergy between school members and the community in providing education through joint policy making
- Increasing the school's responsibility towards parents, society and the government regarding the quality of the school,
- Healthy quality competition between schools as a barometer of education quality in line with current developments.

Apart from this, Quality School Management will provide various benefits including:

- Schools can adjust and improve the well-being of educators and teaching staff so that they can focus more on their duties as educators,
- Promoting the professionalism of the school's academic community as school administrators and leaders, as well as having the freedom to manage resources and involve the community in participating in the school,
- Educators are encouraged to innovate,

- It increases the school's ability to respond to local needs and ensures that educational services meet the demands of the school community and students.

3. PRINCIPLES OF SCHOOL MANAGEMENT

It is necessary to find mature and planned theories and concepts to be used in the development and management of schools. This development is based on four principles:

3.1. Decentralization of Management

Decentralization is an important phenomenon in modern school management reform. This principle of decentralization is consistent with the principle of equifinality. The principle of decentralization is based on the basic theory that school management and teaching activities cannot be isolated from difficulties and problems. Education is a complex problem that requires decentralization in its implementation. The principle of equality introduced earlier encourages centralization of power, allowing schools to have greater scope to act, develop and work according to their own unique strategies and to manage their schools effectively.

Therefore, schools should be given the power and responsibility to solve problems as quickly and effectively as possible when they arise. In other words, the purpose of the principle of decentralization is not to avoid problems, but to be effective in solving them. Therefore, quality school management must be able to find problems, solve them in a timely manner, and make a greater contribution to the effectiveness of teaching and learning. Without delegation of authority, schools cannot be run by students, causing delays in resolving problems quickly, accurately and efficiently.

3.2. Equifinality

This principle is based on modern theory, which posits that there are several different methods of achieving goals. Quality school management emphasizes flexibility. Therefore, schools need to be independent and manage all their activities together with the school community on their own terms. Due to the complexity of today's school mandates and the significant differences between one school and another such as differences in student input, infrastructure, and school academic standing, schools cannot be managed with the same structure in every province.

Education as a community is very flexible and open to various changes as it continues to evolve. For this reason, there is no doubt that schools, like other

public institutions, will experience various problems. This question needs to be answered comprehensively by the school. Schools need to be able to solve the various problems they encounter in the most appropriate way in accordance with the current situation and conditions. Even if one school has the same problem, the way to solve it will differ from one school to another.

3.3. Human Initiative

The human resources perspective emphasizes that people are a valuable resource in the organization, therefore the main purpose of management is to develop the human resources within the school in a way that can take initiative. Based on this perspective, the School Management aims to create a suitable environment for school residents to study well and develop their potential. Therefore, improving the quality of education can be measured by improving the human resources dimension.

This principle recognizes that people are dynamic, not static resources. Therefore, human resource potential always needs to be discovered, explored and developed. Schools and wider educational institutions can no longer use the term staffing, which simply means managing people as static elements. Educational institutions should use an approach to human resource development that has a dynamic connotation, is a crucial asset and has the potential to continue to be developed.

3.4. Self-Management System

Quality school management must achieve goals based on established policies, but there are a variety of different methods of achieving this. Quality school management must recognize the importance of allowing schools to become independent systems of management within the framework of their own policies. Schools have a certain autonomy to develop educational objectives on their own terms, in terms of management strategies, allocation of human and other resources, problem solving and goal achievement, in accordance with their own human resources and capabilities. Because schools are managed independently, they have more initiative and responsibility.

This principle is related to the earlier principles of equifinality and decentralization. When a school encounters problems, it must solve them in its own way. Schools can solve their problems if there is delegation of authority from the bureaucracy above them to the school level. With school-level authority, schools can implement an independent management system (Katz & Lawyer,1994).

4. ACTIVITIES OF SCHOOL MANAGEMENT

School, as an organization and operation, is the dependent variable of educational management. Educational administrators are the ones who determine the education policies and plans at the upper level and interpret them at the middle level. However, it is the school administrators at the first level who implement all these and provide feedback to the system. In this context, the education system and the efficiency of the school are connected to each other with a cause-effect chain. Since the efficiency of the system comes from the school, the school administration and administrator have a great impact on the success of the system. In the system, all school management activities are directly or indirectly included in educational activities in the school.

4.1. Student Management

Student management has a strategic position because the center of educational services, both within the school institutional environment and outside the school institutional environment, is focused on students. All educational activities related to academic administration, academic support services, human resources, financial resources, infrastructure and the school's relations with the community always strive to ensure that students receive appropriate educational services. Student management or student personnel management is defined as a service that focuses on the organization, supervision and services of students in and outside the classroom: individual services such as promotion, registration, general development of abilities, interests, needs until they mature in school.

The general objectives of student management are to organize student activities in such a way that these activities support the teaching and learning process in the school. In addition, the teaching-learning process in schools can be carried out in a smooth and orderly manner, thus contributing to the achievement of school goals and educational objectives as a whole. The specific goals of student management are to increase students' knowledge, skills, and psychomotor skills; to guide and develop students' general abilities (intelligence), talents, and interests; to direct aspirations, hopes, and meeting students' needs. It is hoped that by fulfilling the activities above, students will be able to achieve happiness and prosperity in life, study better and achieve their goals (Garwood and Dowden, 2001).

4.2. School Personnel Management

The process of activity aims to consciously continuously improve school employees so that they can effectively and efficiently assist/support school activities to achieve the set educational goals. Staff need to be well managed so

that they are always active and enthusiastic while performing their daily duties. Today's employees facilitate the realization and development of employees' competencies through systematic development and empowerment programs. Employee development and empowerment is a part of HRM (human resource management) that has the function of improving the competence, adaptability and commitment of employees. In this way, the organization has the power not only to survive but also to grow, be productive and competitive. And in this process, strong employee support creates an organization that can adapt and renew itself.

Efforts to plan, appropriately source, select, place and assign employee needs have become a major concern in every competitive organization. Likewise, fair and appropriate compensation policies such as wage and social assistance and performance evaluations can also create success motivation in employees. Such personnel management functions are still not sufficient when not accompanied by systematic employee development and empowerment policies.

4.3. Infrastructure Management

Educational infrastructures are one of the important and fundamental resources in supporting teaching and learning activities in schools, therefore, their use and management need to be improved in order to achieve the expected goals. Nowadays, it is often seen that many educational facilities and infrastructures owned by schools and receiving support from both the state and society are not used in the best way and can no longer be used in accordance with their function. This is due, among other things, to the lack of attention to the facilities and infrastructure owned and the lack of adequate management.

Besides the changes in government models after the implementation of regional autonomy, the current model of school management approaches also differs from the previous one, namely more nuanced autonomy. It is necessary to adjust the management of facilities and infrastructure to optimize the provision, use, maintenance and control of educational facilities and infrastructure at all types and levels of education. Schools must have the independence to organize and educate school subjects according to their own needs and abilities and on the basis of the wishes and participation of the school community, while at the same time having reference to applicable national education regulations and legislation. This primarily aims to improve the quality of education at all types and levels, especially primary and secondary education. Details of infrastructure management in schools include:

- Analysis of school facilities and infrastructure needs
- Planning and purchasing of school facilities and infrastructure
- Distribution of school facilities and infrastructure

- Arrangement of school facilities and infrastructure
- Using school facilities and infrastructure effectively and efficiently
- Maintenance of school facilities and infrastructure
- Inventory of school facilities and infrastructure
- Elimination of school facilities and infrastructure
- Monitoring the use and maintenance performance of school facilities and infrastructure
- Performance evaluation regarding the use and maintenance of school facilities and infrastructure

Infrastructure management may also focus on planning the school's facility needs such as building, equipment, furniture, land, infrastructure in accordance with the school development plan; managing the purchase of facilities in accordance with the relevant legislation; managing facility maintenance, both preventative maintenance and maintenance of damage to school facilities; and managing inventory activities regarding school facilities and infrastructure in accordance with the applicable bookkeeping system.

4.4. Financial Management

This management activity aims to provide maximum service on school finance, including internal and external customs, as well as transparent and accountable financial management. Financial management is a group of educational administration articles that specifically address tasks related to the management of financial resources owned and used in schools. According to educational management experts, educational financial management can be interpreted as the entire process of obtaining and using money in an orderly, effective, efficient and accountable manner in order to facilitate the achievement of educational goals.

There are 2 things to consider regarding financial management in schools:

1) Financial management is the entire process of obtaining and using all funds. Therefore, there are at least two basic activities regarding financial management in schools. First of all, looking for as many financial sources as possible and trying to raise as much funds as possible for educational institutions from these financial sources. Second, using all funds available or obtained solely for the purpose of providing education at the school.

2) The use of all school funds must be effective and efficient. Apart from this, the use of all school funds should be regular and easily accountable to all parties involved. The purpose of financial management in schools is to organize so that

all efforts to obtain funds from various sources can be achieved as much as possible.

There are several principles that must be followed in financial management in schools. These are: a) the financial resources of education in schools are not small; It is not just from the government or the foundations that control them. Schools can creatively seek sources of educational funding within the framework of their existence as preschools. However, in order to obtain education funds from various funding sources, the funds should not be tied to institutions or schools. b) Existing or current education funds must be used effectively and efficiently by schools. Effective means that all available funds are used only for school education. Efficiency means that available funds, no matter how much, should be used as economically as possible. To fulfil this principle, it is recommended that budget planning activities always be carried out before each use of funds. c) All financial management in schools should be based on applicable financial laws and regulations to ensure accountability. d) Implementation of financial management in schools is the responsibility of the school principal. However, its implementation may involve school educators.

4.5. Organization Management

An effective way that schools can use to improve their school organization is to divide work and school study procedures. In order for educational operational activities to be more effective and efficient in order to help achieve the determined goals, the division of labour must be clear and appropriate to the tasks of the field or unit. The division is in the form of job descriptions for each unit in order to facilitate the coordination, implementation and structuring of tasks in each area or unit within the school or educational institution.

4.6. Public Relations Management

This management aims to gain the sympathy of the society in general and the public in particular to ensure that school/educational operational activities are effective and efficient to help achieve the set educational goals. Education is a shared responsibility between government, family and society. This shows that parents and society have the responsibility to participate, consider and provide assistance in the implementation of education at school. High involvement of parents in school education is one of the characteristics of good school management. In other words, the extent to which the society can be strengthened during the education process at the school is an indicator of the school management in question. Strengthening the community in education is something that is necessary for good school management.

This high level of participation does not appear to occur in developing countries. Most families in developing countries cannot be expected to help and guide students' learning more, so students in developing countries spend less time studying. This is because many individuals/parents do not yet understand the fundamental meaning of their role in student education (Dickmann and Stanford-Blair, 2002). In fact, they virtually ignore educational institutions in rural areas with low socio-economic levels and completely transfer the responsibility for the education of their students to the school.

The relationship between school and society include clear and complete information provided to the public; persuasion to change the public's attitudes and actions they should take towards the school; the institution's effort to integrate with its own public opinion and the public opinion with the institution. Meanwhile, school and community relations management activities are:

- Analysis of the need for community participation in school management
- Preparing a program for the school's relations with the society
- Division of duties for the implementation of the school's community relations program
- Establishing school relationships with students' parents
- Encouraging parents to provide an effective learning environment
- Connection with community leaders
- Collaboration with government and private institutions
- Collaboration with religious social organizations
- Monitoring the school's relations with the society
- Evaluating the performance of the school's relations with the society.

5. CONCLUSION

Educational management practices are inseparable from the development of management theories in industry. Empirically, in the educational environment, ideas also emerge about how to manage educational organizations effectively and efficiently. It is difficult to deny that the effectiveness orientations and learning approaches of educational organizations have not been influenced by the development of management theory. This, as noted by Campbell, Fleming, Newell and Bennion (1987: 41), is that the development of scientific management in the 1930s and 1940s had a direct impact on the character of management, or management practices, in United States schools. Directly the ideas of Taylor and Henri Fayol shaped the character of school management in the sense that the presence of scientific management can be seen in school office practices. In the era of scientific management, the corporate management model has also become

the management model that forms the basis of the school system in general. Statistical techniques, measurement scales, and training cost accounting procedures are used with some adjustments.

Simply put, management functions or processes are the tools or methods used by a manager or school principal to carry out work to achieve goals. Often the term management functions is also referred to as managerial activities, that is, activities or processes performed by a manager or school principal in carrying out the work of educational institutions in schools. Therefore, management is a means of achieving goals through the implementation of management functions or managerial activities.

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Chapter 2

Teacher and Student Problems Encountered in Mathematics Teaching and Learning

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1. Introduction

Mathematics has been used to meet the basic needs of societies throughout history, and as the accumulation of knowledge increases, it has become an indispensable factor in the development of contemporary science and technology by influencing the progress of newly born and developing branches of science. Today, the rapid development in science and technology has fundamentally affected social life, increasing the place of mathematics in daily life and the importance of mathematics teaching in schools (Görge and Tahta, 2005). With the increasing popularity and necessity of mathematics education, teachers, students and parents feel requirements of collaborations between each other to apply quality Mathematics teaching and learning in school environment. The teaching and learning of mathematics, like any other subject, requires both the teacher and learner to communicate effectively. Mathematics has always been given special attention in school as the nature of the subject is related to many other fields and disciplines. Moreover, students' mathematics achievement has often been the focus and is seen as a critical global issue in many countries (Zorinsangi et al, 2014).

Education is an activity that involves the relationship between teacher and student. One of the factors in increasing human resources to achieve the success of educational goals is teachers. In order to achieve the success of educational goals, professionalism, creativity in line with the requirements of the age and friendly teaching staff are needed. In this frame, teacher problems appear to be evident in Mathematics teaching and learning. Some of the teacher problems compiled by limitations in infrastructure; difficult access to schools; and allowances that do not comply with the obstacles and restrictions encountered. Apart from these problems, it has been determined that there are teachers who do not teach according to the educational qualifications of the teacher, therefore the learning process does not progress as expected and is not optimal, and this situation has drawn public attention to the low level of education.

Learning mathematics in schools is aimed at students reaching basic proficiency standards. Mathematics learning activities are not only aimed at mastering the mathematical material, the mathematical material is positioned as a tool and tool for students to achieve proficiency. Therefore, the scope of mathematics subjects taught in school is adjusted according to the competencies that students must acquire. Mathematical competence standards are a set of mathematical competencies that are standardized and that students must demonstrate as a result of learning mathematical subjects. This standard is detailed into key competencies, indicators and key materials for each aspect. In

this respect, the organization and grouping of material is based on the skills or abilities to be acquired.

The purpose of mathematical science is to make human life easier. Mathematics contributes to many sciences and countless inventions. The fact that computers, which are included in every branch of science and profession today, are based on mathematics reveals the importance of mathematics most clearly (Göker, 1997). According to Yenilmez (2006), mathematics is a branch of science and a course that everyone encounters, loves, hates, or perhaps fears, at least when they start compulsory basic education. Although mathematics has an important place in schools, it is seen that the general success is not at the desired level and there are problems in the learning and teaching process because it is considered a branch of science and a course that is considered difficult to learn by many people (Yıldız and Baltacı, 2016; Dağdelen and Ünal, 2017).

Fear and anxiety of mathematics are closely related to learning and begin from the first years of student life (Booth & Dunn, 1996). Especially parents can be role models by consciously or unconsciously conveying their problems and fears about mathematics to their children. While parents who are models say that mathematics is difficult and that people are afraid of mathematics, they also state that mathematical skills are very important for a person to be successful in the future (Thomas & Furner, 1997). Negative attitudes towards mathematics lessons, and especially fear and anxiety, may arise due to different reasons. It is seen that parents' mathematics fear and anxiety, teacher attitudes, ineffective teaching methods, lack of basic mathematics skills, low mathematics achievement, and attitudes towards mathematics are effective in the formation of mathematics fear and anxiety (Ma and Xu, 2004; Kurnik, 2008).

2. Competencies of Mathematics Teachers

Teacher competence is one of the factors affecting the achievement of educational goals in schools. These competencies reflect the duties and obligations that teachers must fulfill as educators. These competencies are professional competence, pedagogical competence, personality competence and social competence.

2.1. Professional Competence of Mathematics Teachers

Professional competence is the ability of a teacher to master the learning material in depth and in a broader sense, so that students can better master the material. Komara (2007) and Kayalar (2016-a) revealed that professional competence is an ability related to teaching duties, and that this competence is important because it is directly related to the performance shown.

Professional competencies that a teacher must specialize in strengthening scientific disciplines as a source of teaching materials, having in-depth knowledge about student characteristics, knowledge about education and learning objectives, mastering methods, approaches and learning models, and fluency in teaching and learning.

Professional teacher competence is defined as the teacher's ability to master deeper and broader learning materials that will guide students in achieving set goals, that is, proficiency standards. The professional qualification level of a teacher includes mastery of educational fundamentals; mastery and understanding of educational psychology; main learning material by specialization; ability to apply learning methodologies and strategies; having expertise in designing and implementing media and learning resources in line with the demands of the time; understanding in conducting learning assessment; mastery of preparing learning programs; mastery in fulfilling and completing the obligations of other supporting elements; and having the ability to conduct research to improve teacher performance.

In addition to the level of professional competence mentioned above, teachers must also have the conditions that form the basis of teacher professionalism, that is, the level of education appropriate to the scientific field, sufficient teaching experience, rich knowledge, skills and a positive attitude that will improve teaching.

It is stated that professional competence includes:

A. Professional Development, namely: following information according to current developments; development of models, approaches and learning methods; writing scientific articles; preparation of teaching materials, textbooks, modules and articles; conducting action research; finding appropriate technology, materials, creating works of art; participates in training, qualification training and curriculum development activities.

B. Understanding Insight, namely: understanding the vision and mission; understanding the relationship between education and training; understanding basic and intermediate concepts; knowing the function of the school; identifying general problems that arise in education, learning processes and outcomes; developing systems related to education and out-of-school.

C. Expertise in Academic Study Materials: understanding the structure of information; mastering the essence of the material; mastering the essence of the services that students need.

Qualifications for mathematics teachers are contained in academic qualification standards and teacher qualifications: using and relating various number systems and theories; use of measurement and estimation; application of

mathematical logic; application of geometric concepts; application of statistics and odds; application of patterns and functions; application of algebraic concepts; application of mathematics and analytic geometry; application of discrete mathematics to both concepts and processes; application of trigonometry; applications of matrices and vectors; explanation of the philosophy and history of mathematics; ability to use stage equipment and measuring instruments

2.2. Mathematics Teacher Pedagogical Competence

Pedagogy is the science that studies education. Bahar, Kayalar and Polat (2019) and Lqram (2017) stated that the science of pedagogy means the study of how to direct children in certain directions and goals so that they can independently complete tasks related to daily life. In depth, the science of pedagogy is a comprehensive, objective and critical study and theory in the development of concepts regarding the nature of people, children, the goals and nature of education.

Many experts say that pedagogical competence consists of several parts of competence:

- a) Contributing to curriculum development regarding the subjects to be taught,
- b) Developing curricula
- c) Planning of Courses;
- d) Preparing learning and classroom management plans;
- e) Carrying out learning in accordance with the requirements of the age and competence targets;
- f) Evaluating student learning outcomes;
- g) Providing guidance to students in various aspects;
- h) Improving your professionalism as a teacher.

The pedagogical competence of teachers in preparing learning tools and choosing learning strategies is in the good category, achieved in accordance with the learning objectives included in the Course Plan. However, there are also teachers who cannot achieve learning in accordance with the learning objectives included in the course plans. From this research, it appears that the ability to prepare and apply learning tools is an important requirement in improving the quality and quality of education.

As the pillar of education, teachers have a duty to help students understand the lessons taught each day; With the deepening and expansion of teacher's pedagogical competence skills in lesson plan preparation, media, classroom management and learning strategies, this will have a good effect and improve the quality of learning for a better education.

2.3. Mathematics Teacher Personality Competencies

It is stated that personality is the interaction between the mind, heart, mind and soul that will show the person's identity and qualities (Kayalar, 2016-b). Personality competence has a great role in educational success and learning activities. The personality of a good teacher will also create a good personality for students; This is due to the human nature of people who like to imitate all the actions they witness, so the personality of the teacher can have a direct impact on the attitude and behavior of the students. Because teachers not only need to have professionalism and pedagogical competence, but also a good personality will be a good role model for students.

Preferred Feature

Clear explanation with examples
Humorous, happy and cheerful
Friendly
Pay attention to students and understand them
Provide motivation
Firm in his behavior in class
Not shouting favoritism
Not like to criticize and be sarcastic
Providing students with the best experience
Nice personality

Disliked Features

Getting angry and does not smile easily
Not preparing before studying
Unclear Explanations for Learning
Arrogant
Rude and intolerant
Behaving unfairly
Ignoring students' feelings
Indifferent towards students
Giving too many assignments that do not match the student's abilities
Uncontrol the classroom

From the above explanations, it can be seen that these characteristics will cause unique reactions in students, if a teacher has a good personality competence, he is worth imitating, and if he has a bad personality, it will have a negative impact. The answer is that students are not motivated to study seriously.

Syarifuddin (2017) writes that personality abilities can be defined by various indicators:

Having an educational spirit and acting in accordance with applicable legal and social norms; Having noble character, integrity, kindness and a good role model; Competent, mature and stable; Responsible, has a good work ethic, and is self-confident.

2.4. Social Competence of Mathematics Teachers.

Social competence is the individual's ability to coexist in relationships between individuals, culture and society. This means that social competence is related to a teacher's ability to interact with other people as social beings. There is a real need for social competence of a teacher due to the development of the social environment. For a successful future of social development and better economic momentum, social competence in the world of education will be achieved through communication and mutual cooperation, and then ensured at all levels of education, from basic education to higher education. It is hoped that social competence in mathematics teachers can become a skill in preparing students to be good individuals in society in their future lives. It is stated that social competence is the ability of a teacher or educator to communicate and interact effectively with students, other teachers/educational staff, colleagues, educational staff, parents/guardians of students and the surrounding community. The standards and indicators of social competence include: Being inclusive; Being objective; Non-discriminatory; Communicate verbally, in writing, or through gestures; Communicate politely with the community; Communicate effectively with colleagues, teachers, students, staff, parents and the community.

3. Quality of Students

Quality of students is of great importance in mathematics Learning Process. Referring to the proficiency standards and core competencies that students must achieve, the scope of mathematics material includes algebra, measurement and geometry, probability and statistics, trigonometry and calculus.

- Algebra proficiency is emphasized on the ability to perform and use computational operations on equations, inequalities, and functions.
- Measurement and geometry emphasizes the ability to use properties and rules to determine sections, distances, angles, volumes, and transformations.
- Probability and statistics emphasize presenting and summarizing data in various ways.
- Trigonometry emphasizes the use of comparisons, functions, equations, and trigonometric identities.
- Mathematics emphasizes the use of the concept of limit on the rate of change of a function.

3.1. Improving the Quality of Students' Mathematics Learning Processes and Outcomes

Paryanto et al. (2009) and Gafoor and Kurukkan (2015) revealed that learning quality can be achieved through student learning processes and outcomes. If approximately 75% of students are actively participating physically, mentally and socially and have a strong desire to learn, learning is said to be quality in terms of process. And if there is a positive change in behavior in about 75% of students, the learning is said to be of quality in terms of outcomes. In other words, learning is said to be successful if it produces high quality output according to the requirements of applicable educational standards. To achieve the goals of applicable educational standards, it is necessary to improve the quality of learning through the quality of the process and student learning outcomes so that teachers can make the best use of the components of the ongoing learning process. There are various efforts that can be made to improve the quality of mathematics learning; These include increasing student motivation in learning mathematics, increasing student activity and creativity as well as learning discipline, improving school discipline, student learning success, changes in learning strategies.

Motivation is the driving or driving force that causes behavior towards a specific goal. Motivation in learning, especially in mathematics, is one of the factors that encourages children to work harder and increases the quality of student learning. Because when motivation is high, students are serious about learning. The success and goals of learning will be more optimal as there is an increase in the quality of learning due to the incentive from motivation.

3.2. Decreasing Quality of Students' Mathematics Learning Processes and Results

The quality of learning in schools is affected by various reasons: students, teachers, facilities, school environment and institutional level. There are still many obstacles that teachers and students face, such as lack of student motivation to learn, low student activity during learning, learning strategies are still monotonous, causing students to get bored of participating in classroom learning.

At the beginning of 2020, it was discovered that there were changes in living arrangements in all areas of life all over the world. This change was caused by none other than the Covid-19 Virus. The consequences of this virus affect all sectors of life, including education, which is affected by the virus. The implementation of large-scale social restrictions requires everyone to stay at home and temporarily stop activities outside the home. The education system has also changed from face-to-face education to online education. All technological

activities continue to be carried out, from housewifery activities to education and office work.

Online learning was initially interesting and continues to be a new innovation in the learning process, but as time goes by, people start to get bored with everything that requires technology to become the primary need. This leaves parents confused about helping their students study at home, students bored of doing homework, and teachers tired of looking for new innovations to motivate students to learn. This situation causes a decrease in the quality of students' learning abilities. This decline has occurred as a result of less-than-ideal use of online learning media, less-than-ideal home conditions, parents forced to become direct companion teachers, suboptimal interactions, and, for some, a lack of learning aids such as laptops and smartphones. A lot of people far from city centres suffer from networks that are inaccessible in some areas. This situation makes learning ineffective and causes students' learning motivation and activity to decrease. Various studies indicate that students who learn online for a long time will daydream more often than those who learn face-to-face. This should be a concern that online learning cannot be done for long. This is done to reduce the incremental decline.

It is stated by the officials that it seems impossible to equalize learning standards between online and face-to-face learning at school, and also that curriculum goals during this pandemic period will be very different from normal conditions. The main goal is to protect the safety and health of students, teachers and families against the Covid-19 virus outbreak, as no one can demand high quality curriculum and learning during the ongoing pandemic. This decline in the quality of learning has happened around the world as a result of the Covid-19 pandemic. All efforts made by the government to reduce the decline in the quality of education, from providing internet quotas to teachers and students in anticipation of an increase in positive cases, to supporting facilities, to separating red, yellow and green zones from modules, have been made.

4. Improving Mathematics Teacher Competency

Improving mathematics teacher competence has a major impact such as: development of competences in the field of education, training and service as a reflection of improving the quality of educational processes and products; the teacher's ability to socialize himself to students, colleagues, the work environment, parents, guardians and society as an effort to improve personality quality and social quality; and the quality of teachers to explore new topics in the world of education by conducting research and developing new ideas in science and technology to promote better quality of education.

The professional development of some teachers is a scientific demand that cannot be negotiated. This teacher competence development policy is linked to a teaching professional activity. According to Marsigit (2008), a profession is the specialization of an intellectual position achieved through study and education, which develops skills, is of high value and makes the work desirable, enjoyable and receives rewards in the form of salary or wages.

One way to improve and develop the teaching profession to increase teacher competency is through teacher certification. This program is achieved through professional teacher training or Pedagogic Formation Program, tested by a qualification exam at the end of the training. Obtaining full teacher certification with stringent requirements in the areas of teacher competence and professionalism is expected to lead to an increase in the quality of education through competent and professional teachers.

The law regulating policies on improving the quality of qualifications is contained in all agendas of the countries. This policy is an effort by the government to improve teacher welfare as a right and obligation to improve the quality of teacher qualification. In this case, the government as the policy regulator always needs to clarify the objectives of this certification; Thus, there is no tendency for certification to be an improvement in teachers' living standards, but the main aim is to improve the academic quality and professionalism of teachers.

Increasing and improving teacher competence and professionalism can be done in the following ways:

- Undertaking additional studies or studies above a level higher than your last level of education;
- Participation in educational training to improve the quality of competence and professionalism;
- Research, write, and use journals to learn about development issues surrounding the world of education in a specific scientific discipline;

Seminar is a tool for sharing knowledge and exchanging ideas among teaching professionals in specific fields of science. Additionally, increased student activity and creativity can be developed through a variety of interactions and learning experiences. There are several ways to increase student effectiveness in learning:

- Understanding how students learn and how to help less active students;
- Preparing learning preparations appropriately and comprehensively;
- Tailoring learning to student needs.

5. Conclusion

Rapid changes in the world also change the interests and needs of students and their expectations from education. In-service training activities will contribute significantly to the process in order for teachers to adapt to this rapid change and the different educational needs that arise and to produce solutions. In order to provide qualified teachers and qualified teaching, our Ministry organizes many professional development activities for teachers. These activities are planned and carried out in line with Ministry policies, personal professional development needs determined by needs analysis, action plans, and cooperation protocols with national or international institutions and organizations.

Teachers need to be more easily motivated to ensure their professional development and take responsibility to ensure continuous professional development. At the same time, with an objective performance evaluation system based on competencies, the current situation of teachers should be analyzed objectively, more qualified personal and professional development opportunities should be offered to teachers, and all policies concerning the teaching profession should be developed holistically and effectively, based on data. Thus, with the effective cooperation of all stakeholders in teacher training processes, our highly qualified teachers who have ensured their professional development, constantly renewing themselves and love what they do, will increase the social status of the teaching profession as well as the teacher's sense of confidence and determination to work.

Mathematics is an abstract course due to its structure, and mathematics teachers state that they experienced problems in the courses due to this situation. The problem that teachers experience due to the abstract structure of mathematics can be overcome by concretizing the lesson. Regarding this issue, more importance should be given to mathematics teaching courses in undergraduate education, in-service training on this subject should be provided for teachers in the profession, teachers should be directed to pursue master's and doctorate degrees, and the necessary facilities should be provided. Again, importance should be given to classroom practices in undergraduate education. The use of materials in mathematics lessons helps to concretize the lesson. Therefore, it is clear that eliminating the lack of materials in schools will be beneficial for mathematics teachers.

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Chapter 3

Technology Addiction in Education Management

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Introduction

One of the inevitable realities in the information age is the dominance of technology. From the moment you wake up, technology influences and controls your daily life. This is seen in everything from your home to the machine you use at work or while traveling. This feeling is so ingrained in our body and soul that we feel like a part of us is missing without it. In the digital age, technology has now become an integral part of human life. Access to the internet has become a part of making individuals' lives easier, and thus has begun to play an important role in everyone's life. According to the Household Information Technologies Survey conducted by the Turkish Statistical Institute in 2021, internet access opportunities of people living in Turkey were determined as 92% TUIK (2021).

Although technology is a concept that we are used to hearing and using frequently today, it is a concept that many of us do not have detailed information about its content and development process. The extent to which this interconnected structure is established and developed in the minds of individuals and the consciousness it develops is generally included in daily life without being examined by individuals and continues as a way of life.

Technology is a combination of the Greek words "tekhne" meaning art and craftsmanship and "logos" meaning knowledge. It is the application of science to meet the needs of daily life or human efforts to shape and change the environment. It refers to the information obtained as a result of scientific research and the set of methods and processes related to the information obtained (Yörükoğulları, 2013: 7).

To understand technology and analyze it from an educational perspective, some scholars have developed the following definitions:

According to McDermott (1981) technology is technically defined as being examined with experimental methods and ensuring the control of the whole through a hierarchy of small groups.

According to Simon (1983) technology is defined as an interdisciplinary criterion designed by humans to gain superiority over nature (Tuncay, 2018).

According to Paul Saetler (1968) technology is not about the use of machines, but about the relationship between behavioral science and learning technology. In other words, engineering technology and natural sciences have the same characteristics.

According to James Finn (1960), in addition to the use of machinery, technology; It is an idea that produces solutions to problems arising from both objects and people and the degree of difficulty of these problems through methods, processes, management and control systems.

According to Admiral Hyman Rickover (1970), technology and science should not be confused. Science is a theory that helps discover knowledge by observing facts. Technology cannot be the authority on scientific matters. The purpose of technology is to create advanced tools and provide systems and processes by improving the mental and physical aspects of people (Alpar et al., 2007).

Technology has entered every aspect of today's human life by encouraging easy and fast access to information via the internet (Meral, 2018: 472-475; Kayalar, 2023: 36). Individuals can find a way to meet almost every need in their lives, without facing any restrictions, in line with the opportunities offered by technology. Technology renews the opportunities it offers to individuals day by day in line with their uses and needs. The innovations offered by technological developments to individuals facilitate both their daily lives and their adaptation to the changing world conditions of the 21st century (Çakır and Oğuz, 2017: 418-429; Ada et al, 2013).

While technology has become an indispensable part of human life, it has also brought with it a number of problems. With the addition of internet usage to technological devices, new electronic devices that provide technology and internet usage network together have begun to develop. As each day passes, mobile phones, social media platforms, television, tablets, and digital games are becoming increasingly entrenched in people's daily routines. With the continuous advancement of technology, the prevalence of interconnected technological and internet-based systems is on the rise. Individuals now have the capability to remotely manage their household items through smartphone applications even when they are away from home.

According to Akkaş (2019: 20), "These devices born from the fusion of technology and the internet have essentially surrounded people." While initially introduced for entertainment or leisure purposes, these products have evolved into habitual usage and can develop into addictive behaviors over time. The concept of addiction traditionally associated with substances is undergoing a shift in both content and meaning as technology usage reaches addictive levels.

Technology Concept

In a way, the beginning of the history of technology can be considered the same as the beginning of human history. The evolution of technology, which is believed to have started in the Stone Age, approximately two million years ago; With the beginning of the industrial revolution after the Bronze and Iron Ages, the dominance of steam power gradually spread throughout the world, and in the

2000s, the concept of technology changed in a different direction and turned into high-energy form information intensity (Quotation: Kiper: Güven, 2006).

It is seen that the basic developments of the internet in the world started with "the efforts of the United States Department of Defense to establish an internet network in 1969" (Ektiricioğlu et al., 2020: 53). Internet networks, which were opened to public use in 1989, began to be used commercially in 1991. It is seen that the first widespread internet network within the borders of our country began to be used in 1986. However, as the internet network used in the following years became insufficient and could not meet the needs of the users, "Middle East Technical University (METU) and the Scientific and Technological Research Council of Turkey (TÜBİTAK) initiated a project to establish a new internet network. With the development of this project, the first internet connection in our country was built in 1993" (Parlak, 2005: 28-30). Thus, technology started to become a part of people's lives.

At the end of the 17th century, a process of change began in the world. In the first stage of this process, the results of advances in science and technology began to shape social life and caused interaction between the triangle of science, technology and society. As a result of the effects of technology on human life, a new field of study between technology and society has emerged and attitudes towards technology have begun to form (Yetişir and Kaptan, 2008; Kayalar, 2016).

While it took 26 years for society to adopt television, which has reached almost every home since the first day technology entered our lives, it took 15 years for personal computers to be adopted and only 7 years for the internet to be adopted. In addition to these examples, it took 38 years for radio to reach 50 million people, 13 years for television to reach 50 million people, and only 4 years for the internet to reach 50 million people (Read: İlhan, 2013). 2006). As a result of new technologies entering our lives so quickly, it is a visible fact that people have started to spend most of their days with technological devices in order to obtain information and spend their free time, and technological devices have become an important part of our daily lives.

While there are positive claims that the most important reason for the spread of technology is that technology makes human life easier and sometimes provides educational functions to people, it is an undeniable fact that there are also some criticisms in the opposite direction. In this context, the first criticism towards society is the question of whether information technology is a good denominator that tries to unite society at a common point. In addition to this issue, it is also discussed to what extent information technologies actually affect and facilitate social life (Temen, 2004). In the context of these questions, it is believed that

information and communication technologies negatively affect people and social life and create technological addiction in people (as cited in: Aktaş, Alioğlu and Vardar, 2007).

In this context, it is necessary to determine how and in what direction the concept of technology affects social life and the personality and psychological development of the individuals who make up the society over time. We can summarize the benefits that technology provides to societies today and the harms it causes as follows.

Benefits of technology:

- Information exchange has become easier thanks to technology. We can instantly be informed about an event taking place on the other side of the world.
- Thanks to computers, smartphones and the internet, tasks that require time to be done can now be done right from where we sit.
- In the field of health, early diagnosis of diseases is provided and solutions can be found more easily.
- Thanks to technology, transportation has increased to advanced levels, become easier and more comfortable.
- People's lives have become easier in almost every field.

Disadvantages of technology:

- It made people lazy and used to ready-made things.
- People's communication with each other has decreased, preventing people from socializing.
- Addiction in individuals has increased with social networking sites, online games and smart mobile phones.
- The increase in mechanization, factories and vehicles due to technology causes the spread of toxic gases into the environment every day.
- Chemical weapons, which carry great danger, are produced thanks to technology.
- With mechanization, the need for manpower decreased, which gave rise to unemployment.
- The biggest harm of technology is global warming, which is becoming more and more dangerous.

Concept of Addiction

When we look at the meaning of the word addiction in the literature, it is seen that the word "Iptila" of Arabic origin is the equivalent of the concept of "addiction", which means captivity and passion in foreign literature. In this sense,

it means being dependent, being a slave, being addicted and addicted (Tarhan, 2019, p.135).

According to Newport (2019, p.31), addiction is when a person repeats a behavior repeatedly or uses a substance repeatedly despite all its harms. As mentioned in the definition, addiction is not just about substance use. People can become addicted to their jobs, other people, their homes, their belongings and many other behaviors.

There are two basic types of addiction. The first is substance addiction, which is known to everyone, such as alcohol, marijuana and heroin, which causes physical, biological and mental harm to the person using it. Secondly, it is accepted as a type of behavioral addiction, which is a situation in which a person's psychological, social and physical balance is disrupted and he/she becomes detached from his/her environment as a result of continuing a behavior for a certain period of time (Büyükarısalan and Kırık, 2017, p.87).

According to Adams (2017, p.3), both classical and new addictions have various features, including the following:

- Pleasure and Relaxation: It includes pleasant sensations called the honeymoon period, which occur, albeit limited, at the beginning.

- Dominance: The substance or behavior constantly dominates thought; there is an inability to resist the urge to take the drug or perform the behavior, experienced compulsively.

- Craving: There is a feeling and increased tension before taking the substance or using the behavior.

- Mood Instability: This part is initially limited to the onset of substance use or behavioral practice. Then it gradually expands.

- Tolerance: There is a need to increase the amount of the substance or the time devoted to the behavior in order to achieve a “positive” effect that decreases over time.

- Loss of Control: It occurs in the feeling of increasing loss of control in taking substances or performing the behavior.

- Withdrawal: A deep mental and physical distress occurs when the time spent on substance intake or behavior is stopped or reduced.

- Conflict: The result of chronic substance use or behavior leads to major disruptions in family, social, educational and work harmony.

- Persistence: The substance use or behavior continues despite a progressive and clear association with increasingly serious and negative consequences.

- Effect: After a break, there is a tendency to use the substance frequently (or repeat the behavior).

• Cross-Addiction: There is greater frequency of taking more substances or engaging in more than one behavior and “jumping” from one addiction to another. It should be noted that there is an important phenomenon of cross-dependence between substance and non-substance addictions.

• Similarity of main risk factors: There are similar phenomena such as impulsivity, excitement seeking, inadequate and disturbed parental environment.

Independence, which begins to disappear with the onset of addiction, causes the individual to acquire new attitudes and behaviors that he did not show in his previous life. This situation causes various problems to arise and negatively affects both the individual's inner world and the individual's adaptation to the world around him (Çam, 2012).

Addiction Cycle

Addiction is like going through different steps or stages, it's kind of like a cycle. However, these steps may be different for each person. Sometimes people don't even realize they're moving towards addiction when they first try something.

The addiction cycle begins with the thought "maybe I can use it", becomes more intense with fear and curiosity, and then becomes inextricable (AMATEM, 2016a).

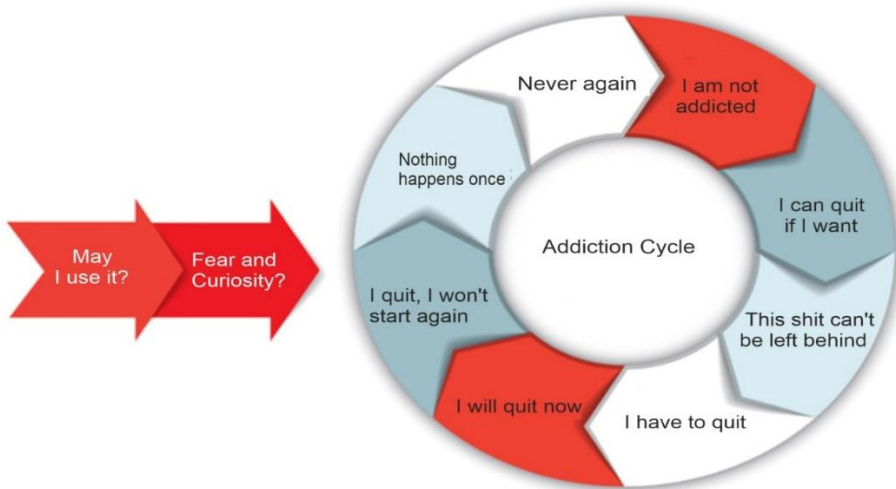


Figure 1: Cycle of Addiction Source: AMATEM, 2016

"Maybe I can use it": This is the period when thoughts such as "Everyone uses it anyway, I can try it too" cross the mind.

“Nothing will come of it with fear and curiosity”: “Curiosity” and “friend” influence are the top reasons for drug users to start using drugs almost every year (EGM-KOM, 2010: 10). A person starts using substances for the first time due to a feeling of fear and curiosity, sometimes for reasons such as being surrounded by people who use substances, sometimes to make himself/herself accepted by the social environment, and sometimes to show the environment that he/she is different and to fill his/her emotional void.

In the process of testing the substance, the person experiences curiosity as well as fear of the negative effects of the substance. Eventually, the person's fear of substance use decreases. When the fear subsides, curiosity encourages the person to try the substance. Afterwards, the person uses it for the first time with the thought that "nothing will happen once" (YEDAM).

“Never again”: It is the period in which the person, after using the substance once, is aware that the use of the substance will have negative consequences and feels great regret. While the person promises himself that he will never try the substance again during each trial period, he also thinks that he can control his substance use and quit whenever he wants.

“I am not addicted”: In this period, the person continues using substances by saying “I am not addicted” or “I can control myself”. During this period, the substance also became constantly used for both relaxation and pleasure.

“I can quit if I want”: This is the period when a person starts using substances for any reason and continues to use them, and thinks that he can quit whenever he wants.

“This shit cannot be left behind”: This is the period when the substance abuse phase begins. The person has an intense need for the substance that negatively affects his life. At this stage, the person has lost the belief that he will stop using substances.

“I have to quit”: The person is aware that he is experiencing negativities due to substance use. During this period, the desire to get rid of substance use outweighs the desire to use it. Therefore, providing support to the person during this period will greatly affect the person's belief in quitting substance use.

“I will quit now”: This is the period when the person's desire to return to his/her life before using substances is at the highest level.

“I quit, I won't start again”: The person starts using substances again, thinking “nothing will happen once again”. All symptoms of addiction reappeared and the process started again.

Technology Addiction

Technology continues to develop at an incredible pace. Three-dimensional televisions, smart boards, electric vehicles, digital glasses, free technological innovations and voice-activated technology are the most effective products of our age. Until about 10 years ago, having just one computer was considered a luxury, but today we have a mobile phone, desktop computer, laptop, tablet, e-reader, video game console, etc. The concept of "technology addiction", which can be explained by our relationship with technology, is described as a problem of the modern age.

Concept of technology addiction; It is a type of addiction that shows common symptoms of behavioral addiction resulting from the use of information technologies. Griffiths (2000) defines addictions that are not related to chemical use and arise from human-computer interaction as behavioral addictions, and defines technology addiction as one of these behavioral addictions. Griffiths (1995, 2000) states that there are various types of technology addiction under the concept of technology addiction and that the concept of technological addiction is considered as a concept that covers these types of addictions. Griffiths (2005) proposed six criteria to identify the symptoms of technology addiction, or as it is often used in the literature, symptoms. These criteria, which Turel, Serenko and Giles (2011) simplified in terms of definition;

- 1. Salience:** Technology dominates the user's thoughts and actions,
- 2. Withdrawal:** The user experiences negative emotions and feelings when he cannot access technology,
- 3. Conflict:** The user experiences internal conflicts regarding his normal life and other responsibilities due to the use of technology,
- 4. Relapse and reinstatement:** The user cannot voluntarily reduce the use of technology,
- 5. Tolerance:** The user's desire to gain more excitement than those experienced in previous uses as the amount of technology usage increases,
- 6. Mood Modification:** The user feels relaxed, excited or experiences a change in mood while using technology.

There are many social, socioeconomic and psychological factors that cause technology addiction:

- Family problems and not being able to spend quality time with the family,
- Lack of friends,
- Drug addict friends,
- Having problems establishing and maintaining relationships with people,
- Lack of activities and sports associated with a healthy lifestyle,

- School failure,
- Socioeconomic level (Kayri and Gündeç, 2016),
- Being introverted and antisocial,
- Inability to present oneself easily,
- Lack of suitable friends,
- Accessing games and fun things more easily than in real life,
- Limiting freedom of expression in real life (Karayel Kutluoğlu, 2019)

Concepts Related to Technology Addiction

Technology addiction has brought many concepts with it after taking its place as behavioral addiction. New concepts are added to the literature every day. In this section, explanations of current terms related to technology addiction are included.

a) Phubbing

Phubbing is the behavior of ignoring someone in a social environment by turning your attention to your phone. Phubbing behavior can be defined as an individual who sees his mobile phone while talking to another person or is interested in his mobile phone during interpersonal communication (Latifa, Mumtaz & Subchi, 2019, p.2). Phubbing, defined as paying attention to one's smartphone instead of interacting with other people in social contexts, has become a common concept (Wu & Yang, 2021, p.2).

Specifically, the term "phubbing" comes from the words "phone" and "snubbing." It is defined as the act of belittling someone in a social setting by using their phone instead of speaking directly to that person. The word phubbing was coined in 2012 as part of a campaign by the Macquarie Dictionary, an Australian English dictionary. An advertising agency called the McCann Group challenged specialist dictionary compilers, writers and poets to come up with a new word to describe the behavior of ignoring others in favor of their mobile phones. As a result, a 23-year-old Australian student named Alex Haigh coined the word "phubbing". After this, McCann Group created the "Stop Phubbing" campaign to raise awareness on the issue (Utami, Anam & Noorrizki, 2020, p.377).

When people use or look at their phones during conversations or time spent together, it is a way to make the other person or people feel ignored or otherwise excluded. When someone focuses on their phone instead of the person, it can lead to feelings of exclusion and dissatisfaction (McDaniel & Wesselmann, 2021, p.2). This concept appears as a situation that occurs to every individual today. It is

thought to significantly damage interpersonal connections, especially in face-to-face meetings (Wang, Gao, Yang, Zhao & Wang, 2020, p.428).

b) Fear of Losing the Agenda (FOMO)

Fear of Monetization (FOMO) has attracted much attention from scientists in the recent past. This concept generally refers to an individual's concerns about missing out on socially or personally satisfying experiences that others might have. Although FOMO was initially conceptualized in an offline or real-world context, the concept has found widespread applicability in terms of social media use (Tandon, Dhir, Islam, Talwar & Mäntymäki 2021, p.186). Fear of being disconnected from the agenda can serve as a mediator connecting deficiencies in psychological needs to social media participation. It is thought that FOMO can be a source of negative mood or depressive feelings, in part because it undermines one's ability to make the best decisions in life.

Studies have shown that FOMO consists of feelings of nervousness, anxiety, and inadequacy, and that feelings of nervousness, anxiety, and inadequacy intensify when individuals use social media. It is also suggested that self-esteem can affect the level of FOMO a person experiences. The psychological characteristics, situations, and factors present when using social media are the basic building blocks that help us understand FOMO. Inadequacy, often viewed as shame and inadequacy, is the experience of being exposed to a situation in which the self is. Social exclusion can also play a key role in fear of missing out, as it affects the underlying factors of FOMO, namely anxiety and self-esteem (Abel, Buff & Burr, 2016, p.34).

c) Nomophobia

“Nomophobia” is the modern fear of not being able to communicate via a mobile phone or the internet. The word “Nomophobia” is of English origin and is derived from the expression “No Mobile Phobia”, that is, the phobia of being without a mobile phone (King et. al., 2014, p.28). The disorder called nomophobia mobile phone addiction is a result of the development of new technologies that enable virtual communication. Nomophobia is considered a disorder of the contemporary digital and virtual society and refers to discomfort, anxiety, irritability or suffering caused by loss of contact with a mobile phone or computer (Bragazzi & Puente, 2014, p.156). Nomophobia is structured in four main dimensions (Rodríguez-García, Moreno-Guerrero & Lopez Belmonte, 2020, p.2):

(1) fear or nervousness resulting from not being able to communicate with other people;

- (2) fear of not being able to connect;
- (3) fear of not having immediate access to information;
- (4) giving up the comfort of mobile devices

Nomophobia promotes mental disorders, personality disorders, as well as people's problems with self-esteem, loneliness and happiness, especially in the young population. All of these can have negative effects on other aspects of life by creating a strong dependence on mobile technology and can cause constant distraction (Rodríguez-García et. al., 2020, p.2).

d) Digital Minimalism

The concept of minimalism is expressed by Millbur & Nicodemus (2010): Minimalism is a means of ridding yourself of the excesses of life in order to focus on what is important. Thus, it is thought that you can find happiness, satisfaction and freedom. Newport (2019, p.42) adapted this concept, which is generally used and applied for items and excesses, to digital technologies and introduced the concept of digital minimalism. In his book on digital minimalism, he defines this concept as follows: Digital minimalism is a philosophy of technology use that suggests that the time spent online determines what you value in your life and turns your back on the remaining activities. Changing your relationship with digital devices requires a change of mindset. Your mindset includes the thoughts and beliefs that ultimately shape your habits and guide your behavior. People with a digital minimalism mindset look at technology differently (Sherman & Chon, 2020).

Newport (2019, p.48) identified these three basic principles of digital minimalism to explain why digital minimalism works and why it is an effective philosophy:

Principle one: Clutter is costly.

As we progress in life, information is collected from digital environments that can distract us, such as Facebook, Twitter and Instagram. When this information is collected, it may have negative effects that outweigh its benefits.

Second principle: Optimization is essential.

A digital minimalist must weigh the positive and negative aspects of the technology he/she will use in the most accurate way possible.

Third principle: Intention is satisfactory.

The act of taking control of your digital life is empowering. Making conscious decisions about how you use your time is considered just as important as accepting that less can be more.

Technology Addiction in Education Management

The main factor in the development and progress of technology is education. Using technology to increase the quality and quality of education and to develop and support people's interests and abilities in line with their wishes has a facilitating effect in achieving these tasks. Effective use of technology in education and training activities and studies not only facilitates learning and teaching, but also facilitates accessing and using information. This situation continues as the gap between the use, limited use and non-use of technology in education and training continues to grow.

When the literature is examined, it is seen that many studies have been conducted on technology addiction in the world and in Turkey. Research has tried to examine technology addiction in people of different age groups based on many different variables. These studies on social network addiction, instant messaging addiction, online game addiction and website addiction, conducted in different educational organizations in our country and around the world, are examined separately below.

In website addiction research, Kubey, Lavin and Barrows (2001) in their study on 572 university students found that too much recreational use of the Internet was effective in reducing academic performance. According to this study, which explains that problems such as loneliness, loss of time, fatigue and missing classes are caused by internet use, it has been determined that intensive use of all internet applications and especially environments such as chat forums have a negative effect on academic performance.

From research on online game addiction, Hauge and Gentile (2003) included 607 students in the 8th and 9th grades in a study they conducted to examine how playing too many video games in adolescents affects their success and behavior at school. This study revealed that students addicted to video games spend a lot of time playing these games. The study also found that boys are more addicted than girls, and that addicted students are more likely to become violent, be rude, and argue with friends and teachers. It has also been determined that addicted students are not very successful at school.

Chen and Peng (2008) found in their study that those who use the internet less often have better academic success, higher educational satisfaction and a better social life than those who use the internet more, and that frequent internet users experience symptoms of depression, physical illness, loneliness and introversion. They found that it showed more

In social network addiction research, Kirschner and Karpinski (2010) investigated the relationship between Facebook and academic performance in their study on 219 university students. According to the study, participants were

asked whether Facebook had any impact on their academic performance. It was determined that 26% of the participants reported that Facebook affected their academic performance, and 74% showed negative effects.

In terms of instant messaging addiction research, Huang and Leung (2010) revealed that both the chat usage level and the instant messaging addiction level had a significant positive relationship with the decrease in academic performance in their study, in which 316 students aged between 12 and 19 who used instant messaging programs participated. The results show that young students' use of instant messaging programs negatively affects their academic performance. It has been determined that as the duration of use increases, students' addiction levels increase and their academic performance also decreases.

Horzum (2011), in his study examining the computer game addiction levels of primary school students at different socioeconomic levels in terms of various variables, found that the game addiction of students with the highest socioeconomic level was higher than that of students with medium socioeconomic levels. In this study conducted on 889 participants with a general screening model, it has been revealed that male students participating in the research cannot stop playing games more than female students and that they associate games with real life compared to female students. It has been observed that male students neglect their responsibilities more because they play video games.

Junco and Cotten (2011), the research, in which 100 students aged between 18 and 26 participated, revealed that university students use instant messaging applications at a high rate and also perform multifaceted tasks while using instant messaging programs. They found that participants did less homework, and therefore the academic performance of participants who used messaging programs intensively was negatively affected, as the level of instant messaging addiction increased,

Berigel, Kokoc and Karal (2012) examined the relationship between students' social networking site usage levels and addiction tendencies. 2,539 undergraduate students from 12 different departments participated in the application and it was determined that there was a significant difference between the addiction level of teacher candidates and the time they spent on the internet.

In the study of Leung, Louis and Lee (2012), covering 718 children and adolescents between the ages of 9-19, examining internet literacy, internet addiction and the effects of the internet on academic performance; It has been revealed that children from low-income families use social media mostly for entertainment purposes and are more interested in playing online games. According to the regression results of this research, male participants have a high

tendency to be addicted to the internet, contrary to expectations, internet literacy increases the likelihood of being addicted to the internet in the fields of technology and publishing, internet activities such as social media and online gaming are significantly and positively associated with symptoms of internet addiction, entertainment-oriented internet activities, It has been found that it can be more addictive than applications such as communicating via e-mail and browsing websites.

Toraman (2013) in his research aiming to examine the effect of high school students' internet addiction and social media usage levels on their academic success, it has been determined that as students' social media usage levels increase, their internet addiction levels also increase. When the analyzes carried out in line with the sub-objectives of the research are examined; there is no significant difference between gender and social media usage level, there is no significant difference between school levels and social media usage levels, there is no significant difference between the socioeconomic level of students' families and social network usage levels, and there is no significant difference between students' internet usage time and social network usage levels.

Regarding technology addiction, education academicians mainly focus on the effects of the internet on academic success (Dhir, Chen, Nieminen, 2015; Korkut, 2016), the effect of school level on internet addiction (Ayas and Horzum, 2013; Doğan, 2013; Özçelik Demir, 2021), the effects of students' education at school. its effect on relationships with friends (Cansever, 2010), the effect of technology on teacher-student relationships (Arslan Cansever, 2010; Korkut, 2016), how internet addiction interacts with other types of addiction (Bayhan, 2011; Doğan, 2013), the effect of technology addiction on peer relationships (Korkut, 2016; Zorbaz and Tuzgöl Dost, 2014; Kiran Esen, 2009) seems to have conducted studies on student loneliness and its effects on social loneliness (Pontes Griffiths and Patrao, 2014).

According to these studies, conducted mainly with adolescents, the role of perceived social support from family, friends and teachers is seen among the factors affecting internet addiction in young people. Thus, as family support increases, adolescents' internet addiction levels decrease (Kiran Esen, 2009). It has also been revealed that adolescents' frequent and long-term use of the internet causes problems within the family and weakens social interaction with family members (Arslan Cansever, 2010; Bayhan, 2011), and that young people cannot spend enough time with their family and friends due to the use of social media over the internet (Korkut, 2016). Additionally, a relationship has been found between internet addiction and loneliness and social loneliness. Internet addiction

scores were found to be higher among young people who had a portable device with internet access and who felt very lonely (Pontez et al., 2014).

Another important research area of education scientists on technology addiction and youth is how technology addiction affects young people's relationships with their teachers and classmates and their academic success. According to these studies, it has been observed that young people cannot spend enough time with their friends due to social media use, and that social media use limits the time spent on activities such as studying and participating in social activities. (Korkut, 2016). According to the results obtained by Dhir et al., adolescents who had low academic achievement scores, had an internet connection at home, and were under family pressure had high internet addiction scores (Dhir et al. 2015). In addition, it is observed that as the social support adolescents receive from their teachers increases, their internet addiction levels decrease, and as the peer pressure on adolescents and the perceived support from their friends increases, their internet addiction levels increase (Kıran Esen, 2009).

According to these studies conducted in the field of educational sciences, the rate of internet addiction increases as the school level increases (Sargin, 2012; Ayas and Horzum, 2013). Similar to other studies, it was found that male students' internet addiction rates were higher than female students (Doğan, 2013; Kır and Sulak, 2014; Zorbaz and Tuzgöl Dost, 2014; Dhir et al. 2015). These young people who exhibit behaviors that create internet addiction also smoke, drink alcohol, etc. Depending on the use of substances, showing substance addiction characteristics is among the results (Bayhan, 2011; Doğan, 2013).

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