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CHALLENGES OF SCIENCE

Materials of International Practical Internet Conference

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PREFACE

This book presents the conference proceedings of the International Practical Internet Conference "Challenges of Science" held by the Institute of Metallurgy and Ore Beneficiation, Satbayev University in Almaty, the Republic of Kazakhstan, on 22 November 2022 for the fifth time.

The conference contributes a wide exchange of scientific achievements, and views on the challenges of the development of sciences, both from academia and from the industry. Its success is reflected in the papers published here, allowing a real scientific exchange of ideas. Conference materials are indexed by CrossRef (USA), e-libray.ru (Russia), and a directory of open access to scholarly resources via ISSN 2707-9481 (ROAD, France). ROAD, with support from the UNESCO Communications and Information Sector, provides free access licensed under Creative Commons to all conference materials worldwide.

This conference can only succeed as a team effort, so the editors want to thank the international scientific committees and the reviewers for their valuable advice. Especially, Professor Heri Retnawati from Yogyakarta State University (Universitas Negeri Yogyakarta, Indonesia) made a great effort in research contribution this year. We would like to take this opportunity to thank all of our reviewers who provided insightful feedback in order to select the best articles. We are sure that publications in this book will stimulate both theoretical and practical, basis and will greatly advance our knowledge and capability in future scientific projects.

We hope for further fruitful cooperation. On behalf of the organizing committees, I extend my warmest welcome to all of you to take part in the next issue in 2023. This conference is planned to be held annually and it has an open call proposal for the development of this scientific project. Short proposals should be sent to conference@kims-imio.kz for more information.

Prof., Dr. **Bagdaulet Kenzhaliyev**
Chief-in editor
On behalf of the organizing Committees
Almaty, the Republic of Kazakhstan
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Formation of students' intercultural competence through foreign films. Review

Abstract: For the rapid development of society, it is necessary to form a new cultural image of a person who implements intercultural communication and is fluent in the latest innovative technologies. Intercultural learning is still relevant to be studied and it attracts the attention of many researchers worldwide as well as educators. The present paper explores components of intercultural competence through foreign films for forming students' competence in international communication. The process of integration into the world community and the creation of an open democratic society has set a new goal for Kazakhstan's education system - to see itself as a citizen of the world living in a certain country, not only as a representative of their own culture but also as a carrier. to bring up a capable person, to form a cultured person who has absorbed the richness of the cultural heritage of his people and the peoples of other countries, seeks mutual understanding with them and is ready to carry out interpersonal and intercultural interaction.

Keywords: competence, intercultural, education, students, movie, teaching.

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Introduction

Deep socio-economic and political changes in our country are associated with the transition to an open civil society, the distinctive feature of which is the interaction of man with representatives of other countries and peoples (Kenzhebaeva et al., 2022). Information communication technology has provided human beings with unique connections to communicate with each other worldwide. It also gives great opportunities to acquire new knowledge and to be aware of the latest news happening around us. In this study, foreign films are considered a learning tool for the development of students' intercultural competence. Although the pedagogical use of films as a teaching tool for intercultural business communication is well known (Briam, 2010), research conducted on the use of films is still few in the context of intercultural education in Asia (Tzu-Chia Chao, 2013).

Intercultural education is included in the curriculum in Europe. Training intercultural skills in language teaching or cultural courses for immigrants is not meant here; intercultural education is considered to teach culture via the education system in any subject and it is provided in all subjects (Walker, 2018). The intercultural competence is seen as a relational process that contributes to building active communication to achieve mutually appropriate and effective behavior (Dalib, et.al., 2014). According to the study by Daniel Mara (2021) from the Lucian Blaga University of Sibiu in Romania, more than 85 % of respondents (teaching staff including students) participated in international educational programs where intercultural

skills have been trained. Academic exchange programs are a source of the formation of intercultural competence at universities worldwide.

Maria Polinsky, a Professor of Linguistics from Harvard University shared her factual opinions about the cognitive advantages of bilingualism on the YouTube channel in 2015 (Maria Polinsky, 2015). If we look at the history of human society, it was much more common to speak two or more languages; there has been new research about the consequences of bilingualism. Based on recent research, she convinces that bilingualism gives a human being significant cognitive advantages, especially at the age of childhood. For those, who want to learn a foreign language, it is not necessary to spend years acquiring a language. Learners should have four learning principles, says Lýdia Machová. She spoke about the secrets of learning a new language in TED Talks in 2019 (Lýdia Machová, 2021). She reveals polyglot secrets which are effective to learn in one's own way. They are enjoyment, a method, a system, and patience. If a learner enjoys learning a new language, he will create his own method and system and as well as have patience. Gracia Bareti highlighted the current issues of the education system because students are not being accurately taught about cultural competence in TED talks in 2019 (Gracia Bareti, 2021). She shares her personal experiences growing up and navigating multiple cultures. She believes that "one culture or the other" has its right to equally exist and each culture should be included in the school curriculum.

Research problem. There is a problem with cultural competence in education that should be addressed while teaching students because the education system is not going to tell us not everything.

***Research hypothesis*.** Teaching in an intercultural context in higher education contributes to the development of students' intercultural skills and also improves the learning process in the classroom. If teaching becomes a living laboratory for students from different cultural backgrounds, as a result, students can be culturally professional and integrate easily into society

Components of intercultural competence

The development of intercultural competence of students isn't a new category of education. The main task of intercultural education is the development of students' intercultural skills (Catarci & Fiorucci, 2015). The concept of intercultural competence is a set of skills used in combination with the intercultural environment, which creates the preconditions for the careful solution of various situations of intercultural interaction. Intercultural competence allows us to find effective solutions to problems in an intercultural context. According to Daniel Mara's study (Daniel Mara, 2021), intercultural competence includes the following components to find effective methods of adaptation in an intercultural environment: cognitive, affective, and behavioral (Table 1).

Table 1. Components of intercultural competence

Cognitive component	Affective component	Behavioral component
- Perceiving an event in a different way; - interpreting an event in a different way.	- respect for others; - recognition; - openness; - appreciation.	- empathy; - tolerance for the presence of others; - ability to find effective methods of adaptation.

Above mentioned components were also discussed by other researchers. For instance, Tzu-Chia Chao (2013) studied a similar process of the formation of students' intercultural competence through foreign films. Features of components such as attitude, motivation, knowledge, awareness, communication strategies, and skills could be developed and trained in a deeper understanding of the cultural meanings while students were watching foreign movies. Foreign films include specific and traditional cultural information. Students could observe, describe, compare, reflect and assess the situations in the films. Table 2 describes these three components of intercultural competence based on foreign films.

Instructive-educational activities in the classroom and outside of the classroom constitute the fundamental elements of intercultural competence and also offer students to participate in intercultural events such as exchange educational programs, conference trips, exhibitions, national festivals, language

clubs, etc.). Cultural diversity is a core for developing students' cognitive and metacognitive skills and abilities (Ciolan, 2008). It aims at:

- cooperation with other students (or colleagues) to solve problems and work in multinational teams;
- establishing a common behavioral code, regarding their reactions in situations of beliefs, norms, principles, values, and divergences of opinions;
- being aware of other characteristics derived from the cultural environment such as TV programs, books, magazines, newspapers, educational Internet materials, and so on;
- observation and evaluation of others' behavior and analysis of implications on intercultural communication;
- adaption and integration in collective teamwork and in intercultural environments;
- establishing friendships and exploring different cultures;
- creation of intercultural harmonization and so on.

Table 2. A brief description of three components by Tzu-Chia Chao

Components	Features	Descriptions
Affect	Attitude	One's emotional and psychological reactions to the diversity of culture or to interacting with people of different cultural/linguistic backgrounds
	Motivation	One's willingness to communicate with people of different cultural/linguistic backgrounds. It is often affected by factors such as anxiety, stereotypes, and expectations
Cognition	Knowledge	It includes culture-general, cultural-specific, and culture-hybrid information
	Awareness	An ability to develop a deeper understanding of the meanings and contexts of foreign people's attitudes (e.g. dynamic and hybrid cultures) and behaviors (e.g. the varieties of English) through observation, description, comparison, reflection, interpretation, or critical evaluation
Behavior	English proficiency	Refers to proficiency in listening, speaking, reading, and writing
	Communication strategies/skills	Includes one's knowledge and actual skills in producing verbal and non-verbal behaviors appropriately and effectively in intercultural contexts

All these abovementioned skills and abilities, which a student possesses, are components of intercultural competence and allow students to think out of the box and solve problems, which overreached the boundaries of a specific academic learning process; they also enable students to use their theoretical learning outcomes in one's own professional and personal life. Besides these components, creativity plays a key role in the human development of skills. Human creativity might influence his social environment. Without creativity, there is no human evolution (Cioca & Nerișanu, 2020). Thus, the cognitive, affective, behavioral, and creative development of students must be taken into account in education.

Selection of films based on cultural features. Most films have intercultural characteristics, and teachers can select those which are appropriate for their courses or contexts. To assist students in forming their intercultural competence we have proposed watching movies that portray foreign people, groups, and unfamiliar cultural contexts. Table 3 gives a sample list of recommended foreign films.

Tzu-Chia Chao also proposed to watch films in four-stage activities such as pre-viewing, during-viewing, post-viewing, and advanced post-viewing. It is believed that watching movies several times can lead to the development of students' observation and interpretation skills and to an understanding of the target culture; it encourages students to share feelings and opinions with each other about what they have seen in the film. Another classroom activity might be filling gaps in a written task during the film viewing for

important cultural features to get students' attention because watching a movie is considered to be a passive activity; it is a challenging task to watch a movie until its end, especially, when students do not understand a speech from the movie. Filling gaps can be an effective activity in this challenge to achieve the learning outcomes.

Table 3. Sample recommended films

Film titles	Descriptions and links
Cultures of Resistance, Documentary	From the sounds of resistance in African countries to Brazil, where automatic guitars change the reality of slum kids' lives, to the Palestinian refugee camps in Lebanon, where photography, music, and film have empowered people to speak out, Cultures of Resistance explores how art and participation can be weapons in the war for peace and justice. https://www.youtube.com/watch?v=-nai21x7114
Outsourced Movie	Outsourcing is a modern comedy of intercultural conflict and romance. Todd Anderson manages his entire office work with the Seattle Consumer Contact Center before being outsourced to India. Insulting the injury, Todd has to travel to India to train his new substitute. As he walks around the office in Bombay, which is plagued by chaos and constant cultural misunderstandings, Todd wants to return to the comforts of home... https://www.youtube.com/watch?v=kPnCIVL-CV4
Film as Global & Cultural Form; Montage, Mise en Scène	Cinema is becoming a global cultural form. Compare American and European cinema, Hollywood and "high art", montage and mise-en-scène styles. Finish by watching and discussing the montage of "Odessa Steps" in Eisenstein's Battleship Potemkin. https://www.youtube.com/watch?v=r67dVaGtBGA
Charlie Chaplin Tempos Modernos	Charlie Chaplin's films are silent and convey all the information through body language. What important is that every nation can understand it without using any spoken language. https://www.youtube.com/watch?v=fCkFjlR7-JQ
Departure - Japanese Movie	Departures (Japanese: おくりびと, Hepburn: Okuribito, "one who sends off") is a 2008 Japanese drama film directed by Yōjirō Takita and starring Masahiro Motoki, Ryōko Hirosue, and Tsutomu Yamazaki. The film follows a young man who returns to his hometown after a failed career as a cellist and stumbles across work as a nōkanshi - a traditional Japanese ritual mortician. He is subjected to prejudice from those around him, including from his wife, because of strong social taboos against people who deal with death. Eventually, he repairs these interpersonal connections through the beauty and dignity of his work. https://www.youtube.com/watch?v=PUxL6QnIS0I

A study on upgrading the quality of learning with an e-learning system has proven that online games are beneficial for cognitive development because children can feel a real environment in the games while playing them and can also train their leadership skills to win in an online game (Kassymova et al., 2021). So digital information communication technology can be a powerful teaching tool for personal development. Dewi Pratiwi et al. (2022) conducted a research experiment on the giant educational game media learning media and concluded that it is an effective means of transportation used to improve children's motor skills in a kindergarten in Kudus, Indonesia.

Conclusions

Foreign films are a rich source of intercultural learning, students can benefit from foreign films as teaching aids if they are offered an appropriate selection of films and course development (Roell, 2010). It is also suggested that educational courses or activities, such as academic exchange programs and summer

study and travel programs for students, are useful in improving behavioral development in intercultural communication. It is also suggested that digital technology should be implemented properly in education (Pratama et al., 2021) because of its benefits in playing games for school children and watching foreign films for adult education for further personal and professional development.

In our study, we understand that the training of a specialist who is ready to act as a mediator between his own and foreign cultures and to effectively resolve misunderstandings caused by intercultural differences is determined only by the volume of cultures. A set of intercultural education and intercultural skills, as well as its basic relations: attitude to knowledge as a value, information, self, value as a profession, etc. a system of value orientations used by the subject to solve professional problems in the context of intercultural interaction. The main criterion for the formation of intercultural competence is the level of the leading directions and components of its structure. When there is a clear link between the content of the information provided to students about national and cultural differences and the practical application of this information in various forms and types of communication, we can talk about the formation of intercultural competence as a pedagogical process.

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To the Problem of Ecology of Understanding Human Being by Human

Abstract: There are several approaches to considering the concept of environmental friendliness of psychological impact, among which the dialogical one should be especially highlighted. Dialogue as a way of "co-being" and "being-human", acts as a natural form and method of psychological influence and help, specifying the peculiarities of understanding the client in a situation of psychological counseling, the collapse of the atmosphere of dialogue means failure to be oneself and the loss of the possibility of inter-human contact. A meaningful indicator of professional understanding in psychological counseling is understanding strategies as ways of forming meaning that lies in the approaches to understanding themselves. Environmental friendliness of understanding presupposes understanding that is born in dialogue, "co-existence", "fundamentally responsive", characterized by "direct contact" with the inner world of another, reflecting the process of experiencing his / her otherness, its capabilities, necessity, and productivity, the presence of a need for understanding, functions, and factors of understanding. It is important to understand that in addition to the values and goals of those communicating, understanding and transitioning to his / her new strategy is possible if a human has the desire to look and understand, it is determined in the event of the response.

Keywords: dialogue, psychological counseling, strategies for understanding a human by a human, strategy of explanation, strategy of interpretation, strategy of dialogization.

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Introduction

The development of psychology as an area of theoretical and practical knowledge, the formation of its psycho-technical functions both in the life of an individual and society as a whole, is reflected in the solution of its central question: the goal and methods of psychological influence. Recently, this problem has increasingly come to be seen as a problem of permissible (for one reason or another - ethical, pragmatic,

etc.) impact and the problem of environmental relevance and validity of the impact and understanding of the client in the process of psychological counseling.

The process of globalization and integration takes place in all spheres of modern society - economic, political, social, and cultural. A person lives and develops in a group of people around him in society, changes his thoughts and behavior in accordance with his needs, and feels various connections through interaction with other members of the group. Without communication, self-knowledge, and socialization, the development of a person as a person, the transfer of social experience from person to person, the existence of communities and states, as well as the mental activity of a person (individual) are impossible (Kenzhebaeva et al., 2022).

Research problem. Analysis of the state of the problem of the Ecology of Understanding Human Being by Human, clarification of the essence, content, and strategies raises a question of what conditions can be considered necessary and sufficient for the Ecology of Understanding Human beings.

The problem of the Ecology of Understanding Human Being by Human is a relative topic to search especially since the emergence of the Internet because people understand and consume the information from social media totally different than it was initially written for other consumption (Pratiwi et al., 2022; Kassymova et al., 2020 and 2021; Pratama 2021a and 2021b).

History and Characteristics of Communication

Every living thing needs communication. Communication with each other and between other creatures. Humans as living creatures also need communication, communication with others, self-communication, and also with nature. Communication between individuals, individuals with groups, and communication between groups, either directly or through the media.

Unong Udjana Effendy in Zikri & Ahmad, communication occurs when the people involved in it have the same meaning about the thing being communicated. In other words, if the people involved in dialog understand each other what is being communicated, then the relationship between them is communicative. Aristotle who lived hundreds of years BC to modern communication experts born in the 20th century realized how important communication is for social, cultural, educational, and political life. In the past, Aristotle's communication studies only revolved around rhetoric in small circles. Communication developed rapidly with the industrial revolution in Europe which then expanded to the rest of the world (Zikri & Ahmad, 2017).

At this time communication has developed into a science and knowledge that is studied, researched, and continues to be developed. Even so, there are still many ineffective communications that lead to misunderstandings or miscommunication between communicators. Therefore, a strategy is needed to understand the meaning of communication, so that a solution can be found in overcoming problems or changing behavior.

The main components of communication include communicator (source), media (channel), communicant (receiver), and effects. Communication cannot be separated from psychology and vice versa. The discussion of communication will never be separated from the behavior and experience of human consciousness. With good communication skills and using an understanding of psychology, information addressed to someone will be easily received and well-received to form a common understanding (E-learning Bina Sarana Informatika University). In the opinion of Monroe (Zikri & Ahmad, 2017), if we want to influence other people, first grab their attention, then arouse their needs, give instructions to the person on how to satisfy these needs, then give an idea in his mind about the advantages and disadvantages that will arise. He will get if he applies or does not apply our ideas, in the end, give him encouragement to take action.

Understanding someone is closely related to the psychology of communication. George A. Miller defines Communication Psychology as "the science that seeks to describe, predict, and control mental and behavioral events (behavior) in communication". Describing means analyzing why an act of communication can occur. Predicting means making certain generalizations over a number of behaviors associated with certain psychological conditions, so we will predict what form of behavior will appear if a stimulus is given to people with certain psychological characteristics. Controlling means we can manipulate if we want or don't want a certain effect from the communication that occurs (E-learning Bina Sarana Informatika University).

Counseling and Strategy Understanding Human Being

According to Gladding in Rezki Hariko (2016), counseling is defined as a mental health tool with psychological principles or human development through cognitive, affective, behavioral, or systemic interventions. Counseling cannot be separated from communication. To become an expert counselor, good communication skills are needed, back to the purpose of communication. Communication aims to inform, entertain, or influence or change behavior. According to Syaiful Akhyar in Henni & Abdillah (2019: 9), the goals of counseling are:

- (1) providing facilities for behavior change;
- (2) improving interpersonal relationships and fostering mental health;
- (3) improve skills to deal with problems;
- (4) provide facilities for capacity development;
- (5) improve the ability to make decisions.

Can be concluded the purpose of counseling is the occurrence of behavioral changes in the client in accordance with the abilities and potential of the client. Counselors seek to facilitate and provide support, together with clients to make problem-solving alternatives for the sake of change for the better and in accordance with the goals to be achieved in counseling (Mulawarman & Eem Munawaroh, 2016: 9).

Dan Ariely in his speech on Ted Talk stated that providing information to someone cannot simply change that person's behavior. He also said, if we want to change behavior, then we have to change the environment first. It can be concluded that if we want to change a person's behavior, then we must change his environment.

The environment is one of the factors in the formation of behavior in individuals. The environment greatly influences the development of the behavior of each individual. Individuals who are raised in a conducive environment with adequate facilities and infrastructure, so that all of their innate potentials can develop optimally. However, there are also individuals who live and are in a less conducive environment with limited facilities and infrastructure so that all of their innate potentials cannot develop properly and become wasted (Henni & Abdillah, 2019: 38). It also gives countenance that environment has an important role in changing a person's behavior.

In understanding human beings, it takes a special ability. Even perhaps need specific methodologies to understand human beings, at least when we try to understand them in a particular way. The idea is that there is a kind of understanding of other human beings that we can only derive by reconstructing their perspectives, "from within" those perspectives and based on their own terms (Grimm, 2021).

Understanding is one of the cognition abilities, Alison Hills characterizes the distinctive psychological abilities that undergird understanding in terms of "cognitive control" (Grimm, 2021). Giambattista Vico stated that understanding human beings different from understanding the natural world. According to Vico, just as we have special knowledge or understanding of things we have made or produced ourselves, so we can have special insight into things that other human beings have made or produced, where the things made or produced included not just physical artifacts but also human actions. Vico further thought of special ability — fantasia, or reconstructive imagination — in which we can enter into the minds of others and see the world through their eyes and in terms of their categories of thought (Grimm, 2021).

The first strategy to understand human beings is an explanation. Explanations are a really important thing in daily life. Features of the world that we cannot explain are a major focus of research, even if we know a great deal about them. It is thus not surprising that philosophers have been greatly concerned with the nature of explanation. If we understood what we had to produce in order to explain something, we would understand a lot more about human thought and the process of knowledge (Chart, 2018: 1). Environmental human-friendliness is a significant contextual determinant of quality of life (L. Horelli, 2006).

Research results

There are several approaches to considering the concept of environmental friendliness of psychological impact (Chiari, 2015; Dimcovic, 2021; Ekstein & Nelson, 1981; Marmor, 2021; Martinez et al, 2012):

- criterion of environmental validity impact - its effectiveness, fascinating impact,
- client's opinion on the course of counseling and legitimacy-desirability of his methods are not taken into account, the need and productivity of a particular procedure, interpretation,

- a process in which "nothing happens", the presence and nature of the client's "dialogical intention" is taken into account, and the "meeting" of equal partners of the dialogue determines the choice of a model of interaction and mutual understanding.

Features of one or another paradigm of interaction: the first two correspond to the monological paradigm and imperative and manipulative strategies of influence, respectively, the dialogical paradigm, based on the principles of probability and complex causality, will make it possible to make the subject's own experience the starting point of cognition, is realized in the developmental strategy of psychological influence. Environmental education plays a central role in the global continuing education system. Environmental education is the leading competence of a person in relation to understanding himself as an integral being (Arpentieva MR et al., 2019b; Friedman, 1988; Goldstein & Michaels, 2021).

Dialogue as a way of "co-being" and "being-human", acts as a natural form and method of psychological influence and assistance, specifying the characteristics of understanding the client in a situation of psychological counseling, the disintegration of the atmosphere of dialogue means "failure to be oneself and the loss of the possibility of inter-human contact" ... The problem of environmental friendliness of psychological influence is closely related to the problems of an ethical plan (psychological dependence of the psychologist and the client, and their dependence on society) and the problem of professionalism (Arpentieva, 2018; Korchagina & Arpentieva, 2017; Minigalieva, 2019).

In our opinion, the criterion of the professional maturity of a psychologist can be the peculiarities of his understanding of the client: understanding acts as a professional task of the psychologist-consultant. A meaningful indicator of professional understanding in psychological counseling is understanding strategies as ways of forming meaning that lies in the approaches to understanding themselves. Environmental friendliness of understanding presupposes an understanding that is born in dialogue, "co-existence", "fundamentally responsive", characterized by "direct contact" with the inner world of another, reflecting the process of experiencing his otherness: "It is quite possible to admit and think that a single truth requires a plurality of consciousnesses, that it is eventful by nature and is born at the point of contact of consciousnesses" (Bakhtin, 1975; Howard et al., 1969; Klosinski, 1992; Liu et al, 2021).

Attempts to overcome the monologue of consciousness lie in three planes:

1. construction of a "privileged" topos, a system of values ("Socrates strategy"),

2. principled pluralism as an attempt "to cover" absolutely everything ("Montaigne's strategy"),

3. "drift among many ideological islands", the eventfulness of truth as "co-meanings" ("Barthes strategy"), and "concrete understanding of the other", - each of which presupposes its own criteria for environmental friendliness of psychological impact and understanding.

It is implemented in the appropriate strategies for understanding the client: 1. complementary, 2. transformative, 3. integrating information about the problem and strategies for detecting the meaning inherent in the situation, creating (new) meaning, and creating "co-meanings" in a dialogue with another person. One of the criteria which are the specifics of the context of understanding the problems: orientation to the generalized experience available to the subject understanding at the moment, orientation towards the typical in the inner world of the client, correlated with normative knowledge, and orientation towards the individuality of the client and practical objectivity, etc.

The "ecological potential" of each of these strategies of understanding and psychological influence is obviously different, increasing with the transition to the strategy of integration in understanding and to the developmental strategy of influence: from monological to dialogical ways of interaction. Within the framework of the given strategies of understanding, there are qualitatively different approaches to considering its capabilities, necessity and productivity, the presence of a need for understanding, functions, and factors of understanding. The use of the complement strategy is based on the assumption that understanding is possible and necessary if the situation has a specific meaning, understanding is reproductive in nature, the need for it is weakly expressed, actualizing at moments of misunderstanding and ending with the discovery of the "meaning" of the situation.

The basis of the use of the transformation strategy is that understanding is possible, necessary, and productive, the need for understanding is realized and strongly expressed, the desire for "effective understanding" (creating the meaning of the situation), and the presence of an explicit theory of understanding in the subject are characteristic. The integration strategy assumes that understanding "can be", productively, responsively, and the need for understanding is actualized by the need of another "to be understood", aimed at the formation of "co-meanings" in the process of dialogue.

As already noted, the above strategies of understanding (strategy of explanation, strategy of interpretation, the strategy of dialogization) have different dialogical potentials (Arpentieva n / Minigalieva 2014; Arpentieva, 2017c; Minigalieva & Minigalieva, 1999), provoking the emergence of one or another type of speech, communication situations and the choice of one or another "form of discourse": practical, revolving around the justice of actions "judicial speech" (Phillips & Grattet, 2000), theoretical, revolving around the truth of the appearances ("business speech" and a business communication situation) and aesthetic - around the sincerity of feelings, authenticity ("carnival-forced speech" in a "game communication situation") (Arpentieva et al., 2019a; Kassymova et al., 2019; Goldstein & Michaels, 2021).

The implicit theory of understanding (representation of it) in each of the cases:

- is static, unconscious, understanding as a phenomenon which is realized only in situations of its absence, the subject relies on the "sense of comprehensibility" in assessing its results,

- is static, conscious, acts as a component of feedback, understanding is recognized as a goal and value, an implicit theory is close to explicit, the subject retains "faith in understanding" and the impossibility of knowing,

- dynamic, close to explicit (the desire for effectiveness is expressed), understanding is realized as a goal and means of transforming a problem situation.

The criteria for the effectiveness of understanding are:

1. understanding as finding a common language, the main criteria for understanding are the speech genres and techniques used,

2. understanding as finding common metaphors, the criteria for understanding are the nature of concepts of understanding and normative roles,

3. understanding as finding (emergence) common values, the main criteria are the position and values of the subjects (Arpentieva, 2017a; Arpentieva, 2017b).

Thus, the named strategies have different possibilities for understanding the other ("Alien"). Alien is available as a variant of the general as "His / Her" and through the formation of a stylistic analogy, "signified" by it (Bavelas et al, 2017; Mircea, 2015; Minigalieva & Minigalieva, 1999; Sanguineti, 2007). Alien is inaccessible, its understanding is carried out through reduction to meaning Alien, leading to its destruction, Alien is perceived as accessible only in the experience of "irresistible absence". Alien is perceived as relatively accessible. It is possible, that if a human has the desire to look and understand, is determined in the event of a response.

Conclusions

There are different strategies for a person's understanding of a person: the strategy of explanation, the strategy of interpretation, and the strategy of dialogization. These strategies differ in "environmental friendliness", in the degree to which they make it possible to understand another human as another, close to his or her own understanding, and not to his / her own. The explanation strategy primitivizes and reduces the other to the understanding person's own experience. The interpretation strategy reduces the other to the experience of the psychotherapeutic community. And only dialogization is full "environmentally friendly", it makes it possible to understand another person as an interlocutor from his own system of values, temporal and spatial "coordinates".

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How to improve the pre-school program? In the Case of China

Abstract: Since the 21st century, with the reform and comprehensive development of education, preschool education has gradually appeared in everyone's vision. In recent years, preschool education, as the foundation of lifelong education, has been highly valued and vigorously developed by the state. Preschool programs are also facing pressures and challenges. There are still many problems in the preschool education program. This article deals with how to improve the pre-school program, how to assess children's knowledge in the preschool program, how to make preschool programs work well, and so on. The authors will further analyze and discuss the improvement measures in all aspects of the preschool education program based on the actual situation.

Keywords: preschool education program; the need for preschool education; status of preschool education; assessment; recommendations for improvement.

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Introduction

Preschool education is an important stage of children's learning and growth, the foundation of lifelong education in society, and the premise for the country to cultivate high-quality talents. Therefore, preschool education has been paid more and more attention by society and parents. In recent years, China has been vigorously developing preschool education, but there are still some issues that have not been resolved. This paper briefly analyzes the importance of preschool education and the current situation of preschool education and proposes corresponding improvement strategies.

Currently, many studies show that the assessment of the knowledge of students in the preschool group is accurate. The main purpose of the preschool class is to provide students with access to high-quality, developmental preschool programs that help prepare children for school. In addition, they will receive diet, physical activity, and health care; they need to arrive at school with a healthy mind and body (Lorrie Shepard et al., 1998).

There are some other studies in the United States of America that support the expansion of early childhood education. It is believed that quality early childhood education can help become more efficient and close the achievement gap. In addition, neuroscience has proven that there is a significant increase in brain function during the first five years. This growth forms the basis for later learning. According to policymakers, researchers, and teachers, the preschool education system should include several elements

such as the instructional framework, instructional materials, pedagogical approaches, student assessments, a system for teacher learning, school leader learning, and instructional oversight.

Instructional frameworks provide a vision for specific subject areas and guidance on what to teach and how to teach while the instructional materials and pedagogical approaches provide guidance on the scope and sequence of skills. Knowledge assessments track student progress in preschool and early grades. This leads to a determination of whether the policies they implement effectively contribute to the development of children and narrow the achievement gap. The next element of the framework is the system for teacher learning which includes professional training programs and coaching, as well as opportunities for teachers to meet with each other to discuss in professional learning communities what kind of program they have established in their preschool education. School leaders need to learn how to support the preschool classrooms and should be engaged with classrooms at their school site. They should address what is missing in the learning approaches and provide what is needed for learning. Instructional oversight is substantial as a tool to identify teacher learning needs and leaders should be always informed about issues in preschool in order to solve them in time and keep the process under control (PreK-12 Is the New Reality: How Do We Make It Work?).

XXI century skills such as collaboration, problem-solving, digitalization, and so on represent a bunch of competencies; these skills make young individuals become productive members of the workforce in the future (Larson & Miller, 2011; Rouse & Rouse, 2022). In order to improve the education quality, a recent study recommends taking the maker movement to school, which means when schools and educational institutions are integrated with each other and school-based marker spaces should be used with the widest variety of students (2012; Rouse & Rouse, 2022); they should not be selected to tinker them in after-school projects; it should be obligatory for every student and teacher should be trained to this operation, respectively. This process will lead to the creation of innovative projects focused on science, art, and technology (Dougherty). As a result, there raises to reconsider the activity creation to support young people learning. Due to its inconsistency, the development of constructivist ideas in the context of the development of pedagogical ideologies and technologies leads to the reconceptualization of the traditional model of education (Arpentieva et al., 2021). In the next subsections, the authors analyze how to improve the pre-school program in the case of China which has played a bigger role in improving pre-school programs due to its big number of young learners.

Research questions. This article seeks an answer to these questions: How to improve the pre-school program? How do assess children's knowledge in the preschool program? How to make preschool programs work well?

The need for the preschool program

"A strong country must first strengthen education". As the foundation of lifelong education, preschool education is an important part of national education and the first stage of children's enlightenment. The value of the preschool program to individuals, families, and society is clear. Children in the preschool stage have just started their minds and have not yet established a correct outlook on life, society, and values. While they are curious about the things around them and also very easy to develop bad habits. At this time, it is particularly important to actively develop the preschool program. On the one hand, preschool education can develop children's intelligence and their ability to recognize things. Psychological research has shown that the development of human intelligence has a specific critical period. Generally speaking, the basic structure of the human brain will be completed before the age of 6. On the other hand, the preschool education stage is an important stage when children just begin to contact society and participate in interpersonal communication. Good preschool education can cultivate children in the collective to form a lively personality, solidarity, friendship, and helpful qualities. To cultivate children's self-reliance, self-improvement, and self-confidence in life.

In China there are 130 million infants and young children aged 0-6, accounting for 1/5 of the total number of children of the same age in the world. It is the country with the largest population of preschool education in the world. Therefore, vigorously promoting the preschool program is particularly important for our country. It can not only improve the basic quality of national individuals but also contribute to the cultivation of new talents in our country. In early 2010, the Chinese Ministry of Education announced the

"Outline of the National Medium and Long-term Education Reform and Development Plan (2010-2020)" (hereinafter referred to as the "Outline"), which pointed out that it is necessary to vigorously develop and popularize preschool program, improve the preschool program in rural areas, and improve preschool's educational mechanism (People's Daily, 2010). Despite this, there are still some problems in the development of the preschool program in China.

Main problems faced by the preschool program

It is difficult and expensive to enter preschool

First of all, as we mentioned before, the preschool education enterprise is part of the national education enterprise. But the real problem is that preschool education is not a part of the country's "compulsory education". Although China has been working hard to increase financial investment in preschool education in the past ten years, the total financial investment is still insufficient. The total investment in preschool education in EU countries accounts for an average of 0.6% of GDP, of which Iceland, Athens, and Norway all exceed 1.0%, Sweden has reached 1.4%, and this indicator in China is only 0.19% (Zhao Li, 2020). According to statistics, by the end of 2021, the number of public preschools in China accounted for 43% of the total number of preschools. The lack of public preschools has become the main reason for the difficulty in entering preschools.

When public preschools cannot meet the demand, many families have to choose private preschools. Private preschool tends to charge high fees. In recent years, some first-tier cities have even seen "sky-high prices of preschools" with annual fees of up to 100,000 yuan. The fees charged by a large number of preschools are beyond the affordability of ordinary residents, which has brought financial pressure on many families. At the same time, the scarcity and high price of preschools also lead to a lot of inequity.

There is a significant gap between urban and rural

The gap between urban and rural preschool education is an important manifestation of inequity in preschool education. At present, only 70% of children in the vast rural areas of China can receive only one year of preschool education (Cai Yingqi, Feng Xiaoxia, 2004). The opportunities and years of education for rural children are far less than those of urban children. Not only that but the quality of preschool education in rural areas can't be compared to that in cities. As we know, the level of economic development in rural areas is low, the government invests less money, and Teachers are poorly paid. It has directly led to problems such as the poor environment of rural preschools, insufficient teachers, and outdated educational concepts in rural preschools, which also seriously affected the quality of rural preschool education.

Problems with preschool teachers

1. The number of teachers is not enough.

As a basic discipline, preschool education has relatively short development history and has not attracted people's great attention. In addition, society does not fully understand the professionalization of preschool education teachers, which makes the status and economic benefits of preschool education teachers generally low, and there are fewer practitioners. According to the statistics of the Ministry of Education, in 2020, the total number of teachers and staff in preschools nationwide will be 5.1982 million, and the number of children in preschools will reach 48.18 million. Still not up to the 1:7 standards. Moreover, the total number of teachers and staff in rural preschools is less than one-fifth of the national total, and the ratio between urban and rural areas is seriously unbalanced (Research Institute, 2021).

2. The faculty structure is unreasonable.

Due to the increasing demand for teachers in popularizing preschool education at this stage, a few preschools only focus on the number of teachers and ignore their quality. Moreover, China's educational level requirements for preschool teachers are only technical secondary school and above, which is much lower than that of developed countries (Liu Huquan, 2022). Many preschools only require a junior high school degree when hiring teachers, and some preschool teachers have not obtained a teacher qualification certificate at all. Among them, some rural preschools or private preschools even recruit local unemployed residents as childcare workers to save costs. Preschool teachers seem to be reduced to a simple job that everyone can do, which makes it difficult to carry out educational activities that fully meet the needs of children's healthy growth.

3. Lack of appropriate educational theoretical guidance.

With the development of the times, education has undergone tremendous changes in recent years. This change is mainly reflected in the fact that young children can learn more new things through the Internet, which means that young children mature earlier than previous. Therefore, preschool teachers need to make corresponding adjustments in educational philosophy and educational purposes at the same time. Due to the particularity of preschool education, teachers need to have a variety of qualities such as love, responsibility, and patience. In the teaching process, teachers should not only carry out "imitation" education, but also need to follow the objective laws of children's physical and mental development to incorporate habit formation and character shaping into the scope of teaching.

The tendency of "primary schooling of preschool education" is serious

Chinese basic education has long been dominated by examination-oriented education, which has also had a great impact on the development of preschool education. In terms of parents, in order to make their children have a good future, many parents often take various methods to educate their children in advance. However, most of them only focus on the cultivation of intellectual education, while ignoring the education of other intellectual factors such as personality, emotion, physical and mental health, etc. In terms of preschools, many school-running institutions are driven by economic interests and only care about the interests of parents, taking reading, writing, and counting as the main activities. In particular, some preschools use primary school-like things such as teaching first-grade courses to attract parents to send their children to their preschool. This phenomenon not only deprives children of their nature but also runs counter to the goal of preschool education that emphasizes the cultivation of children's interests and hobbies, the emphasis on individualized growth, and the emphasis on harmonious all-around development proposed in the "Outline".

Necessary measures to improve preschool program

From the state and government's side

1. Popularize preschool education.

From a global perspective, more and more developed countries and regions have public preschool education institutions accounting for more than 50% or even 100% (Li Yufeng, 2010). However, China's public preschool education institutions only account for 43%, which has not reached the level of popularization mentioned in the "Outline". This requires the state and the government to strengthen the construction of public preschools, build a number of public preschools, and continuously expand public preschool education resources by investing in new construction, rebuilding idle school buildings, or adding preschool classes in primary schools. Gradually form a public service system for preschool education with public administration as the main body. At the same time, relevant laws and regulations are issued for preschool education, so that education authorities and governments at all levels can formulate plans, systems, and measures to promote the sustainable, healthy, and scientific development of preschool education. The state should also include preschool education into the category of compulsory education as soon as possible, which is the only way to achieve universal preschool education.

2. Vigorously develop rural preschool education.

First, increase the state's investment in rural preschool education, and narrow the difference in terms of financial security. Establish a financial investment mechanism led by the government, supplemented by donations from social groups and individuals, and set up special funds for preschool education. These funds are mainly used to improve the conditions for running preschools in rural areas, reward towns, and towns that have basically universalized preschool education, and support poor rural children. Secondly, cultivate the teachers of preschool education in rural areas and narrow the differences in the teaching team. Establish a teacher allocation system that flows to rural areas, incorporate urban and rural preschool teachers into a unified system, and increase incentives for rural teachers to encourage more excellent teachers to participate in rural preschool education, balance educational resources, and improve teaching levels. Only with the joint development of urban and rural preschool education, education fairness can be achieved and the negative impact of unfavorable family education and growth environment be effectively reduced.

3. Increase financial investment in preschool education.

Public funding for preschool education is the basic guarantee for preschool education. The state should increase financial investment in preschool education and pass legislation to ensure financial

investment in preschool education. However, limited by China's financial system and financial capacity, under the existing financial system, China's financial investment in preschool education has an obvious "public preschool tendency" (Song Liqin, 2021). This requires governments at all levels to establish a preschool education funding guarantee mechanism based on the actual development of regional preschool education, incorporate preschool education funds into the government budget and achieve separate budgets; Education departments at all levels should strengthen supervision and evaluation to ensure that the allocation of funds to public preschools and inclusive private preschools is equitable in proportion, according to standards, and according to the system, so as to effectively utilize the benefits of financial funds.

From the preschool teacher team construction's side

1. Pay attention to the training of teachers.

China has been training teachers through teacher education, which ensures the professional training of preschool teachers. However, taking normal education as the only channel for preschool teacher training limits the source and level of preschool teachers to a certain extent. By learning from some developed countries, China can also expand the source of preschool education teachers by combining targeted and non-targeted methods, but at the same time, it should also ensure the professional assessment of the appointment of non-targeted teachers. In-service preschool teachers should regularly receive on-the-job training, learn new ideas and methods, and explore new educational methods with the help of Internet resources. For those preschool teachers who have graduated from vocational middle schools or non-preschool education majors, carry out continuing education to improve their educational capabilities, including improving educational theory, literacy, and scientific research capabilities, and mastering education and teaching skills. In addition, the state should also pay attention to the guidance of social values, encourage male students to devote themselves to the cause of preschool education, and solve the problem of the lack of male preschool teachers.

2. Focus on solving the authorized problem of rural preschool teachers.

Each region should formulate policies to adjust the staffing of teachers according to the current situation of regional education. Narrow the gap between urban and rural teachers through measures such as job rotation and increasing income subsidies for rural preschool teachers, so that the preparation standards for rural preschool teachers meet the actual needs of local preschool education (Chen Fengmei, 2015). It is necessary to issue relevant laws and policies at the national level, eliminate the gap in the quality of preschool teachers in urban and rural areas, implement the qualification access system for preschool teachers in accordance with the law, and clarify the status of teachers. Priority is given to teachers who have obtained qualification certificates, and more teachers are encouraged to obtain qualifications to better improve their teaching level.

3. Protect the interests of preschool teachers.

On the one hand, the government should clearly stipulate the minimum wage standard for preschool teachers, paying particular attention to private preschool teachers. Ensure that teachers are hired by signing labor contracts, ensure that wages are paid in full and on time, and implement social welfare policies such as endowment insurance and medical insurance. Appropriately increase the authorized strength of private preschools, so that teachers who worked many years have the opportunity to "regularize" and relieve their worries. For rural teachers, there must be a certain policy preference, and subsidies for preschool teachers in remote areas and ethnic minority areas should be increased. On the other hand, schools and social groups should also care about the work, study, and life of preschool teachers, build a personal growth platform for preschool teachers, and respect preschool teachers. So that they can be more proud to give in the preschool education industry.

4. Improve the personal quality of teachers.

Preschool teachers should not only have excellent oral expression skills, but also skills such as singing, dancing, and painting. There are also two parts to improve the teaching level of teachers. One is to improve the knowledge reserve of teachers. Preschool education involves a lot of content. Children are always full of curiosity about the unknown world. Only with rich knowledge reserves can teachers guide children to build a better understanding of the world's scientific cognition. On the other hand, it is to improve teachers' observation ability. Children usually have difficulty expressing their demands in precise words.

Teachers should always observe children's behavior during the teaching process, and make effective responses without disturbing children's concentration. This requires preschool teachers to learn psychological knowledge.

From the preschool education teaching's side

1. Set a reasonable teaching plan

The development of preschool education teaching plans should be based on the development of children, so as to promote the optimal growth of each individual life as the basic requirement. The preschool education teaching plan should follow the laws of children's physical and mental development, and should not be "primary schooling". The "Outline" points out that preschool education should adapt to the actual needs of young children, and is conducive to their long-term development; it is not only close to children's lives, but also helps to expand children's experience and vision. Therefore, when formulating teaching plans, teachers should appropriately enrich the teaching content based on children's learning characteristics and cognition rules, stimulate children's desire to explore and self-consciousness, and promote children's individualized development. For example, teachers can regularly carry out rich outdoor activities, leading children out of the classroom and approaching nature, allowing children to explore new knowledge in nature and gain more inspiration from personal experience and experimentation.

2. Diversified teaching forms

Preschool education not only develops children's intelligence but also shoulders the mission of cultivating children's character. Diversified teaching forms can be more targeted to improve children's comprehensive quality. Gamification teaching is an important form of preschool education. The French philosopher Rousseau believed that games have the function of returning to nature education. Gamification conforms to the physical and psychological characteristics of children who are lively, active, curious, inquisitive, and exploratory, and is conducive to the comprehensive and harmonious development of children's bodies and minds. However, teachers cannot blindly formulate games. They should focus on the four C's of "communication", "cooperation", "critical thinking" and "creativity" (Zhu Lixin, 2021). On the basis of subject teaching knowledge, game factors should be mobilized to make teaching more lively and interesting. Beyond that, children can be influenced through the teaching of stories. In the process of repeatedly listening to the story, it can strengthen children's understanding of sentences and context, improve reading ability, expand children's vocabulary, and make children's memory develop rapidly. At the same time, teachers encourage children to tell stories, which can also improve children's thinking and expression skills. The story should choose more famous novels and fables because the various beautiful thoughts and feelings of human beings in the story will also subtly shape them to form such beautiful characters as humility, courtesy, bravery, and kindness.

In short, teachers should start from the fundamentals of preschool education and provide children with a more comprehensive education. Summarize successful experiences and failure lessons in the education process, so as to improve the quality of education and enable children to obtain better-personalized development.

3. Pay attention to the physical and mental health of children

The "Outline" pointed out that preschool education should provide children with a healthy and rich living and activity environment, so that they can gain experience beneficial to physical and mental development in a happy childhood and form a sound personality. This requires teachers to always pay attention to children's physical and mental health in preschool education.

Children in the preschool stage are full of curiosity about the world but also have a certain sense of fear. They are likely to have a psychological shadow or begin to feel inferior because of the teacher's criticism. Therefore, in the preschool education stage, teachers should actively use encouraging ways, so that children are not afraid of new things, develop a sense of self-confidence, and can deal with learning calmly. In addition, teachers should also create a sense of happiness for children, so that they can feel the feeling of being cared for and paid attention to, so as to improve children's happiness index and sense of security. For example, teachers can ask classmates to celebrate a child's birthday together, so that he can feel love and blessings in the group; when some children don't wear well, teachers can ask other children to assist and guide them. To stimulate children's sense of trust and responsibility for each other. Let children grow up in an atmosphere of solidarity, mutual assistance, and positiveness, form a sound personality in love and being loved, and develop the good quality of helping each other.

Early childhood assessments

One of the tasks is to teach children universal values of patriotism and tolerance, founded on the national idea of "Manglik El" in Kazakhstan, which is translated into English as "Eternal Country" (Collective Monograph "Mangilik El", 2022). Following modern requirements, educational work is improved in the national educational guidance based on the national compulsory standard. Nowadays, the Kazakhstani educational system uses "three-level assessment - three times during the year", pupils will receive grades only three times a year. They will certainly not require notebooks; the results are recorded in observation sheets, based on which an individual map of child development is compiled. The tests are conducted

- at the beginning (from September 1 to 10),
- in the middle (from January 10 to 20), and
- at the end (from May 20 to 30) of the academic year.

The final control should show how well the children have mastered the standard program. It is important to note that the evaluation is based on a three-tier system. The first stage indicates that the child has memorized the material. To reach the second level, understanding is also required: that is, children must not only automatically reproduce the knowledge they have acquired, but also understand its meaning. The highest, third level is assigned to students who not only know and understand the material but also apply it in practice. After all, ultimately, that is precisely the purpose of educational reform - to teach children the skills of practical use of the knowledge acquired in school.

Assessing students in the preschool preparation group helps to diagnose, stimulate, and correct student activity. The age of the child must be considered in the evaluation. During the assessment, the teacher's emotional state should be balanced with a friendly tone. The assessment should start with positive moments and then look at negative moments. One of the most efficient approaches is collective praise. When all the kids in the classroom say, "I'm smart today, I did it..." As an alternative to this type of evaluation, children like to praise other children, especially if the recognized leader of the children's team praises everyone.

Conclusions

Overall, the integration of pre-school education into primary school should provide a developmentally appropriate educational program for children in the lower grades, laying a solid foundation for learning. In the current educational environment, preschool education has not yet achieved universalized and compulsory, which has hindered the correct development of preschool education programs. However, the authors also analyze the current preschool education in combination with certain actual situations, analyze the necessity of carrying out correct preschool education, and also put forward certain improvement suggestions.

In addition, assessment is another obligatory component of the educational process for preschoolers; it represents the teacher's opinion about the process and results of children's activities and is used as a means of stimulating, diagnosing, orienting, and educating preschoolers. The nature of the teacher's assessment is related to the child's success in the activity. Encouraging adult assessment is indeed a child's best interest in learning activities. Hopefully, this article can be helpful in further improving preschool education.

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Analysis of the problem of the emergence of spiritual crisis in individual and social consciousness manifested in the loss of ideals and meaning of life

Abstract: In order to get a person out of the state of deep spiritual crisis in all spheres of life, it is necessary for him to realize spirituality as a necessary condition for both successful development and for the preservation of humanity. The affirmation of universal human values in consciousness and behavior of a person is the basis of his/her spiritual health and moral well-being, aspiration for creative creation. However, the whole complexity of the modern situation is that spirituality in a person's worldview, in the system of life priorities, is of secondary importance. This is due to the domination of the technocratic way of thinking of the person who replaced moral feelings and prefers only materialistic values.

Keywords: suicide, overcoming strategy, corrective approach, criterion, criterial-oriented approach, structural approach, statistical approach, technological approach.

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Introduction

The effectiveness of modernization of public consciousness depends on the level of conscious understanding of the significance of universal values in the life of every person. In this regard, the modernization of public consciousness through the spiritual and moral development of teachers is the most effective way to ensure national security. Modern society needs educated, spiritual and moral, enterprising people who are able to independently make responsible decisions in a situation of choice, capable of cooperation, characterized by mobility and constructiveness. These are the qualities that will allow young people and adults, future professionals to be included in the structure of society and show subjective activity. Psychological and pedagogical analysis of human life, aimed at revealing the relationship of a person to other people, constitutes the core of true life psychology. Moral qualities of a person, moral behavior, moral motives, moral consciousness, etc. there are real phenomena that take place in the activities of any normal person. Therefore, these phenomena have become the subject of scientific study.

The purpose of the research problem. The purpose of the work is to formulate scientific and methodological recommendations and monitor their effectiveness.

***Research methodology and technique*.** The methodology of the work is based on the use of the theory of knowledge, personality, activity, personality-oriented approach, system-activity, anthropological, and axiological approaches; the humanistic paradigm of education.

Research results

The guidelines for determining the goal of pedagogical activity are the satisfaction of an individual's needs for security, and confidence in the future; creating conditions for the formation of a positive "I-concept"; providing a field of self-determination, finding the meaning of life; creating conditions for an unconditional positive attitude on the part of others, trust, initiating success and achievements of the individual in various activities, creating conditions for knowing other people and establishing relationships with them, cultivating sincerity and open dialogical communication.

The novelty of the research lies in the study of the problem of consciousness transformation of a teacher (teacher, teacher-psychologist, social teacher) and his/her pupils, his/her self-improvement, and self-improvement of his pupils in conditions of the conscious search for priority for each universal human values. The values that the teacher is guided by regulating and integrating property in the structure of his/her consciousness. In this regard, the main goal of the activity of a social teacher is to form in the younger generation a set of social knowledge and skills, orienting toward universal human values, norms of social and moral behavior, and the establishment of a harmonious relationship with the outside world.

In this regard, the study of the value character of moral consciousness allows us to reveal the psychological foundations of the development of moral consciousness of social teachers who are responsible for the socialization and resocialization of the younger generation (Danilova, 2006).

The basic human values in social and pedagogical activities are optimism, humanism, a person as the highest value, a person's right to life, personal dignity, mercy, tolerance (tolerance), communication, respect for a child's personality, protection of rights of a child (Kharlamova, 2018). Universal values are understood as an object of non-material or spiritual culture of mankind, which has acquired a stable life meaning for the individual. Common human values are manifested as a human essence, as morality, which is the core of society, humanizing and revitalizing all social processes. It should be noted that the transformation of the personality and its self-improvement will be carried out only with the interiorization of universal human values into internal personal structures such as positions, attitudes, views, and beliefs. They, in turn, affect the self-organization of the behavior of social teachers in various sociocultural, professional, and life situations. In this regard, the transformation of a social teacher, and his self-improvement will take place in the conditions of a conscious search for values that are a priority for him. The values on which the social teacher is oriented have a regulating and integrating property in the structure of his consciousness. The high level of development of the moral consciousness of a social teacher is manifested in his orientation not to external, but to internal regulators of behavior (Akhmetova et al., 2020; Kassymova, 2021; Arpentieva et al., 2022; Kenzhebaeva et al., 2022).

The main *psychological mechanism for the* development of moral consciousness of social teacher, we consider his state of readiness (attitudes) to practice universal values in professional and everyday life (Akhmetova et al., 2016; Akhmetova, 2017). The study of moral consciousness is referred to the study of higher psychological formations of a person's personality, which contain the essence of a person's being and the highest orientations of the development of personal qualities.

In foreign psychological science, morality has been studied in psychoanalytic (Z. Freud, C.G. Jung, E. Fr,omm and others), behavioral (E. Thorndike, John B. Watson, etc.), humanistic (A. Maslow, K. R. Rogers, G.V. Allport, and others) concepts, in the concept of development of moral consciousness (L. Kohlberg and others).

L. Kolberg was a prominent representative who studied the nature of morality and morality. Psychologist Lawrence Kohlberg, studying moral issues, wrote: "Conscience is something that makes you feel good when you do good deeds, and bad -when you do bad." He was sure that a healthy conscience is the top rung of the ladder of moral development (Shapar et al., 2009, p.318).

A common theory of morality is the cognitive-stage theory of moral consciousness by L. Kohlberg (1927-1987) (Medina, 2013, p. 323): He considers the development of moral consciousness as a sequential process, consisting of three levels: At the last autonomous level, a person relies on an internal moral code, it defies the influence of other people and social expectations.

The phenomenon of the development of moral consciousness is difficult to understand and study. The moral consciousness of a person is knowledgeable about what should be, about the ideal, and about the meaning of life (Ilyicheva, 2003). For this reason, the study of moral consciousness is attributed to the study of higher psychological formations of personality, which contain the essence of a person's being, the orientation of a person towards universal human values, and the development of his spiritual and moral qualities.

In order to get a person out of the state of deep spiritual crisis in all spheres of life, it is necessary for him to realize spirituality as a necessary condition for both successful development and for the preservation of humanity. The affirmation of universal human values in consciousness and behavior of a person is the basis of his/her spiritual health and moral well-being, aspiration for creative creation. However, the whole complexity of the modern situation is that spirituality in a person's worldview, in the system of life priorities, is of secondary importance. This is due to the domination of the technocratic way of thinking of the person who replaced moral feelings and prefers only materialistic values.

With this way of thinking, the moral feeling is viewed from the standpoint of pragmatic reason, but it is irrational, and therefore, according to abstract logic, meaningless and unnecessary. Thus, the man gave priority to reason over faith and love, which constitute spirituality, and at the same time lost confidence in the world and people.

The psychologist V. Frankl believed that with the loss of a "personal future", he/she loses inner time plan. There is a thoughtless existence ... Or there is such a feeling of life - a feeling of inner emptiness and meaninglessness of existence" (Frankl, 2001, p.141-142). He cites the statement of Einstein, who noted that someone who feels that his/her life is devoid of meaning is not only unhappy but also hardly viable. The opportunity to realize the meaning is always unique, and the person who can realize it is always unique. According to V. Frankl: "the spirituality of a person is not just his characteristic, but a constitutive feature. The spiritual is what distinguishes a person, which is inherent only in him and him alone" (Frankl, 2000).

Thus, spirituality is viewed as one of the basic "existential" of human existence, the aspiration of a person to acquire the meaning of life is a key category. Criticizing the main provisions of Freud's psychoanalysis, V. Frankl argues that people suffer not from mental illness, but from spiritual experiences - from a conflict with their conscience (Lengle, 1993).

A student of V. Frankl & A. Langley, doctor of medicine and psychology, psychotherapist, and president of the International Federation of Psychotherapy, developed the ideas of existential-analytical psychology and psychotherapy. He considered existence ("full-fledged, real life") as a key concept of existential analysis, and from that moment his original theory of personality - the Person theory was born (Langley, 1998).

The personal characteristics of a person are manifested by the way he or she builds an internal dialogue. When a person does not know the "personality" in himself/herself, he begins to experience himself as "I": "If I listen to myself, I am alone with myself, I feel in my depth something constant, unchanging. *Person is the ability to be "I"* (Korolenko & Donskikh, 1990).

Thus, personality develops ideas about the personal "I", which he/she must compare with the surrounding world. In accordance with this provision of the development of the "I-concept" of the personality, it must be emphasized that if ideas about oneself formed in personality do not coincide with the ideas of the people around him regarding him/her, then the identity will be violated. Violation of the identity of a person can lead to an increase in tension, anxiety, which, ultimately, can lead to neurotization, and rejection of self-actualization - the most important need of the individual.

The ratio of conscious and unconscious psychological formations in the structure oa personality determines its harmony or conflict. Ignoring his unconscious motives does not make it possible to find out the main motives of his behavior. Spirituality, by its nature, is about personal transformation. Personal spiritual transformation can be a guarantor and a reliable step towards maintaining the integrity of the individual.

So, the loss of the meaning of life is a price to pay for not understanding the true essence of spirituality, which serves as an indicator of the existence of a certain hierarchy of values, goals and meanings, it expresses the highest level of human spiritual mastery of the world. Core concepts around which the humanistic meaning of spirituality is concentrated: The value of life, Free will, Responsibility, and Optimism. The departure of these values from the system of universal ones led to alienation between people, alienation between man and nature, relation to which a predatory consumer attitude was established.

Thus, in the context of global problems of the modern world, society is characterized by an individual personality crisis. The personality crisis is manifested in the loss of the value system that determines its basic personality structure. On the basis of a system of values, a person became developed and formed and, accordingly, in a specifically valued system showed its activity in society. In this regard, the discrepancy in the system of individual's values formed in his consciousness with the values of the social environment leads him/her to a state of maladaptive behavior that leads the person to the manifestation of destructive behavior: addictive, antisocial, conformist, fanatical, suicidal, narcissistic (Korolenko & Donskikh, 1990; Guseinov, 2000).

Table 1. Scheme of research methods for the effectiveness of self-improvement program for teachers of a new formation focused on universal human values

Criteria and indicators of the effectiveness of the teacher self-improvement program	**Performance indicators of self-improvement program for teachers**	**Research methods**
Knowledge of scientific facts about the importance of universal human values in the prevention of metapathology as a destructive factor in personality development.	Understanding the importance of universal human values.	The method of expert assessment of teachers' understanding of the universal value: "The value of life" in the process of conducting a preventive conversation " Methods for conducting a preventive conversation with a suicide"
Understanding of universal values by teachers as the basis for the prevention of suicide among schoolchildren.		
Analysis of difficult life (ADL) and stressful situations (SS) in order to prevent suicide among adolescents.	Ability to analyze, apply and evaluate ADL and SS	Diagnostics of the level of readiness to withstand difficult life situations Methodology "Search for a way out of a difficult life situation"
Application of practical recommendations for developing the ability to think positively in order to prevent adolescent suicidal behavior. Evaluation and synthesis of the effectiveness of the assimilation of the adapted German program of stress management by teachers and the development of stress resistance in them as a factor in preventing suicidal behavior among adolescents.		The methodology for assessing the implementation of practical recommendations for the development of the ability to think positively Leipzig express test for detection of chronic stress

From ancient times and at the origins of the study of nature moral philosophers have been studying the depth of the human soul. Perfectionist thinking involves two overlapping notions of moral perfection. According to one of the concepts, the author of which is Aristotle, perfection is ideal and at the same time, it is a process of achieving an ideal. "Such an understanding of perfection is contained in the Aristotelian doctrine of virtue and virtuous personality: a virtuous person is perfect, which means an active person who knows the proper measure for everything and strives in everything for a worthy, reasonably

determined, and beautifully good life" (Kant, 1990, p. 176). The philosopher and thinker I. Kant offered his own interpretation of perfection: "Moral improvement begins with an effort to transform data in accordance with the requirements of duty. From a strictly ethical point of view, one should improve oneself in fulfilling one's duty" (Dal, 1998, p. 129).

For a deep study of the effectiveness of the teacher self-improvement program, you can use the scheme of methods taking into account the developed assessment criteria. In this scheme, methods can be subdivided into a specific class and represent a specific procedural algorithm (Table 1).

Table 2. A summary of the training program on the topic: "Prevention of self-destructive behavior and stress management!"

Topics of lectures and training sessions.
Human values as the basis for the prevention of suicide among adolescents. Preventive conversation and analysis of a difficult life situation. Human values: Value Of Life, Freedom Of Will, Responsibility, Optimism.
German stress management program "Manage stress with optimism!" Stress management is the basis for maintaining the health of subjects of the educational process. Stress Test 1: Cognitive, Sensory, Body, and Behavioral Stress Signals analysis of individual sources of stress in teaching.
Stress test 2: analysis of a specific stressful situation in an educational institution, techniques for identifying and changing one's personal internal attitudes in a stressful situation, finding individual anti-stress formulas, acquaintance with breathing and meditative exercises.
Analysis of specific pedagogical situations of experiencing negative feelings: anger, irritation, fear, aggression; training in the skills of adequate expression of negative feelings, imagination exercises.
Analysis of the role of positive emotions, sensitization of positive feelings, training in the skills of obtaining pleasure and enjoyment, discussion of the topic of well-being, imagination exercises
Summing up the intermediate results of the training: knowledge and skills acquired by the participants. Analysis of the biography of the group members, a retrospective analysis of the most important events in their pedagogical and personal biography, discussion of the concept of "personal space in my life", relaxation techniques
Participants 'application of the information they received during the training in everyday educational practice, stimulated the participant's awareness of their identity, and their picture of the world in the framework of stress management in the workplace
Mature identity as the basis of internal stability and stress resistance, meditation techniques
Analysis of the system of social relationships stimulates the need to expand the network of social relationships, social support of society as one of the means of overcoming stress, imagination exercises, and as a condition for modernizing the consciousness of society.
Formulating goals, the concept of time, structuring expectations from the future in the framework of coping with stress; summing up the results of the group's work, and creating a system of preventive prevention to prevent a return to old forms of behavior in stress in teaching practice.

Thus, the statistical analysis of the Russian-language version of the LETS express test for detecting chronic stress, carried out by us as part of a pilot study aimed at testing the program "Manage stress with optimism!", Showed reliability and validity. In order to identify the effectiveness of the teacher self-improvement program, we carried out experimental work on the implementation of the research results and the impact of this implementation on the level of self-improvement of the teachers who participated in the experiment. The concept of the course was to increase the effectiveness of the modernization of public consciousness, which depends on the level of conscious understanding of the importance of universal values in the life of each person. At the advanced training courses for social teachers, educational psychologists, school directors, and future teachers (bachelors in the specialty "Social pedagogy and self-knowledge"), methodological recommendations for conducting seminars, round tables, training, and practical exercises were studied, and the main task of which is self-improvement of the subjects of the educational process through the practice of universal human values in professional and daily life. As a result of the analysis of the modeling of the round table, the recommendations for teachers, social educators, and educational psychologists on the prevention of suicide among adolescents were analyzed. Also within the framework of the project research on the topic "Scientific and methodological foundations of the teacher

self-improvement program in the light of the modernization of public consciousness" (IRN project: AR05134985, contract No. 200 dated March 16, 2018) from October 8 to October 22, 2020, at the Center for the Development of Giftedness and Psychological Support "ASTANA DARYNY" held refresher courses for educational psychologists working in colleges in Nursultan on the topic: "Prevention of self-destructive behavior and stress management!" (Table 2).

Table 3. Indicators and levels of effectiveness of the teacher's self-improvement program after the formative experiment

The results of the study at the stage of ascertaining and controlling experiment											
Control group						**Experimental group**					
№	Criteria and indicators of the effectiveness of the teacher self-improvement program					**№**	Criteria and indicators of the effectiveness of the teacher self-improvement program				
	Start experiment						**End of experiment**				
	Knowledge of scientific facts about the importance of universal human values in the prevention of metapathology as a destructive factor in personality development. Understanding the importance of universal human values. The method of expert assessment of teachers' understanding of the universal value: "The value of life" in the	Analysis of difficult life (ADL) and stressful situations (SS) in order to prevent suicide among adolescents. Diagnostics of the level of readiness to withstand difficult life situations (E.V. Mishurinskaya, see table 3). Methodology "Search for a way out of a difficult life	Application of practical recommendations for developing the ability to think positively in order to prevent adolescent suicidal behavior. The methodology for assessing the implementation of practical recommendations for the development of the ability to think	Evaluation and synthesis of the effectiveness of teachers' assimilation of the adapted German stress management program and the development of stress resistance in them as a factor in the prevention of suicidal behavior among adolescents. Leipzig express test for the detection of chronic stress (LETS, authors: K. Reschke, G. Schroeder, adapted by A. Garber,	General Indicator of all Program Performance Criteria		Knowledge of scientific facts about the importance of universal human values in the prevention of metapathology as a destructive factor in personality development. Understanding the importance of universal human values. The method of expert assessment of teachers' understanding of the universal value: "The value of life" in the	Analysis of difficult life (ADL) and stressful situations (SS) in order to prevent suicide among adolescents. Diagnostics of the level of readiness to withstand difficult life situations (E.V. Mishurinskaya, see table 3). Methodology "Search for a way out of a difficult life	Application of practical recommendations for developing the ability to think positively in order to prevent adolescent suicidal behavior. The methodology for assessing the implementation of practical recommendations for the development of the ability to think	Evaluation and synthesis of the effectiveness of teachers' assimilation of the adapted German stress management program and the development of stress resistance in them as a factor in the prevention of suicidal behavior among adolescents. Leipzig express test for the	General Indicator of all Program Performance Criteria
1	7	4	7	6	6	**1**	7	7	7	6	6,8
2	6	5	6	5	5,5	**2**	10	10	10	9	9,8
3	5	3	7	5	5	**3**	7	6	7	7	6,8
…	…	…	…	…	…	**…**	…	…			…
105	7	5	7	6	7	**105**	9	9	9	9	9
	530: 105≈ 5,04	560:10 5=5,3	586:10 5=5,6	559:105= 5,3	529: 105 =5		855:105 = 8,4	905:10 5 = 8,6	915: 105 = 8,7	910:105 = 8,7	910:10 5 = 8,7
8-10 points - high level; 5-7 points - average level; below 4 points - low level. All numerical indicators of the methods were transferred to the 10-point system.											

This training program is based on the theory of the conscious development of positive thinking of teachers in order to prevent chronic stress conditions, depression, emotional and professional burnout, which can affect the personality of the student. From July to October 2020, we held refresher courses on the topics: "Methodological foundations for the prevention of suicidal behavior of schoolchildren", "Stress management as a basis for maintaining the health of subjects of the educational process" for school principals and their deputies in order to prevent their emotional burnout. Based on the results of the implementation of the results of the project research, we have developed a textbook "Socio-pedagogical foundations for the prevention of suicidal behavior of schoolchildren" together with a Professor of the Institute for Professional Development of a Teacher (Moscow), Doctor of Pedagogical Sciences, Kolomeets OM and also developed a methodological manual "Scientific and methodological foundations of social and pedagogical activity (Aleumettik teacher Kyzmetinin Gylymy-ədistmelik negizderi)" and received an author's certificate. At the same time, the results of the project research were published in international journals.

After a formative experiment, a training course for social pedagogues and educational psychologists, and school principals on the topic "Scientific and methodological foundations for the prevention of suicidal behavior in schoolchildren", we analyzed the results of the diagnostic work and carried out statistical processing of the research results (Table - 3).

In order to trace the dynamics of the effectiveness of the teacher self-improvement program before and after the formative experiment, we propose to use the following indicators of time series according to the formula of G.A. Nasedkina (Nasedkina, 2007) (1):

Av.= (1a + 2b + 3s): 100 (1)

where, Av. - an average indicator reflecting a quantitative assessment of the growth in the effectiveness of the program; a, b, c - expressed as a percentage, the number of respondents who are at low, medium, high levels of effectiveness of the implementation of all diagnostic techniques, numbers "1", "2", "3" - level weighting factors. Thus, we have determined the average indicators reflecting a quantitative assessment of the growth of the level of effectiveness of the program of the experimental group at the beginning of the forming experiment and at the end of the forming experiment.

At the beginning of the formative experiment, Av = (1 0% + 2 72% + 3 28%): 100 = 2.28.

At the end of the forming experiment = (1 · 0% + 2 · 40% + 3 · 60%): 100 = (0 + 80 + 180): 100 = 260: 100 = 2.6.

Further, the efficiency rate is calculated by the formula (2):

K = Av (b.f.e) : Av (e.f.e.) (2)

where, Av (n.f.e.) - the value of the average indicator of the level of program performance at the beginning of the forming experiment, Cp (c.f.e.) - the value of the average indicator of the level of program performance at the end of the forming experiment. Then K eff. = 2.28: 2.6 = 0.83.

In conclusion, it should be noted that the coefficient of effectiveness of the teachers' self-improvement program in the light of the modernization of public consciousness in modulus turns out to be close to 1, this corresponds to a high level of connection between the variables and shows the effectiveness of the process of preparing teachers for activities to transform the consciousness of students in order to prevent suicide among them.

Conclusions

Assimilation of common human values gives a person a new quality that determines his/her versatile abilities for positive social behavior in all spheres of life. In turn, it determines the attitude of an individual toward himself/herself and is considered a prerequisite for the development of individual consciousness, and the formation of the individual as a bearer of universal human values. The idea of a bearer of universal human values fills a person's actions with the meaning of life. The value of moral principles of society consists in regulating the needs and aspirations of the person in accordance with the positive goals of society. The consumer orientation of the individual consciousness arises from the desire of a person to

satisfy the real needs, which in turn, as an end in itself, generates negative consequences for the personality itself. This can lead a person to self-destruction, and degradation (consequences of destructive personality behavior).

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Metacognition Didactic Communication in Higher Education

Abstract: Didactic communication is the communication of subjects about learning: its various components and processes. Didactic communication can only be studied as a multi-component, multilevel and multistage phenomenon, the features of which (modes, opportunities, limitations) are associated with the features of personal, interpersonal, and professional development of the subjects of interaction, manifested in the features of their understanding of themselves and the surrounding world, situations (tasks) of educational and professional activities. The main features of didactic communication are associated with its modes (orientation): learning, self-learning, and mutual learning. Didactic communication in various modes has different opportunities and limitations for the training and development of subjects of interaction, largely regardless of the subject area or specialization to which the student(s) belongs. As for the possibilities and limitations of various modes of didactic communication, in the reality of which all modes coexist in different proportions, depending on the level of personal, interpersonal, and professional development of a person, we can note the unproductiveness of learning and learning modes in working with subjects who have reached a high level of development in these areas. On the contrary, in didactic communication with children and beginners and specialists (students), these modes will be the basis for productive learning.

Keywords: dialogue, didactic communication, understanding, metacognitive procedures, modes of didactic communication, possibilities and limitations of didactic communication, personal development, interpersonal development, professional development.

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Introduction

Didactic communication is the communication of subjects about learning: its various components and processes. The communicative approach to various types of social activity is becoming more widespread in modern research, it is not surprising that didactics is also included in this epistemological paradigm. Didactic communication serves to solve educational and cognitive problems and is also a means of communication between people, the exchange of ideas, and experiences between the teacher and students in the course of joint activities. It helps to overcome difficulties and barriers in the process of educational and cognitive activity including establishing contact with students, involving students in the learning process, and partnership in the process of extracting, transferring, and processing educational

information (Andrews, Auerbach, & Grant, 2019; Dunlosky et al, 2013; Hartwig & Dunlosky, 2012; Li, Yuan, 2022; Schraw, & Moshman, 1995; Stanton, Sebesta, and Dunlosky, 2021; Arpentieva et al., 2022).

The beginning of modern research on didactic communication, in addition to psychological research, is associated with the work of philologists, historians, culturologists, and other specialists. V.I. Tyupa and Yu.V. Troitskiy introduce the concept of "communicative didactics" (Tyupa, 1996, 2009, Troitskiy, 2010); L.I. Gurye speaks about didactic communication (Gurye, 2004). A powerful source of this approach in Russian psychology is the study of communication as an exchange of information within the framework of theories of cognition, persuasive communication, and, more recently, psycholinguistic studies (discourse), in which the linguistic, cognitive, and interactive aspects of didactic communication receive the most convex, detailed understanding.

Scientific research reveals many aspects of didactic communication as an interaction aimed at the formation and development of students' cognitive activity, including in the context of their interpersonal, interpersonal development, for example, the work of A.A. Bodalev and G.A. Kovalev, I.A. Zyazyun, K.M. Levitan, A.A. Leontiev, A.V. Petrovskiy, M. Stefanova, others. However, methodological issues concerning the role, place, and essence of didactic communication in educational and cognitive activity and educational and professional activities of different groups of students (students) are still relatively little developed. The statement of various approaches to the organization of learning, including for children and adults (which is fixed, for example, in the concepts of "pedagogy" and "andragogy") is combined with the need for a systematic, integrative description of didactic communication as a leading component of the learning process (Arpentieva (Minigalieva), 2014; Arpentieva et al., 2019; Arpentieva (Minigalieva), 2017; Arpentieva, 2018; Kassymova et al., 2019; Korchagina & Arpentieva, 2017; Minigalieva & Minigalieva, 1999; Sanguineti, 2007; Kassymova et al., 2021; Fang Yuqi et al., 2022).

In recent years, there has been a growing tendency to pay attention to activity as the main quality of the personality, as its integrative manifestation, which provides the desire and ability to expand the scope of knowledge, to transfer the acquired methods of cognition from one subject to another. The activity of the individual in the system of cognitive and interpersonal relations was noted by many domestic and foreign scientists (A.G. Asmolov, A.A. Bodalev, L.P. Bueva, B.C. Bibler, K.V. Gavrilin, P.Ya. Galperin, V. V. Davydov, N. G. Dairi, A. B. Dobrovich, I. S. Ilyasov, M. S. Zimina, M. S. Kagan, V. A. Kan-Kalik, A. N. Leontiev, B. F. Lomov, A. V. Mudrik, S. L. Rubinshtein, C. Rogers). In many works of modern researchers, the role of communication between a teacher and a student, a student, transmission by a teacher to a student in the learning process of value relations and "orienting foundations" (fragments) of educational and professional activities are shown. In modern domestic pedagogy and psychology, the beginnings of the communicative approach are contained in the works of G.P. Shchedrovitskiy (Shchedrovitskiy, 1993, others), in the school of dialogue of cultures of V.S. Bibler and S. Yu. Kurganov (1999, others) and many other theorists and practitioners of education and pedagogical psychology. Orientation to the student as a subject of educational and professional activity, focusing on creating opportunities and overcoming the limitations of self-realization of the individual in (education) implies attention to such aspects of the cognitive activity of the subject as the discovery of oneself in the cognitive process and the discovery of the cognitive process in oneself: the study and transformation of metacognitive structures. Didactic communication acts as a system of pedagogical conditions for the success and development of cognitive activity (Nine, 1995, etc.). Cognitive activity of students, its formation, functioning, and development are more successful if:

a) educational and cognitive and educational and professional activities of students are organized as dialogical;

b) didactic communication is aimed at mastering and developing students' understanding of themselves and other people;

c) cognitive activity by means of didactic communication is included in the context of the leading (playing, educational-cognitive, educational-professional, professional) activity for the student, contributing to the fulfillment of the tasks of this activity in the development of a person, his / her relationship with himself, people, the world as a whole.

It is important to note that the deployment of didactic communication in the classical teaching model is associated with numerous contextual semantic repetitions: the teacher seeks to make his knowledge recognizable to the addressee, therefore the student's activity is largely non-interpretive: the text "presented" to the student is organized by the teacher to implement the intention "information

communication" and meets the principle of accessibility, the rhetorical requirements of informative and impactful speech:

- in a consistent way includes the "new" in the well-known facts ("background" knowledge) and every day (subjective) experience of students, coordinates information of different levels, different completeness and depth;

- specifies (using comparisons, assimilations, and examples), providing an opportunity to use knowledge in everyday life;

- creates the effect of ordered development (experiencing a logical and chronological sequence, a gradual transition from one component of didactic communication to another, the use of guiding questions, etc. (Soper, 1999, pp. 200-236).

These features, although to a lesser extent, in a transformed form, are also characteristic of other modes of didactic communication, so there is its stylistic uniformity, the stereotypy of the communicative behavior of subjects within the framework of institutional discourse, the correlation of communication situations with a typical "context model" that defines a typical image of the addressee - speech (discursive) role, the behavior in which is regulated by the mutual expectations of the teacher and students and social prescriptions (Oleshkov, 2006, Dijk, 1989). Where we are talking about repetitive, more or less ordered (stereotypical) structures, the question of metacognition arises: the emergence of metacognitive structures that regulate the processes of cognition and control of cognition, and, in the case of their purposeful research and training, which can significantly optimize the processes (self)learning.

The contribution of domestic pedagogical psychology to the study of didactic communication is associated both with studies of pedagogical communication and with studies of ways to organize the cognitive activity of students. In a general sense, the problem of didactic communication within the framework of various concepts and concepts was studied by almost all the leading psychologists in Russia. One of the most popular focuses of these studies has been ideas about the types of learning and learning activities, approaches to learning, practices of the self, and mutual learning.

In the context of the theory of persuasive communication and rhetoric, in addition to pedagogical and cognitive psychology, social psychology contributed to the development of ideas about communication (L.A. Petrovskaya, A.Yu. Panasyuk, M.Yu. Zhukov, and others). Their work is also largely related to the study of speech impact, the conditions for its effectiveness: competence in communication and, in fact, communication, the study of semantic and other communication barriers, feedback and cycles (repetition) in communication, and the conditions for understanding and mutual understanding of people.

Modern researchers note that in educational and cognitive activity the concept of "communication" includes not only the quantity and quality of knowledge transferred but also the quality of relationships that encourage or hinder further communication. The task of researching and developing communicative skills (competence) is relevant to a greater extent for teachers dealing with the transfer of didactic information, and also - at the stage of achieving professionalism - for specialists from other groups in the process of more or less institutionalized exchange of experience, mutual learning and self-learning, advanced training.

Currently, there are numerous approaches to education that differ significantly from each other in their ideas about the essence of didactic communication and its implemented models. The closest internal conjugation of the educational approach with the model of didactic communication embedded in it is indisputable. The understanding of what education is directly reflected in the model of didactic communication that practitioners implement.

The study of didactic communication in line with the problems of the professional image of oneself and the world, understanding oneself and the world, in our opinion, is one of the most productive aspects of considering this phenomenon. As one of the leading researchers of communication in our country, L.A. Petrovskaya (Petrovskaya, 1989), competence in communication, which determines the success of communication, and hence learning, is determined by how much a person knows and understands himself, his partner, and the situation of interaction (the world). Within the framework of this presentation, the goal, objectives, object, and subject of our study were formulated.

The purpose of the ongoing research is to develop an integrative model of didactic communication as a system of components that allows didactic communication to be carried out as a process of translation and comprehension (understanding) by the subjects of the interaction of knowledge, skills, values and related psychotechnologies and metaknowledge, professional activities.

Research Methodology

The object of the study is the structure and content of didactic communication in various age and educational and professional groups.

Subject of study: modes, possibilities, and limitations of didactic communication in various age and educational and professional groups.

The main hypotheses of the study are related to the assumptions that didactic communication can only be studied as a multi-component, multilevel and multistage phenomenon, the features of which (modes, opportunities, limitations) are associated with the features of personal, interpersonal, and professional development of the subjects of interaction, manifested in the features of their understanding of themselves and the surrounding world, situations (tasks) of educational and professional activities.

The main features of didactic communication are associated with its modes (orientation): learning, learning, self-learning, and mutual learning. Didactic communication in various modes has different opportunities and limitations for the training and development of subjects of interaction, largely regardless of the subject area or specialization to which the student(s) belongs.

a. Didactic communication in various modes is aimed at the formation and development of professionalism, personality, and its relationship with the world. In different modes of didactic communication, the processes of translation, retransmission, and transformation of knowledge, skills, values, psychotechnologies, and metaknowledge of various subject areas (components of professional activity) are expressed in varying degrees and forms. The most productive modes of learning can be considered to be those aimed at the formation of the value-semantic and metacognitive aspects of the studied reality.

b. Didactic communication in various modes is aimed at the formation and development of various types of learning. In various modes of didactic communication, the processes of translation, retransmission, and transformation of the ability to learn (knowledge, skills, values, psychotechnologies, and metaknowledge) are expressed in varying degrees and forms, developing and enriching in content and structure as the transition from passive learning to mutual learning in dialogue. Mutual learning is the practice of transferring meta-knowledge and value-semantic aspects of professional activity, classical traditional learning, which is directed to the transmission of knowledge in itself, is productive to the extent that it is also directed to the transfer, along with the actual "knowledge", value and metacognitive aspects of educational and professional activities.

Research Results and Discussions

Thus, the development of didactic communication as part of the personal and interpersonal development of the subjects of communication, development is associated primarily with the development of values and metacognitive abilities of the subjects of communication. This is reflected in the development of a person's understanding of himself and the world around him: a change in the types of understanding of himself, his interlocutor, situations of educational and professional activity, and world outlook in general.

As a person develops as a professional and a subject of interpersonal relations, integration, expansion, and deepening are observed, as well as an increase in flexibility in the ways of learning and self-learning, the development of understanding in the direction of dialogization of the type of understanding, the inclusion of components of different modes of communication in dialogue with a significant other. This dialogue outgrows the framework of educational and professional interaction, becoming - as shown, in particular, by studies of supervision and self-supervision, as well as the psychotherapy-oriented model of educational interaction converging with them in general - a dialogue of life worlds.

The empirical part of the study was and is being carried out on the basis of universities in Moscow and Kaluga: Kaluga and Moscow State Universities, at the Russian State Social University and Moscow State Pedagogical University, from the late 90s of the twentieth century to the present, including under the guidance and with the participation professors E.I. Gorbacheva, V.A. Goryanina (Rakhmatshaeva), L.A. Petrovskaya, A.E. Steinmetz, whose ideas and technologies for optimizing didactic communication served as the basis for theoretical research and the construction of empirical research at different stages of their implementation: the idea of understanding didactic communication by E.I. Gorbacheva, the idea of spiritually oriented didactic communication by V.A. Goryanina, the idea of a psychotherapeutically oriented

model of pedagogical communication by L.A. Petrovskaya, the idea of educational and professional tasks as the basis for effective didactic communication by A.E. Steinmetz.

1) The study is carried out by us in the context of studying the processes of becoming professionals of the human-human system, professionalizing their understanding of themselves and the world: starting with students in the humanities, including pedagogical classes and colleges, ending with professionals and supervisor teachers in the field of pedagogical, psychological and social activities.

2) In the process of studying didactic communication in the practice of teaching (vocational training and retraining) as well as supervisory support of psychosocial and pedagogical staff, special attention was paid to the development of such an aspect as understanding. In the developed model of didactic communication, understanding acts as the leading focus and task of both sides of the learning (learning) processes: to understand means to comprehend, to combine into a single whole, to correlate, while in understanding the subject (knowledge of the world), the method of transmission (technology) and value are connected. attitude (to knowledge and the world). Information about their relationship forms a significant layer of meta-knowledge (metacognitive structures), the main place in which, in contrast to "knowledge in itself", is played by the value-semantic attitude of a person to the world and its individual phenomena. Thus, understanding in didactic communication and didactic communication itself, in addition to the transmission of knowledge per se, is associated with the activity of metacognitive structures.

3) Thus, didactic communication is a multi-component, multi-level and multi-stage phenomenon, the features of which (modes, opportunities, limitations) are associated with the features of the personal, interpersonal and professional development of the subjects of interaction, manifested in the features of their understanding of themselves and the world around them, situations (tasks) of educational and professional activity;

4) The main features of didactic communication are associated with its modes (orientation): learning, learning, self-learning, and mutual learning. Didactic communication in different modes has different possibilities and limitations for the training and development of subjects of interaction.

a. Didactic communication in various modes is aimed at the formation and development of professionalism, personality, and its relationship with the world. In different modes of didactic communication, the processes of translation, retransmission, and transformation of knowledge, skills, values, psychotechnologies, and metaknowledge of various subject areas (components of professional activity) are expressed in varying degrees and forms;

b. Didactic communication in various modes is aimed at the formation and development of various types of learning. In various modes of didactic communication, the processes of translation, retransmission, and transformation of the ability to learn (knowledge, skills, values, psychotechnologies, and metaknowledge) are expressed in varying degrees and forms.

5) The development of didactic communication is associated primarily with the development of values and metacognitive abilities of the subjects of communication. This is reflected in the development of a person's understanding of himself and the world around him: a change in the way ("type" or "level") of understanding himself, his interlocutor, situations of educational and professional activity, and worldview in general.

a) Locutionary (subject-content related to a specific area of professional knowledge and skills),

b) illocutionary (tele-oriented, associated with the value aspect of interaction) and

c) perlocutionary (mutable, closely related to the psychotechnological aspect of interaction)

aspects of the didactic message make it possible to understand the transmitted knowledge in one way or another. At the same time, in understanding, the messages of the teacher (or tutor, fellow student) are correlated with similar substructures of their own communicative message (messages) (preceding and subsequent): not only knowledge is correlated, but also ways of understanding them, metacognitive structures.

As the conscious and unconscious accumulation of knowledge and skills, psychotechnologies and values, maturation and professional development of a person, there is a natural change in the modes of didactic communication and the corresponding types of training:

1) Educational didactic communication assumes that the learning of children and young people involves a movement from the teacher to the learner: to varying degrees, the conscious appropriation of knowledge and skills transmitted by the teacher (teacher) that are understood with greater or lesser completeness and depth, more or less unconscious appropriation of psychotechnologies and values of

activity associated with the subject-specific (but not yet professionally specific) knowledge and skills that are being sown. Typically, unconscious appropriation of the components of learning activity (the ability to learn): knowledge and skills about learning activities, values, and psycho-technologies (characterized by relative passivity) of learning.

Within the framework of this modus of didactic communication, the world surrounding a person, and its various components, are understood to a greater or lesser extent. This is the pre-professional stage of formation, at which the "becoming of the student" takes place: in parallel with the development of knowledge about the world and the ability to act in it, the ability to learn is formed: to change behavior in the learning process. Understanding has an objective, reproductive-stating character (stating explanations or, in terms of humanistic psychology, "objective knowing").

2) Educational didactic communication assumes that the training of adults and professionals is aimed not only at the assignment of knowledge and skills, but at changing the behavior of the student on their basis, the implementation of (quasi)professional activities: at this level, a conscious transmission of knowledge and skills, acting as a support for the organization and implementation (change) of activities, there is a more or less conscious transmission and retransmission of values, psychotechnologies and meta-knowledge of (quasi)professional activities that ensure the implementation of activities (real actions, transformations of the subject's behavior). Typically, unconscious development of the components of educational, educational, and professional activities (having a relative activity of learning).

Within the framework of this mode of didactic communication, self-understanding is carried out through the understanding of educational, professional, and professional activities, the requirements of which allow one to compare oneself with it, determining the measure of compliance with the requirements, "objective success". This is the initial level of the development of professionalism, at which the person is faced with the task of changing in accordance with the requirements of the activity, the ability to learn develops, that is, to change the activity and oneself in the learning process. Understanding (type of understanding) has the character of largely subjective, personified explanations and interpretations (subjective knowing), and an empathic-experiential mode of understanding in learning is formed (in humanistic psychology, denoted by the term interpersonal knowledge, "interpersonal knowing").

3) Didactic communication in the process of self-learning involves a qualitative transformation of learning activities: more or less conscious, detailed, and deep understanding and transformation of the components of educational and professional activities, learning to learn, i.e. changing the educational, professional activities and life of a person teaching himself on the basis of values, psychotechnologies and metaknowledge, knowledge and skills of educational, professional and professional activities mastered and transformed by him in the process of mastering.

In the context of the third mode of didactic communication, realized and selective assimilation of values, psychotechnologies, and meta-knowledge of (quasi)professional activity is carried out to a different extent, ensuring the implementation and qualitative development of activity (transformation of the activity and life of the subject). Changing these "supports" of the organization and implementation (changes) of activities is also associated with further selective search and development of professional knowledge and skills. Typically, conscious development and research of the components of educational and professional activity (having a pronounced learning activity). A more or less conscious, detailed (multi-component), and deep reintegration of the personality of the self-taught person, of the system of activities and related relationships that were formed in the course of his personal development and professional development, is carried out.

A person begins to understand himself as inseparable and changing integrity, each component and process of which has significance (for himself/herself and the world). Achieving self-understanding is a condition for deeper and more extensive communication with the world. The ability to learn acquires the status of the ability to change - to change external and internal activities. It is described by researchers as an important first step in becoming a person: "becoming a person", "becoming a professional", including, in terms of existential-humanistic psychology, or "self-efficacy" (self-efficacy), as described in the behavioral tradition). At the "professional" level, a person freely chooses the direction of his development and proceeds to a creative rethinking of professional activity. The type of understanding characteristic of this level is interpretation, more rarely, the dialogization of the experience of experiences (in humanistic psychology, this is denoted by the terms "field of experience", emergent, emerging in co-existence, and transpersonal cognition).

4) Dialogical didactic communication involves mutual, to varying degrees, conscious or unconscious training by people of each other to change activity and life activity in the process of transforming the meanings of these activities and life activity through the exchange of values, psychotechnologies, and metaknowledge, as well as knowledge and skills of interaction, which are more experienced as changing and according to in relation to activity, and in relation to the reality behind it (the world).

Transformation and awareness of the transformation (in the process of mutual learning interaction) of values, psychotechnologies, and metaknowledge, knowledge, and skills of educational, professional, and professional activities, leads to a more or less detailed and deep transformation of the life of subjects. Learning, as well as the life changes associated with it, act as a leading aspect of the development of life, and subjects in general. Thus, mutual learning changes those who teach each other as individuals, changing their lives through the development of awareness (change) of themselves and the world. A person begins to understand himself and the world in an inseparable unity: as inseparable and changing integrity, each component and process of internal and external life has equal significance - for a person and the world. This state of "flow" is described as a state of "(self)efficiency" - in the behavioral tradition and as states of "full functioning" and self-actualization, "becoming oneself, partner, professional", "co-being" or "meeting" in existential-humanistic psychology. On the one hand, a state, that happens, arises (emergent), but is not guaranteed in each specific situation of interaction. On the other hand, as inevitable, although often not realized, a component of any communication (or, more precisely, the essence of communication). The ability to learn becomes the ability to be in a transformative dialogue with the world.

At this level, in the dialogue of subjects given to each other as interlocutors, in their integrity, similarity, and difference ("alienness"), a largely conscious, detailed, and deep transformation of values, psychotechnologies, and metaknowledge of educational and professional, and professional activities are carried out. This transformation is bilateral, although not completely symmetrical. It determines the inevitable qualitative constant transformations and transformations of the activity and life of the subject. Knowledge and skills, values and meta-knowledge, psycho-technologies of activity - newly acquired and acquired in the previous life, go through a more or less unfolded in time, generalized and deep process of transformation, rethinking. At this level, the super-professional, a person changes the activity, creates its new forms (and the components that provide the activity), and abandons the old ones.

Mutual learning involves the transformation of people's relationships, a multi-stage, multi-component, and deep process of change, and reintegration of people's relationships. The type of understanding is dialogization (empathic understanding).

A separate type of didactic communication is didactic analysis or supervision. In general, it can usually be carried out within the framework of a model of learning, self-learning, and mutual learning. Sometimes - in the form of separate components - it includes a learning model: with the introduction of information that is sufficiently new for the subject, with respect to which presentations (concepts and conceptual structures, ways of processing them) have not been formed. However, it is in the supervisory model that the weight of the metacognitive aspects of learning is most significant.

The transformation of the didactic system thus includes:

1) transformation of components and the didactic system as a whole (change in the type of (re)presentation) of knowledge and skills, psychotechnologies and meta-knowledge, change in the values of the didactic system)

2) transformation of the ability to learn (transition to a new level of learning, transformation of values and psychotechnologies of learning);

3) transformation of professional activity, change in values, psychotechnologies of activity, selectivity of search and acquisition of knowledge and skills;

4) transformation of the personality and its relations with the world, the didactic system as a whole (values, psychotechnologies of learning activity; knowledge and metaknowledge) (Table No. 1).

As for metacognitive (metacognitive) structures, it is important to emphasize that metacognitive structures in a person's life are formed and reformed throughout his life. Metacognitive structures by their nature reflect predominantly procedural knowledge concerning the rules for processing information in various educational and professional situations. These, first of all, include knowledge about logical and quasi-logical abductive transformations, and knowledge about cognitive processes as such. Therefore, metacognitive structures most often appear as metacognitive processes. The phenomenology of metacognitive processes (structures) affects a variety of spheres of life, most clearly manifested in

interpersonal communication and learning: both here and there, the most important task is understanding, as well as a reconciliation of understandings, the task of correlating sometimes fundamentally different ways of understanding reality and its fragments. It is in this correlation, reconciliation, that, in our opinion, lies the essence of metacognitive procedures, whether they are called reflection or self-reflection, the ability to learn or learning of the second (third or even fourth) type, self-regulating or developmental learning, whether they arise as "non-guaranteed", the emergent result of a deep intimate-personal contact or are set by a learning task with a clearly formulated, complete "orienting basis of activity".

In all these cases, the task of understanding facing the subject activates, in addition to the procedures for studying the actual content of concepts and images, the procedures for comparing 1) their structural relationships within frames and behavioral patterns associated with the concept or image, 2) procedures for the formation and transformation of meaningful and structural knowledge, contained in a given image or concept. Thus, metacognitive processes, relatively speaking, can be of two types: reflecting the tasks of understanding in relation to the structural relationships (outside and inside) of concepts, and reflecting the procedural aspects of the existence and changes in the content and structure of concepts. Conventionality is revealed at the stage of comparison: the subject learns that the content, structural connections, and processes of obtaining knowledge about the object are closely related. An example is interpersonal communication, in which understanding oneself, another person, and the situation of interaction with him are a single complex, the transformation of one of the components of which automatically leads to the transformation of the rest.

Metacognitive processes give a person an idea of the deep interconnections of the phenomena of the world, those concepts, and images that he has formed in a particular situation. Contextually, emergence (a character arising in a situation of cognition or communication), and relativity of understanding demonstrate to the subject the plurality of worlds of his life, and its fluidity. The lifeworld is, in fact, not a guaranteed and fixed objectively given, not an arbitrarily declared subjective, not related either to others or to the situation, but taken on faith and arising as a result of coordination with specific subjects and in a specific situation, an intersubjective representation. In that representation, images and concepts are correlated in such a way as to provide a person with an understanding of the tasks of his activity, including learning and communication.

Qualitative changes in activity associated with changes in a person's attitude to himself and other people, a change in the situation of interaction, suggest the activation of metacognitive processes. The underdevelopment of metacognitive processes leads to disorientation and misunderstanding, refusal to act or interact with people or the world, and in some cases - a violation of a person's relationship with himself: the inability to correlate differences in structures and formation procedures and the transformation of the content and structures of concepts and images, puts a person in a situation more or less pronounced disorientation. In this case, a collapse occurs associated with 1) the need to master a new way of learning, that is, to realize the existence and master metacognitive procedures, and 2) the need to correct the metacognitive illusions and errors of cognitive activity discovered at this moment: from cognitive rigidity to overestimation of one's cognitive abilities.

Uncertainty as the reverse side of cognitive optimism and overconfidence accompanies the awareness of the multiplicity and variability of life worlds: the worlds of life of oneself and other people. Awareness of the multiplicity and variability of life worlds puts a person in the position of a researcher, actualizes creative understanding and transformation of worlds, and leads to the formation of a new, freer, and more responsible, respectful attitude towards oneself, people, and one's life as a whole. On the contrary, the idea of a stably existing world with fixed meanings of concepts, cognitive simplicity, and overconfidence in the existence of the only correct way to comprehend the world, is associated with closeness, lack of freedom, and disrespect for oneself and the world around. A rigid consciousness limits both its own and someone else's world, trying to impose the learned meanings on the world, to deprive the world, for the sake of maintaining the illusion of control over it, mobility and fluidity (Arpentieva (Minigalieva), 2015; Arpentieva, 2017; Arpentieva et al, 2019; Bochkareva, 2018).

Understanding as a task for meaning, its formation, and transformation, is addressed, first of all, to metacognitive processes:

1) understanding-objectivization: accepts the world, and its facts as an "objective" reality that does not require reflection, actually refuse to understand, mystifying "objective knowledge" as a thing in itself;

2) understanding-explanation tries to reduce the world to already understood and understandable images and concepts, without going into the structural and procedural aspects of the formation of knowledge about the world,

3) understanding-interpretation is aimed at comprehending the structural aspects of knowledge, refocusing the situation, studying and correcting mistakes in one's own and others' (re)presentations,

4) understanding-dialogization is associated with an open dialogue with oneself and the world about the procedures used for understanding reality, their quality, comparing the process and the result, and understanding the multitude of possible ways and the results (presentations) associated with them.

Conclusions

Thus, understanding itself does not arise immediately: for a subject with undeveloped metacognitive procedures, it is rather an imitation of understanding that is characteristic. Learning and communication are built on the basis of the reproduction of existing images and concepts, a characteristic "pseudo-exchange" is manifested in the phenomena of "memorization" of educational material and the appropriation of sometimes disparate ideas about those phenomena of reality that the subject encounters for the first time, but will have to meet further. In both cases, we are talking about the forced nature of the appropriation of new knowledge.

For a subject turned to the analysis of the structural relationships of his own and other people's representations, the leading mode of cognition and communication is interest: the search for a new one and a value attitude towards it. The creative perception of reality as a field of one's own and other people's life activity is manifested in the desire to comprehend the educational material in its interconnections, in context, to form one's own, original idea of oneself and the world around. The idea of self-development in this case is leading, in the case of communication - it manifests itself as the idea of interchange and mutual development.

For a subject living in a world of changing processes, and developing strategies for understanding the world, the world appears as a game, the rules of which can change along the way. Education is not only and predominantly creative: the routine, indefinite, and impossible enters a person's life as existing givens, and the structures of representations contain, in addition to fixed contents and connections, the possibilities of new ones that provide more or less prompt transformation of the representation (content) or its meaning (structure of connections) generally. In this case, a person conducts a dialogue with the world, in the dialogue as a game both successes and failures are possible, mistakes and dead-end paths are considered as phenomena of experience, equivalent to correct decisions and successful paths.

As for the possibilities and limitations of various modes of didactic communication, in the reality of which all modes coexist in different proportions, depending on the level of personal, interpersonal, and professional development of a person, we can note the unproductiveness of learning and learning modes in working with subjects who have reached a high level of development in these areas. On the contrary, in didactic communication with children and beginners and specialists (students), these modes will be the basis for productive learning.

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Development of Augmented Reality as a Learning Medium for Recognition of Layers and Structures of the Earth

Abstract: *Augmented Reality* is a technology that combines real-world measurement with the dimensions of the virtual world exposed in real-time. It doesn't completely replace what's in the real world, like virtual reality, but just adds to it. This is done by "painting" three-dimensional objects on markers, which are unique "patterns" that can be recognised by the application. Smartphones can develop Augmented Reality applications at low prices and can be used by many consumers. Augmented Reality can be consumed in various fields, one of which is the educational sphere as a learning media tool. It can be used to create a more interactive learning environment where students can interact directly with virtual world objects so that students can learn while playing. The application development process in this study is based on the waterfall model. The augmented reality app was developed for teachers and students as a medium in school. The app uses the Vuforia SDK software as a tool to create Augmented Reality. Java and C++ are based on Android. Real-world surface layer applications and earth structure recognition applications can read markers in Augmented Reality geography books. As a medium, they will display 3D models on the screen of android devices and display 3D on the layers and structures of the earth.

Keywords: Augmented Reality, Android, Learning Media, Layers and Structure of the Earth, Geography.

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Introduction

Technology is a tool that consumers use to make their needs more leisurely. The development of information and communication technology itself has proliferated in various fields, one of which is *Augmented Reality (AR)* (Figure 1). It is widely used in the gaming, entertainment, and medical industries (Chytas et al., 2020; Alexandov, 2015; Kenzhaliyev et al., 2021 Pratama et al, 2021a, 2021b). At the same time, in education, the use of augmented reality technology itself is still lacking. *AR* is a new technology that can add interactive digital information to the real world. This technology combines two-dimensional or three-dimensional virtual objects into a natural three-dimensional environment and then projects these virtual objects in real-time (Budiman, 2018). The ability to deliver meaningful information spatially and temporally in real-time makes AR technology an excellent choice to support knowledge-intensive work (Deshpande & Kim, 2018).

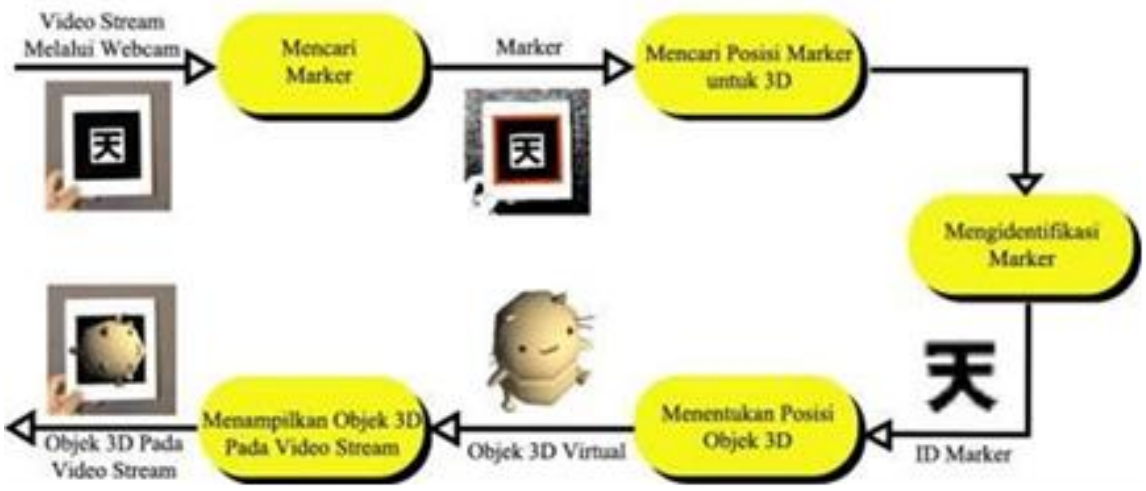


Figure 1. Augmented Reality Overview

Meanwhile, in education, students' interest in learning decreases due to the development of entertainment technology, which increasingly presents exciting and interactive things such as cartoons and 3D animation (Alexandov, 2015). While the learning media used is still dominated by books containing only text and illustrations (Mustaqim, 2016). Using two-dimensional (2D) images as learning support, so students do not feel bored and are more imaginative is now less helpful in solving the problem. The use of pictures in textbooks already makes students passive and less interactive because image media cannot provide reciprocal responses, is less visible, and is less attractive to students (Yusniawati, 2011). Meantime, the development of three-dimensional (3D) image technology, widely used in the entertainment industry, is undoubtedly more attractive to middle school-aged children (Todorova, 2015). The reason is that 3D objects have a more comprehensive perspective than 2D objects with only one angle of view. 3D objects are also considered more interactive and imaginary because they match the original idea (Aditama et al., 2019).

The use of teaching aids based on AR technology is very useful in improving the teaching and learning process because it has got an entertainment aspect that can arouse students' interest to understand concretely delivered through 3D visual representation by involving user interaction in augmented frame reality (Jeffri & Awang Rambli, 2021).

Thus, with the development of AR applications, this android-based technology can be a new learning tool and method in understanding the layers and structures of the earth and can help interactively and interestingly convey information about them (Savinykh, 2015).

Literature Review

Augmented Reality is known as a real-time direct or indirect technology view of the actual physical environment that has been enhanced by information generated by virtual computers to it (Milgram, P., & Kishino, 1994). AR makes it possible to add virtual to the formation of the natural world in real-time (Azuma, 1997). AR technology adds virtual elements to natural scenes coherently so that the ideal user can't distinguish them from natural settings (Amin, & Govilkar, 2015). Amin & Golvikar argue that AR is a technology that provides real-time digital content integration with real-world information and allows direct access to implied information with the context in real-time. AR improves users' perception of the natural world by enriching what they see, feel, and hear in the natural environment (Amin, & Govilkar, 2015; Kassymova et al., 2021).

According to Lytridis & Tsinakos, *Augmented Reality* is a technology that can present new environments and combines real and virtual environments that enrich and stimulate the senses with various information (Lytridis & Tsinakos, 2018). AR application principles use device sensors to view the environment and insert dynamic, context-aware, interactive digital content within it (Savinykh, 2015). Unlike *Virtual Reality (VR),* which immerses users in an entirely new virtual environment, AR aims to add the user's current reality by adding virtual content to the physical environment (da Silva et al., 2016). AR

technology can be used on various platforms such as desktops, notebooks, and mobile devices. However, AR applications are usually available through mobile devices, such as smartphones and tablets or wearable devices. Built-in cameras, global positioning system sensors, gyroscopes, and other sensors are used to recognize objects, images, and scenes. When successful recognition, relevant digital content is available and displayed on the screen. The objective is to combine the environment with digital content smoothly (Hsu et al., 2017). This allows consumers to receive more information about their environment available. The advantages of AR are not only the increase in as much information as there is in the environment but also the creation of certain representations of the touch of the world that appeal to users. For these reasons, AR has been applied to several fields, including entertainment, tourism, trade, engineering, and education.

In recent years, there has been an increasing interest in implementing *AR* to create unique educational settings (Chen et al., 2016). AR tools and environments lead to various positive outcomes and impacts for educational purposes. Tori, Kirner, & Siscoutto argue that the existence of a virtual and real environment allows students to experience phenomena that are impossible to happen in the real world (Tori, Kirner, & Siscoutto, 2006). This will enable learners to imagine complex spatial relationships and abstract concepts and, therefore, develop essential abilities that cannot be developed in other technological learning environments (Wu et al., 2013; Chukmanova et al., 2022). Although the physical world is three-dimensional, most users prefer to use two-dimensional media in education. The combination of AR technology with educational content results in new applications and automated actions to enhance the effectiveness and appeal of teaching and learning for students in real-life scenarios. AR is a new medium that combines aspects of ubiquitous computing, natural computing, and social computing. This medium offers unique capabilities, combining the physical and virtual worlds with continuous and implied user control and interactivity (Kesim & Ozarslan, 2012).

Many studies use in-depth AR technology to improve computational thinking skills or programming in some contexts (Savinykh, 2015). However, there are not enough studies analysing meaningful features or advantages and disadvantages in the field.

Methodology

This study is about research and development using *AR* technology to produce geographic learning media products. The development model used in this study is the waterfall software, development model. According to Bassil, waterfall models have a systematic and sequential approach to software development (Bassil, 2012). In addition, the waterfall model has straightforward stages because it is suitable for developing software learning media. According to Bastero-Gil et al., the waterfall model has 4 steps (Figure 2), which are the stage of analysis, design, program code generation or implementation and evaluation (Bastero-Gil, 2014).

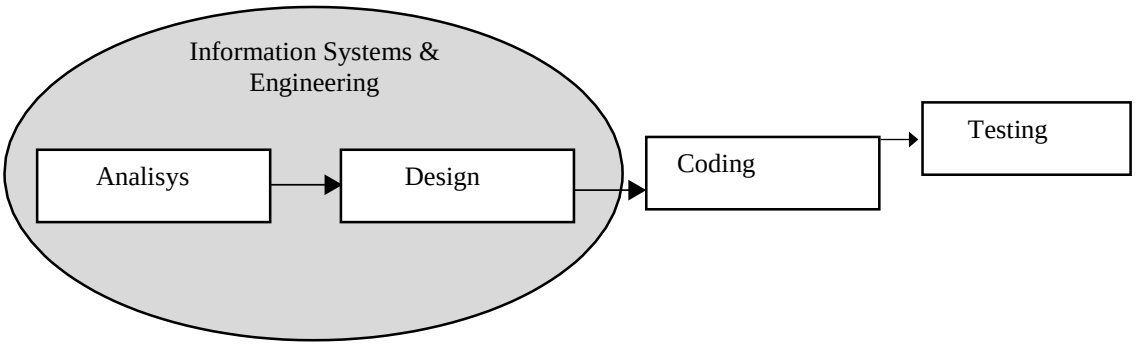


Figure 2. Stages of waterfall model

Analysis

The analysis is done by conducting a needs analysis. Needs analysis is a formal process of representing information, functions and behaviours that can be translated into data, architecture, interfaces and

components. Based on the analysis of requirements, the authors of this study categorised it into four types, namely:

- Specification analysis needs to explain what a system must have to run correctly. It aims to determine what kind of system is appropriate to implement and which hardware and software are needed to develop an application.
- Hardware needs analysis is a process of creating essential learning media to introduce layers and earth structures. The hardware requires minimum specifications for running Augmented Reality development application programs. The main application for developing Augmented Reality technology is Unity 3D.
- Software needs analysis is a run to analyse the software needed to develop essential learning media for introducing layers and structures of the earth.
- Needs analysis for AR books includes all the needs for creating AR books. A selection of geographic materials is the most critical point of the study of the need for inclusion in the AR book. The choice of materials is based on the applicable lesson and refers to the reference book containing the necessary materials.

Design

Design facilitates product development following the analysis of the needs and specifications of products that have been produced. In addition, the results of this design stage will be used as a reference in implementing the program code writing. The design in this study includes an art form of the system and a user interface (Figure 3).

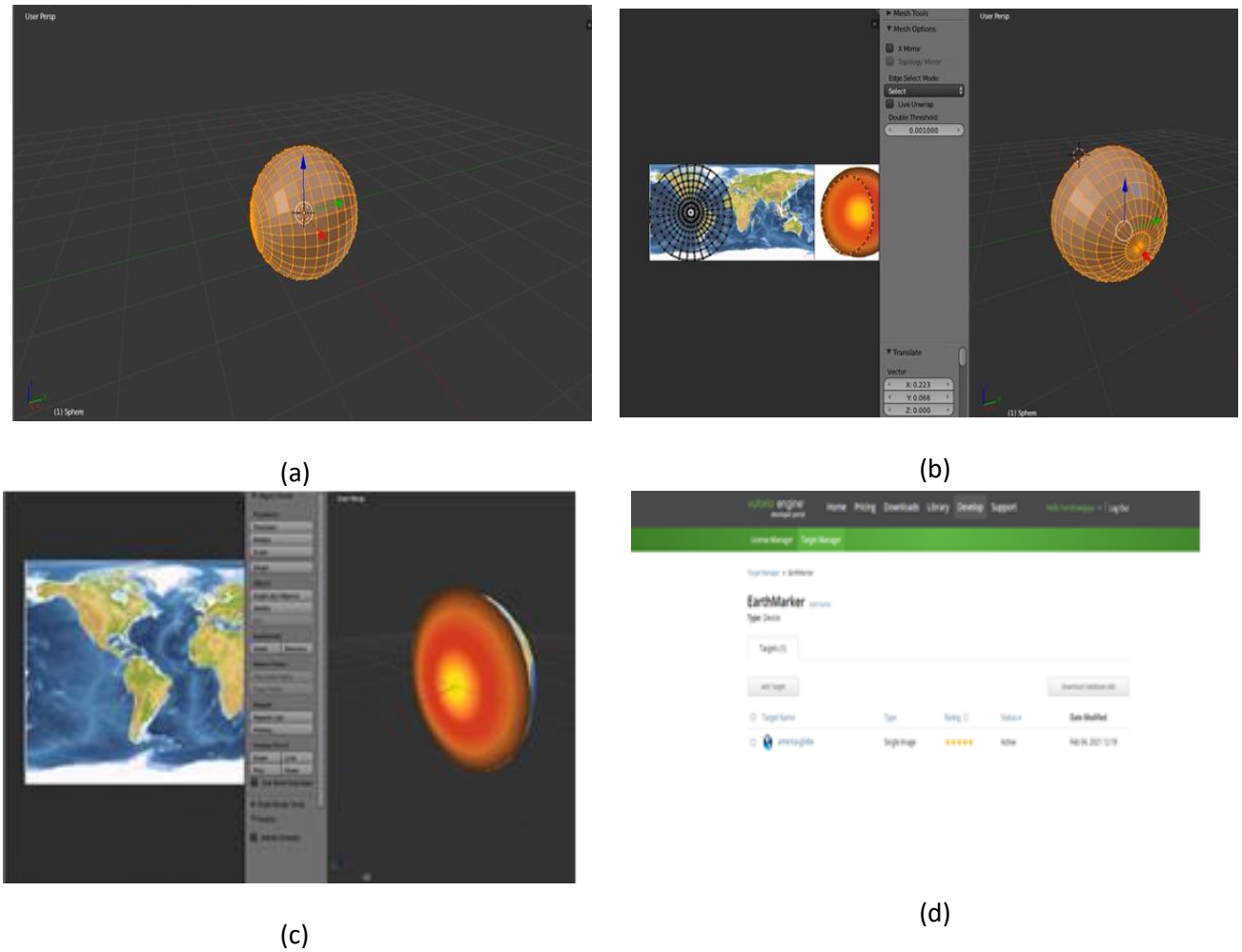
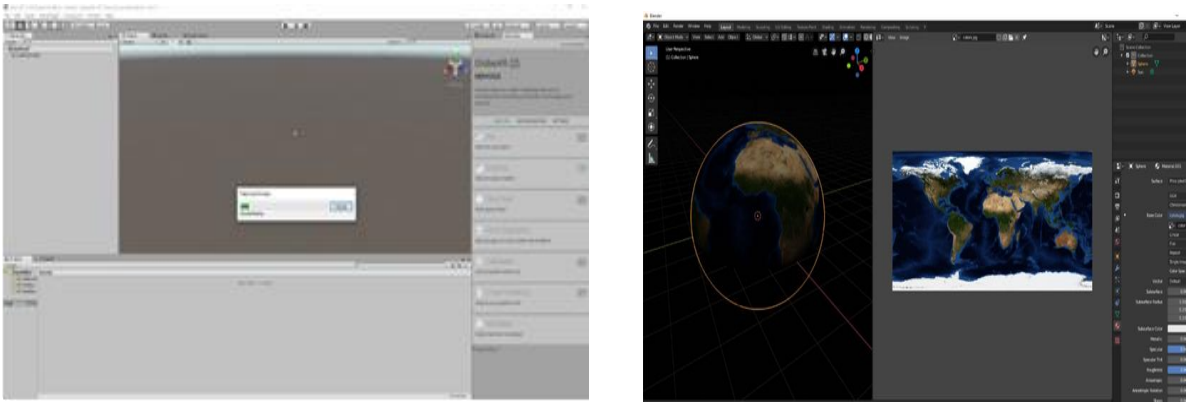


Figure 3. (a) Modeling stages, (b) Texturing stages, (c) Animating stages, (d) Marker making

Implementation

The created design is then implemented into an application program developed in the form of geographic learning media with Augmented Reality technology. Unity 3D was used as a software in this study (Figure 4).



(a) (b)

Figure 4. (a) The process of importing data markers into unity software, (b) Augmented globe process in 3D form

Evaluation

After the process of designing and building essential learning media for the introduction of layers and structures of the earth with Augmented Reality technology and running on Android smartphones, the next step is product testing by media and materials experts (Maiorova et al., 2015). Testing aims to check the performance or function of the developed software. Meanwhile, testing by media and material experts was conducted to assess the possibility of learning media being developed. After the learning media has been tested by experts, it is tested on students to know the student's response to the learning media created. Figure 5 shows the stages of the study carried out.

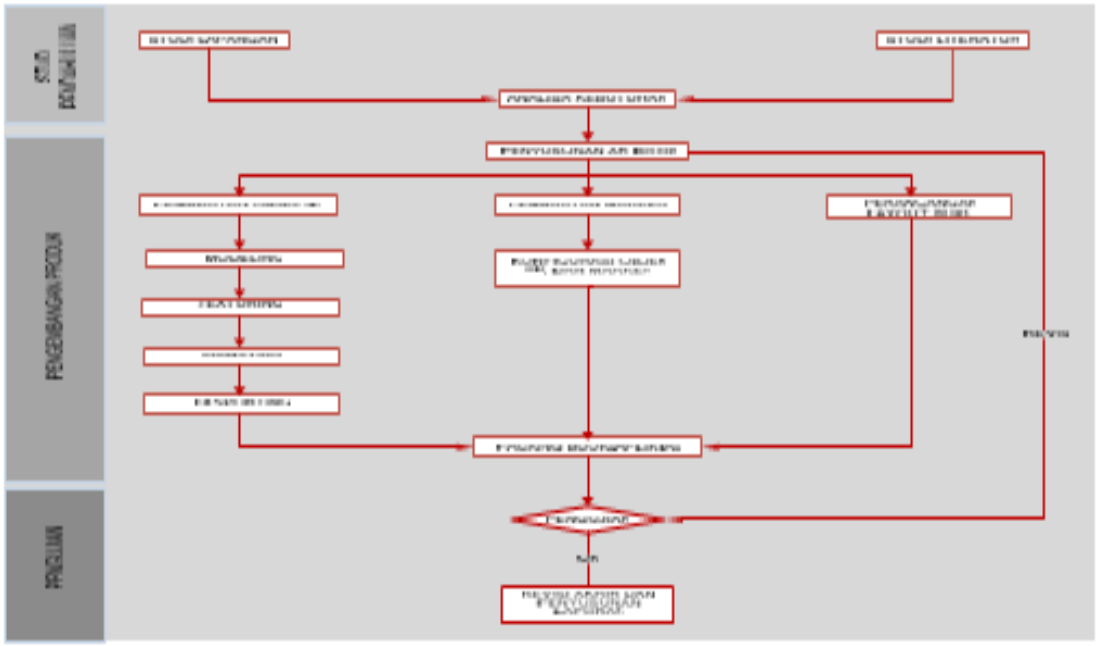


Figure 5. Stages of study

Discussion

The results of the development in the form of learning media products based on Augmented Reality technology on the Android platform for geography subjects on the primary material of the introduction of layers and structures of the earth include material understanding, symbols and characteristics of the design and layers of the world adapted to the subjects in school (Chytas et al., 2020; Alexandov, 2015; Mutalib & Ahmad, 2012). In applying this learning medium, products are created using Unity 3D software and vuforia SDK to support the development of Augmented Reality. Meanwhile, the binding process is performed using Microsoft Visual Studio 2012 software and the process of creating resource objects using Corel draw X7 and Blender 2.80 applications.

The developed product is an Augmented Reality app that can run on devices such as mobile phones with the Android operating system and AR geography books containing instructions for users, material summaries, and bookmark images. E-learning material environments enable students to develop their potential if appropriately used in the education system (Kassymova et al., 2020; Arlinwibowo et al., 2021). The results of realization of learning media design are described in the following section.

Augmented Reality Geography App

Splash Screen. A splash screen page is the first page that appears when a user opens the Augmented Reality app as a medium for learning geography about the layers and structures of the earth. This page is the branding page for Unity 3D products and continues with the branding of advanced AR applications. This splash screen page will be displayed a few moments before entering the main menu (Figure 6).

(a) (b)

Figure 6. (a) Splash Screen Branding Unity Display, (b) Splash Screen Display AR Geography Application

Main Menu Page

The main menu page is primary in this learning medium (Figure 7). On this page, several menu options can be accessed by the user. It contains an augmented reality geography menu, learning materials menu about the layers and structure of the earth, a user manual menu, and a menu about developer information. The augmented reality Geography menu serves to run Augmented Reality. When the button is pressed, the camera will open on the device. The material menu for the earth's layers and structures will summarise the earth's system and layers. The user guide menu serves to open the Augmented Reality user guide page and the menu about the developer information page.

Figure 7. Main menu page view

Augmented Reality Geography Page

The Augmented Reality Geography page includes the Augmented Reality app (Figure 8). When this page is first opened, it will open the camera on a mobile device. This camera helps sing markers contained in geography AR books. If the camera successfully captures the feature, the 3D image will be displayed according to each bookmark's database. On this page, there is also the main menu button that returns to the main menu page.

Figure 8. Augmented reality geography page view

Learning Materials Page

On the learning materials page, information about the geographical materials of the structure and layers of the earth is given about the earth's crust, info about the earth's mantle, and information about the earth's core. Figure 9 shows the page view of the learning materials.

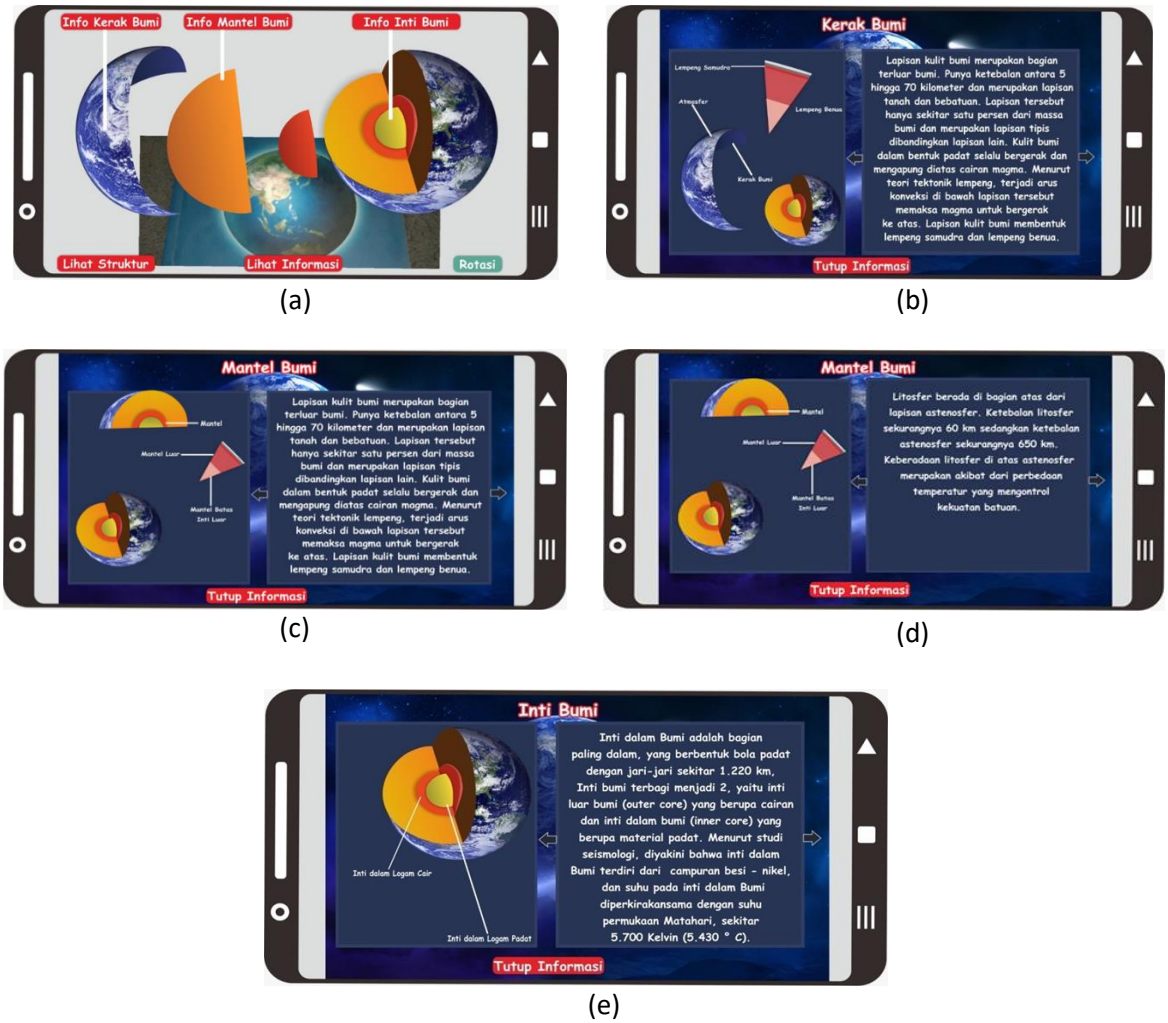


Figure 9. (a) Display of learning material pages, (b) Display of the earth's crustal sub-material pages, (c) & (d) Display of sub-material pages of the mantle of the earth, (e) Display of Earth Core Sub Material Page

Instruction Manual Page

The user manual indicates how to function the button in the learning medium to introduce layers and earth structures and explains how to run Augmented Reality (Figure 10).

Figure 10. How-to page view

Panel MenU

A panel menu is a set of shortcut menus that can be accessed by pressing the 3-lane button in the right corner of the application exposure. This panel menu consists of a button to open the Augmented Reality Geography page, a Learning Materials page, a user manual page, an about page, and a button to exit the app (Figure 11).

Figure 11. Panel menu page display

AR Book Geography

AR Book Geography is a learning module that discusses the layers and structures of the earth applied through augmented reality applications (Mishra, 2013). Geography AR Books is concise, with 24 pages to make it easier to understand for students. The book contains directions for using the AR Book Geography app, a summary of what is in the earth's layers, and structures applied through markers useful to coordinate points that can be tracked by the android geography AR app.

Conclusions

This study focuses on developing AR learning media in geography subjects using waterfall models. The model has four stages, namely the analysis, design, packaging, and testing phases. The results of this study and development are a product in the form of geography learning media based on AR technology that is equipped with AR books as a supporter. AR learning media was developed to introduce layers and structures of the earth consisting of the main components, namely: (a) the main menu page containing the button to the menu in the application, (b) the material page containing materials about the structure and layer of the earth, (c) the geography AR page is the main page in the introduction of the layers and structures of the earth with AR. The initial product of learning media is then continued with testing/ratification by material experts and media experts.

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Psychological support for the psychological safety of an individual and a group in higher education

Abstract: Many studies of psychological safety in education focus on the study of the antecedent events and results associated with psychological safety and its violations, but little attention is paid to the ways and steps of ensuring and developing psychological safety at different levels of the educational organization. Methodology. The purpose of the study is to analyze the problems and directions of psychological support for subjects of an educational organization (university) in the field of ensuring and developing the psychological safety of an individual and a group. A research method is a theoretical analysis of the problems of psychological support for the psychological safety of an individual and a group in higher education. Conclusion. Psychologically safe practice is essential in the field of education. Despite psychological safety, being an intuitive concept, it is quite difficult to apply it on a university scale since this problem and its solution have great resonance, and consequences for all levels and components of the educational system. That all parties feel free to speak up and participate as much as possible is vital to a safe and optimal educational experience.

Keywords: psychological support of subjects of an educational organization, university, psychological safety of a person.

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Introduction

Psychological safety, as "the degree to which people feel comfortable taking... interpersonal risks (for example, trying something new), is known as psychological safety", is a decisive factor in determining the safe, productive, and effective training and education of future specialists in universities (Wanless, 2016, p. 6).

Many studies of psychological safety in education focus on the study of the antecedent events and results associated with psychological safety and its violations, but little attention is paid to the ways and steps of ensuring and developing psychological safety at different levels of the educational organization.

Research Methodology

The purpose of the study is to analyze the problems and directions of psychological support for subjects of an educational organization (university) in the field of ensuring and developing the psychological safety of an individual and a group. The research method is a theoretical analysis of the problems of psychological support for the psychological safety of an individual and a group in higher education.

Research Results

Research has repeatedly found that organizations benefit from a diversity of perspectives, and groups of people with different backgrounds are better able to recognize problems and come up with creative solutions than groups with similar backgrounds. Psychological safety is the state of confidence of the subjects of education that they will not be punished, humiliated, ostracized for their values, ideas, and experiences, behavior patterns, fears and mistakes, successes and achievements (Clark, 2020; Edmondson, 2018; Edmondson, Lei, 2014; Hunt, et al., 2021; Newman, Donohue, Eva, 2017; Wanless, 2016).

This is the general belief of the members of an educational organization or its separate division that other members of the group will not reject, punish and humiliate them for what and how they do, say, think, experience, etc. Psychological safety in education means that people feel comfortable being themselves. They are completely devoted to the educational process and feel fine, even "putting on the line" everything they have and what they have achieved, all of themselves (Khudyakova et al., 2021; Valeeva, Tyumaseva, 2022; Exacusto, 2011). The lack of psychological safety in the university has serious consequences. First, when people are uncomfortable talking about ineffective and unproductive changes and initiatives, the organization is unable to prevent failure. And when education participants are not fully committed to it, the organization loses the opportunity to use the strengths of all its talents. People need to feel comfortable speaking out, asking weird, naive or wise and specific questions, and quietly agreeing or disagreeing with the way things are, in order to be able to make a real difference. Psychological safety does not mean that "everyone is always good", but that people accept conflict and speak up, knowing that the group supports them and they support it (Valeeva, 2021; Valeeva, Tyumaseva, 2020; Petrosyants et al., 2022).

For educational organizations serious about success, many innovations are common, creative relationships are important, attracting and retaining professionals and "talents" who can openly and extensively discuss problems, and not hush them up. The traditional culture of "fitting" and "adjusting" a person to an organization is doomed to failures and failures, success requires constant reflection and critical reflection on what is happening, adherence to tradition, and the introduction of new ideas, and new goals. The interpersonal climate should not suppress, "plug", people in the organization should not be ridiculed, intimidated, etc. (Petrosyants et al., 2021; Tyumaseva, Valeeva, 2018; Valeeva, Tyumaseva, 2021). Disagreement to discuss problems, although it speeds up the course of events, blocks creativity: discussion is an integral part of the creative process. People should be able to voice questionable and unfinished ideas ask weird questions and discuss them with others, this creates a culture where a minor oversight or a momentary mistake doesn't matter much and where factual errors are acknowledged and corrected and where the next creative idea can be the next important stage in the development of the organization. The path of psychological safety in the development of an organization is sometimes thorny, but strict adherence to a common path, taking into account typical scenarios for discussing and implementing

innovations, provide a clear path to continuous development and productive, effective change. E. Edmondson calls this a "fearless organization" (Fearless Organization). Creating psychological safety in a university is necessary for successful education and upbringing, development and innovation. In the case of an innovative culture, people should be able to behave, talk, think and feel outside the box, discussions are needed and brainstorming to create a truly innovative culture.

Psychological safety is understanding that it is safe to take interpersonal risks in an educational institution, that such risks are vital for the development of a team spirit ("educational community") and the quality of education, contributes to the willingness of students, teachers and other employees to contribute to the achievement of a common goals. People are not afraid of being rejected for making suggestions and know that when problems are identified or discussed, when issues are discussed or mistakes are corrected, they will be treated fairly and with compassion. They are not only free from fear in general, but free from interpersonal, professional and social threats to their current status, as well as future professional and professional development, including threats of injustice, bullying, etc. Psychological safety is especially important in environments with high risk, such as education, where people work and study in an interprofessional and interdisciplinary environment, where mistakes can lead to serious disruption in the life of an individual, group or organization. However, despite the advantages of psychological safety, guilt and fear relations most often prevail in educational organizations of our time, which damage people's safety, spiritual and moral well-being and development of staff and students, the efficiency and productivity of the organization, leading to unaccounted for aberrations and errors and a decrease in safety.. This culture of guilt and fear is exacerbated in countries where people adhere to strictly hierarchical relationships, where structure and control are paramount, and there is no opportunity for frank conversations at different organizational levels. This is also typical of the managerialization and commercialization of education: where an educational organization is run by an appointed "effective manager" whose merit is only corrupt ties with other "effective managers": countries with a market culture prioritize competitiveness and income from education over the importance of discussing failure, creating and thereby keeping a psychologically dangerous, "toxic" environment (Hunt, et al., 2021).

Psychological safety has an additional resource of supporting student development, many schools and universities have long adopted a recovery-oriented approach, focusing on empowering student students through support structures (families or guardians or fellow students who provide support and "coach" the lagging behind). This helps students recognize and develop their strengths and make informed choices that are significant for their lives and the organization. Despite the obvious advantages of a psychologically safe organizational culture in education, it is difficult to implement in practice and even to demonstrate: starting with the question of what can be "doed" with organizational culture - whether it can be changed or can only be studied and taken into account. Along with the heterogeneity of their own interests and needs, the members of an educational organization reflect the interests and needs of many other interested parties (stakeholders), which can create problems for the implementation of consistent changes, as well as the peculiarities of the national culture, therefore, individualistic and collectivist models of relations existing in society, open or closed, patriarchal and matriarchal orientations, different models of tolerance for uncertainty, etc. affect the possibilities for ensuring and developing the psychological safety of members of educational and other organizations (Edmondson, 2018; Edmondson, Lei, 2014).

Psychological safety plays a central role in identifying and correcting mistakes and oversights, so their discussion can be suppressed at the level of organizational pressure.

Research points to a link between psychological safety and the quality of education, readiness and ability to innovate. A mentally safe organization understands the importance of learning from failure, and that the members of an educational organization play a big role in its success, so they can recognize and communicate when they need help, without fear that this may be seen as a weakness or otherwise affect their reputation, as well as the stability of their educational results and prospects for professional and career development and development. The inability and unwillingness to discuss these issues are associated with the likelihood of stress that can exacerbate the problem and lead to more serious health problems. Psychological safety must be ensured at every level of the organization: it is important to recognize and set it as a principle or ideal, even if it is difficult to implement in practice. It will be felt and expressed differently depending on the context: at the individual, team, and organizational levels. Since the organization of education represents many substructures and subcultures, it is necessary to create a flexible psychological safety program adapted to the needs of different subjects (groups and individuals),

this point is critical for the success of the program across the organization. The behavior of supervisors/leaders is especially important: concepts such as transformational leadership, compassionate and collaborative leadership, inclusive leadership, managerial openness, manager reliability, and behavioral honesty are used here. Also, different substructures may differ in terms of procedural aspects that contribute to or hinder psychological safety: the processes and contents of people's contacts in substructures differ. While not encouraging direct conflicts within and between teams, it is important not allowing unspoken disagreements to accumulate, which can develop into much more serious problems in the future. Thus, leaders must give subordinates the opportunity to discuss problems and manage processes, having the courage to restrain or even prevent changes that undermine psychologically safe relationships. Thus, psychological safety lies in facilitating collaborative and frank discussions, and not "carte blanche" in allowing any changes. In addition, leaders must also be psychologically safe in the performance of their managerial responsibilities and use the resources that support them to manage the workforce.

Collaborative relationships are essential to maximizi the chances of success. The experience of cooperation contributes to psychological safety and allows you to convince employees of the sincerity of the management's intentions. Collaboration increases the internal motivation of staff and increases participation in these changes, and also contributes to the sustainability of the organization. Joint decision-making and implementation allow members of the organization to feel their powers, including powers in the field of ensuring psychological safety (Newman, Donohue, Eva, 2017; Wanless, 2016).

According to T. Clark, members of the organization must go through a number of safety stages before they can make their unique, valuable contribution to the development of the organization and challenge the status quo. He believes it is possible to single out 4 stages of psychological safety. When a team or organizational climate is characterized by interpersonal trust and an atmosphere of respect, members of the organization feel free to collaborate and feel safe in taking risks, which ultimately allows them to innovate more effectively. A psychologically safe school or workplace starts with a sense of belonging. Members of an educational organization must feel accepted before they can fully contribute to the improvement of its activities (Clark, 2020).

Stage 1 - Safety of Inclusion. The safety of inclusion satisfies the basic human need for connection and belonging. At this stage, the person feels secure in being himself and is accepted for who he is, including his unique qualities and defining characteristics.

Stage 2 - Student Safety: Student safety meets the need for learning and growth. At this stage, a person feels safe to share information in the learning process, asking questions, giving and receiving feedback, experimenting and making mistakes.

Stage 3 - Participant Safety: Participant safety satisfies the need for change. The person feels secure using their skills and abilities to make a meaningful contribution.

Stage 4 - Change Safety. Change safety satisfies the need for improvement. A person feels secure when he speaks and challenges the status quo when he believes that there is a real opportunity to change or improve.

To help members of an educational organization through these stages, take risks, and speak up to end up where they are comfortable, leaders must nurture and encourage a sense of psychological safety among their members.

One of the main misconceptions among managers is that psychological safety will be present in any more or less healthy work environment, as will the freedom of workers and students from violence and protection from injury. However, in reality, a psychologically safe educational environment is rare. It is natural for many people to "keep their ideas to themselves", "hope for a chance", avoid "stupid" questions, and avoid disagreeing with management, even when they have concerns. Therefore, the free exchange of ideas, concerns and questions is difficult, special attention and efforts are needed for formation and development; new behaviors and innovation are needed (Edmondson, 2018; Edmondson, Lei, 2014).

However, the results of this work come quickly, in the form of faster and better solutions to problems: strategic problems that have existed for a long time can be resolved relatively quickly by ensuring dialogue between stakeholders. Here it is necessary 1) to focus as a goal on the quality of education (and not psychological safety itself) and that it depends on dialogue, the integration of ideas and experience of many people, which requires a willingness to discuss emerging problems in a timely manner frankly, to consolidate and broadcast new models to other units interactions in regularly scheduled classes

and in the process of exchanging experiences outside of classes; 2) train both individuals and teams to practice perspective analysis and exploration skills that facilitate the frank exchange of ideas and concerns, best when individuals and teams practice them while doing "real work" together (in generative dialogues—conversations in which multiple viewpoints are brought together to make new decisions about how to move forward - about complex topics structured and organized so that the team can evaluate their effectiveness and productivity as they move); 3) include fixing the results in the form of texts, carefully analyze how you can and should act in order to create the right atmosphere for navigating complex topics or solutions. By imagining and writing down specific descriptions, people are better able to learn new skills and practices; 4) normalization of anxieties and vulnerability associated with education and work through the practice of small acts of vulnerability. Understanding that openness (and thus vulnerability) does no harm allows you to continue to increase the amount of interpersonal risk that people are willing / able to take. If participants withhold important, but sensitive or unpleasant information, the dialogue will not work, so they can be "warmed up" to interpersonal risk by suggesting that they start with safe, but also ineffective tasks.

In modern education, developing abilities related to psychological safety and understanding perspectives is becoming an increasingly important part of achieving excellence.

The concept of psychological safety as "the general belief that a team/group is safe for interpersonal risk" (Edmondson, 2018; Edmondson, Lei, 2014). A. Edmondson and J. Polzer believes that setting norms is critical to the success and participation of people in creating a psychologically safe environment. Psychological safety is a defense against the disruptive behavior that drives so many people away from situations in which they seek self and development opportunities. Psychological safety increases involvement and facilitates interaction, promotes an inclusive culture and prosperity for all, a rich exchange of views of all as part of a single system; inspires creativity and self-expression ideas; improves well-being, mental health and well-being, helps to avoid stressors that interfere with them; creates "brand ambassadors" by inspiring members of the organization to constantly brag about it and their affiliation; reduces staff and trainee turnover, interviews, hiring and training of team members are reduced, the sustainability of the organization is increased; improving the quality of education and the productivity of the organization.

Managers who are not able to create and maintain a psychologically safe atmosphere in the team can cause irreparable destruction and damage the organization, up to its collapse.

Creating a psychologically safe working environment in an educational organization begins with coaching aimed at changing the behavior of people in the organization, changing cultural norms requires the gradual training of everyone in the company through experiential learning.

The work here includes working with leaders and programs for all members of the organization. The manager and other leaders must constantly model inclusive behavior, allowing them to develop new team norms. It is important to ask people to share their thoughts and experiences (active listening and curiosity), especially in ambiguous and multi-level situations. It is important for leaders to learn from employees and students as much as they learn from them. It is important to encourage respect, negative impacts cannot be ignored: when someone undermines, shames or otherwise prevents others from speaking out. Educate people about how these behaviors can hinder creativity and innovation, including sharing concerns, ideas and questions. It is also important to lead by example: from senior management, all the way to team leaders and managers, so that a set of models of psychologically safe behavior should become the norm for the entire organization; companies (requesting feedback, acknowledging mistakes and apologies, being open to differing opinions, being tactful and accessible, asking for help).

It is important to accept vulnerability, it is a sign of inner strength, ability and willingness to improve and a way to encourage open and honest feedback. This shows that responsibility for mistakes is valued by the organization. It is also important to encourage open conversation (with a growth mindset), including the use of corporate events or virtual "hangouts" so that organization members can relax and be themselves, get to know each other as human beings, and develop an open mind. There is also a need for empowerment from a privileged place: to empower underrepresented colleagues by highlighting their accomplishments and supporting an "employee resource group", demonstrating real interest and appreciation that helps build and develop trust, interest in employee and student issues outside the organization.

It is possible to have an "anxiety party" (D. Burka), which normalizes vulnerability and insafety: employees exchange their anxieties during the training. These parties are not designed to solve problems, but they provide an example for people to share information and build trust (Burka, 2016).

One of the most difficult tasks of an "inclusive" leader, human resources and / or educational support staff is to increase the dialogic exchange of views in the organization, while reducing conflict or "social friction". When this does not happen and it becomes psychologically extremely dangerous to talk about what a person really thinks and feels, then the lack of psychological safety triggers, in addition to censorship in the organization, self-censorship processes, as a result, a person or group of people stops training/education and blocks cooperation and creativity. When leaders cultivate psychological safety, teams and organizations go through four successive stages. First, people feel included and accepted; then they feel safe to learn, contribute, and finally challenge the status quo. In this process, leaders can and should set the tone and model the ideal behavior, the path: if they overcome fear, establish responsibility based on real results, create a supportive environment that allows people to be vulnerable as they learn and grow, then the results will exceed their expectations.

When developing safety programs for all members of an organization, it is productive and effective to map existing initiatives: this shows what has already been done and reduces the risk of duplication of work. This maximizes investment in psychological safety. The organization's active students and teachers should be asked to participate in such mapping and create a safe environment. You can also contact intermediaries, which include various informal and formal organizations, including trade unions, charitable organizations or other local charitable initiatives, virtual (network) and real support groups, conduct focus groups or interviews with them. The idea of the psychological safety of relations in the organization includes an assessment of barriers and opportunities. In this assessment, it is important to listen to individuals and groups who may be cautious about their experiences ("weak voices" are just as important as "strong voices"), and to get feedback from those who do not usually speak openly. Encouraging employees to speak up is the first step, we need organizational methods that support what happens after speaking up: it is very important to encourage members of the organization who have dared to speak up, as well as to make decisions and change resulting from the information received: inclusive leadership is essential part of psychological safety. In addition, special studies, surveys and observations are needed to identify, among other things, people who lack a sense of psychological safety or are not ready to participate in the study: they need special support. It is also important to evaluate the long-term and immediate consequences of safety actions, such as the consequences of reporting misses. In addition, it is important to evaluate the impact of safety efforts on the final results, such as the quality of education, its improvement. Implementing cultural change and improving psychological safety will take a significant amount of time, both in terms of cultural shift, both in terms of working with existing professionals and students, and in terms of induction of new staff and admission of new students.

It is rather difficult to take specific steps to improve psychological safety in an organization for a number of reasons: 1) the complex nature of the phenomenon requires a multifaceted approach to changes aimed at its achievement and development; 2) cultural initiatives in the field of psychological safety require a cultural shift, participation and commitment to change in this area of the majority of professionals and students; 3) it is difficult to measure psychological safety and its impact on the final results; 4) it is difficult to determine what steps, in what order and in what time frame, who needs to take to ensure and improve psychological safety. The path of each organization will be unique, however, it is important to highlight the main components of the program to improve psychological safety. Firstly, it is important to build an atmosphere of psychological safety in an organization that is human-oriented, ready, and able to listen to people and change (learn from mistakes, etc.) (Edmondson, 2018; Edmondson, Lei, 2014). Purposeful/targeted interventions of the academic support services of education, concretizing this atmosphere, provide an additional result:

1. Organization of a group of influential people in the organization that make up a strategic plan for psychologically safe practices: principles and cross-cutting themes to achieve these results.

2. Support for and commitment to psychologically safe practices by the organization: informing and strengthening the commitment of the organization according to the strategic plan.

3. Messaging with the leaders of the organization to model psychological safety and focus on the following aspects:

(a) Discussion of the importance of error reporting and the benefits of focusing on improving quality.

(b) Discuss the collective responsibility (including rewards) of staff for speaking up on educational issues, including measures to improve the quality of education.

(c) Discussing experiences of professional and educational failure and lessons learned from those experiences: making failure psychologically acceptable as part of academic and professional development.

(d) Discuss past difficulties in interacting with older and higher-profile colleagues, etc., lessons learned and the importance of speaking up and sharing decision-making within and between groups and group representatives.

4. Creation of a code of psychologically safe behavior, a declaration of standards on how people should behave with each other, psychological safety values, including open and frank discussions, balanced with compassion and justice, aimed at improving the quality of education.

5. Holding forums and structured discussions for different groups to discuss problems and opportunities in the practice of quality education.

6. Providing (re)training and training for psychologically safe behavior. Creation and selection of educational methodologies and approaches will allow teams to practice psychologically safe practices in educational and non-educational situations, including modeling high-pressure situations such as aggressive and violent educational subjects.

It is important to take into account the bottlenecks, this is especially important for the involvement of different groups of actors and the provision of assistance. Psychological safety is especially important when coercive measures have to be used to protect the subject from harming themselves or others. The trauma and distress that leads to coercive action can be minimized and healed by open and compassionate interaction against a backdrop of extended reflection and debriefing after the crisis has passed. Summing up provides an opportunity to increase the reflexivity of staff and students of universities, give them the opportunity to contribute to education (for example, discuss future ways and alternatives of education), improve the quality of education. Targeted interventions are divided into structured discussions, devoted to the discussion of existing problems or areas for improvement, and decision-making, requiring group discussion and the choice of a course of action. In general, we are talking about 1) the importance of empowering students by informing them at every stage of learning and involving them in decision-making, providing students with a choice; 2) respect and encouragement of the contributions of all members of an organization aimed at supporting the individual development of each student as an individual and partner, student and professional; 3) in difficult situations, joint discussions focus on individual development and team development, and not on conflict and confrontation, the goal is consensus (the best possible solution for everyone and everyone), and not someone's victory, rightness, etc.

Conclusions

Psychologically safe practice is essential in the field of education. Despite psychological safety, being an intuitive concept, it is quite difficult to apply it on a university scale, since this problem and its solution have great resonance, and consequences for all levels and components of the educational system. That all parties feel free to speak up and participate as much as possible is vital to a safe and optimal educational experience.

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Effect of Job Satisfaction on Service Quality mediated by Lecturer Performance at State Universities

Abstract: Job satisfaction achieved by lecturers can affect all aspects of productivity, from performance to the quality of services provided in the academic community. This study focuses on analyzing the effect of job satisfaction on service quality with the performance of lecturers as mediators. This study uses an explanatory research method involving 140 respondents from lecturers who teach at state universities. Respondents were chosen by the simple random technique to fill in the questionnaire instrument with the same. The data analysis technique used was Structural equation modeling-partial least squares (SEM-PLS) with the help of Smart PLS 3. The results showed that job satisfaction had a significant direct effect on lecturer performance. However, it does not have a significant direct effect on the quality of lecturer services. On the other hand, the performance of lecturers has a significant direct effect on the quality of lecturer services. In addition, the performance of lecturers also acts as a full mediator so that job satisfaction can affect the quality of lecturer services. The structural model formed also fits the empirical data so that this research can be used as a reference to improve the quality of lecturer services in state universities.
Keywords: Job Satisfaction, Lecturer Performance, Service Quality.

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Introduction

Education and persons are two sides of the same coin that cannot be separated. Humans require education in order to reach their full potential. Education, on the other hand, necessitates humans even though subjects (teachers), as well as objects (which are taught), carry out all of the functions and roles of education (Thai et al., 2017). A university is one of the academic units that significantly impact the future quality of human resources. Higher education has been managed as an educational institution in the academic community's best interest, including students, teaching staff, and employees (Wibowo et al., 2020). Higher education is a component of the public education system that provides educational services and adapt to environmental changes. It is due to the growing knowledge of the community as customers,

as evidenced by changes in increasingly critical attitudes, increased competition, higher demands for the workplace, and rapid technological changes. This change increases competition among universities (Zhao et al., 2021). A university should have various facilities to compare performance in providing quality service. One factor contributing to a university's success is the ease with which the Tri Dharma can be implemented by providing, organizing, and providing services to students (Nyar, 2021). The strategy for improving higher education quality is providing facilities that enhance job satisfaction, lecturers, and employees (Toropova et al., 2021). Improve lecturers' and employees' performance, as well as optimize the quality of service following excellent service to customers (students).

Higher education services come in a variety of shapes and sizes. One of the primary services is to promote the advancement of science and technology through education, research, and community service (Bennett et al., 2018). As a result, the services provided must meet high-quality standards. Excellent service quality is a multifaceted driver of customer satisfaction (Demir et al., 2020). Service quality cannot be assessed from the service provider's standpoint; rather, it must be assessed from the customer's standpoint, specifically customer satisfaction (Meesala & Paul, 2018). Customer satisfaction reflects the level of service provided (Chiang & Trim, 2020). Organizations that provide services must have five service quality indicators: tangible (physical evidence), dependable (reliability), responsiveness assurance (guarantee), and empathy (Tešić, 2020). Tangible (actual evidence) signifies that learners want evidence that employees can show to satisfy them, such as promptness, convenience, sociability, and interactions with learners (Abbas, 2020). 2) Reliable in the manner that employees are dependable in carrying out tasks assigned to students (Ali et al., 2021). 3) Responsiveness requires employees to respond to student claims and needs. Both those concerning administration and all of their needs (Uppal et al., 2018). 4) Assurance in the context that employees must be knowledgeable, competent, courteous, and trustworthy, free of danger, risk, or uncertainty. Protection for these things will be demonstrated through student engagement with academic leaders, lecturers, and employees (Upadhyay et al., 2019). 5) Empathy includes student convenience in developing connections, good communication, personal attention, and employee understanding of students' individual needs (Latif et al., 2019).

Consumer satisfaction is good if it meets their expectations; otherwise, the service is perceived as bad if it does not meet their expectations (Hermiyenti & Wardi, 2019). This explanation implies that students, in this case as university customers, will evaluate service quality by comparing their perceptions of what they receive to what they expect (Fitzpatrick & Finn, 2020). Higher education is a service-provider institution where educational services are academic services that contribute to developing an effective learning process (Osman, 2019). Providing high-quality academic services is inextricably linked to several factors influencing it, including input, process, output, and outcome (Pradhan & Jena, 2017). The first is good input. Quality input can be measured by competent teaching staff, competent admin personnel, qualified students, quality facilities and infrastructure, and other educational inputs (Alauddin, 2019). The educational process is the second. A good educational process includes both teaching and learning. The way lecturers teach, the methods used, and the student's level of comprehension in recognizing the knowledge given by the teaching staff all indicate a quality learning and instruction process (Al-Omari & Okasheh, 2017). The third factor is output. Quality output is defined as graduates' competence relevant to customer needs regarding pedagogic, social, individual, and professional requirements (Thapliyal et al., 2022). Meanwhile, the fourth is the result. Acceptance and benefit of university graduates in their environment, including families, communities, and the workplace, is a quality outcome.

Based on the facts that have occurred thus far, the services provided, particularly at state universities, are still subpar. One example is the administrative service flow for the final project, which is still quite lengthy. There are numerous obstacles, from submitting the research title to the final exam. The causes vary, but the most common is the difficulty of students in intensive supervision with supervisors. The final project service, on the other hand, is one type of service that must be provided by the lecturer and facilitated by the university. Furthermore, the final project service reflects a good lecturer performance. Research by (Hill et al., 2017) found that students and the entire academic community will judge the lecturer's performance as good if he or she is dedicated to assisting students in completing the final project.

Lecturers are the primary assets in a university, serving as strategic planners, thinkers, and controllers of university activities. The performance of university lecturers in supplying efficient and effective services to the community or academic community reveals their high and low quality (Dommeyer, 2017). The performance of lecturers is required to enhance quality of service to the community (Schynoll et al., 2021).

A lecturer must always work passionately provide community services so that it does not appear slow. The ability of lecturers to (1) follow the development of science and technology, (2) prepare work programs, (3) optimize study program resources, (4) carry out the tri dharma tasks of higher education, (5) understand the vision and carry out the mission of the study program, and (6) carry out other supporting tasks is used as a parameter for lecturer performance (Hermina & Josepha, 2019).

To deliver a good performance, lecturers must feel at ease with their work. Job satisfaction and comfort are inextricably linked (Jamal Ali & Anwar, 2021). Job satisfaction is the attitude toward how people like or dislike their jobs (Nadinloyi et al., 2013). Lecturers who are satisfied with their jobs are more productive and stay with the company for a long time, whereas lecturers who are unhappy with their jobs will be less productive and more likely to leave (Hoboubi et al., 2017). Employees are motivated to provide better services when they are satisfied with their jobs; job satisfaction and organizational commitment influence service quality (Uteshkaliyeva & Kinzhibayeva, 2021). Job satisfaction is a form of loyal attitude to the company by doing a good job such as being dedicated, orderly, obeying the rules, and being positive (Judge et al., 2017). Several job satisfaction indicators, such as (1) pay, (2) work environment, (4) company regulations and policies, and (5) job security, can be used to reveal important aspects of work. (Izvercian et al., 2016).

All of these explanations conclude that his performance improves when the lecturer is pleased with his work. It can be seen in the improved quality of services provided to students. As a result, this research leads to an investigation into a management model based on empirical data. The variables to be investigated are related to lecturer job satisfaction, lecturer performance, and lecturer-to-student service quality. According to the previous description, this research will analyze a management model based on empirical data regarding the effect of lecturer job satisfaction on service quality to students mediated by lecturer performance.

Hypothesis and research framework

According to research (Helmi et al., 2022; Setyadi et al., 2022), job satisfaction has significant relationship with quality of service. Base on tha research (Adrian, 2019; Aslam et al., 2019; Iskamto, 2021), the job satisfaction variable has a significant relationship with the performance variable, consistent with previous studies. According to some of the prior studies, job satisfaction variables affect performance variables and service quality. A theoretical framework that defines the factors relating to product quality on brand image and its influence on purchasing decisions may be created based on the above description; the framework provided in this research is described in the image 1.

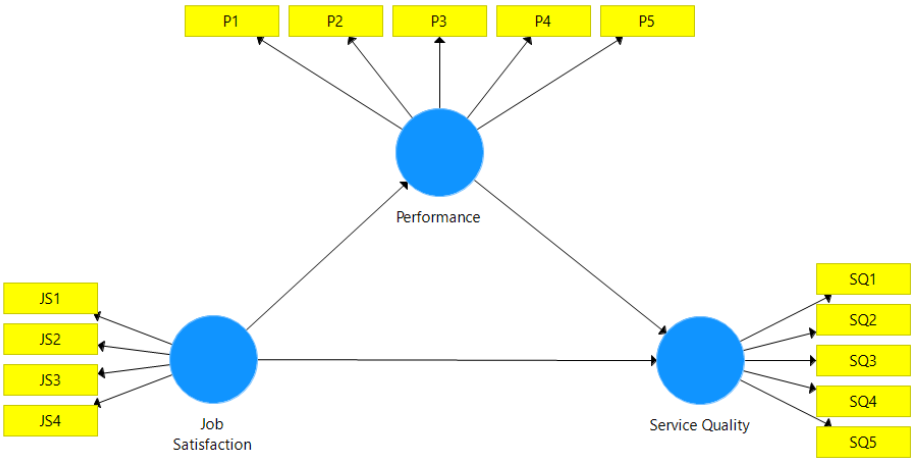

Figure 1. Research Framework

According to the framework model, the proposed hypothesis:
H1: Job satisfaction has significant effect on quality of service
H2: Job satisfaction has significant effect on lecturer performance
H3: Lecturer performance has a positive and significant effect on service quality
H4: Lecturer performance is a significant mediators of the effect of job satisfaction on quality of service

Research Methods

This study takes the form of explanatory research. It is also known as explanatory research with a quantitative approach (Creswell, 2012). The aim of this research is to examine the effect of a lecturer's job satisfaction on service quality to students, as mediated by the lecturer's performance. This study's variables include the independent variable, job satisfaction (X). Service quality (Y) is the exogenous variable, and lecturer performance is the moderator variable (Z). This study focuses on knowing whether there is an influence or relationship between variables consisting of independent variables, dependent variables, and moderator variables.

The study will run from January 2022 to September 2022. A sample of 140 respondents was chosen using a simple random sampling technique. The minimum number of samples in the SEM-PLS analysis, which is equal to or greater than ten times the number of the largest indicators used to measure a construct, is also used to determine the number of samples. In this research, 14 indicators from three constructs are used. In practice, the sample comes from the paths leading to the latent variable (10 x 14 = 140). (Hair et al., 2017). The instrument is a questionnaire distributed to lecturers who teach at state universities. The type of questionnaire used in this study is a questionnaire paired with the type of scale used, namely the Likert scale (1-5).

Table 1. Description of Indicator

Variables	**Indicators**	**Items Code**
Job Satisfaction	Company Policy	JS1
	Job Security	JS2
	Salary	JS3
	Work Environment	JS4
Performance	Keeping up with the development of science and technology	P1
	Optimizing study program resources	P2
	Carry out the tri dharma task of higher education	P3
	Understand the vision and carry out the mission of the study program	P4
	Carry out other supporting tasks	P5
Service Quality	Assurance	SQ1
	Tangible	SQ2
	Empathy	SQ3
	Reliability	SQ4
	Responsiveness	SQ5

The Smart PLS 3 software was used to analyze data. A covariance matrix and analysis of variance were used to calculate SEM. SEM is used to solve multilevel models that cannot be solved concurrently using linear regression equations (Hutomo et al., 2020). Model specifications, an estimate of structural model testing, model parameters, and a demonstration of hypotheses were the steps of SEM-PLS analysis in this work (Schumacker & Lomax, 2010). PLS-SEM measurement model evaluation generates non-parametric assessment methods and employs bootstrap and blinding procedures. The measurement model examination at whatever point required to determine the reliability and validity of conceptual framework or measurement indicators.

The reflecting measurement model was tested in research utilizing internal reliability (construct reliability), reliability factors, and concurrent validity (extracted mean variance). The higher the value of a model's factor loadings, the more similar the manifestations are to the construct. It ought to be noted that removing or expelling these identifiers from the model may result in an increase in the reliability coefficient score and average variance extract (AVE). Convergent validity is generally evaluated using the average

variance extract value, which must be greater than 0.5. The error is larger than the variance explained by the construct if the AVE value is less than 0.5. A loading factor value greater than 0.7 is considered ideal, indicating that the indicator is valid for measuring the construct it forms. A loading factor value greater than 0.5 is still acceptable in practice research. Even some experts accept the value 0.4. As a result, loading factors less than 0.4 must be excluded from the model. Commonalities are the fair value of the loading factor value. This value represents the proportion of constructs that are capable of describing the variations in the indicator.

The result of the SRMR test must be less than 0.8. Moreover, the d ULS and d G value sho that a strong research framework should have a significance higher than 0.05 (since it uses a 95% significance level). Furthermore, an NFI (Normal Fit Index) greater than 0.9 can be used to assess the model's suitability. Proof of the hypothesis can be shown by the value of significance/p-value and/or calculating the value of T are all steps in evaluating the structural model. The satisfactory Critical Value cannot exceed 1.96. The mediating variable, that also causes the predictor variables to influence the dependent variable, is then examined. The mediating variable, which also causes this same independent variable to influence the dependent variable, is then examined. The test is performed using the value of T, and the significance level permitted must be higher than 1.96. This test's objective is to support the hypothesis and pull the conclusion of the research.

Research Results

Proving The Validity and Estimation of The Reliability. The average variance extract (AVE) was used to examine the validity of the questionnaire questions, and the instrument's accuracy was tested in a composites fashion, namely directly on the construct. The Construct Reliability (CR) price, dependent on the loading factor price, is used in this reliability test. The cost of each construct's reliability and validity estimate is displayed in the table below.

Table 2. Evaluation of validity and reliability value

Variables	Construct Reliability (CR)	AVE	Cronbach's Alpha	Criteria
Job Satisfaction	0.954	0.839	0.936	Valid & Reliable
Lecture Performance	0.930	0.726	0.905	Valid & Reliable
Service Quality	0.946	0.780	0.929	Valid & Realiable

Thus according table 2, that AVE greater than 0.50. All of these indicators can measure variables well. All concepts from this study may be integrated into the model if the CR score is more than 0.80. Moreover, Cronbach's Alpha values higher than 0.7 indicate that the indicator used in assessing each variable is precise and reliable. The table below shows the validity of each indication that comprises the latent variable.

Table 3. Outer Loodings

Indicators Code	Loading Factor	Communalities
JS1	0.909	0.826
JS2	0.929	0.863
JS3	0.921	0.848
JS4	0.904	0.817
P1	0.778	0.605
P2	0.844	0.712
P3	0.850	0.723
P4	0.905	0.819
P5	0.876	0.767

SQ1	0.867	0.752
SQ2	0.862	0.743
SQ3	0.907	0.823
SQ4	0.909	0.826
SQ5	0.869	0.755

According to table 3, the loading factor of each indicator is more than 0.7. It signifies that the indicator is accurate in measuring the structure it creates. Furthermore, an aggregate value of commonalities larger than 0.6 indicates that all indicators may offer the most information on each construct they assess.

The goodness of the Fit Model Test

To test the hypotheses described earlier, a structural equation model was formed and tested in SmartPLS. The results of the structural model are described as follows.

Table 4. The goodness fit of model test

Parameter Model	Saturated Model	Description
SRMR	0.049	Fit
d_G	0.263	Fit
d_ULS	0.251	Fit
NFI	0.983	Fit

The table 4 shows the structural model that has met the fit specifications. These indicators (SRMR, dULS, dG, and NFI) are suitable for all structures. According to Hair, a model must contain three to four indexes in a suitable category to be considered practical or adequate. According to the fit test results, the overall research design has four model fit indices. Based on table 4, the SRMR value of 0.049 is smaller than 0.08 which means that this model fits the data. In addition, the d_ULS value of 0.622 and d_G of 0.297 which is greater than 0.05 also means that the model fits the data.

Furthermore, the convergent validity test is supported by a Normal Fit Index (NFI) value of 0.983, which is greater than 0.9. It means that the data fits the model as well. As a result, it is possible to conclude that this conceptual framework meets the fit demands. Model fit of job satisfaction, performance, and service quality from the previous hypothesis. The results of the complete model show in the image below.

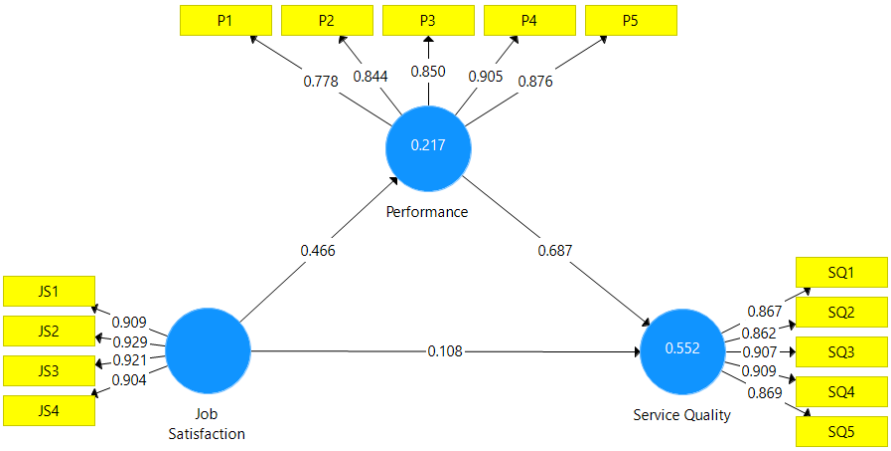

Figure 2. Model Fit Estimate

(Source: SEM analysis results using Smart PLS)

Testing the Hypotheses: Structural Equation Models

Decisions based on the results of the descriptive analysis are certainly not convincing enough, but generally, they can provide an overview. It is necessary to test the data following the hypothesis proposed in this study. The hypothesis of variables on other variables is presented in the following table.

Table 5. Hypothesis Test Results

Hypothesis	T-Statistics	P-Values	Description

H1	1.714	0.086	Not Significat
H2	5.482	0.000	Significant
H3	10.734	0.000	Significant

Note: *significant at critical ratio > 1.96.

- There is no significant effect of job satisfaction on service quality because the t-statistic of 1.714 < 1.96.
- Job satisfaction has a significant effect on lecturer performance because a t-statistic of 5.482 > 1.96
- Lecturer performance has a significant effect on quality of service because a t-statistic of 10.734 > 1.96

The research results of (Dhamija et al., 2019; Milana, 2018) studies indicate that there is a significant gap in all dimensions of service quality between the service expected and also the quality experience, and that there is no substantial link between job satisfaction and quality of service. Furthermore, (Arif et al., 2019; Wolomasi et al., 2019) found that job satisfaction has a significant direct effect on performance. Job satisfaction is one of the organisational factors that can be used to determine how employees feel about their jobs as well as predictors of work behavior such as encouragement, performance, and absences (Asbari et al., 2020; Yuen et al., 2018). Based on these research results, an employee satisfaction is more inclined to be at job (low absenteeism), makes fewer errors (quality), is more constructive, and is more likely to stay with the company.

Testing mediation effects

The aim of this research is to prove the role of lecturer performance in mediating the effect of job satisfaction on service quality. T Statistics and P Values can be used to calculate mediation effectst show in following table.

Table 6. Mediation Effect

Hypothesis	T-Statistics	P-Values	Result
H4	4.923	0.000	Full Mediation

Note: *significant at critical ratio > 1.96.

Table 6 shows an indirect effect of job satisfaction on service quality mediated by performance, with a value of 4.923 > 1.96. This means that the results of the mediation test can be reported the lecturer's performance has a full mediating effect so that job satisfaction can improve the service quality of the lecturer. The findings presented above are backed up by studies conducted by (Loan, 2020; Lu et al., 2019), which found that increasing employee job satisfaction is critical because it has the potential to improve customer perceptions of service quality and guarantee more optimal employee performance. The indirect relationship between quality of service and job satisfaction, as well as predictors of lecturer performance, contributes to a more comprehensive understanding of the complex character of job satisfaction, which can aid in the development of effective strategies to address faculty shortages and improve student service quality (Ćulibrk et al., 2018). When lecturer performance is included in the model, the relationship between quality of service and job satisfaction increases significantly, demonstrating the mediating role of lecturer performance (Davidescu et al., 2020). As a result, the key to the sustainability and quality of higher education lies in improving the performance of lecturers, which can be done through fulfilling the job satisfaction of lecturers to improve the quality of service to students.

Conclusions

The findings show that hypotheses 2, 3, and 4 are accepted, while hypothesis 1 is rejected. According to the findings of testing hypotheses, lecturer job satisfaction has no effect on service quality but does have an impact on lecturer performance. Lecturer performance has a significant effect on quality of service. The researcher discovered that lecturer performance is a significant mediators of the effect of lecturer job satisfaction on quality of service. It demonstrates that lecturers' performance will influence their job

satisfaction in order to improve service quality. Because it'll be a proposal for improved performance in the service of lecturers at the institution, the results of this research will be extremely beneficial in enhancing the quality of higher education services. This study informs state university stakeholders about how to enhance the standard of lecturer services in education. Job satisfaction and lecturer performance must be prioritized. This research can also be a theoretical reference in increasing lecturer job satisfaction, lecturer performance, and lecturer service quality at state universities because the model formed has been proven by the data. Recommendations for further research need to be tested in various locations with diverse objects. However, this study has certain limitations, including the sampling procedure and the number of samples used. The researcher agrees that the larger the sample used, the freer from bias in the study conclusions, and the more precisely they can be extrapolated.

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Difficulties in mathematics education (mapping literature of international metadata in the last 10 years)

Abstract: It is necessary to map the results of previous studies to conduct new research. The mapping is to obtain information about the novelty of the research to be carried out. Then, it needs a mapping of what has been done by previous researchers. This study aims to map the studies that have been carried out around the world on difficulties in learning mathematics. This research is literature review research with the type of mapping. Data consist of 1,000 research articles indexed by Google Scholar from 2013 to 2022, which were collected with Publish or Perish software using the keywords difficulties in mathematics education. Mapping analysis was carried out using VOSviewer software that images were then interpreted. Mapping is done on learning difficulties in mathematics, difficulty in learning mathematics seen from the abstract with a minimum occurrence of 15 and 10, difficulty in learning mathematics is related to mathematical learning difficulty, difficulty in learning mathematics if it is seen as a relationship if mathematics is applied in studying science, difficulty in learning mathematics is related to the application of realistic mathematics education, and difficulties in learning mathematics related to instruction. The results showed that difficulties in learning mathematics focused on mathematical concepts, applying mathematics in science, word problems, unclear instructions, limited time, and students' mathematics anxiety and ability.

Keywords: difficulty in learning mathematics, mapping literature review, Publish or Perish, VOSviewer.

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Introduction

Education has an important role in the progress of a country. This is because the quality of education describes the quality of the next generation of the nation. In other words, the quality of education must be increased to create a quality generation in the future. The quality of education can significantly increase productivity in terms of the economy (Jamison et al., 2007). This means that quality education has an important role in the progress and survival of the community, especially the nation's next generation. The quality of education is also a general indicator of the development of society at a certain time and it is considered to be a feature of the progress of a country (Bakhtiyarova, 2019). Therefore, it is necessary to increase the quality of education for the next generation of a good nation.

Improving the quality of education appropriate with the development of technology. Improving the quality of education needs research. The aim is to find out which parts need and do not need to be improved to get a better quality of education. The benefit of research is for developing the education system (Basu, 2020). It agrees with the research of Weinert & De Corte (2001) that educational research can be used to develop technology in the learning process, facilitate teachers, train student learning competencies, design learning models, and other educational research.

Research of education has the aim to improve the quality of education in a better and more renewable direction. This is also appropriate with the technology development. Therefore, educational

research contains novelty and can be used to achieve a better quality of education. Educational research can be used to develop and test new ideas and methods in the learning process (Maruyama & Deno, 1992). In addition, the results of educational research are used to make new policies related to education (Bransford et al., 2009).

There is much educational research that has been done in the world and it covers various aspects of education. Therefore, it is necessary to map various aspects that have been carried out by previous research. This aims to make it easier to see aspects of education that will be improved in quality. Research mapping can be useful for determining strategic planning in certain disciplines. It is like planning leads to an increase in the quality of better education (Sedighi & Jalalimanesh, 2014). In addition, the benefits of research mapping are the basis for the latest research to improve the quality of education (Kitchenham et al., 2011).

The mapping of educational research also applies in terms of improving the quality of mathematics education. Improving the quality of mathematics education can be done by utilizing the research on mathematics education that has been done. Based on the research on mathematics education that has been carried out, it is necessary to map the students' difficulties in mathematics learning. Mapping aims to find out which aspects or parts need to be improved in quality. The factor that affects the quality of education is the need for innovation in the learning process from various aspects (Lysenko & Zharinova, 2021). Innovations and improvements in various aspects of mathematics education aim to ensure that mathematics education has good quality in terms of teaching and methodology, the quality of educators' support, and education service providers (Bakhtiyarova, 2019). One aspect of mapping mathematics education which aims to develop the quality of mathematics education is that there are difficulties in learning mathematics. Some of the students' difficulties in learning mathematics are students who feel difficult in basic material and it being carried over to higher education. Consequently, students will continue to have difficulty learning mathematics (Lima et al., 2019), students also have difficulty in formulating mathematics models in problem solving in algebra (Flores, 2018; Jupri & Drijvers, 2016), students feel difficult to do mathematical proofs (Sabri & Minggi, 2014), students do not like to read long problems solving so they feel difficult to solve them (Phonapichat et al., 2014), and students have difficulty in calculating, sorting information, understanding concepts, and complete contextual test items (Retnawati et al., 2017).

Mapping research in mathematics education is not only useful for knowing aspects that need to be updated in order to improve its quality, it is also useful for knowing what actions will be taken to increase the quality of mathematics education. Actions in mathematics education to improve the quality of education can be done by providing innovations or problem solutions to overcome students' difficulties in learning mathematics. Therefore, it is necessary to map out the difficulties in learning mathematics experienced by educators. This study aims to map the studies that have been carried out around the world on difficulties in learning mathematics.

Research Methods

This research is literature review research with the type of mapping. Data consist of 1,000 research articles indexed by Google Scholar from 2013 to 2022, which were collected using the Publish or Perish 8 software. This software was downloaded from https://harzing.com/resources/publish-or-perish. Then install it on a Microsoft Windows system. The first step after installing this software is to search for articles according to the criteria. In this study, the search was carried out using the keyword "difficulties in mathematics education", which was saved in RIS format in the period 2013-2022. There are 1000 research articles.

After all, the list of articles is displayed, then proceed with analyzing the map from the VOSviewer application software. Open the application and will appear as in Figure 1.

Based on Figure 2 there are three options. Then select "create a map based on text data" and select "next". When choosing next, by using data with the type of RIS, and then choosing the field and full counting methods, the minimum occurrence of 10 and 60% of relevant topics, and an image of research trends over the last 10 years is generated. There are 2 variations of the selected field, there are the titles and abstracts of the mapped research. Based on Figure 1, the next step is to select "Create Map" it will appear as shown in Figure 2.

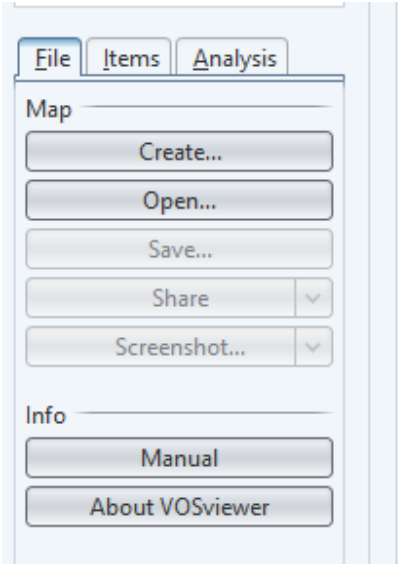

Figure 1. Appearance of the application

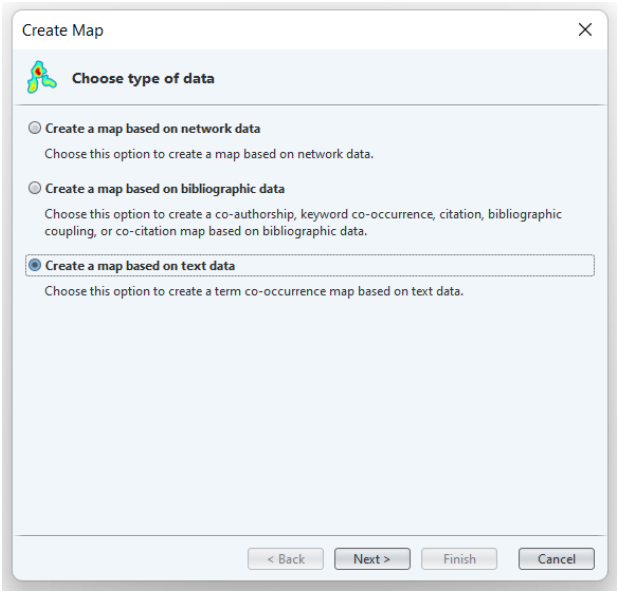

Figure 2. The appearance of Create map

Research Results

Based on the results of the mapping difficulties in mathematics education (a mapping of the literature of international metadata in the last 10 years), the following results were obtained.

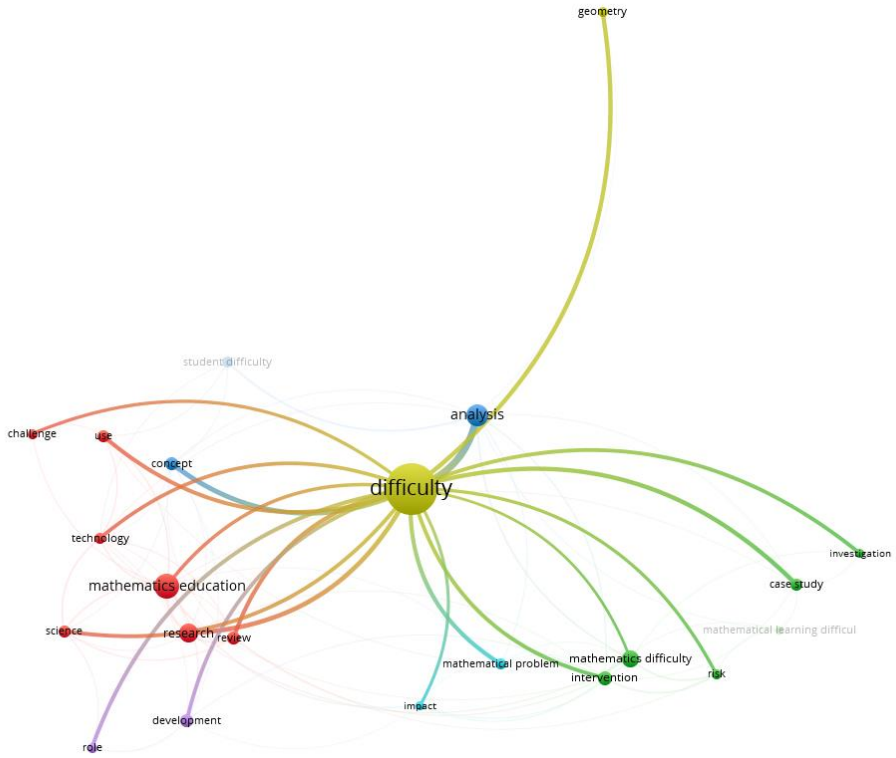

Figure 3. Mapping in research that focuses on learning difficulties in mathematics

Figure 3 shows that the results of mapping in research that focuses on learning difficulties in mathematics produce related keywords such as challenge, mathematical problem, mathematical difficulty, mathematics education, risk, use, concept, science, research, review, case study, role, impact, intervention, investigation, analysis, technology, development, and geometry. By using the words that appear, it can be interpreted that research trends related to student difficulties in learning usually use an analytical approach to problem solving difficulties, can be in the type of literature review or case study. From the difficulty

investigations carried out, the trend of difficulties and challenges in learning mathematics is related to mathematical concepts, the use/role of mathematics in science, and a topic that is often considered difficult is mathematics. To overcome these difficulties in mathematics learning, follow-up is carried out with developments to minimize the impact of these difficulties on learning success.

The next analysis is an analysis using abstract with a minimum occurrence 15 and a minimum occurrence 10. The results of the mapping with a minimum occurrence 15 are presented in Figure 4.

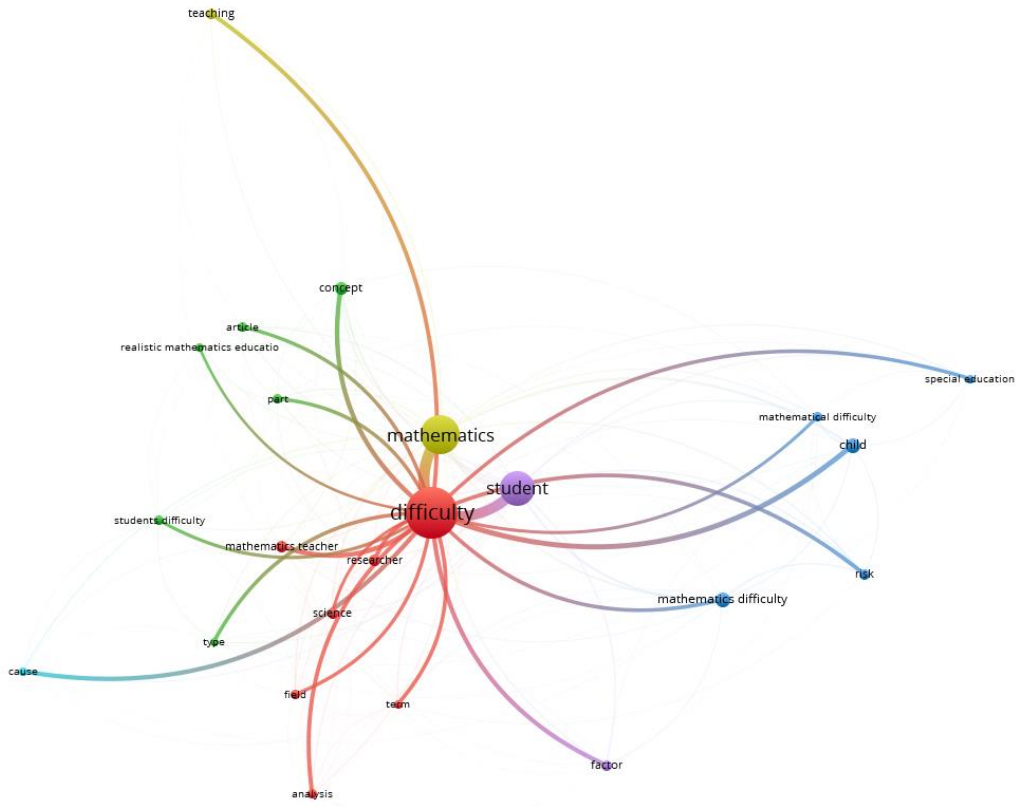

Figure 4. Mapping with a minimum occurrence 15

Figure 4 presents the mapping of difficulties in learning mathematics using research abstracts with a minimum occurrence 15. The results presented are related to mathematics, student, teaching, concept, article, realistic mathematics education, part, student difficulty, mathematics teacher, researcher, science, cause, field, analysis, factor, mathematical difficulty, risk, child, mathematical difficulty, and special education. Based on these things, the students' difficulties in learning mathematics do not only come from these students but also other factors such as mathematics teachers, the learning process, and also from mathematics which has various levels of difficulty. Therefore, it takes analysis and research on factors, causes and other related matters by researchers to get a solution. Solutions that can be used such as realistic mathematics education and special education that are appropriated with the students' difficulties in learning mathematics.

The next analysis is mapping mathematics educational research seen from the abstract with a minimum occurrence 10. The results are presented in Figure 5.

Figure 5 shows more things that related to students' difficulties in learning mathematics than using minimum occurrence 15. Mapping on minimum occurrence 10 shows that difficulty in mathematics education is related to relations, mathematical learning difficulties, mathematical difficulty, challenge, cause, chance, mathematics anxiety, mathematics education research, engineering, technology, science, mathematics problem, teaching mathematics, approach, identification, ability, word problem, fraction, probability, algebra, function, misconception, question, implication, time, challenge, instruction, task, and realistic mathematics education. Based on these results, it is illustrated that several topics in mathematics that are considered difficult by students are probability, algebra, function, and fraction. These difficulties occur due to word problems, misconceptions, time constraints, and unclear instructions. In addition, the presence of mathematics anxiety also affects students' difficulties in learning mathematics. Students'

difficulties in learning mathematics can be overcome by using mathematics education research, applying realistic mathematics education and by using technology and science that continues to develop.

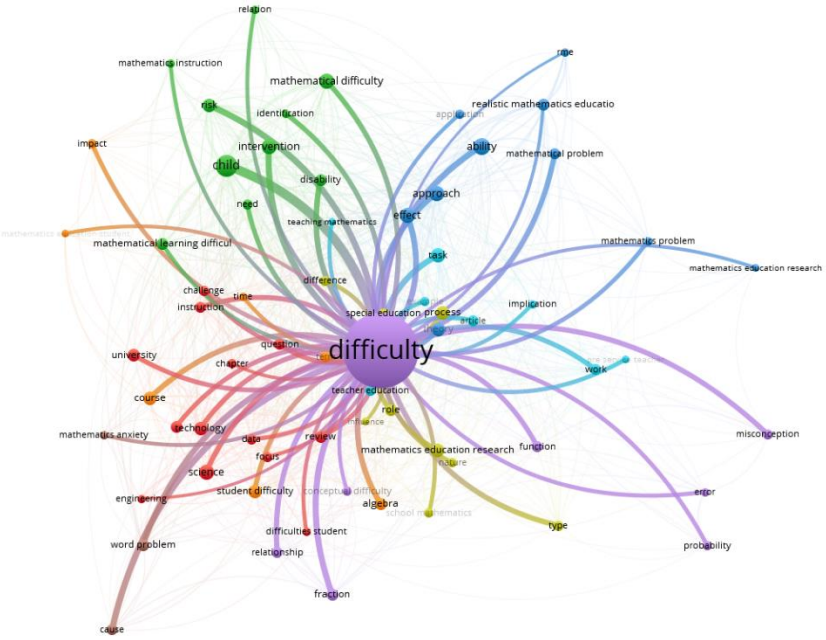

Figure 5. Mapping with a minimum occurrence 15

The next mapping focuses on the relationship in terms of mathematical learning difficulty. The result is presented as in Figure 6.

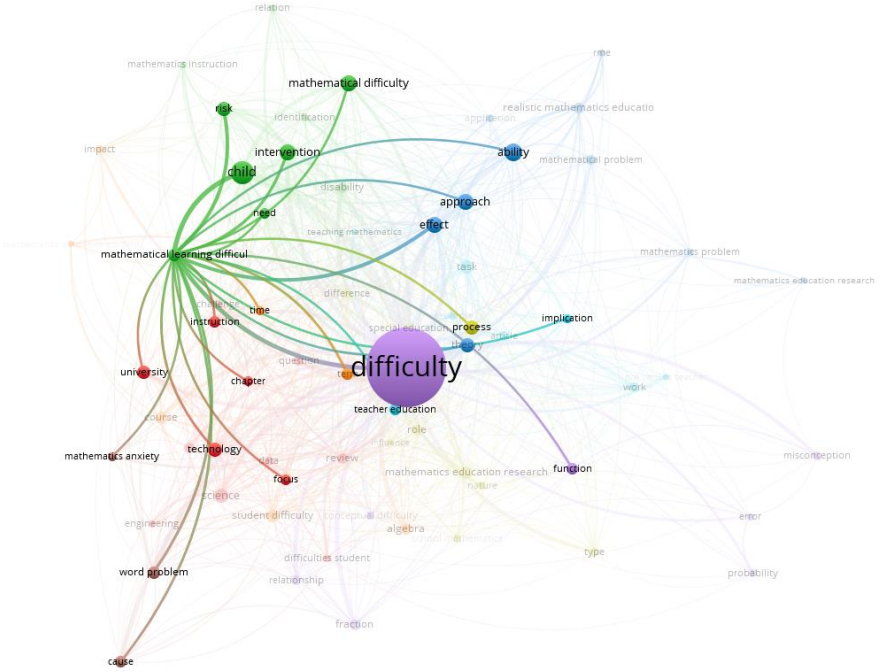

Figure 6. Mapping focuses on the relationship in terms of mathematical learning difficulty

Figure 6 shows the relationship in terms of mathematical learning difficulty. Some keywords related to this are difficulty, mathematical difficulty, intervention, child, mathematics anxiety, risk, child, instruction, chapter, university, word problem, cause, focus, technology, time, teacher education, ability, process, function, effect, approach, and implication. Based on this mapping, it is interpreted that mathematical learning difficulty is caused by several factors such as mathematical difficulty, word problems, time constraints, learning processes, and students' internal factors such as mathematics anxiety

and ability. One of the solutions offered from these problems is using technology in the development of the mathematics learning process.

Mapping of difficulty in learning mathematics when viewed in relation to mathematics being applied in studying science is presented in Figure 7.

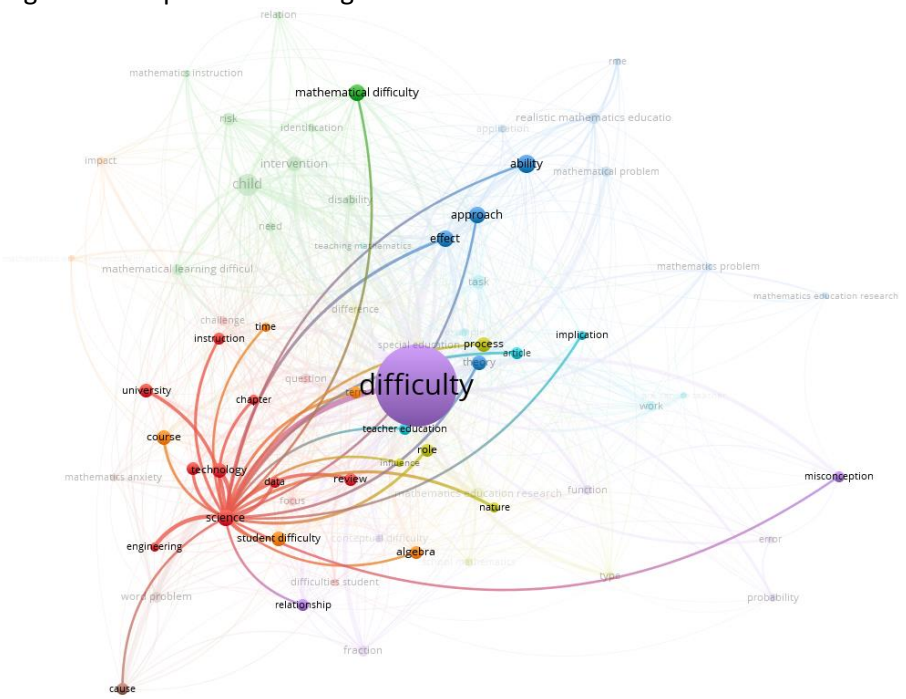

Figure 7. Mapping of difficulty in learning mathematics when viewed in relation to mathematics being applied in studying science

Figure 7 shows several things related to the difficulty of learning mathematics if mathematics is applied in studying science. There is student difficulty, difficulty, technology, data, engineering, cause, relationship, course, university, instruction, time, chapter, review, algebra, nature, role, process, implication, misconception, teacher education, approach, effect, article, ability, and mathematical difficulty. Based on the keywords, it can be interpreted that the difficulty of learning mathematics if it is applied in studying science is influenced by student difficulty, instruction, misconception, mathematical difficulty, and ability. The application of mathematics in studying science is closely related to engineering, technology, data, and algebra.

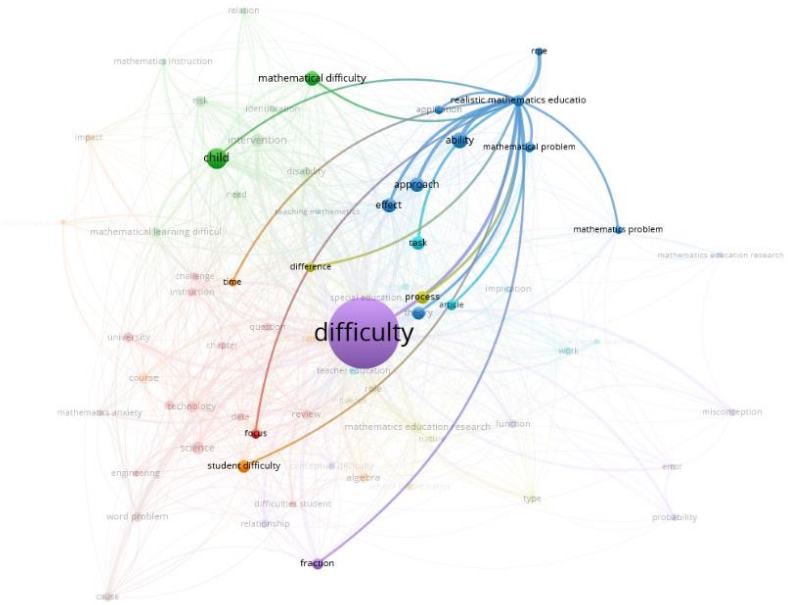

Figure 8. Mapping of learning mathematics related to the application of realistic mathematics education

Next mapping is the difficulty of learning mathematics related to the application of realistic mathematics education which is presented in Figure 8.

Figure 8 shows the difficulties of learning mathematics related to the application of realistic mathematics education. It related with mathematical problem, mathematical difficulty, ability, approach, effect, student difficulty, child, difference, process, task, RME, fraction, and focus. This can be interpreted that learning mathematics with the application of realistic mathematics education is widely applied to facilitate learning the material, especially fractions. In addition, the students' difficulties that can be anticipated by applying realistic mathematics education such as mathematical problems, mathematical difficulties, and student difficulties. Therefore, realistic mathematics education needs precise and focused approach.

The last mapping is the difficulty of learning mathematics related to instruction. The results are shown in Figure 9

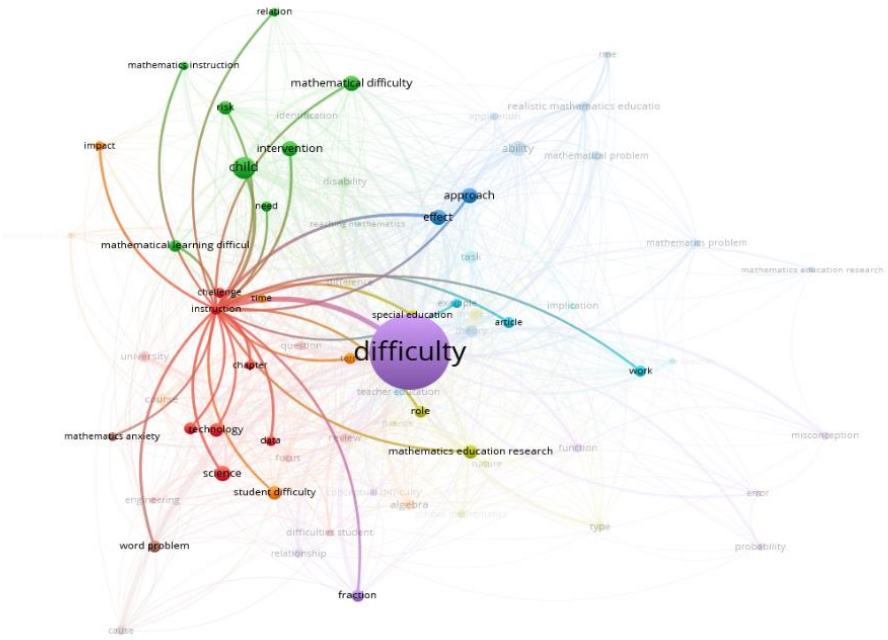

Figure 9. Mapping the difficulty of learning mathematics related to instruction

Figure 9 shows the mapping of the difficulties experienced by students related to instructions. It is related with instruction, mathematics instruction, challenge, chapter, technology, mathematics anxiety, mathematical learning difficult, word problem, mathematics anxiety, mathematics education research, special education, fraction, role, science, data, chapter, time, child, intervention, impact, risk, and relation. It illustrates that the students' difficulties related to instruction in mathematics learning are influenced by obstacles in mathematics instruction, mathematical learning difficult, word problems, and mathematics anxiety. It needs mathematics education research and the role of technology to determine the resolution of students' difficulties in learning mathematics related to the instruction.

Research Discussions

Mapping of educational research, especially in mathematics education research, in this study provides mapping results about learning difficulties in mathematics, difficulties in learning mathematics as seen from the abstract with a minimum occurrence 15 and 10, difficulties in learning mathematics in terms of mathematical learning difficulty, difficulties in learning mathematics when viewed in relation to mathematics applied in studying science, difficulties in learning mathematics related to the application of realistic mathematics education, and difficulties in learning mathematics related to instruction.

One of the mapping results in this study is mathematics difficulty. One of the factors that it is a disability. Differences in mathematics ability make differences in abilities in mathematics learning outcomes. Students with mathematics disabilities have low results in mathematical cognition tasks (Geary et al., 2007). This is because students have the inability to coordinate various kinds of basic mathematical

knowledge (Karagiannakis et al., 2014). It can be seen from the results of the mapping which shows that one of the difficulties experienced by students is the word problem. The students' difficulties in mathematics learning such as solving word problems and using concepts (Yulita & Ain, 2021). One of solution to this problem is the guidance or special education according to the conditions of each student. This is in accordance with the research results of Fuchs et al (2005) that mathematics difficulty can be minimized by providing guidance that is appropriated to the mathematics domain.

The mapping which presents the mapping of difficulties in learning mathematics using research abstracts with a minimum occurrence of 15 also relates the causes of difficulties in learning mathematics that is not only from student's factors but also mathematics teacher's factors. Teacher's factors in mathematics difficulty such as not directing students to ask questions, lack of skills, lack of understanding of student conditions, something wrong with teaching and learning methods, and learning tools. While the student's factors such as lack of awareness to learn, students' fear, impaired memory and reasoning, and psychological factors (Munawarah & Surya, 2017; Yulita & Ain, 2021). The psychological factor found in the mapping results of this research is math anxiety. Mathematics anxiety can become an acute disorder in the mathematics learning process and result (Baten et al., 2019). In addition, high math anxiety has an impact on low motivation to learn mathematics (Pollack et al., 2021). Indirectly, mathematics anxiety affects students' mathematics learning. There is a negative correlation between math anxiety and learning outcomes (Sherman & Wither, 2003). This means that the higher level of mathematics anxiety then the lower of the students' mathematics learning outcomes. In other words, the students will have higher level of mathematics difficulty.

Mathematics difficulty can also as a result from the application of mathematics with other subjects. Learning mathematics does not only standalone but is also related to other sciences such as science. As illustrated in the results of the mapping of this research, there are difficulties in learning mathematics if it is applied in studying science. Linking mathematics learning with science in higher education requires great effort (Matthews, 2011). This is also one of the causes of obstacles for some students so that they feel difficult in learning mathematics. In addition of its relationship with science, mathematics is also the basis and has a close interaction with modern science that supports technological developments (Vázquez, 2001). Hyslop & Lewis (1970) also stated in his research that the learning of mathematics and science involves technology in the process.

Based on mapping in this research, one solution that arises from mapping mathematics difficulty is realistic mathematics education. According to Nurfadilah et al (2021), learning using realistic mathematics education is more effective in improving students' problem-solving abilities. This is also in line with research from Cendekiawaty & Sugiman (2020) that RME can improve students' abilities, especially in fraction problem-solving. This is also in accordance with the results of the mapping of this research related to the application of realistic mathematics education that one of the materials considered difficult for students and the need for the application of realistic mathematics education is a fraction. In addition, realistic mathematics education is not only improving problem-solving abilities but also increasing students' self-efficacy (Ulandari et al., 2019).

Based on the discussion of the results of the mapping difficulties in mathematics education research, other studies are still needed related to efforts to overcome student difficulties. This is because mathematics difficulties faced by students will be more complex in the future. In addition, more specific studies are needed on the diagnosis of students' learning difficulties in mathematics and strategies for using mathematics in other fields like science. Mathematics not only has a role in science and technology but also in the development of science, both natural and social sciences with various conditions (Jazuli, 2021).

Conclusions

Research mapping is an important thing as the basis for further research. Based on the results of mapping of the research that has been carried out around the world about difficulties in learning mathematics indexed by Google Scholar in 2013 to 2022, mapping is done on learning difficulties in mathematics, difficulty in learning mathematics seen from the abstract with a minimum occurrence of 15 and 10, difficulty in learning mathematics is related to mathematical learning difficulty, difficulty in learning mathematics if it is seen as a relationship if mathematics is applied in studying science, difficulty in learning

mathematics is related to the application of realistic mathematics education, and difficulties in learning mathematics related to instruction. The results showed that difficulties related to learning mathematics focused on mathematical concepts, the use/role of mathematics in science, word problems, unclear instructions, time constraints, and students' mathematics anxiety and ability.

Mapping difficulties in mathematics education are expected to be a reference for future research on mathematics education. Further research is especially useful for overcoming various kinds of difficulties in mathematics education and innovations in the mathematics learning process. It is also related to the relationship of mathematics with other fields besides science and technology.

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Challenge of Analysis of Polytomous Item Characteristics with Item Response Theory

Abstract: In the world of education, a lot of scoring is done with a polytomous, for example, on items that are constructed responses. Likewise, at the Open University of Indonesia, the questions for the final exam of a course called the take-home exam (THE) are presented in the form of a constructed response. This problem is done by students who take this course, but the number of students who take this course is not stable. Sometimes, this course is taken by a few participants. On the one hand, it is necessary to carry out an analysis of item characteristics. On the other hand, doing so will face many challenges. In this study, the challenge of analyzing polytomous data is presented on the polytomous score in 3 courses whose final exam is presented in the form of a take-home exam (THE). This study is a mixed research, quantitative analysis packaged in qualitative research with a narrative tradition. Documentary data in the form of students' answers to 3 courses' take-home exams are then analyzed for their characteristics by using various models of IRT polytomous data analysis. Obstacles in conducting analysis are told in narrative form. The analysis was carried out on the take-home exam package of three subjects, namely the Statistical Method II course (89 test participants and two questions), Experimental Design (67 test participants and three questions), and the Sampling method (206 test participants and three questions). Based on the results of the analysis, there is only one package of questions that can be thoroughly analyzed with item response theory, namely the package of questions with the sampling method. Based on the analysis process, it was found that there are challenges in conducting an analysis with item response theory. The challenges are mastery of the R language, the syntax of the selected analysis package, the length or many items in one test package, many test takers, and, last, foresight in rescoring to produce a more proportional pattern. This limitation can be used as a consideration for other researchers in analyzing the polytomous data.

Keywords: challenge, item characteristic analysis, polytomic scoring, item response theory.

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Introduction

Almost everything that is carried out en masse and structured is carried out through an assessment process. The goal is to measure the achievement of each program goal, including in the world of education. The educational process has goals that lead to the development of student competencies or students according to targets (Arlinwibowo, Retnawati, & Kartowagiran, 2021; Retnawati et al., 2016). To measure the extent to which a person's competence develops, educational institutions use measuring instruments or commonly referred to as certain instruments. The selection of the measuring instrument is highly dependent on the targeted assessment domain. For example, the affective domain uses a questionnaire instrument, and the cognitive domain uses a test instrument (Ebel & Frisbie, 1980; Kubiszyn & Borich, 2003; Miller et al., 2009; Nitko & Brookhart, 2011). These examples are just a few examples of the many instruments that can be used in the measurement process.

The Open University is a university that applies a distance learning model (Mizal et al., 2021; Yaumi, 2007). Just like learning in general, distance learning also has an obligation to measure student learning achievement (Mizal et al., 2021; Sunday A. Itasanmi et al., 2020). This is done to produce a competency

achievement profile for each student. The data is used as the institutional basis for determining the status of student learning outcomes (classification of grades and graduation status in each course) and becomes university data to continue to develop the education system (Retnawati et al., 2017).

The concept of distance education makes open universities have to innovate to develop learning achievement measurement instruments that can be done anywhere (Arlinwibowo, Retnawati, et al., 2020; Hamid et al., 2020). One of the assessment mechanisms owned by the Open University is the take-home exam (THE). Take-home exam is a test-based assessment technique carried out by open universities to measure student learning achievement. THE is developed with attention to content that is in accordance with the objectives of each course. Each instrument consists of 2 to 5 items that must be completed by each student.

THE is carried out in the homes of each student. THE will appear for 6 hours. In the span of 6 hours, students are expected to be able to solve all the problems presented in the question package. Then, the system will close access to questions and record the responses submitted by students. Student responses in working on THE questions are then archived by the system. The response archive is ready to be assessed so as to produce a score conclusion for each student.

However, until now, the questions used in preparing the THE question package have not been calibrated and analyzed comprehensively. Supposedly, each item that composes the test package has known its psychometric character before being taken into a test package. Psychometric characters are needed to conclude the quality of each item. The character of the items can be used as the basis for selecting which items have good performance to estimate students' abilities and which items should not be involved in the measurement process. In addition, the characteristics of the items can be used as a basis for inferring the abilities of each student so that a fair assessment process is produced and represents the student's abilities.

Currently, the system at the Open University has archived response patterns that have been converted into assessment scores. The data is polytomous. The response pattern becomes a very valuable asset for analyzing item items so that item quality mapping can be carried out. To analyze polytomous data, item response theory provides various analytical models, namely the graded response model (GRM), partial credit model (PCM), and generalized partial credit model (GPCM).

In the analysis process, researchers must choose one of the most suitable polytomous data analysis models (Arlinwibowo, Retnawati, Hadi, et al., 2021). In establishing the model, the first thing to do is to conduct an analysis based on the instrument's suitability with the philosophy of developing an analytical model. The second analysis is to perform a statistical fit test that tests the suitability of the model with the student response pattern (Arlinwibowo, Retnawati, & Kartowagiran, 2021). Philosophical and statistical studies become the basis for researchers to determine which model will be used as an item analysis tool.

Then, before conducting item analysis using a particular model, researchers need to test the assumptions of item response theory. The assumption test is used to determine the dimensions measured by the instrument (Retnawati, 2014). Test these assumptions using exploratory factor analysis. The results of the assumption test will show the grouping of response patterns. If the response pattern clusters into one dimension, the instrument will be analyzed with unidimensional item response theory, and if the response pattern clusters into more than one dimension, then the instrument will be analyzed with multidimensional item response theory (Arlinwibowo, Achyani, & Galih Kurniadi, 2021; Arlinwibowo, Hadi, et al., 2020). This assumption test is crucial to show the estimation of students' abilities, whether measuring a single ability or splitting it into several abilities. If the instrument measures several abilities, it will be continued with a search for abilities in each dimension.

However, instrument analysis with item response theory has some limitations that must be anticipated. The first limitation is that this theory will be stable when analyzing data with a relatively large number of samples. In addition, this analytical technique also requires a sufficient test length to produce a stable profile estimate. The longer the test (the number of items), the estimation results of students' abilities will be influenced by more minor errors (DeMars, 2010; Uyigue & Orheruata, 2019). Item response theory is an analytical technique that adopts probability theory so that if a test only contains a few items, the standard error generated by the response pattern is not yet stable (Retnawati, 2016).

Thus, the purpose of this study is to determine the quality of THE based on analysis with item response theory. The description of the item profiles produced on the day of the analysis process is

expected to be a reference for developing a better THE question bank so that the quality of the tests carried out by the Open University will be better.

Research Methods

This study is mixed, a mix of quantitative analysis and qualitative research with a narrative tradition. Documentary data in the form of student answers on the take-home exam (THE) for the subject of statistical method II, experimental design, and sampling method. The following is a description of the data on the number of samples and the number of items carried out by students.

Table 1. The Result of Regression Coefficients Reading Habits (X) towards Writing Skills (Y)

Code	Course	Number of Students	Number of Items
SATS4222	Statistical Method II	89	2
SATS4321	Experimental Design	67	3
SATS4421	Sampling Method	206	3

The collected data was then analyzed by the polytomous item response theory to determine the character of the evidence. But before that, the data will be analyzed using exploratory factor analysis to determine the dimensions measured by the instrument. Model analysis with item response theory is carried out by considering the results of factor analysis, unidimensional or multidimensional. Then, the researcher analyzed the data using various analytical models in the item response theory, namely the partial credit model, graded response model, and generalized partial credit model. The results of the analysis are then tested for model fit with response patterns so as to produce statistical recommendations for which model can be used to analyze the related data.

Factor analysis and item response theory were carried out by utilizing the R software using the mirt package. The analysis of the constraints in conducting the analysis is told in the form of a narrative that elaborates on the technical and theoretical constraints.

Research Results

In this study there were 3 data sets analyzed in this study. The data set is data obtained from the Take Home Exam (THE). The score in THE is the result of the correction of the student's response to the exam. These three data sets were obtained from the Statistics study program, Faculty of Mathematics and Science at the Open University of Indonesia. The three courses are Statistical Method II, Experimental Design, and Sampling Method.

Students' answers in the home exam are presented in a table (Excel), then the coding is done. Coding is done by considering the scoring rubric that has been designed by the Open University team. With this coding, the score is converted into a simpler power polytomous, namely 0, 1, 2, 3, 4, 5, and 6, by considering the many steps in work. The data were then analyzed using GRM, PCM, and GPCM to see the fit of the model and depicted a categorical response function (CRF) graph for each item. By paying attention to the functioning of the score for each item, the score is updated and then used as material for re-analysis for model fit.

Of the three test sets, there is 1 set, namely SATS4421, which can be analyzed for the characteristics of the items in full, while 2 data sets, SATS4222 and SATS4321, cannot be analyzed completely. Both sets of questions cannot be analyzed completely because of the small size of the data analyzed. Each analysis is presented in detail as follows.

The first description is the result of the analysis in the Statistics Method II course with the code SATS4222. This device consists of 2 items that were responded to by 89 people. After being coded into a

simpler polytomy data into six categories for item 1 and 5 categories for both items. After the polytomy data is coded, then the data is analyzed. The frequency distribution for each scale is presented in Table 2.

Table 2. Distribution of Student THE Scores in the Statistical Method II

core	Item 1		Item 2	
	Frequency	Proportion	Frequency	Proportion
	7	0,079	11	0,124
	7	0,079	8	0,090
	12	0,135	3	0,034
	10	0,112	23	0,258
	47	0,528	44	0,494
	7	0,079		

The coding results were then analyzed using item response theory. However, the results of the analysis show that item number 1 cannot be analyzed further, and item number 2 does not fit any model. The complete results are presented in Table 4. Observing these results, the analysis of the model fit on the SATS4222 data cannot be continued.

Table 3. Summary of the Appropriateness of the Instrument Model for the Statistical Method II

tems	GRM			PCM			GPCM		
	MSEA	I-val	Interpretation	MSEA	I-val	Interpretation	MSEA	I-val	Interpretation
	.493	-(.000	Not Fit	.154	-(.000	Not Fit	.526	-(.000	Not Fit

Note: "-" indicates that the value or interpretation cannot be determined

Next is the analysis related to the results of the response pattern of the SAT4321 Experimental Design device, which consists of 3 items. The device was filled by 67 participants. The analysis process shows that it is necessary to re-score to produce a more proportional response pattern. The re-scoring resulted in a category score of 0, 1, 2, and 3. The consequence of the change in the score was a change in the scoring rubric. The distribution of participants' scores for each score category is presented in Table 4.

Table 4. Distribution of Student THE Scores in Experimental Design Courses

Category	Item 1		Item 2		Item 3	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
0	6	0,090	5	0,075	10	0,149
1	35	0,522	17	0,254	14	0,209
2	13	0,194	43	0,642	31	0,463

3	13	94	0,1	2	30	0,0	12	79	0,1

The response pattern generated from 67 participants has been estimated to be stable. The stability of the score is indicated by the reliability index. In this study, the reliability of the score was estimated using the Cronbach Alpha formula. The estimation results show that the reliability in the medium category is 0.771.

Then before the item analysis is carried out, dimensional analysis is carried out first to determine the many dimensions measured by the instrument. Dimensionality analysis to test the assumptions was carried out by exploratory factor analysis. By utilizing the eigenvalues, a scree plot can be drawn to test the unidimensional assumption. The scree plot results are presented in Figure 1.

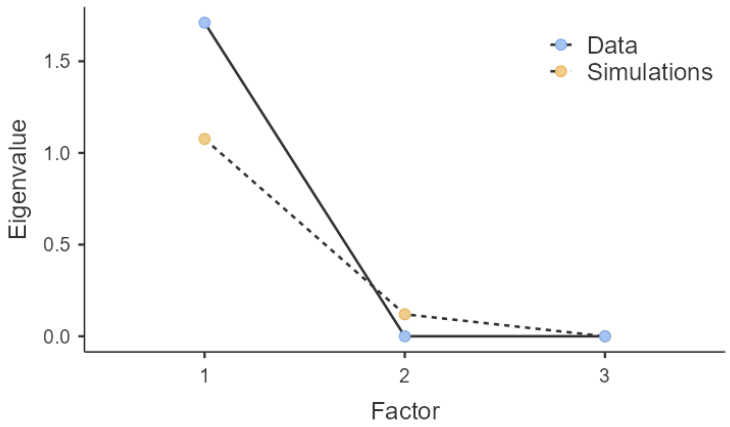

Figure 1. Scree Plot of Exploratory Factor Analysis of Experimental Design Course Data

Based on Figure 1, there is only one factor that has an eigenvalue above one. Thus, it can be concluded that the response pattern instrument of the experimental design course test results only measures one dimension. Therefore, the data were analyzed using a unidimensional polytomous model. The results of the analysis of the suitability of the item model were then carried out using R software. The summary of the results of the analysis presented to see the suitability of the GRM, PCM, and GPCM models is presented in Table 5.

Table 5. Summary of the Suitability of the Experimental Design Course Instrument Model

tems	**GRM**			**PCM**			**GPCM**		
	MSEA	**I -val**	**Inter pretation**	**MSEA**	**I -val**	**Inter pretation**	**MSEA**	**I -val**	**Inter pretation**
	.125	- (.154 -	- Fit -	.105	- (.189 -	- Fit -	.143	- (.125 -	- Fit -

Note: "-" indicates that the value or interpretation cannot be determined

The summary of the fit of the model with the response pattern in Table 5 shows that only item 2 has a model fit that can be identified. The response pattern for item 2 has a good match with all models. However, for items 1 and 3, the fit of the model cannot be concluded. Thus, the analysis process cannot be continued to the next stage.

The Sampling Method test kit consists of 3 items and is carried out by 206 participants. The analysis process shows that it is necessary to re-score to produce a more proportional response pattern. The re-scoring resulted in a scoring category of 0, 1, 2, and 3. The consequence of the change in the score was a change in the scoring rubric. The distribution of the scores of the participants in each score category is presented in Table 6.

Table 6. Distribution of Student Scores in Sampling Method

Category	Item 1		Item 2		Item 3	
	Frequency	Percentage	Frequency	Presentase	Frequency	Percentage
0	1	0,005	20	0,098	19	0,093
1	76	0,371	68	0,332	86	0,420
2	98	0,478	55	0,268	78	0,380
3	30	0,146	61	0,2 98	22	0,107
4	0	0	1	0,005	0	0

There are categories with too small a frequency (item 1 scores 0, and item 2 scores 4). Thus, it is necessary to improve the scoring process. Improvements are made by combining the scores with a small frequency with a higher frequency. The revised scoring is presented in Table 7.

Table 7. Distribution of Student Scores in Revised Sampling Method Courses

Category	Item 1		Item 2		Item 3	
	Frequency	Percentage	Frequency	Presentase	Frequency	Percentage
0	77	0,376	20	0,098	19	0,093
1			68	0,332	86	0,420
2	98	0,478	55	0,268	78	0,380
3	30	0,146	62	0,3004	22	0,107
4						

The response pattern generated from 206 participants was estimated to be stable. The stability of the score is indicated by the reliability index. In this study, the reliability of the score was estimated using the Cronbach Alpha formula. By using the Cronbach Alfa formula, it can be obtained that the reliability of the Sampling Method test kit of 0.584 is in the medium category.

Then before doing the item analysis, dimensional analysis was first carried out to determine the many dimensions measured by the instrument. Dimensionality analysis to test the assumptions was carried out by exploratory factor analysis. The complete results are presented in the scree plot of Figure 2. These results indicate that the Sampling Method test kit measures the ability dimension only so that it can be said to have unidimensional properties.

Based on Figure 2, there is only one factor that has an eigenvalue above one. Thus, it can be concluded that the experimental design course instrument only measures one dimension. Therefore, the analysis using item response theory was analyzed using a unidimensional polytomous model. The results of the analysis of the suitability of the item model were then carried out using R software. The summary of the results of the analysis presented to see the suitability of the GRM, PCM, and GPCM models is presented in Table 8.

Considering the RMSEA, it can be found that the smallest RMSEA is achieved when the model is in the form of GRM. This indicates that the best model for analyzing this data is the GRM model. This is also

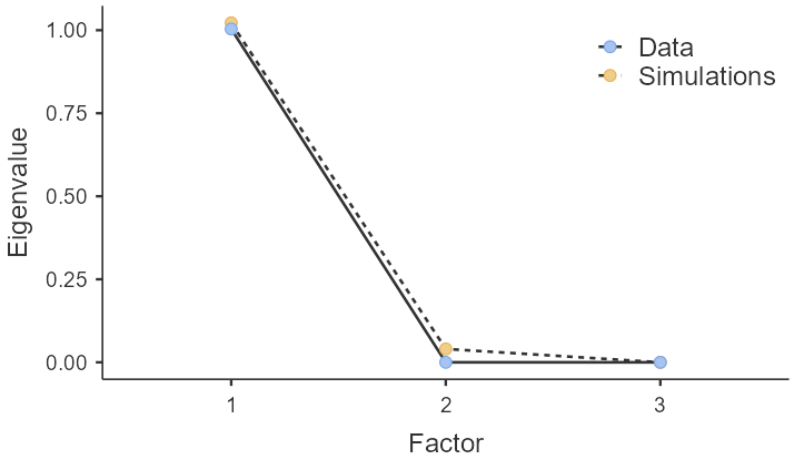

Figure 2. Scree Plot Analysis of Exploratory Factors Data for Subject Test Participants Sampling Method

Table 8. Summary of Instrumental Model Fit for Sampling Method Course Test

tems	GRM			PCM			GPCM		
	MSEA	-val	Inter pretation	MSEA	-val	Inter pretation	MSEA	-val	Inter pretation
	.000	.453	Fit	.044	.219	Fit	.028	.325	Fit
	.072	.127	Fit	.085	.084	Fit	.081	.094	Fit
	.083	.120	Fit	.075	.142	Fit	.074	.144	Fit

supported by paying attention to the p-value results. The larger the p-value, the more suitable the model. Thus, based on the p-value criteria, the model fit test showed the same results, namely, GRM became the best model for analyzing empirical data from the take-home exam of the sampling method course.

The results of the analysis show that the data measures one dimension, and the most suitable model is GRM. Thus, the analysis will continue with the unidimensional item response theory with GRM. The results of the R analysis also show the estimation results of the item parameters. The parameter estimation results with the GRM model are presented in Table 9.

Table 9. Characteristics of items of student response patterns on the take-home exam of the Sampling Method Course

tems	a	b 1	b 2	b 3	l ocation
	.059	0.609	.018	.704	0
	.634	1.909	0.337	.732	0.504
	.545	1.993	.036	.908	0.016

Based on the table of item characteristics, the quality of the items can be traced through the value of a, the sequence of step parameters (bi), and the conclusion of the level of difficulty (location). An item is said to be able to distinguish students' abilities well when it has a value of less than 2 and greater than 0.3. Thus, the three items have a good value. The second consideration is the step parameter (bi). The step or bi parameter is the intersection of the score characteristic curves. An item is said to be good if the

intersection is coherent from small to large. Based on the results of the analysis, all the step parameter values are coherent. This means that in item 1, to get a score of 1, at least someone must have theta -0.609. If you want to get a value of 2 then at least students have theta 2.018. The same applies to other items, where the step parameter indicates the theta transition to get a certain value.

Based on the item character profile, it is possible to estimate the function response curve (CRF). Profile visualization based on item characteristics can make it easier for readers to understand the quality of an item. The CRF of the sampling method course test package is presented in Figure 3 as follows.

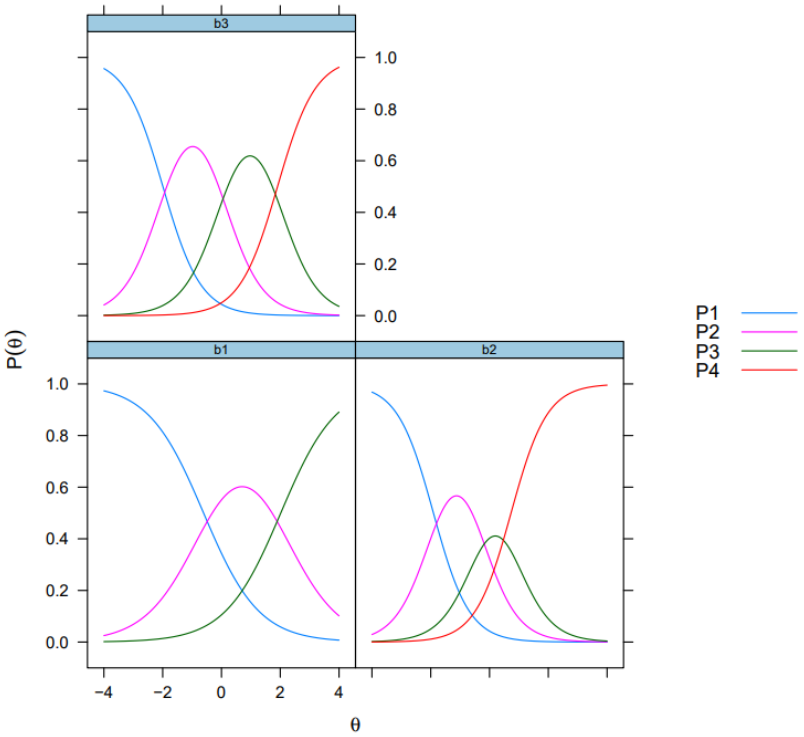

Figure 3. Curve Response Function (CRF) of THE Problem Package in the Sampling Method Course

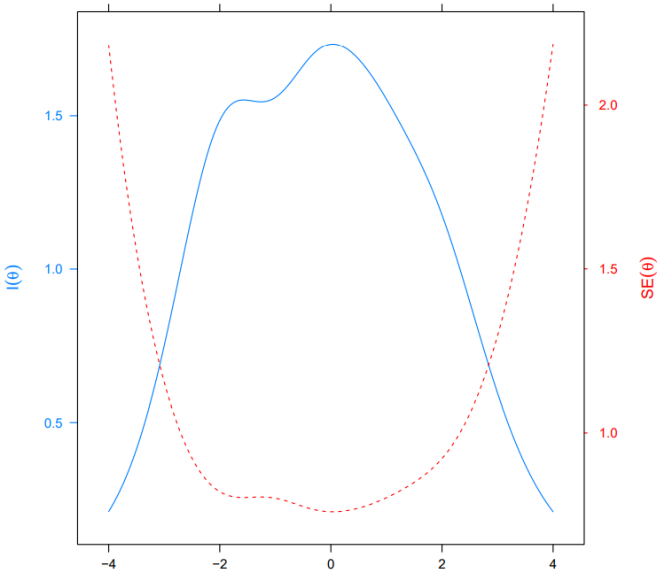

Figure 4. The intersection of the information function and standard error curve

Based on the estimated item parameters, the researcher can trace the value of the information function along with its standardized error. The value of the information function and standard error can be drawn on a single screen so that it shows the intersection of two specific points. The second picture of the graph is shown in Figure 4. Based on Figure 4, it is shown that the device can measure the ability in the range of abilities ranging from -4 to +4, which has covered 96.5% of the overall ability of the test takers.

Challenges Conducting Item Response Theory Analysis on The Take-Home Exam. Item response analysis is the most current analytical technique to determine the quality of an instrument. This analysis continues to grow from time to time, ranging from unidimensional to multidimensional. In addition, along with the development of technology, tools for analysis continue to grow, and there are more choices. Until now, R software has been one of the most complete and powerful options. There are many packages in R that can be used for item analysis with various models. In this study, researchers used a relatively complete package, namely mirt.

In the analysis process, various challenges were found that have the potential to provide obstacles. Knowing this challenge is very important to be able to anticipate potential problems that may occur in instrument analysis with item response theory. The first challenge faced was understanding the language and syntax that worked within a package. Regarding language, R has a special language that must be understood so that we can order things as needed. This aspect is a challenge for people who are not familiar with the R language. Thus, the introduction of the R language is one of the main assets. The second challenge related to technical analysis with R is understanding the syntax of an analysis package. In R, there are many packages with different syntax characters. For example, mirt and ltm are two packages that can be used for item response theory-based analysis, but they have very different syntaxes. Thus, we must master the commands in the package through a specific package guide before using it.

The third challenge is the problem of scoring. There is a possibility of changing the scoring technique during the analysis process. This can be caused because there is a very small score frequency, so the characteristics of that score cannot be analyzed. Thus, there is a difference between the scores that serve as guidelines for the assessment by the institution and the results of the analysis. Changes in scores will have an impact on changes in rubrics and interpretation of scores, especially if the test administering agency is still using the assessment model with classical techniques.

The fourth challenge is related to the character of the item response theory-based analysis technique. Analysis of the quality of the instrument with item response theory is recommended for using data with a large sample size. In fact, the field conditions sometimes do not allow to get many participants. The small number of samples makes the stability of the analysis results low. More extreme things can happen. Namely, the fit of the model and the item parameters cannot be estimated. Thus, the analysis cannot produce any information.

The next challenge is the demand for a relatively large number of items. The number of items that are only 2 or 3 can potentially make the analysis tool unable to function properly. Even if the analysis can produce information, the estimation of the participants' abilities is likely still in the high error range. With the high error content in the participant's theta estimation, the results of the student's ability estimation do not accurately show the original ability.

Research Discussions

Item Response Theory (IRT) was constructed as a modern item analysis to address the shortcomings of classical theory. IRT is a test theory based on a probabilistic model derived from the pattern of examinees' responses to a series of test items (Price, 2017). IRT has the characteristics of (1) the character of the item does not depend on the sample of the examinee, (2) the focus of the analysis is more on the quality of the item than the test, and (3) the model measures students' abilities with precision (Hambleton et al., 1991).

To perform an IRT-based item analysis, we are given a large selection of applications (Marsigit et al., 2020) ranging from paid to free. One free application that has the ability to perform analysis of various models is R (Chalmers, 2012; Ince Araci & Tan, 2022; Rizopoulos, 2006). Of the many packages, researchers chose the mirt package because it was considered the most complete and in accordance with the purpose of the analysis (Chalmers, 2012). However, the thing that is challenging in the analysis process with R is mastering the R language and the package that will be used. The R language is the initial modal, while the advanced modal is the mastery of the syntax in each package.

There are recommendations for many samples and length of questions in the item response theory analysis so that the analysis results are accurate (DeMars, 2010; Sahin & Anıl, 2017; Suwarto et al., 2019). The number of samples and the length of the questions are determined by the model selected in the

analysis process. For dichotomous data, the 1PL model requires at least 10 items with a sample size of 150 (Şahin & Anıl, 2017), while some suggest 200 (DeMars, 2010; Uyigue & Orheruata, 2019). For the 2PL and 3PL models, it takes at least 10 items with a sample lot of 750 (Şahin & Anıl, 2017). The fewer parameters considered, the fewer participants and the minimum items needed (Suwarto et al., 2019). In addition, the number of test items will also have an influence on the standard error in theta estimation. If there are too few items involved in the test, the resulting theta estimate contains a larger error (Arlinwibowo, Retnawati, Hadi, et al., 2021). Thus, it is natural that a small data set will encounter difficulties in the analysis process.

Before determining the analysis model, it is necessary to test the fit of the model first. The test is used to show that the model has conformity with the empirical data (response pattern data). RMSEA, designated, is an absolute fit index scaled as a badness-of-fit statistic where a value of zero indicates the best result (Kline, 2016: 273). The RMSEA value of 0.08 is the limit set for the fit of the data model in the analysis (Price, 2017: 340). Kline (2016: 274) states that the approved model has a good fit when RMSEA < 0.05. (Finch & French, 2019: 153) and (Coulacoglou & Saklofske, 2017: 301) stated that the 0.05 < RMSEA < 0.08 model had a sufficient fit.

With the limitation of many items and the size of the sample, the results of the analysis show that there is only one package that can produce a complete analysis output. The results of the model fit test show that GRM is the best model for analysis. GRM is very suitable for analyzing polytomous data with the character of the instrument having graded answer choices and aims to measure a person's attitude (Reckase, 1997). The results of the model fit show that the GRM is the best model for the analysis of the problem package. The results of the model fit test support the previous statement that philosophically, instruments with graded options are suitable for analysis with the GRM model (Chalmers & Ng, 2017). The value of bi is a step parameter resulting from the intersection of the mn and mn+1 categories of graphs (Embretson & Reise, 2000). bi refers to the minimum ability to enter the higher category points (Retnawati, 2014).

Table 9 data shows that the values of b1, b2, and b3 have a good (ideal) order, namely b1 < b2 < b3 (Reckase, 1997). Therefore, the difficulty level of each item meets the criteria of good quality and can represent the ability of the test takers. GRM is an analysis of the response of polytomous data items that take into account the parameter a (discriminant index). According to (Hambleton & Swaminathan, 1985), the item is said to be good if the discriminant index value is between 0 to 2 (Arlinwibowo, Retnawati, & Kartowagiran, 2021). Thus, all items of the collaborative ability assessment instrument have the ability to distinguish good student abilities, namely $1.059 \leq ai \leq 1.634$.

Conclusions

The analysis was carried out on the take-home exam package of three subjects, namely the Statistical Method II course (89 test participants and two questions), Experimental Design (67 test participants and three questions), and the Sampling method (206 test participants and three questions). Based on the results of the analysis, there is only one package of questions that can be thoroughly analyzed with item response theory, namely the package of questions with the sampling method. Based on the analysis process, it was found that there are challenges in conducting an analysis with item response theory. The challenges are mastery of the R language, the syntax of the selected analysis package, the length or many items in one test package, many test takers, and, last, foresight in rescoring to produce a more proportional pattern. This limitation can be used as a consideration for other researchers in analyzing the polytomous data.

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Parents' knowledge of graves' disease as an autoimmune disease among children

Abstract: Grave's disease is a relatively rare disease in the pediatric age group when compared to adults. Based on epidemiology data, only 0.1 – 3 per 100,000 children have this incidence. Although it is a rare disease, it has great consequences. Hyperthyroidism can result in weight loss, decreased concentration, and school performance, and may even consequently lead to a thyroid storm. Since it is an uncommon disease, there is little research about Graves' disease, especially about parents' knowledge regarding the disease. This article is purposed to determine the views of the knowledge of parents as guardians of their children using the phenomenology study design. To collect the data for this qualitative research, a total of 5 parents were interviewed. The research findings from the interviews showed that parents have poor knowledge of Graves' disease and its autoimmune cause. Nevertheless, parents understood how to act in conditions that their children might encounter. The findings indicate that more steps need to be made to educate parents on the causes and consequences of the disease.

Keywords: graves' disease, parents' knowledge, children's autoimmunity.

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Introduction

Graves' disease is an autoimmune disease that can affect anyone. The initial consequence of Graves' disease is hyperthyroidism. Linguistically, hyperthyroid is defined as too much thyroid hormone. If the amount of thyroid hormone in the body is above normal or too high, the function of the organs associated with the hormone will be problematic. This is called the phenomenon of thyrotoxicosis, which is a clinical manifestation of too much thyroid hormone. Symptoms that appear can include enlargement of the thyroid gland/goiter, heart rhythm disturbances, fever, weight loss, and bone loss (Nugraha & Samodro, 2019). If this happens without further treatment, the quality of life of an affected person can decrease, until at worst it leads to death.

Epidemiologically, Graves' disease is very rare. In one data, graves' disease occurs in 0.1-3 per 100,000 children (Lee & Hwang, 2014) with a peak incidence in children aged 10-15 years and is very rarely found in children under 5 years. Other risk factors include women, early reproductive age (age 10-15 years), and people with a family history of Graves' disease (Yati et al., 2017). Although not all thyrotoxicosis is caused by hyperthyroidism due to Graves' disease, hyperthyroidism alone has epidemiology of 70% of all

cases of thyrotoxicosis in the world, meaning cases of hyperthyroidism regardless of Graves' disease or not, are considered serious cases to be treated (Srikandi, 2020).

Several studies have been conducted regarding Graves' disease in children. These studies have explored the incidence of graves' disease in children, effective treatment, complications of graves; disease, as well as the risk and etiologic factors of Graves' disease (Nugraha & Samodro, 2019; Srikandi, 2020; Subekti & Pramono, 2018; Yati et al., 2017). However, research related to parental perception of this disease has not been carried out.

It is undeniable that parents are the first people who are directly related to the child, especially if the child and parents live together in the same house. Thus, this research study is needed to determine the views of the knowledge of parents as guardians of children which can be the main prevention of complications and death of children due to Graves' disease. This research was conducted to answer about how parents know about graves' disease, how parents know about autoimmune disease, whether parents are aware about graves' disease as an autoimmune disease in children, and what parents can do to avoid the disease in their children.

Theoretical Framework

Naming of Graves' Disease

Robert Graves is the discoverer of the relationship between the symptoms of thyrotoxicosis, namely enlargement of the thyroid gland, palpitations, and exophthalmos. This set of symptoms was further investigated by scientists after Robert Graves, then it was concluded that the findings of this relationship were the result of auto-immune disease from TSH. Graves' name was taken as the name of Graves' disease (Smith & Hegedüs, 2017).

Graves' Disease as Autoimmunity

As an autoimmunity, Graves' disease is not a disease that can be completely treated until the root cause of Graves' disease has disappeared. However, with proper and regular treatment, patients with Graves' disease have a good prognosis (Srikandi, 2020). In recent years, a study regarding checkpoint inhibitors for graves' disease has been found. Anti-PD-1 could be an induced treatment for autoimmune hyperthyroidism, which is grave's disease (Brancatella et al., 2019).

Pathophysiology of Graves' Disease

Thyroid stimulating immunoglobulin (TSI), also known as thyroid stimulating antibody, causes Graves' disease (TSAb). Thyroid stimulating immunoglobulin is mostly produced by B lymphocytes in thyroid cells, but it can also be produced in lymph nodes and bone marrow. T cells that have been sensitized by antigen in the thyroid gland stimulate B lymphocytes. Thyroid stimulating immunoglobulin attaches to the thyroid-stimulating hormone (TSH) receptor on the cell membrane of the thyroid gland and stimulates the hormone's function. It causes hyperthyroidism and thyromegaly by stimulating thyroid hormone synthesis and thyroid gland growth (Subekti & Pramono, 2018). The pathogenesis that explains the contributing factors of hyperthyroidism in graves' disease were because post-partum state, tobacco smoking, and physical or emotional stress (Burch & Cooper, 2015).

Thyrotoxicosis

Thyrotoxicosis is a condition in the form of clinical manifestations of the state of too much thyroid hormone in the blood. Thyroid hormone with normal levels has many functions for the body, including regulating metabolic functions in various organs. However, if the amount of thyroid hormone is excessive due to hyperthyroidism, the nature of thyroid hormone can be dangerous or in other words "toxic" because the body's metabolism is not controlled. This is what causes the symptoms of thyrotoxicosis such as weight loss, faster heart beats, tremors and body shaking, weakness, difficulty sleeping, can't stand heat, excessive sweating, and frequent bowel movements (Subekti & Pramono, 2018).

Parents' Roles in Children Health

Parents, as we know someone who has been with their children most of the time have the obligation to keep the children in good condition. This statement was implicitly stated in the journal "The

Role of Parents in the Community Health Program". According to the journal, parents have three main essential responsibilities in relation between children and their health, which is maintaining the improvement of parent's own health, maintaining the improvement of children's health, and utilizing the quality of the public health program provided (Veselak, 1958).

Empirical Review

Research regarding the epidemiology of graves' disease has been made through the years. Findings of the epidemiology could lead to the fact that graves' disease is a dangerous and menacing disease to the children. Ni Made Putri from Interna Medicine Department Bhayangkara Hospital in 2020, in her study entitled "Hipertiroidisme Graves' Disease: Case Report"' explained not only the epidemiology, but also explained the complication in a detailed way about graves' disease. This study offered information about graves' disease's case report in the Bhayangkara hospital and said that Graves' disease could lead to thyrotoxicosis which is very dangerous to whoever is diagnosed with graves' disease.

Another study entitled "Current Diagnosis and Management of Graves' Disease" written by Imam Subekti from Faculty of Medicine Universitas Indonesia in 2018 focused on the pathophysiology and ways to diagnose graves' disease. This study highlighted the understanding, the clinical point, and the prevention of the relapse by gathering the results of grave's disease studies. One of the findings is that patients with graves' disease could have relapsed after stopping the anti-thyroid drugs given by the physician.

Both studies mostly wrote about the explanation of Graves' disease without any other actor involved in the graves' disease. Study related to the parents' knowledge towards graves' disease as autoimmunity on children has never been conducted prior to this. This study is focused on the knowledge of parents about graves' disease that made some decisions if they found out about the symptoms in their children.

Research Methods

This research was conducted with a qualitative method to determine the knowledge of parents on Graves' disease that may occur in their children. To obtain research data, researchers conducted direct interviews with in-depth questions were asked. Participants as interviewees of this study were parents who had children from Sawo, Dusun Glondong village area. Researchers as interviewers went door-to-door to collect the data from interview. Data saturation was found from the fifth interviewee, with the total of the participants were 5 parents, including one of them which is a single parent.

The interview questions that were previously made by the researcher contained questions related to the knowledge of parents about Graves' disease and how parents are aware about the disease. Some additional questions related to the knowing of parents will also be asked as material for obtaining more accurate data.

To the participants, it was conveyed that all matters discussed were only for research purposes. All participant identities are kept confidential. Everything that was informed by the participants did not affect anything related to the participants' future.

Researchers directly came and then interviewed the participants, after the participants have agreed to be used as research sources in informed consent. It also conveyed that all topics discussed were for research purposes only. Each participants' identities remain confidential. All things informed by participants do not affect anything related to them. Avoiding bias was done by confirm the interview result to the interviewee. After data collection, the researcher classifies the questions and analyze the data that has been taken. Finally, conclusion was made regarding the parents' knowledge on Graves' disease. There are 2 variations of the selected field, there are the titles and abstracts of the mapped research.

Instrument Design

1. What do you know about the cause of graves' disease?
2. What do you know about some autoimmune disease in children?
3. What will you do if there are some suspicious symptoms on your children?

4. How do you think the importance of parents' role towards children's health related to grave's disease?
5. What efforts have been made by parents to protect their children from autoimmune diseases, especially grave's disease?

Research Results

Basic Knowledge

This heading is the findings of the questions: (1) What do you know about the cause of graves' disease?; and (2) What do you know about some autoimmune disease in children?

Based on all the respondent we have interviewed, most of them do not know that Graves' disease is an autoimmune disease in children. Instead, most of them mentioned other autoimmune disease in children, such as diabetes and lupus. Nevertheless, they just mentioned it without knowing any further explanation regarding the disease. There is also respondent who mentioned autoimmune disease that unlikely happened in children, which is rheumatoid.

What is Graves... maybe it's a kind of immune-immune disease... the point is um... basically red blood cells, uh, white blood cells themselves attack themselves...

To be honest, I just heard the name of this disease, so I don't even know what it is (about the disease).

The statements written proves that most of our respondent are now aware of Graves' disease. They only learnt about the disease during the questionnaire. Only one respondent mentioned that Graves' disease is something related to autoimmunity. However, the respondent could only explain about the autoimmunity as something that attacking the children's own bodies.

To explore their knowledge on autoimmune disease, the respondents were asked to list other autoimmune disease except Graves' disease

I know that diabetes mellitus is type 1, it attacks small children.

Maybe just knew about diabetes from autoimmunity, and lupus, and one again rheumatoid.

Parents are aware that diabetes, lupus and rheumatoid are autoimmune diseases. Nonetheless, none of them knew that Graves' disease was also an autoimmune disease. It means that Graves' disease is not a familiar disease compared to other autoimmune disease in children.

Parents' Roles

This heading is the findings of questions: (3) What will you do if there are some suspicious symptoms on your children?; and (4) How do you think the importance of parents' role towards children's health related to grave's disease?

This big theme of parents' roles is to understand how was the parents' attention toward their kids to overcome their children's health problems.

We gave them a case where their children witness the grave's disease symptoms. All the respondent answered the same that they all will bring their children to the hospital to get diagnose and treatment. One of our respondents answered that bringing their children to the doctor is one of parents' obligations to take, according to what Islam religion mentioned.

Oh yes, if it's too suspicious, yes, of course, I will take it to the doctor. Because Islam also recommends "fas-alu ahl al-dzikri in kuntum la ta'lamun" so ask someone who has knowledge if you don't know. So, in terms of health, the one who knows the science is the doctor. So, Inshallah I will go to the doctor.

Answering the question whether parent's roles is important, parents as respondents told us that it is. Not just specific in grave's disease but include all of health problems to avoid children's health inconvenience.

Of course, it's important, Ms. We as parents know about what our child is feeling, for example a fever or something like that. The problem is that parents are the closest friends of children, especially if you don't use a sitter. At least we know that if the child is sick.

As parents, you must ask a lot of questions to your children because sometimes the children don't admit. As a parent, you really must monitor everything, you must find out, ask questions,

remember, that's what you have to do. Even though sometimes we have to fight with children, we are fussy for good.

We could see the fact that parents said implicitly that it is important for parents to keep an eye on their children because they are the only one who probably known about what's wrong even sometimes the kids do not tell about it.

Effort and Protection

This heading is the findings of questions about what efforts have been made by parents to protect their children from autoimmune diseases, especially grave's disease.

Every parent we asked answered that they have done so many things to protect their children from any of the disease could be gotten.

From being pregnant with the child, sis, so when I was pregnant, my consumption of food was regulated. Then after birth, um... we are responsible as parents by giving good nutrition to our child... then... maybe from breast milk if I give breastfeeding 2 years, then we can adjust o according to food our child at that time

When I eat, I really have the concept of eat, eat, eat. You don't have to remember the nausea, you don't have to remember the dizziness, you don't have to remember the vomiting. That's why all my babies that were born weighed 3 coma and above. The minimum is 3.1.

From what being said, the parents we interviewed were aware of prenatal nutrition as a factor in preventing disease by maintaining health since the child was still in the womb.

In addition to nutrition, vitamins, good parenting keeps you from falling even while exercising. Immunizations are also complete. Like it was looked after, well cared for. That's one of the strategies so that its growth and development is maintained properly. From physical and mental.

Not only during pregnancy, but adequate nutrition for children is also known by parents as important for growth and development in children which can lead to disease prevention.

Research Discussions

Our study showed that most of parents who became our respondents didn't know about Graves' disease, even never heard of it. This gives us understanding that our respondents do not have any proper knowledge regarding children's autoimmune disease, specifically Graves' disease. Nevertheless, respondents have a good understanding about awareness towards children's health and children's nutrition. The findings were supported by the interview results that they mention their concern related to how they overcome children's health problems and children's daily dining.

In the literature review that has been carried out, autoimmune diseases, especially Graves' disease, have symptoms of thyrotoxicosis which are very dangerous for the patient. Unfortunately, the knowledge of parents about this disease in the areas of Wirokerten, Banguntapan, Bantul, Yogyakarta is very poor and inadequate. In addition to being supported by the results of interviews, this statement is also supported by journals which stated that autoimmune diseases can be told to be unacknowledged disease, especially in developing countries, one of which is Indonesia. This is due to a lack of understanding related to autoimmune diseases due to lack of education, information, and counseling to the general public (Azwinda, 2020).

Associated with the essential three things of parent roles towards their children in the journal of "The Role of Parents in the Community Health Program", parents where this research takes place, have been at least complete two out of three obligations. Both of them are maintaining the improvement of parent's own health and maintaining the improvement of children's health (Veselak, 1958). As for utilizing the quality of the public health program provided, need to be improve to the fact that there is lack of education towards graves' disease on interviewed parents.

Conclusions

This study that surveyed about parents' knowledge towards grave disease as children's autoimmunity, specifically discuss regarding the parents' basic knowledge, parent's roles, and parent's

effort and protection was conducted to five parents in total as our respondents. The respondents were picked from surroundings area of Ponpes Jamilurrahman, Glondong, Wirokerten, Banguntapan, Bantul, Yogyakarta. The results of this research are parents have bad knowledge towards grave's disease as children's autoimmunity. But at the same time, parents understood how to act and to do in every bad condition their children might encounter related to their health problems.

This study shows that health knowledge and education need to be escalate on parents. The more parents understand and know about all of children's autoimmunity, the more parents will acknowledge how crucial autoimmunity on children can be.

This study that has been made through interview method was lacking in the quantity of parents as respondents. Further research towards the same issue is necessary to get data related to how much parents that know about grave's disease as children's autoimmunity.

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Formation of self-esteem of future specialists in achieving success in professional activity

Abstract: The aim of the study was to examine the self-esteem system of educational organizations. To achieve an effective result, the proper organization, and planning of pedagogical activities, resources, and time play a key role during the educational process. The questions of self-esteem which is the decisive factor of efficiency of managed process are considered. The truth is, developing a strong, positive self-esteem concept is the key to success.

Keywords: self-esteem, self-concept, development, professional self-esteem, education.

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Introduction

The importance of mental education and mental consultation in educational institutions has become increasingly prominent (Kassymova et al., 2019). Good self-esteem and success in life go hand-in-hand. It's difficult to achieve anything if you don't believe you can, or if you believe others are holding you back and if only you could change "X" you could really succeed at "Y." The image that people construct about themselves, namely their self-concept, is often seen as a significant indicator of their life satisfaction; in other words, higher levels of self-concept lead to more life satisfaction (Palacios et al., 2015). We should note, however, that self-concepts are a multidimensional structure and domain-specific (Marsh & Shavelson, 1985). Self-concept in a range of domains may play varied roles in determining life satisfaction.

The formation of the professionalism of an employee is directly related to the development of a person. One of the important factors in the development of professionalism is professional self-esteem. Professional personal development is largely influenced by attitude to the profession, as well as to yourself, to abilities, capabilities, and professionally important qualities. The formation of professional self-esteem, which further determines the position of an employee in both social and professional spheres, is the fundamental basis for his future professional career. At the same time, professional activity has the opposite effect on the development of the employee's personality, including the formation of self-esteem.

Most authors consider self-esteem as an organic and central component of the self-consciousness of the individual. S.L. Rubinstein considers self-esteem as a kind of core formation of personality, formed through the evaluation of a person by other people and his assessments in relation to them. He considers the self-esteem of an individual in the form of its basic structure, the core of which is the values accepted by the individual and determining the mechanisms of self-regulation and behavior. Self-awareness is the result of cognition, at the same time self-awareness personality is associated with its self-esteem, largely due to the worldview that determines the norms of evaluation (Rubinstein, 2012).

The analysis of theoretical approaches to the problem of self-esteem, which have developed in domestic and foreign psychology to date, allows us to conditionally identify three main approaches to its study:

1. Self–esteem is part of the Self-concept. Proponents of this approach define self-esteem as an emotional and value attitude towards oneself, often identifying with self-esteem (Raygorodsky, 2003).

2. Self–esteem is a cognitive substructure that generalizes the subject's previous experience, transforms it, and forms a new image of "I", capturing the knowledge of the person about himself (Derkach, 2022). Based on this, it became possible to conclude that self-esteem is an image of the "I" of a person.

3. Self-esteem is the presence of a critical position of the individual, self-assessment from the point of view of a certain system of value orientations.

Research Materials and Methods

According to a number of authors (A.M. Rikel, I.I. Chesnokova, etc.), "self-esteem is continuously developing, differentiating and correcting, being the basic process of self-regulation of the individual. Self-assessment is the interesting fact that, according to researchers, it promotes autonomous motivation of activity and increases its effectiveness" (Rikel, 2011; Chesnokova, 1977).

Various factors influence the formation of self-esteem:

- ***Social factors.*** When a child is just born, parents introduce him to the world, its rules and laws, stereotypes, and traditions. Parents are adults, and they "know better" how to express themselves in life, the child absorbs all actions and words in relation to him without criticism and filters. That is why the first years of life are so important when the foundation of psychological health is formed. When a child enters a preschool, and then a general education institution, educators and teachers begin to influence self-esteem, using their authority in front of him. Even in adulthood, we are influenced by the opinion of socially significant people. However, the individual characteristics of a person are also of great importance. In general, self-esteem in different age periods may fluctuate, it is not stable, and often has a situational character.
- ***Personal factors***. How a person perceives reality, criticism, or compliments, how well his psychological state is adequate in general and what kind of temperament a person has formed - all this has a direct impact on self-esteem. The level of self-esteem affects a person's behavior and actions, his relationships with loved ones and the rest of society, and forms self-criticism, self-demanding, and thoughtful attitude to life's victories and defeats.

Psychologists distinguish several levels of self-esteem in relation to an individual's shortcomings and virtues, the desire to overestimate or belittle their significance in their own eyes (Table 1).

Table 1. Levels of self-esteem

Levels	***Characteristics***	***Advantages***
Adequate self–esteem is the correspondence of a person's claims to the possibilities to realize them.	An adequate level of self-esteem is characterized by a realistic awareness of their capabilities. People with such a self-perception easily build relationships, are tolerant of criticism, are not touchy, and like to make fun of themselves.	Among their advantages are: - self-confidence; - peace of mind and reliability; - stability in feelings and manifestations of emotions; - the ability to balance desires with opportunities.
Understated self-esteem is the lack of confidence in their abilities and abilities, and even if they exist, speaks of low self-esteem.	A person with such self-esteem is not initiative, suspicious, overly cautious, or dependent on someone else's opinion. It is	Less dangerous signs of low self-esteem are the usual shyness and timidity. Such character traits can be formed from childhood if

	difficult for him to take responsibility for himself. Sometimes such people suffer from perfectionism (the desire to bring everything to an ideal state) – a neurotic disorder that exhausts their strength.	parents inspire the child with the idea of his imperfection. The reason for low self-esteem may be the "efforts" of other people in a person's life - teachers, coaches, classmates, unfaithful girlfriend, etc.
Overpriced self-esteem In this case, we also have to talk about painful self-esteem, since there is no common sense in the attitude of people with inflated self-esteem.	People who are not endowed with either opportunities or talents, but have inflated self-esteem, are not so much aggressive as funny. Society does not perceive their claims to honor and respect, but on the contrary, it is fenced off by an inadequate individual. The trouble is that a person sincerely does not understand why a social vacuum is being created around him, he feels unfairly offended, and unhappy.	The main features of their character: - disrespectful attitude to someone else's opinion; - swagger; - arrogance; - peremptory.

According to A.A. Rean, "professional self-esteem is a structural component of the professional Self-concept, which includes operational and personal aspects. The operational-activity aspect is expressed in the assessment of one's professional level and level of competence; the personal aspect is expressed in the assessment of one's personal qualities in connection with an idea of the image of "I am a professional". In addition, professional self-assessment can be distinguished by self-assessment of the result and potential" (Rean, 2014).

Inadequately overestimated or underestimated professional self-esteem often turns against the employee himself, revealing himself in such qualities (suspicion, arrogance, aggression, insecurity, anxiety) that do not contribute in any way to the productive development of his career. Inadequate professional self-esteem is a factor that has an extremely negative impact on employee development and work results.

In professional activity, situations often arise due to the consequences of the incorrect formation of personal characteristics, and in particular, with the formation of inadequate self-esteem in an individual. If an individual has very low self-esteem, then the following methods and techniques can be used to correct it:

1. Organization the workflow in such a way that in the professional activity of the employee there are both elements of routine work with the usual ways of solving standard situations, and elements of novelty (for example, the development of new technologies, connections, etc.). Using this method, an employee has the opportunity to obtain more complete and objective information about their real capabilities, identify positive and negative factors affecting self-esteem, as well as eliminate undesirable factors (Gavrichenko, 2009).

2. Reorientation of attention from the result of the activity to its achievement.

3. Creating a situation of success, which causes positive emotions from the result of the activity.

4. The formulation of tasks where "there are no wrong decisions", which can serve as an impetus to the activation of independent activity of the employee.

In that case, "if the emotional component prevails in the structure of self-esteem, then in such a situation it is necessary to shift a person's attention from the process of activity to himself, or rather to his own self-esteem" (Tarasov & Sukhodolsky, 2022).

Research Results

How to increase self-esteem? Here are several tips:

- Authors suggest replacing the word "self-esteem" with "self-perception". At every moment of choice, question, or difficult situation, focus on yourself, regardless of the outside world. Regardless of friends, parents, children, husband, or wife. Of course, you can listen to their opinion. But the decision is yours.
- Don't compare yourself to someone else. You are you. Your achievements are only yours, and you can be proud of them.
- Do not allow negative thoughts.
- Thank the world for what you already have.
- Focus on success in any business, even the most modest.
- Write down all your positive qualities and successes and add this list more often.
- Be realistic in your expectations, but do not belittle your dignity.
- Treat mistakes like lessons.
- Learn to say "NO".
- Make friends with your inner critic.

It is interesting to note that a specialist with higher self-esteem, as a rule, always makes deliberate, balanced, and independent decisions. When making decisions, he relies on his life experience and his own opinion and has clear life positions and value orientations. An analysis of practical experience shows that specialists with overestimated self-esteem are in a better position compared to colleagues with low self-esteem.

Conclusions

Self-esteem largely determines the formation of a number of professionally important qualities. For example, risk-taking is very often generated by inadequate self-esteem (Shelkovoy, 2007). Self-assessment can provide significant benefits to a specialist, management, and the organization as a whole when it is integrated with the overall process of evaluating work results. Self-assessment helps to increase the involvement of specialists in the evaluation process, making them owners of the results of such a process. Proper self-assessment strategies in combination with an extensive program of general assessment and clear instructions on what goals this process pursues will definitely outweigh any fears and doubts about self-assessments. And the most important thing is that the advantages of including a self-assessment system in traditional specialist assessment programs far exceed the real or far-fetched disadvantages of such evaluation practices.

Professional self-esteem is not a constant value, since it is dynamic and changes under the influence of various factors, life circumstances, and environmental conditions. Therefore, it should be monitored in the course of professional activity.

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Essence and concept of self-management in education

Abstract: The aim of the study was to examine the management system of educational organizations to achieve the effectiveness of the result. It is a proper organization and planning of pedagogical activities, resources, and time. The questions of self-management which is the decisive factor of efficiency of managed process are considered. Self-management is played by collective affairs, during which planning, conducting, analysis, and evaluation of cases, decision-making, control, and regulation take place. The success of management depends on the quality of decision-making, organization, control, and regulation of the object of management according to the set objectives, as well as analysis and summarizing on the basis of reliable information.

Keywords: self-management, education, time-management, organization, management.

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Introduction

The modern modernization of education in the Republic of Kazakhstan has increased the problems of finding new models of management of pedagogical activity and actualized the issue of training and education, the improvement of national education in the Republic of Kazakhstan. Socio-economic and historical prerequisites direct modern education to an innovative approach in pedagogical activity as the most important feature, which reflects the process of development of pedagogical science and practice. In a modern school, each of the collectives and associations of adults and children should have the right to self-government, to independently resolve their issues, needs, and interests in the educational process.

The process of managing and organizing the educational process is a time-consuming process and requires setting the right goal and objectives to organize and plan the pedagogical activities of a teacher.

The purpose of managing an educational organization for effectiveness is the correct organization and planning of pedagogical activities, resources, and time.

The problem of educational organization management through self-management is considered in the works of researchers (Simonova, 2008; Potashnik, 1999; Lvov, 2008; Slastenin, 1996).

Management is an activity aimed at decision-making, organization, control, and regulation of the management object in accordance with the set goal, analysis, and summarizing. Education management implies practical measures to ensure the operation of the system to achieve the goals or objectives of an

educational institution. So, educational management operates in educational organizations or institutions. Undoubtedly, the management of the educational organization is the leading role of the founder, head, management, and self-government bodies in order to achieve results.

The purpose of educational management is to bring pupils and teachers under such conditions as will more successfully promote the end of education.

The objectives of educational systems management as a field of competence of pedagogical management include a whole range of different activities aimed at ensuring effective and sustainable functioning of the educational process in the conditions of co-modern educational and upbringing institutions. Among them, the most important are:

- ✓ organizational,
- ✓ methodological,
- ✓ didactic,
- ✓ educational,
- ✓ human resources,
- ✓ planning,
- ✓ financial,
- ✓ procurement,
- ✓ information,
- ✓ control and monitoring, etc.

The following components are defined by researchers as components of pedagogical management:

- the educational component, which involves the organization of the teaching and learning process in its relationship to the principles, methods, means, and forms of management of the learning process;

- the motivational component, ensuring the setting of goals for the individual participants in the collaborative work process;

- the cognitive component, reflecting the interpretation of pedagogical knowledge as methods of developing corporate thinking;

- the activity component, applying scientific-pedagogical approaches, educational concepts, and the human factor;

- creative component, according to which pedagogical activity is based on creative work, setting goals, and developing ways to achieve them;

- an informative (conative) component, defining information as the subject of pedagogical activity;

- integrative component, with the help of which the function of learning activity management is implemented by setting goals and ways to achieve them, developed jointly with the subjects of the educational process (Andreev, 2012).

Theoretical Framework

Figure 1 describes the self–management which is a complex of managerial competencies necessary for the professional growth of a teacher.

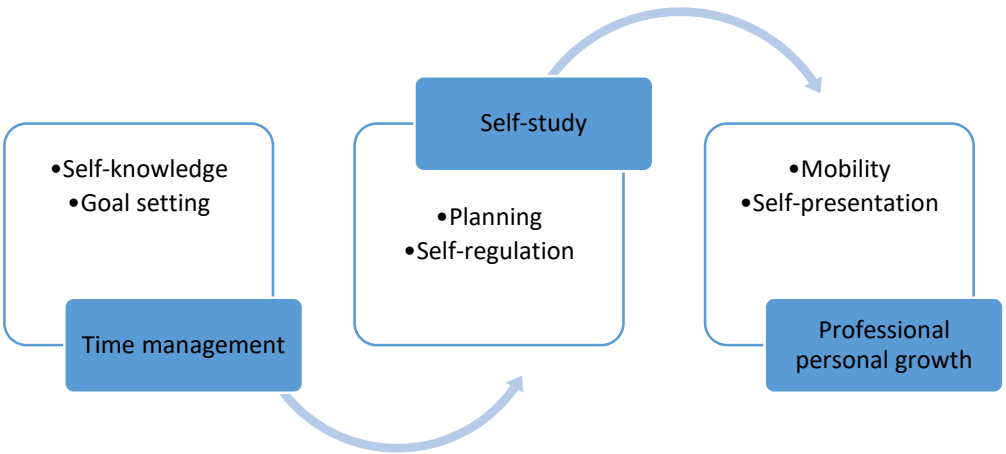

Figure 1. Complex of managerial competencies

From the position of pedagogical management Y. A. Konarzhevskiy singles out the following managerial principles:

- ✓ the principle of respect and trust in a person;
- ✓ the principle of a holistic view of a person and cooperation;
- ✓ the principle of social justice;
- ✓ the principle of individual approach in management;
- ✓ the principle of enrichment of teacher's work;
- ✓ the principle of personal stimulation and consensus;
- ✓ the principle of collective decision-making;
- ✓ the principle of target harmonization and horizontal links;
- ✓ the principle of autonomous management;
- ✓ the principle of constant renewal (Konarzhevskii, 2000).

Management in education and upbringing has a number of the following features:

- direct and personally included interaction with all subjects of the educational process;
- the necessity of differentiation and individualization of educational services;
- the desire of consumers to receive relatively small amounts of services;
- dependence of the organization's functioning on the behavior of consumers;
- problematic (and often impossible) to create a stock;
- the complexity of defining quality parameters;
- the need for advanced skills in customer relations;
- difficulty in determining staff performance;
- the existence of a number of local regulators which have a significant effect on the process.

Self-management (or time management) is a technique for the proper use of time. Self-management helps to do work with less expenses, organize work better (hence, get better results), reduce workload and, as a result, reduce haste and stress (Pererva, 2003); time management is self-management and active formation of your own lifestyle or leadership (Zayvert, 2005).

Undoubtedly, management is inseparable from the time component – planning. Planning is a key function of organization management, which ensures the effectiveness of the manager's activities. The planning function allows you to eliminate uncertainty, focus on the main tasks and facilitate management control. A clear, concrete planning of the educational work of an educational organization is an important condition for its successful activity, since it provides purposefulness, creates conditions for the organized work of the teaching staff and the team of students, the rational use of time and other opportunities and reserves.

In planning the activities of an educational organization, the head takes into account external and internal information (Arkhangelsk, 2008). The information of the external environment includes instructions from state and departmental bodies regarding educational tasks and issues of school functioning, about the content of education and upbringing of the younger generation. Internal information contains information about the previous activities of the educational organization, achievements, shortcomings, and difficulties in the work of the teaching staff, etc.

Based on the time frame, planning in an educational organization can be strategic (long-term plan), tactical (annual work plan), and operational.

The essence of planning in the activities of a modern manager is not based solely on the planning of the organization's activities. Planning personal time and work are important aspects of the activities of the headmaster. A clear plan avoids duplication, makes it possible to determine in advance at what time and on what issues attention should be focused on, and also helps to plan the work and personal time of teachers (Vlasova, 2006). The personal plan of the manager should be real, and not "for reporting". This plan is made for yourself, to save your own time. It is better not to confuse it with the general work plan of the organization that a manager leads. His personal plan must be built in accordance with the tasks and priorities of his own activities. In this case, it should be remembered about the need for delegation of authority and the correct distribution of assignments between subordinates. The task of planning personal work is to focus forces on the main directions. The plan of the head of the educational organization is a real reflection of the upcoming purposeful activity of the head of the teaching staff.

Since the authors are discussing about time management, any planning in the context of time management is associated with the optimal allocation of time resources for solving tasks (Arkhangelsk,

2017). Of course, the framework of planning is an annual plan, since the functioning of any educational organization is carried out on the basis of an annual plan that describes the activities of the organization according to the tasks of teaching and raising children. The main function of the annual work plan is to fix in time the goals and objectives set for the educational organization.

Research Materials and Methods

In the professional activity of a teacher, the leading role is played by the application of self-management. The notion of "self-management" was introduced into science by Seiwert (2007). In his understanding, "self-management" is the consistent and purposeful use of proven work methods in everyday practice and the optimal and meaningful use of one's time. This integrated concept includes elements of sociology, psychology, economics, philosophy, pedagogy, management, and time management.

The leading role in pedagogical management as a day-to-day practice is assigned to the head of an educational institution, namely the leadership philosophy and motivation on the basis of which he or she organizes his or her activities. Consequently, the head of an educational institution should be a leader in his or her organization.

Modern Education is the latest and contemporary version of education that is taught in schools and learning institutions in the 21st century. Modern education doesn't just only focus on prominent academic disciplines of Commerce, Science, and Arts but also aims to foster critical thinking, life skills, value education, analytical skills, and decision-making skills in students. The modern education system requires a teacher with an individual and creative personality, capable of developing personal and intellectual culture, innovative creative thinking, self-knowledge, and self-analysis, able to find solutions in problematic situations, as well as combining different types of leadership in himself and his work, carry the experience of versatile construction of educational reality as an environment of full-fledged formation of students' personality.

Research Results

The main components of self-management are the manager's personal qualities and abilities:

- ✓ Managerial abilities are qualities of personality given by nature and imply that a manager has organizational abilities and certain personality traits;
- ✓ organizational abilities - clear definition of the objectives of the object of management, the ability to plan his work and the work of subordinates, the ability to coordinate the activities of units, the ability to delegate authority, energy, and enterprise in decision making and implementation.

Organizational skills include:

- ✓ adaptive mobility, i.e. propensity for creative forms of activity, deepening of knowledge, initiative, intolerance for conservatism, readiness for reasonable risk, willingness to innovate, self-control, entrepreneurial spirit, etc;
- ✓ sociability, i.e., the ability to make people feel at ease, the ability to listen, understand and persuade people, and the ability to see a conflict situation through the eyes of the interlocutor;
- ✓ Stress management, i.e. intellectual and emotional security in problem situations, self-control, and sobriety of decision-making;
- ✓ dominance, i.e. power, ambition, a desire for personal independence, leadership, self-respect, and a strong-willed character.

The personal qualities of a manager should primarily include sociability, charm, goodwill, and equilibrium. Personal qualities are highly important for teamwork, group dynamics, building relationships, and in day-to-day interactions with colleagues, managers, or clients. Communicability is of particular importance here. The personal qualities of the manager as the basis of self-management technology, i.e. the ability to communicate. He should be able to establish contacts.

It is impossible to enumerate all the qualities of the personality of a manager.

There are different points of view. Miller (1989) singles out the following: "Professional honesty, ability to take risks, commitment, enterprise and constant obsession with a cause, ability of a manager to

listen to his interlocutor, ability to speak so that subordinates are understood without ambiguity in setting tasks, taking into account age, psychology, experience, temperament, ability to write correctly, conduct business correspondence, ability to behave with people..." (Vlasova, 2006).

Modern education management is based on a new management paradigm driven by the need to humanize relations in the educational space as an important condition for school development. Effective education management is characterized by:

- ✓ rejection of administrative-command style, managerial rationalism and invariance of management technologies;
- ✓ unity of managerial and executive responsibility;
- ✓ recognition of the priority of a person in the managed process;
- ✓ adaptability of management; focus on development and improvement of the managed system;
- ✓ synthetic approach, which integrates the most productive management approaches and concepts (Uteshkalieva & Kumarova, 2021; Uteshkaliyeva & Kinzhibayeva, 2021).

Conclusions

The ability to get along with people is management, and the ability to get along with time is self–management. Moreover, the quality of the latter determines the effectiveness of the former. Self-management is the consistent and expedient use of proven methods of work in everyday practice, in order to optimally and meaningfully use time. Moreover, self-management is a decisive factor in the efficiency of the managed process. The success of management depends on the quality of decision-making, organization, control, and regulation of the management object in accordance with the set goal, as well as analysis and debriefing based on reliable information.

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Use of technology in high school: A systematic review

Abstract: The development of technology in the field of education is growing rapidly. This systematic review aims to explore the roles, impacts, and trends in the use of technology in education. There is a total of 30 articles were met the criteria and then analyzed. The results of this study indicate technology has a positive role in facilitating appropriate learning processes and environments in high school settings. Technology-supported learning also has a positive impact on students' learning outcomes and attitudes. This study also found that augmented reality and virtual reality are learning media that are widely developed. The results of this study imply that the development of technology and the readiness of the parties involved in education can enhance the teaching-learning process more successfully.
Keywords: Technology, Senior High School, Education, Learning.

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Introduction

The 21st century is characterized by the use of technological devices in various activities (Hrastinski & Ekman Rising, 2020). The use of technology and digitization in all areas of activity and work are characteristics of this era (Jones et al., 2017; Lange et al., 2020). One of the activities or sectors that is affected by technological developments is the education sector. The rise of digital learning platforms is one proof that there has been a technological revolution for education (Knox et al., 2020; Manolev et al., 2019). These developments have an effect on improving the quality of education, especially in the learning process (Myskova, 2019; Zhai et al., 2019). In this case, education needs to adapt to technology (Marta, 2019). The use of technology in education can help students explore complex topics that cannot be achieved by traditional teaching methods (Hamilton et al., 2021).

Technology has created new potentials to facilitate learning activities (Marta, 2019). The use of information technology has reformed the teaching and learning process (Ishaq et al., 2020; Rodríguez et al., 2017). In addition, information technology also provides benefits, namely providing a teaching and learning process and a dynamic environment (Shatri, 2020). Many studies discussing the use of technology in education are growing, both the analysis of its implementation, its impact, and even the development of

technology-based products for education. For example, research on the use of technology in mathematics (Bray & Tangney, 2017), research on flipped classrooms (Akçayir et al., 2016) and the effects of using technology-based media on student achievement (Sahin & Yilmaz, 2020).

The integration of technology into education is widely accepted. The results of the study show that the integration of technology in education, especially in the learning process, can increase academic success and influence students' attitudes (Zeighner, 2020). The use of good technology tools will also be useful for students' independent learning (Zhai et al., 2019). Technology provides visualization for material delivery and can make learning meaningful in various learning environments (Dinç, 2017). In a wider scope, the use of appropriate technology is one indicator of the progress of education in a country, especially in the current era of globalization (Digdoyo et al., 2021). Meanwhile technology must be used in learning activities in secondary education institutions, for example in senior high schools or equivalent (Yilmaz, 2017). The use of technology at the high school level is expected to have an impact on classroom teaching (Hanımoğlu, 2018; Ibieta et al., 2017). Learning in high school generally aims to prepare students for a career or continue to a higher level (Hanımoğlu, 2018). The use of technology in learning in high school can increase students' motivation and independence (Goldin & Katz, 2018).

Based on the explanation above, technology is inseparable from the field of education, including learning activities. This makes the authors interested in exploring the roles, impacts, and trends in the use of technology in education.

Method

This systematic review research was conducted to review the results of studies over the past three years that examined the use of technology in education at the senior high school level. Using Okoli's systematic review stages consisting of planning, selection, extraction, and execution (Okoli, 2015). The researcher collected research results with the help of Publish or Perish. The keyword used was "technology in education". The literature screening process follows several criteria, namely 1) research articles written in English, 2) research articles published since 2019, 3) research involving senior high school students or teachers and 4) substances that can help researchers answer research questions. Through the literature search, a total of 30 articles were met with the criteria and then analyzed.

Results and Discussion

The Role of Technology in Education

One of the aims of this literature review is to identify the role of technology in education that has been reported in the last three years. Studies reported that technology has a role to assist teachers in facilitating a more appropriate learning process. Previous studies noted that technology could provide unique and interesting materials. One study's results suggest that learning environments in which augmented reality is implemented add visual and textual components to the learning process of physics for high school students (Abdusselam & Karal, 2020). Technology-integrated learning also provides accessible information at any given time conveniently specifically in drone education (Espinola et al., 2019). Some studies focusing on the effects of technology-based teaching materials in health education for high-school students also reported that technology can solve the lack of connection between education courses and daily life scenarios (Lin et al., 2021) and complement course instructions (Barsom et al., 2020). When the teaching and learning environment is user-friendly and well-planned, technological use in education can support interactive teaching (Agyei & Agyei, 2021). These results are in line with previous studies that suggested information technology provides a teaching and learning process and a dynamic environment (Shatri, 2020) and this can make learning more meaningful (Dinç, 2017). These results studies emphasized that technology plays an important role to help teachers maximize learning materials and create a suitable learning environment.

On the other hand, technology also helps teachers to navigate applicable learning methods to meet students' learning needs. The results of several studies that examine technology-based learning materials showed a positive effect in overcoming the problems to be addressed such as difficulties in mastering the subject (Ilmi, 2021), learning motivation (Lin et al., 2021), and practical learning (Bima et al., 2021).

Research and development studies that focused on integrating technology in teaching not only produce learning materials models but also learning instructions and assessments that complement overall learning processes (Hartanto et al., 2022; Ilmi et al., 2021; Novaliendry et al., 2021). It implied that there's a significant role of technology in improving teaching and learning instructions. As mentioned in previous studies, applying technology to education can help students explore complex topics that cannot be achieved in traditional teaching methods (Hamilton et al., 2021) and have potentially facilitated learning activities (Marta, 2019).

Considering the role of technology, some research findings also discuss teachers' attitudes. The research reported that some technology teachers valued the importance of technology, enjoyed teaching technology, and had confidence in their teaching (Xu et al., 2022). Research also suggested some results regarding factors influencing teacher use of technology. Teachers' technology self-efficacy was important in predicting teacher use of technology (Li et al., 2019). It is also noted that teachers' pedagogical belief is important (Li et al., 2019) and significantly influence teachers' intention on using technology in teaching (Prasojo et al., 2020). These results implied that pedagogical readiness is as important as technological readiness for teachers to integrate technology role in teaching to serve more advanced teaching purposes.

The Impact of Technology on Learning

Researchers have examined the effectiveness of various technology utilization in learning by measuring its effects on student learning outcomes. The effect of technology on learning is widely researched considering the roles of technology as mentioned above. This literature review found the effect of technology on student outcomes is including cognitive factors such as improving students' conceptual understanding (Liburd, 2021; Lin et al., 2021) and increasing their better knowledge mastery in the subject (Abdusselam & Karal, 2020; Barsom et al., 2020; Onan et al., 2019; Zhai et al., 2019). These results are in line with previous studies there is effects of using technology-based media on student achievement (Sahin & Yilmaz, 2020).

Other studies reported the effects of technology use on various domains. Studies noted the use of technology affects students' self-efficacy (Huang et al., 2020; Samsudin et al., 2020), learning motivation factors such as attention, relevance, confidence, and satisfaction (Lin et al., 2021) and delivers better presence, engagement, and empathy of students (Calvert & Abadia, 2020). In addition to having an effect on student motivation (Bao et al., 2019; Suherdi, 2019), technology also has great influence on interaction of teacher-student and student-content also student teamwork and collaboration (Marín-Marín, 2020). As previous studies mentioned, technology can increase academic success and influence students' attitudes (Zeighner, 2020)

Some studies also suggest that technology-supported learning approach could potentially better promote students' creative thinking (Huang et al., 2020; Osipova et al., 2019; Sari et al., 2020). It was also reported that technology-integrated learning design can increase high school students' awareness of certain topics such as climate change (Solís, 2019) and cervical cancer (Ampofo et al., 2020).

Learning Media

Learning media innovation is one component that develops along with technological trends in education. technology in learning media provides functional enhancement, namely involving students in learning activities and as a material to stimulate their imagination (Zhai et al., 2019). This can be used to improve the quality of students (Hanif, 2020; Sarioğlu & GIrgIn, 2020). The results of this study will discuss several learning media that are widely used today based on technology.

a. Virtual Reality
   Virtual Reality can improve students' cognitive (Calvert & Abadia, 2020; Semeraro et al., 2019). In addition, high school age students assess the use of VR both in terms of the meaningfulness of learning, visualization, and engagement (Calvert & Abadia, 2020). VR can increase self-confidence for high school students (Barsom et al., 2020).
b. Augmented Reality
   Augmented reality is used for interactive learning (Syawaludin et al., 2019). Augmented reality can present real experiences and environments in learning (Abdusselam & Karal, 2020). AR combines virtual and real-world environments and is useful for simulation-based learning (Radosavljevic et al., 2020).

Conclusions

This study describes several results related to the role of technology in education, the impact of using technology in learning, as well as learning media that has been developed over these past three years. In terms of its role, technology serves to facilitate a more appropriate learning process, provide flexible learning information and dynamic access to education. Technology also plays a role in assisting teachers to navigate learning methods that are suitable for students' needs. In terms of learning activities, technology has a positive effect on improving students' cognitive abilities, increasing self-efficacy, and fostering students' creative attitudes. Meanwhile, the development of technology-based learning media is growing. This study describes 2 technology-based learning media that are increasingly being developed, namely learning media based on augmented reality technology and virtual reality. These learning media certainly responds to students' needs regarding learning preferences from verbal and visual to virtual. From this description, it can be concluded that the integration of technology with education has a positive role and impact. The results of the study imply that the readiness of the parties involved in education needs to be balanced with the rapid advancement of technology. Technology that is utilized properly, especially in learning, can benefit teachers, students, and the success of learning.

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Parental Assistance in Online Learning Outcomes of Indonesian Language Subjects Elementary School

Abstract: The study describes the impact of parental support in online learning on learning outcomes in the Indonesian language subject at Takalar Regency SDN 01 Center Pattallassang Year 2. The research approach uses a mixed method with an exploratory method. This type of research is ex post facto. The population was all second-grade students with a sample of 51 students. Data collection techniques used interviews, questionnaires, and documentation. Data analysis techniques used descriptive statistics and inferential statistics. The results showed that parental assistance in online learning had a significant effect on learning outcomes in Indonesian language subjects, this was evidenced by the Tcount obtained of 8.272, which is greater than the Ttable value of 2.009. In addition, from the results of the F test, an Fcount value of 68.421 is obtained which is greater than the Ftable value of 4.038 so it can be said that parental assistance affects the learning outcomes of class II students at SDN 01 Center Pattallassang, Takalar Regency. For the coefficient of determination, the value is 0.583, which means that 58.3% of parental assistance in online learning affects student learning outcomes, while the remaining 41.7% is influenced by other factors not included in the model.

Keywords: Parental Assistance, Indonesian Language, Learning Outcomes.

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Introduction

The main text format getting knowledge is very easy, knowledge can be obtained from formal and informal institutions. Informal institutions themselves can be formed, for example from socialization and the environment, while formal institutions can be obtained through education in schools. In education, of course, there are aspects that influence the success of education, one of which is by looking at the results of student learning achievements. In the learning process, of course, there is a learning process, this learning process activity certainly involves students, educators, and learning resources that are in a learning environment. School is one of the places to take formal education made by the government to educate the nation's life.

Education is the main key for a nation to be able to adapt to the times in the era of globalization. Through education, the younger generation can have a better personality so that they can develop their potential and excel in various aspects of life. Many things affect the education system to excel in various aspects of life, especially at school, the achievement target that must be achieved is none other than learning outcomes. To achieve good learning outcomes, innovative learning is treated. Innovative learning is interesting and creative learning. Learning outcomes are all changes that are owned by students in terms of attitudes, knowledge, and skills after experiencing the learning process. According to Sudjana (2006), "A student's learning outcome is essentially a change in behavior. Behavior is the learning outcome in a broader sense, including cognitive, affective, and psychomotor aspects, the level of student success in learning school subjects, Expressed as scores of test results to understand a certain number of subjects According to Prasetyo (2018: 9), Parental support in children's learning process Parents accompany children with learning difficulties and help them, monitor, encourage, motivate, support, monitor and provide Facilities that keep them enthusiastic about learning and helping children in their learning moments will also build close communication with the children. "This intense communication will build children's creativity through various useful joint activities. The role of teachers and parents is fundamental in supporting the child's learning process at home. Both must build collaboration to maximize children's learning activities. A child, of course, will record and remember the moments in his life, the assistance provided by parents, of course, has a strong influence in creating children's learning achievements. The existence of assistance from parents to their children in carrying out learning activities at home will affect the behavior and learning outcomes of children. According to Ibrahim, there are several things that parents need to pay attention to in guiding their children to learn, namely: 1) avoiding conditional love for children, 2) unhealthy parental expectations, 3) unhealthy praise and punishment (Prianto, 2020: 16).

In the era of globalization, the development of technology and information is very rapid and influential in all aspects, even in the education aspect, education has developed, one of which is online learning. This online learning can be done virtually which does not have to be face-to-face in the classroom and this learning can be done anywhere. Online learning is a learning process that uses the internet network in its implementation. When an emergency arises like this, the government recommends studying at home (Darmalaksana, Wahyudin n Hambali, R. Yuli Ahmad n Masrur, Ali n Muhlas, 2020: 4). Online learning itself can be considered as a formal education conducted in a school where students and faculty (teachers/instructors) are in different locations and thus requires a two-way communication system and to do so. Therefore, the relationship between the two requires different resources (Sobron A.N, Bayu, Rani, Meidawati, 2019: 1) The benefits of Bilfaqih online learning (in Mega Berliana, 2020) The benefits of online learning are as follows: 1) Improving the quality of education and training by utilizing multimedia effectively in online learning. 2) Increase the affordability of quality education and training through the implementation of online learning. 3) Reducing the cost of providing quality education and training through the use of shared resources. Online learning is learning that is carried out with a system without face-to-face directly or remotely using an online platform to assist the teaching and learning process (Handriani & Wulandari, 2020). This learning is applied in education in Indonesia to reduce the transmission of COVID-19. This online learning has many problems, for example, from the parental aspect. Many parents argue, that this online learning causes children to not be able to interact directly with the teacher and their friends, this interaction difficulty ultimately makes the teacher only give assignments to students in the hope that students can understand the material (Cahyati & Kusumah, 2020). According to Kassymov et al. (2021), the use of the internet for learning or e-learning cannot be separated from various disadvantages. First, there is a lack of interaction between teachers and students or students. Lack of this interaction can prevent learning objections. Second students who do not work hard may even fail. Third not all countries have internet capability.

The role of parents increases, during online learning, one of which is to provide education and reinforcement in learning. Online learning also proves that it is parents who should play an active role in the education of their children, therefore parents can be called the first madrasa for their children (Haeruddin, et al., 2020). Parents are expected to be able to grow and develop their children's learning outcomes both in nature and out of school. Learning outcomes themselves are all changes that are owned by students in terms of attitudes, knowledge, and skills after experiencing the learning process. The knowledge that can be assessed from the children themselves is the knowledge and skills of mastering good and correct Indonesian.

Indonesian is the official language of the Republic of Indonesia as stated in Article 36 of the 1945 Constitution of the Republic of Indonesia. Ministry of National Education (2007: 124). The purpose of Indonesian language learning is to develop students' ability to communicate accurately and appropriately in Indonesian orally and in writing as well as to appreciate works of Indonesian human literature. Previous research related to parental mentoring on student learning outcomes was conducted by Andi Gunawan (2014) entitled the effect of parental assistance and frequency of studying at home on student learning outcomes in grade V SD Negeri Pajang 01. The results showed that there was a significant influence between parental assistance on student learning outcomes. Retno Ambarianti (2013) in RA AL-Islam Mangungsari 02 Semarang in a study titled The Relationship between Parental Educational Support and Quality of Students Academic Performance found that there is a correlation between them. He is disabled. The quality of educational support for parents and the academic achievement of the student. The more parents support childrens education the better the learning effect on the contrary the less parents support childrens education the worse the learning effect.The results of this study make prospective researchers interested in researching the effect of parental assistance in online learning on students' Indonesian learning outcomes class II students at SDN 01 Center Pattallassang, Pattallassang District, Takalar Regency.

Research Methodology

This study uses a mixed methods approach, namely quantitative and qualitative because the 2 problem formulations are presented descriptively and this research is also presented data collection including statistics starting with data interpretation and results in presentation. In this approach, we quantitatively/statistically analyze the data to test the proposed hypotheses by analyzing the data processed with the Statistical Package for Social Sciences (SPSS) software version 25.0. The research design used in this study is Casual Comparative Research. This research was conducted by collecting data to find out whether there is an influence or relationship between the two variables. The purpose of this study was to find out whether there was an effect of parental assistance (X) on students' Indonesian learning outcomes (Y).

The population in this study were class II students at SDN 01 Center Pattallassang. Total population of 106 people consists of 4 classes of 106 students. The sampling technique used in this research is for quantitative research using probability sampling, and for qualitative research using purposive sampling. Class II A and Class II C whose learning outcomes will be examined when accompanying parents in online learning takes place. The consideration for taking the sample was because among the four classes in the population, the classes that had the most students who could not read and were less active in online learning were class II A and II C. So the researchers took these 2 classes. as a sample in this study.

The research tools used in this study are questionnaires and interview papers. The data analysis techniques in this study are descriptive analysis and inferential analysis. The hypothetical analyzes performed were normality tests and hypothesis tests. The validity of this study uses content and internal validity, content validity with expert judgment from experts, and internal validity. This validity test is obtained by adjusting the research data to the actual situation. An instrument is said to be valid if the value of rcount> rtable. The formula used to determine the validity of an instrument is product-moment correlation. An instrument is said to be reliable if the value of r11 > 0.60. The formula used to measure the reliability test is Cronbach's Alpha

The data analysis techniques used in this study are descriptive statistical analysis and inferential statistics. Student learning outcomes are presented in the form of a frequency histogram of the mean standard deviation of the mean mode of the minimum value and the maximum value of the deviation. Student learning outcomes are divided into five categories: very good less good and very poor.

The inferential statistical analysis aims to test the research hypothesis. A pretest was conducted on the data before testing the hypothesis. Data homogeneity test and normality test were conducted in the data prerequisite test. To calculate the normality of the data with the Kolmogorov-Smirnov normality test. Hypothesis testing is performed in simple linear regression hypothesis testing. Simple linear regression is

based on a simple relationship between the independent variable and the dependent variable. So this test is conducted to find out between independent variable (X) and independent variable (Y).

Validity test used in this study is using product-moment correlation test with the help of SPSS application df = 49 rtable value is 0276. It was concluded that of the 45 questions that were tested on 51 grade 2 students, it turned out that there were 40 items with valid status, while the other 5 items had invalid status. The item has the highest validity in item number 25 with a coefficient value of 0608 and the lowest item number 4 with a coefficient value of 0281. It is based on the results of a specific test using SPSS application version 25.0 Cronbachs alpha value of the variable parent value (X) from number 40 item value of 0881 over 06 (0881 > 06). so it can be concluded that the parent assistance questionnaire instrument (X) is reliable. The following are the results of the analysis of parental assistance on Indonesian language learning outcomes.

Parental Assistance

The results of the descriptive statistical analysis based on the scores of the parental assistance variable (X) are given below.

Table 1. Descriptive statistical analysis based on the results of reproductive support variables (X)

		N	Range	Minimum	Maximum	Sum	Mean	
		Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. error
Pendampingan Orangtua		51	40	120	160	7665	150.29	1.073
Valid (listwise)	N	51						

		Std. Deviasi	Variance	Skewness		Kurtosis	
		Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
Valid (listwise)	N	7.666	58.772	-1.530	.333	3.719	.656

Based on the statistical descriptive analysis of the parental assistance variable (X) it can be seen that the minimum score of 120 is obtained, the maximum score is 160 with a total score of 7665 and the average score of the parental assistance variable (X) is 150.29 with a range of 40. In addition, to find out the frequency of scoring for the variable of parental assistance in online learning as can be seen in the table below:

Table 2. frequency of scoring for the variable of parental assistance in online learning

No.	Interval	Frekuensi	Presentase (%)
1	120-126	1	1.96
2	127-133	0	0.00
3	134-140	5	9.80
4	141-147	6	11.76
5	148-154	26	50.98
6	155-161	13	25.49
Jumlah		**51**	**100**

Based on the table above, the highest score frequency is in the interval 148-154 with a frequency of 26 or 50.98% of the number of samples, while the lowest score is in the interval of 120-126 with a frequency of 1 or 1.96 of the number of samples.

Indonesian Language Learning Result

Based on the descriptive statistical analysis of the outcome variable (Y) of Indonesian language learning as follows.

Table 3. Results of descriptive statistical analysis of Indonesian learning outcome variable (Y).

		N	Range	Minimum	Maximum	Sum	Mean	
		Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. error
Hasil Belajar Bahasa Indonesia		51	7	88	95	4707	92.29	.370
Valid (listwise)	N	51						

		Std. Deviasi	Variance	Skewness		Kurtosis	
		Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
Valid (listwise)	N	2.640	6.972	-.346	.333	-1.450	.656

The minimum value of student learning outcomes for class II SDN 01 Center Pattallassang Takalar Regency is 88, the maximum score is 95 and the total value is 4707 and the average value is 92.29 with a range of 7. The classification of student learning outcomes is as follows:

Table 4. table of categories of student learning outcomes

No	Skor	Kategori
1	85 < x ≤100	Sangat Baik
2	70 < x ≤85	Baik
3	55 < x ≤70	Cukup Baik
4	40 < x ≤55	Kurang Baik
5	<40	Sangat Kurang

Sumber: Poewanti (Ainina, 2014: 103)

The average value of student learning outcomes in Indonesian subjects is 92.29. So it was concluded that the learning outcomes of class II students at SDN 01 Center Pattallassang, Takalar Regency in Indonesian subjects were by the KKM standard and were in the very good category.

Normality Test

The statistical analysis result of the inferential norm test in this study is a test performed to evaluate the distribution of data in data or a set of variables whether the data are normally distributed or not. The test for normality in this study uses the Kolmogorov-Smirnov test of normality.The following table shows the normality test on students' Indonesian learning outcomes.

Table 5. table shows the normality test on students' Indonesian learning outcomes

One-Smaple Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		51
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	1.70567295
Most Extreme Differences	Absolute	.102
	Positive	.092
	Negative	-.102
Test Statistic		.102
Asymp. Sig. (2-tailed)		.200[c,d]

a. Test DistribusionIs Normal.
b. Calculated from data
c. Lilliefors Significance Connection.
d. This is a lower bound of the true significance

The asymptote value is obtained based on normal test results. (2-tailed) in the Kolmogorov-Smirnov test table at symbol 0200. This value is greater than = 005 (0200 > 005). So it can be concluded that the research data is normally distributed.

Linear Regression Hypothesis

A simple linear regression hypothesis to determine whether there is a significant effect between parental support on learning outcomes of Indonesian subjects for 2nd grade students in Takler Regency Center Pattallasang SDN 01 Pattallasang. In this case, the variable entered is the value of the parental assistance variable as an independent variable, And the method used is the enter method which specifies whether the learning outcome is a dependent variable or an affected variable. Below is a hypothesis test about students Indonesian learning outcomes.

Table 6. the hypothesis testing of students' Indonesian learning outcomes

Variables Entered/Removed[a]			
Model	Variables Entered	Variables Removed	Method
1	Pendampingan Orang Tua[b]	.	Enter
a. Dependent variable : hasil Belajar			
b. All requested variables entered			

All requested variables entered mean that none of the variables are used in the calculation of the analysis. After testing the hypothesis, the ratio (R2) is used to see how much variation in the dependent variable (dependent) can be explained by the independent variable (independent).

Table 7. the coefficient of determination (R2)

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.763[a]	.583.	.574	1.723
a. Dependent variable : hasil Belajar				
b. All requested variables entered				

Based on the summary table of the model above the R square value (R2) is 0.583 which means 58.3% of class II student learning outcomes at SDN 01 Center Pattallassang Takalar Regency in online learning in Indonesian subjects are influenced by parental assistance variables, while the remaining 41.7% is affected by other factors not included in the condition. This is in line with Retno's opinion which said that there was an influence between the intensity of parental support for learning and the quality of student learning outcomes.

After that, the Simultaneous test (F-test) was used to determine whether all the independent variables included in the regression model had a common effect on the dependent variable. Below are the results of the simulation test (F-test).

Table 8. the results of the simulation test (F test).

ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	203.122	1	203.122	68.421	.ooo[b]
	Residual	145.466	49	2.969		

	Total	348.588	50			
a. Dependent Variable: Hasil Belajar						
b. Predictors: (Constant). Pendampingan Orang Tua						

As per SPSS result table above, the Fcount value is 68.421. Additionally the value of this test statistic is compared to the value in Table FThe Ftable value from Table F is 4038 with mean level = 005 and 1 and 49 degrees of freedom. This value is smaller than the Fcount value and has a significant value of 0.000 < 0.05. So if the Fcount > Ftable (68.421 > 4.038) and the significance value < = 0.05, Decision H0 was rejected and H1 was accepted. So as above that parental assistance in online learning to have a significant impact on the outcome of the study class II students at SDN 01 Center Pattallassang, Takalar Regency in Indonesian subjects. This is also in line with Andi's opinion parental support has a significant impact on student learning outcomes.

The last is to do a partial test (T test) used to prove whether the regression coefficient in the model is statistically significant or not. This test is used to view statistics, the regression coefficient for each independent variable used in the model has a significant effect on the dependent variable. Some test results are shown in the table below.

Table 9. Subtest result

Coefficients[a]						
		Unstandardized Coefficients		Unstandardized Coefficients	T	Sig.
Model		B	Std. Error	Beta		
1	(Constant)	52.780	4.763		11.035	.000
	Pendampingan Orang Tua	.263	.032	.763	8.272	.000
a. Dependent variable: hasil Belajar						

The value of Tcount from the parental assistance variable is 8.272. Furthermore, these are compared with the values in table T. From table T with a significance level of = 0.05 and 49 degrees of freedom, the Ttable value is 0.201. The value Tcount (8.272 > 0.201) is less than the significant value is less than 0.000 and = 0.05 (0.000 < 0.05) then reject H0 and accept H1. So it can be concluded that parental support in online learning has a significant impact on the learning outcomes of Grade II Pattallasang students at SDN 01 Center. Takalar Regency in Indonesian subjects. Based on the coefficients table also obtained a simple regression equation as follows:

Y = 52,780 + 0,263 X

Where :

Y : Student Learning Outcomes

X : Parental Assistance

The regression equation is positive, so worth it parental assistance increases by 1%, it will increase the learning outcomes of Indonesian language subjects for grade 2 students at SDN 01 Center Pattallassang, Takalar Regency by 0.263%. Therefore, to improve student learning outcomes, parental assistance also needs to be improved.

Conclusion

A detailed analysis shows the success of parental support in the online learning process which can be seen in the students' activities during the learning process and the value of student learning outcomes that are by KKM standards and are in the Very good category. Descriptive Analysis Results of Indonesian Language Learning Outcomes for Second Grade Students of SDN 01 Pattallassang Center Takalar Regency during online learning good category. Based on the results of data analysis using inferential analysis through simple linear regression analysis, obtained a significant value from the F test and T-test which is smaller than the probability value = 0.05, We can conclude that the variable of parental support in online

learning has a significant impact on learning outcomes. In Indonesian subjects for second-grade students of SDN 01 Center Pattallassang, Takalar Regency.

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Potential of interactive technologies for the development of creativity of younger school children

Abstract: The targets of primary general education require the formation and development of creativity of younger schoolchildren. One of the ways to develop creativity is interactive technologies, which are a special form of organizing the activities of students, which has a specific goal – to create comfortable conditions for learning, in which every child feels his success, intellectual ability, and the possibility of creative manifestation. The development of creativity of younger schoolchildren through interactive technologies is carried out through interactive lectures, work in pairs, work in micro groups, training sessions, etc., as well as using the following methods: heuristic conversation, case method, training, discussions, and projects.

Keywords: heuristic conversation, case method, training, discussions, projects, technology.

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Introduction

Primary general education is the first stage of general education, the purpose of which is the development of elementary general education knowledge by students, ensuring the development of cognitive abilities and social communication, as well as the formation of basic skills of educational activities of primary school children. Modification of the model of primary general education at the moment creates a condition for the need to implement educational technologies that will focus on the development of students, taking into account their characteristics and the full disclosure of their intellectual and personal potential. The development of creative abilities and creativity of primary school children is an integral line of personal development of students in primary school and requires both specially selected educational content and purposeful selection of pedagogical technologies associated with it. Let us dwell in more detail on the rationale for the selection of pedagogical technologies that allow solving the tasks of developing the creativity of younger schoolchildren in educational activities implemented in the classroom. Currently, there are many interpretations of this concept, let's imagine some of them. B.T. Likhachev understands pedagogical technology as a certain set of psychological and pedagogical attitudes that determine a specific set and layout of forms, methods, methods, teaching techniques, educational tools; pedagogical technology is the organizational and methodological tools of the pedagogical process (Bogoyavlenskaya, 1983).

Slastenin et al. (1996) understand pedagogical technology as a set and sequence of methods, and processes of transformation of source materials that allow obtaining the final result (product) with the specified parameters.

G.M. Kojaspirova, in his definition, represents pedagogical technology from the point of view of a certain system of methods, techniques, steps, the sequence of which ensures the solution of the tasks of education, training, and personal development of the student, and the activity itself is presented procedurally, i.e. as a certain system of actions; development and procedural embodiment of the components of the pedagogical process in the form of a system of sequential actions, providing a guaranteed positive result (Fetiskin et al., 2002).

Summarizing the proposed definitions, it can be concluded that pedagogical technology as a whole is understood as a built-up model of joint pedagogical activity of teachers and students in the design, organization, and conduct of the educational process with the provision of the most comfortable and productive conditions for participants of the educational process. The peculiarities of pedagogical technology also include the fact that each technological element, system, chain, and reception needs to find its appropriate place in the holistic pedagogical process. But it should be taken into account that no technology can replace live, emotional human communication (Ilyin, 2004).

One of the types of pedagogical technologies actively used in educational activities is interactive technologies that not only provide the formation of subject competencies but are also specially designed to enrich educational situations with communications between their participants in order to support the activity of students, create emotional comfort, transfer values, and cultural practices. NS. Leonova understands interactive technology such as an organization of the learning process, in the implementation of which it is impossible for a student not to take part in a collective, interacting, complementary process of learning cognition (Kulagina, 1998).

According to V.A. Mazurina, interactive technologies represent a special form of organization of cognitive activity of students, which has a specific goal – to create comfortable conditions for learning, in which each student feels his success, and intellectual viability.

Within the framework of interactive technology, the ability of teaching staff to create conditions in which priority is given to the activity of students comes first. Interactive technologies were first used in the 60s. Twentieth century. During these years, significant changes in the nature of communication took place in the media. There was no clear concept of interactive methods and tools then. The interaction was understood as the interaction of the user and the program, the database with the subjects of management of these programs.

However, interactive technologies used in the learning process became widespread only in the nineteenth century. In the conditions of the existing classroom-based learning system, interactive technologies most easily fit into the educational process without transforming the actual content of learning, which is determined by the Federal State Educational Standards of Primary General Education and is not subject to any serious adjustments. The introduction of interactive technologies into the real educational process makes it possible to achieve the set goals educational goals for the subject in other, alternative traditional methods (Leonova, 2013).

Materials and Methods

Interactive technology has a number of goals.

1. Within the framework of this technology, special attention is paid to creating comfortable learning conditions in which the student achieves a positive result, and success in a particular activity, which significantly increases his motivation for learning activities.

2. Organization of a dialog form of communication, which leads to greater mutual understanding between the participants of the educational process and to the joint most effective solution of tasks that are significant for everyone.

3. Interactive technologies teach you to think critically, considering several alternative solutions and choosing the optimal one. At the same time, respect the opinion of each participant and the absence of a single dominant opinion.

4. Produced skills of participation in discussions, polemics, and the ability to convey your opinion to others in a reasoned manner.

The method of express projects. Contributes to the achievement of the educational goal through a detailed study of the problem, which should end with a very real practical result, framed in one way or another.

The essence of interactive learning is that the educational process is carried out with constant, active interaction of all its participants. Interactive interaction excludes both the predominance of one idea or the dominance of one participant in the educational process over another and one thought over others. Interactive technologies are based on the direct interaction of students with the educational environment. The learning environment acts as a reality in which the student finds himself as an area of the learning experience, and it is not just about connecting his empirical observations, and life impressions of the student as an auxiliary material or illustrative supplement. His life experience occupies a central place that can activate learning cognition. In the traditional teaching system, the teacher plays the role of a "filter" that passes through educational information, in the interactive one he is assigned the role of an assistant in work, one of the factors that activate the mutually directed flows of information (Uteshkaliyeva & Kinzhibayeva, 2021).

The main tasks of interactive technology (Figure 1) include (Bryksina, 2018):

- development of communication skills and abilities;
- establishing emotional contact among participants of educational activities;
- saturation of the educational process with the necessary information;
- development of analysis and synthesis skills;
- formation of the skills of working in the project team, development of communication skills

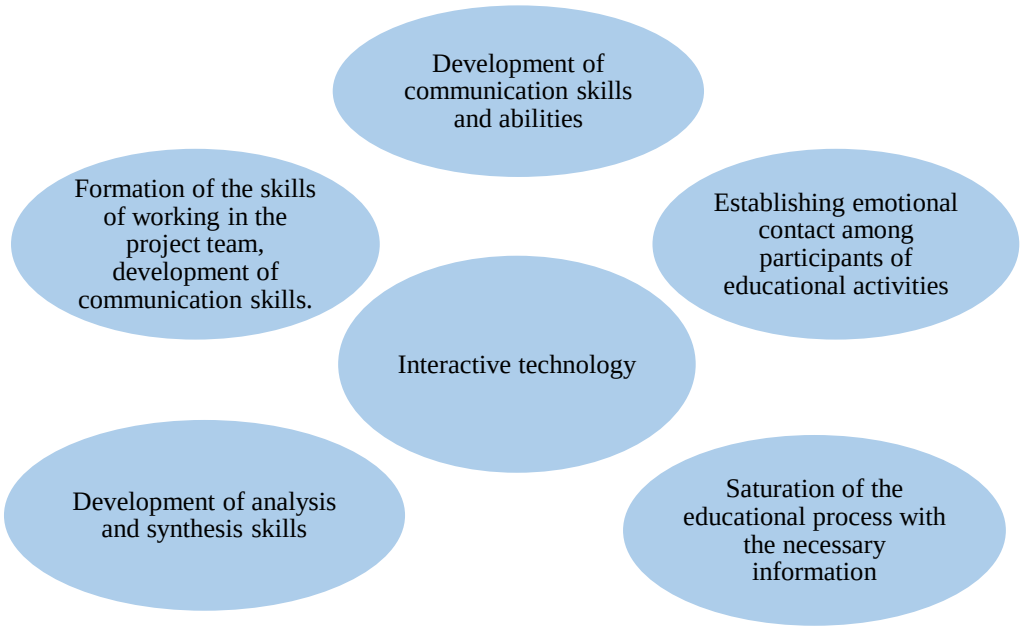

Figure 1. Interactive technologies

Among the main methods of interactive technologies used in primary general education, the following are distinguished

1. The method of heuristic conversation, otherwise it is called the universal method. When using this method, the teacher identifies a number of problematic issues, and students come to new solutions and discoveries by logical reasoning based on their past experiences.

2. Case method. Within the framework of this method, the teacher, together with the students, analyzes a specific situation, case, or exercise. For the most productive analysis of the situation, it is advisable to divide students into small groups, in which they will work, offer solutions, choose the optimal one and describe it.

3. Training sessions. This method makes it possible to improve the socio-psychological climate in the school team. Improve communication skills and the ability to conduct a dialogue.

4. The method of discussion. Within the framework of this method, there is a free exchange of information, knowledge, judgments, ideas or opinions about a given problem question, under the guidance of a teacher.

In this case, students learn to express their conclusions, to argue their point of view.

5. The method of projects. In this case, students independently conduct project activities regarding any issue. They learn to work with information sources: to collect, analyze, and select the most relevant and interesting information. And also, to structure it and present it to other participants of the educational process.

Many authors consider the main forms of work with a group of students within the framework of interactive technologies: interactive lecture, work in pairs, work in microgroups, training sessions, etc.

Effective exercises for the development of creativity

The effectiveness of the development of creativity in younger schoolchildren in the classroom is achieved with the help of special techniques and methods used, first of all, at the stage of interactive exercises.

The "Saw" or "Zigzag" technique. Students are divided into subgroups to work on the task, which is divided into fragments. Each subgroup finds and studies the material in its own part. Further, members of subgroups studying the same question meet and exchange this information as experts on this issue. This is called an "expert meeting". After that, they return to their small groups and teach everything new that they have learned from other members of small groups. Those, in turn, report on their part of the task (like the teeth of one saw). When implementing this technique, each member of the subgroup is responsible not only for his individual result but also helps his teammates learn, thereby achieving a common goal together while having equal chances.

The "Brainstorming" technique. It is a method of frontal training. Each student is invited to express his opinion and an answer option on the proposed problem.

The "Learning together" technique. Students are divided into subgroups with different levels of assimilation of educational material. Each subgroup receives one task, which is a subtask of some control that the entire class is working on. As a result of the joint work of the subgroups, the solution of a common task is achieved. To complete the task, each member of the subgroup must actively participate in the overall work in accordance with their capabilities. According to the developers of this technique, much attention should be paid to the issue of completing small groups (taking into account the individual and psychological characteristics of each member) and developing tasks for each specific small group.

Reception "Verbal associations". It is a method of frontal training. Each student is asked to choose and name an association for a particular word.

The "Business Game" or "Didactic game" method. They are a method of simulating a situation with the adoption of roles and solving a problem. This method can also include dramatization (staging, acting out the roles of the content of educational material in the classroom. Roles can be assigned not only to living characters but also to any inanimate objects and phenomena from any field of knowledge); theatricalization (theatrical performances of different genres based on educational material during extracurricular time with a large number of participants, long-lasting, with scenery and other attributes).

The method of express projects. Contributes to the achievement of the educational goal through a detailed study of the problem, which should end with a very real practical result, framed in one way or another.

Results and Discussion

As practice shows, the use and implementation of interactive educational technologies in primary school improves the quality of the educational process, the quality of the presentation of lesson material, and the effectiveness of the assimilation of this material by students, increases the motivational readiness

of students to study this or that material and promotes the development of constructive cooperation between the teacher and students (Mitina, 2003).

One of the conditions for the successful development of creativity of primary school students is the inclusion in the learning process of interactive technologies that allow students to interact with each other. The formation of a student's personality of creative type involves the development of a fundamentally new culture of thinking by younger schoolchildren, the essence of which is the development of intelligence with the help of interactive learning technologies. In such technologies, the emphasis is not so much on the organization and processing of knowledge, as on their generation. It should be noted that the design of the learning process in this context should be built within the framework of personality-oriented, competence-based, system-activity approaches.

The use of interactive technologies for the development of creativity of primary school children is carried out through the implementation of the following areas:

- correctional and developmental impact, which is aimed at the formation of creative motives and the development of the qualities of the creative personality of the child;
- special training lessons (tasks, exercises) on the development of individual skills and abilities and on the consolidation of acquired skills and personal shifts in creative development (Uteshkalieva & Kumarova, 2021).

These areas of psychological and pedagogical development of creativity of primary school children are successfully used within the framework of interactive technologies and special interactive lessons (classes), which are built according to the rules of interactive learning, but take into account the factor of their parallelism with the educational process, solve the tasks of developing the personal foundations of creative thinking, the tasks of forming specific skills and abilities that form the basis of the updated creative process, and make it possible to consolidate the resulting effects. E.V. Mitina for the development of creativity of primary school children suggests developing its components, and identifies the following basic conditions for the formation of creativity in the educational process:

- Taking into account the principles of developmental learning (individualization of education, research training, problematization);
- Building a pedagogical process based on the principles of a humanistic approach to children (lack of self-esteem, acceptance, safety, and support);
- Conducting purposeful creative classes aimed at developing the creativity of younger schoolchildren (Former, 2012).

Among the main characteristics of interactive learning technologies in the aspect of developing the creative abilities of younger schoolchildren, the following were highlighted: contextuality; dialogicity; cooperation with the teacher; individual learning trajectory; creation of free creative space; independent active cognitive activity of students; reflection; variability and flexibility of the learning content.

Most of the exercises and tasks for the development of creativity of younger schoolchildren should be aimed at integrating mental spheres and processes involved in the creative search, and tasks should also involve both the cognitive sphere and the personality of students in the development process. Classes and lessons are based on a constant balance of influences on the personality of younger students and exercises-training of special skills and abilities. Only with the help of this it is possible to implement the principles of consistency and integrity of impact and achieve significant results in the development of creativity and creative potential of children. Interactive technologies for the development of creativity in primary school should:

- to facilitate the transition from ordinary states of consciousness to unusual ones (which allows you to place "emotional anchors" and go out to internal self-stimulation techniques);
- to excite the interaction of intellectual, volitional and emotional educational, and cognitive functions;
- provide a realistic encounter with the problem and immersion in it;
- to ensure the collision of opposite concepts, images, and ideas and demonstrate the insufficiency of stereotypical methods of solving problems (Federal Law, 2012).

The development of creativity of younger schoolchildren needs a supportive environment that provides a set of incentives. Therefore, the development of creativity is directly related to the development

of the information and educational environment, forms of communication, and other ways and means of interaction between the subjects of the educational process.

Conclusion

Thus, the targets of primary general education require the formation and development of creativity of younger schoolchildren. One of the ways to develop creativity is interactive technologies, which are a special form of organizing the activities of students, which has a specific goal – to create comfortable conditions for learning, in which every child feels his success, intellectual ability, and the possibility of creative manifestation. The development of creativity of younger schoolchildren through interactive technologies is carried out through interactive lectures, work in pairs, work in micro groups, training sessions, etc., as well as using the following methods: heuristic conversation, case method, training, discussions, and projects.

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Meta-analysis study: Analysis of the Effect of Digital Platforms on Learning Outcomes

Abstract: Learning media are required to use digital platforms to maintain online learning. The Covid-19 pandemic stimulates technological developments in the era of the industrial revolution 4.0, especially in the education sector. Utilization of various digital platforms is carried out to support the learning process. Various digital media platforms are used in the online learning process. This study aims to analyze the effects of digital platforms on the impact of learning. The digital platforms used are Zoom Meeting, WhatsApp, Google Classroom, Schoology, and Edmodo. This type of research is meta-analysis. The steps in determining this research according to Borenstein: (1) formulating a dilemma, (2) searching the literature, (3) collecting issues and findings from individual studies, (4) evaluating the quality of the study, (5) analyzing and interpreting the results of the study, and (6) interpreting what will happen or evidence. The data collection technique is done by browsing the journals using Publish or Perish. Thirteen journal articles met the appropriate inclusion criteria and concluded that the digital platform had an effect on student learning outcomes.

Keywords: Covid-19, digital platform, learning outcomes, industrial revolution era 4.0.

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Introduction

Covid-19 has hit almost all parts of the world, making technological developments faster. One of the impacts of technological developments and Covid-19 is that the modern learning environment is getting stronger (Syafii and Heri, 2021). Learning media is required to use digital platforms to maintain online learning. In the era of the industrial revolution 4.0, technology has become a separate catalyst for education today. Utilization of various digital platforms is carried out to support learning. There are various types of digital platforms as media in implementing online education.

Several platforms that can be used in the implementation of online learning include Google Classroom, Edmodo, Rumah Belajar, Ruang Guru, Sekolahmu, Kelas Pintar, Zenius, Google Suite for Education, Microsoft Office 365 for Education (Daheri et al., 2020; Hasbi & Woro, 2020). Many studies have documented the global development of online learning. The results of a review of several scientific articles

conducted by Ayu et al. (2020) included that the use of digital platforms such as Zoom, WhatsApp, Google Classroom, Schoology, and Edmodo had a positive impact on students and was effective in improving the quality of online lectures during the Covid-19 pandemic.

Research has shown that integrating learning management systems in higher education environments can improve teaching and experiential learning. According to Coates et al. (2005), e-learning platforms such as Moodle, WizIQ, Blackboard, and Docebo offer advanced tools that provide course administration and pedagogical functions. Smirnova and Deutsch (2014) state that online learning through a course management system allows students to become independent lifelong learners. According to Dilani et al. (2013), the tools and features available from e-platforms increase engagement, achievement, and motivation.

Windhiyana (2020) said that Zoom Meeting is a digital platform that sees the ability and willingness of students in the learning process by directing the learning process themselves according to their wishes and needs. Using Zoom Meetings for online lectures can significantly increase student engagement and make it easier to collect qualitative data because it is more cost-effective (Kusnayat et al., 2020). The process of delivering lecture material by lecturers to students through Zoom Meetings takes place as usual lecture flow (Bustomi, 2020), and is not boring because it is accompanied by varied methods (Farida et al., 2020; Astini, 2020). The Zoom Meeting platform obtains the highest level of effectiveness, especially in its function as a medium for face-to-face discussion.

The WhatsApp platform, which is being loved by the wider community, has facilities for text messages and phone calls in audio and video. There are exciting features on WhatsApp in its designation as a means of online lectures. WhatsApp is equipped with the WhatsApp Group feature, so this platform is often used as a medium to send information and documents related to online lectures. WhatsApp Group is suitable for delivering teaching materials and assignment documents (Windhiyana, 2020; Nadeak, 2020).

Google Classroom is an application in the form of an LMS (Learning Management System) provided by Google and can be connected to email, thus providing easy access. Google Classroom can be accessed free for academic and other needs using a Google account. Google Classroom is used to deliver lecture material, submit assignments, collect assignments, and evaluate assignments that have been collected by students (Suhada, 2020). There are several interesting features found in Google Classroom. One of the interesting features often used by lecturers is creating an assignment and topic features.

Students often experience constraints during online lectures, unstable internet signals, and running out of quota during learning, which can hamper the online lecture process. However, these problems can be overcome by combining online learning with various more quota-efficient platforms. This is in line with Sutrisno (2020), who stated that the use of the Google Classroom platform for online lectures during the Covid-19 pandemic was quite effective, but it would be better if it could be combined with other platforms. There are constructive suggestions for improving this platform, namely the need to add live conference features and lecture video attachments so that learning can take place in Google Classroom (Mulatsih, 2020)

Schoology is a free web-based educational platform that allows lecturers to conduct online lectures to students. The advantages of Schoology are that its use is simpler, allows it to be accessed by anyone, and is a management system that frees lecturers to provide material, manage processes, and evaluate the lecture process (Nadeak, 2020). Schoology allows collaboration and discussion between individuals, groups, and classes discussions (Mulatsih, 2020).

There are many ways to prepare teachers and students from time to time to be able to keep up with existing developments. The government has also tried and played an active role in helping the continuity of the education process with digital platforms. A digital-based learning media was developed to answer the challenges of digital-based learning to improve student learning performance. Therefore, this study aims to investigate the relationship between digital platforms and student learning outcomes through systematic reviews and meta-analyses worldwide.

Method

This research is a type of meta-analysis research (Retnawati et al., 2018). Meta-analysis is a quantitative statistical method for compiling and analyzing descriptive data from various published and unpublished relevant research results that explore and test the same research problems and hypotheses

(Glass, 1976). According to Borenstein et al., (2009) the stages of meta-analysis consist of (1) formulating the problem, (2) searching the literature, (3) collecting information and findings from individual studies, (4) evaluating study quality, (5) analyzing and interpreting study results, and (6) interpreting results or evidence. In this study, the meta-analysis used research data related to digital platforms on student learning outcomes in Indonesia. Through a meta-analysis study, it is expected to comprehensively summarize the findings of previous studies related to digital platforms.

Inclusion criteria used to screen publications: (1) Issue years range from 2013 to 2022; (2) Articles published in international, national, or international journals or proceedings, or others; (3) The research article has at least one experimental class that uses the digital platform and the other is a conventional class or the other as a control class., and (4) Articles should report sufficient data to change the effect size.

Statistical Analysis *Hypothesis*

The hypotheses in this meta-analysis study are:

H0: There is no significant influence between digital platforms and student learning outcomes.

H1: There is a significant influence between digital platforms and student learning outcomes.

Data analysis was conducted with the help of OpenMEE software. The meta-analysis scheme used in this article consists of several steps, namely: (1) calculate the effect size of each study; (2) test for heterogeneity; (3) calculate the combined effect size; (4) evaluate publication bias. The interpretation of effect size in this study uses the classification proposed by Thalheimer and Cook (2002). The effect size classification is presented in Table 1.

Table 1. Effect Size of the Experimental Study

Classification	Interval
No Effect	-0.15 ≤ Effect Size ≤ 0.15
Low Effect	0.15 < Effect Size ≤ 0.40
Moderate Effect	0.40 < Effect Size ≤ 0.75
High Effect	0.75 < Effect Size ≤ 1.10
Very High Effect	1.10 < Effect Size ≤ 1.45
Excellent Effect	Effect Size > 1.45

The heterogeneity test in this study was conducted using the Q parameter approach. If the p-value <0.05, the suitable estimation model to calculate the summary effect is the random effect model. If the p-value > 0.05, the fixed effect estimation model is used. $\tau 2$ is used to calculate the effect size weight using a fixed-effect model or random-effect model (Retnawati et al., 2018). Furthermore, according to (Lipsey & Wilson, 2001), the p value is lower than the significance level, then it meets the heterogeneity test, which indicates that the set of research studies has more than one distribution.

The publication bias test uses the File-Safe N (FSN) approach. If the File-Safe N value > (5K+10), where k is the number of studies included in the meta-analysis, then the study does not have a publication bias problem and can be scientifically justified (Borenstein et al., 2009).

Results and Discussion

Effect Size of Each Study

The first step is to calculate the effect size of each study. To be more accurate, the effect size of each study in this research was calculated using OpenMEE software. Table 2 summarizes the effect size and variance values for each study and country. The effect size values ranged from -0.124 to 1.444. Of the total 13 effect sizes, four effect sizes (n = 4) were classified as no effect, one effect size (n = 1) was classified as low effect, two effect sizes (n = 2) were classified as moderate effect, three effect sizes (n = 3) were classified as high effect, and three effect sizes (n = 3) were classified as the very high effect.

Table 2. Effect Size and Variance of Each Study

Author	Country	Effect Size	Varians
Sipon, S. (2021)	Indonesia	-1.038	0.083
Ahmed, A. M., et al. (2020)	Oman	1.140	0.114
Pambudi, R., et al. (2019)	Indonesia	0.473	0.059
Irwan, I., et al. (2019)	Indonesia	0.911	0.074
Hikmah, H., et al. (2022)	Indonesia	0.777	0.102
Hikmah, H., et al. (2022)	Indonesia	0.746	0.095
Falode, M. E., et al. (2021)	Nigeria	0.141	0.019
Putri, S. E., et al. (2020)	Indonesia	0.337	0.077
Falode, M. E., et al. (2019)	Nigeria	-0.124	0.018
Falode, M. E., et al. (2019)	Nigeria	-0.279	0.018
Yensy, N. A., et al. (2020)	Indonesia	1.223	0.079
Muniroh, S. H., et al. (2020)	Indonesia	0.754	0.071
Khamidah, N., et al. (2019)	Indonesia	1.444	0.103

Heterogeneity Test of Effect Size

The second stage is to test for heterogeneity and select an appropriate estimation model. Heterogeneity test is conducted to prove whether the effect size of each study is different. The heterogeneity test in this study was conducted using the Q parameter approach with degrees of freedom (df = 12). Table 3 shows the results of the heterogeneity test for fixed and random effects using OpenMEE software.

Table 3. Heterogeneity Test Data Summary

Q	Df	p	I^2
92.163	12	< 0.001	86.98

The analysis showed that the Q value = 92.126 and p < 0.001. The degree of variation in effect size between studies is reflected in the I-Squared value (I2 = 86.98) which indicates that 87% of the observed effect sizes reflect the percentage of variability due to true heterogeneity. So, it can be concluded, the distribution of effect sizes in the analyzed studies is heterogeneous. Since each effect size is heterogeneous, the model used to calculate the combined effect size is a random effects model.

Overall Effect Size Using the Random Effect Model

The third step was to calculate the combined effect size of the experimental studies. Based on the search using OpenMEE software, the combined effect size (g = 0.469; k=13) was obtained. The lower limit of the confidence interval (LBg = 0.130), while the upper limit value (UBg = 0.808). This combined effect size is classified as moderate effect. Table 4 presents the results of the combined effect size estimation in this study.

Table 4. Combined Effect Size using Random Effect

Effect Size (g)	Lower Bound	Upper Bound	Std. error	p-Value
0.469	0.130	0.808	0.173	0.007

Furthermore, to find out whether the hypothesis is accepted or not, it can be seen from the coefficient of p value. Based on table 5, the p value is found to be less than 0.01. Because the p value <0.01, the H0 hypothesis is rejected, so it can be concluded that there is a positive and significant influence between the Digital Platform and student learning outcomes.

Evaluation of Publication Bias

The last step in meta-analysis is to detect publication bias. Evaluation of publication bias is carried out to show that the meta-analysis conducted is truly objective, in the sense that the articles that are the

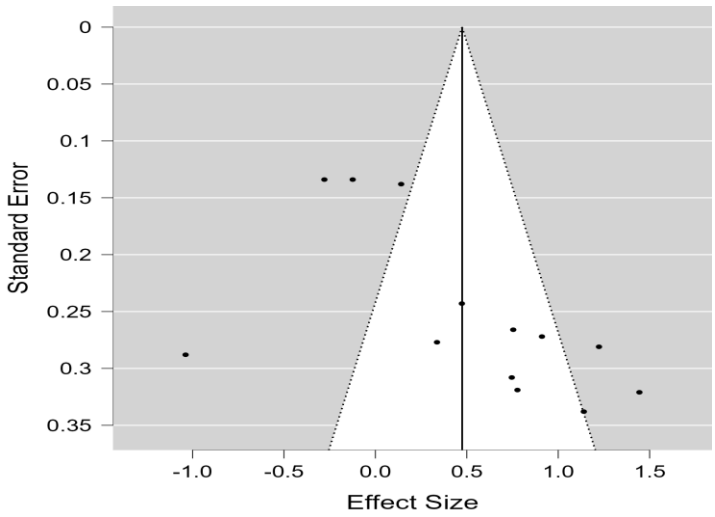
material of the meta-analysis are correct and show results that match the reality in the field. There are many methods that can be used to analyze publication bias. In this study, publication bias was evaluated using calculate the Rosenthal fail-safe N (FSN) value, forest plots, and funnel plots and (Borenstein et al., 2009; Tamur & Juandi, 2020; Retnawati et al., 2018). Table 5 presents the results of Rosenthal's fail-safe N-value diagnosis.

Table 5. File-Safe N

	File-Safe N	Target Sig.	Observed Sig.
Rosenthal	148	0,05	<,0001

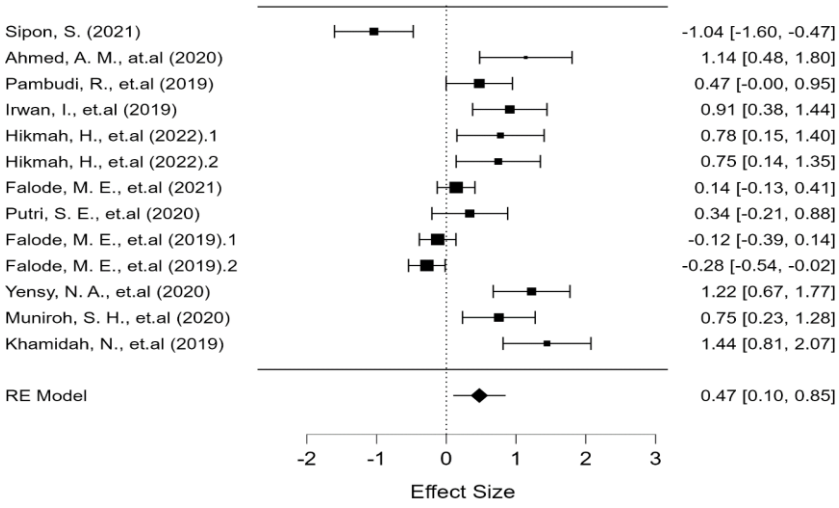
Based on the analysis results in table 5, since the value of k = 13, 5k + 10 = 5(13) + 10=75. The File-Safe N value obtained was (FSN = 148) with target significance (α = 0.05) and p < 0.001. Since the FSN value found is greater than (5k+10), this indicates that the meta-analysis conducted does not have a publication bias problem. Thus the meta-analysis test conducted was truly objective and scientifically justified.

Image 1. Funnel Plot



The funnel plot picture shown in Image 1. illustrates that there is no visible publication of bias. If the research indicates publication bias, then there is an open loop in the plot. So it can be concluded that in 13 research publications about the effect of Digital Platforms on Learning Outcomes, there is no evidence of publication bias.

Image 2. Forest Plot



The next stage in the meta-analysis is to create a forest plot. The results of the analysis obtained forest plots for each research result marked with a square mark along the x-axis. The order of each study

result is displayed according to the order of the data from 2019 to 2021. The estimated effect size of the combined meta-analysis is indicated by the symbol (diamond) below the plot line and comprehensively visualized, as well as the potential heterogeneity of the study results (image 2). Based on the summary effect of the forest plot above, it is known that the diamond width is 0.47 at the 95% confidence interval. Meanwhile, the confidence interval for each research sample is indicated by their respective plots. Image 2 shows that there is no publication bias because there is no additional sample size.

Conclusions

The distribution of effect size in the analyzed study is heterogeneous, so the calculation of the summary effect size uses the random effect method. Overall, the effect size in this meta-analysis study is between -1.038 to 1.444 (table 2) with the criteria for effect size being no effect, low effect, moderate effect, high effect and very high effect (tabel 1). This meta-analysis has no publication bias so it can be justified scientifically. The results of the analysis show that the application of digital platforms in learning has a positive influence on student learning outcomes with an effect size of 0.469 (table 4), which is a moderate effect. Although these findings provide a summary of effect sizes with moderate effect categories, these findings are based on only 13 studies. There are also other studies that cannot be meta-analyzed due to limited access. So we suggest for further research to expand the data collection process in order to get more data for future meta-analyses.

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Management system for innovative educational activities in a rural school

Abstract: The village school is the center of educational work and should carry out cooperation between the family and the student. Rural society, human proximity to nature, and humanistic traditions of folk culture promote close interaction with the outside world, awareness of the importance of nature in human life, acquisition of labor skills, love for the native land, and caring attitude to it. Thus, in the conditions of the formation of a market and competitive-dynamic external environment, as well as changes in the mission, goals, and updating of the education system in the Republic of Kazakhstan, the need to develop a strategy for managing the quality of education in rural schools is revealed.

Keywords: management, rural school, education, innovation, concept.

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Introduction

At the present stage of human development, special attention is paid to the human factor in management. The management of the educational process, like other types of management, involves ensuring the achievement of goals with a focus on the final result, through the effective use of available human resources, including the creative potential of both managers, teachers, parents, and employees of the educational institution, and the students themselves. To ensure the development of any educational organization, a special type of management is certainly needed, developing on the basis of innovative processes. The management activities of the school are characterized by a flexible structure, standardized and sustainable tasks with a command-administrative type of communication, the school is ready for change. The prevailing changes in recent years of social and economic life have also changed the goals of the rural school. In the countryside, the school is not only an educational institution, but also a center of information, culture, and recreation for the younger generation, social and pedagogical work not only with children but also with parents, and rural unemployed youth. The rural school is the basic link in the education of the future specialist, farmer, and livestock breeder. Therefore, the activities of a rural school are multifunctional and require scientifically based management, namely, the search for new, more

effective innovative ways of organizing activities not only with people but also with processes. Studying the theory and practical application of innovative management provides an opportunity to do the following:

- ✓ Forming a view on the importance of innovations and their classification;
- ✓ Learning to evaluate the innovative potential of the enterprise and the economy as a whole;
- ✓ Analyzing the innovative process and situation, using their elements;
- ✓ Planning, organization of the innovative process, justification of its financing;
- ✓ Ensuring reduction of risk and uncertainty in innovative activity.

In its generalized form, innovative management clearly sets goals for the organization of the service management process, evaluates the method of managing strengths and weaknesses, develops an organizational and production structure, and also solves a number of other problems. The management process itself can be viewed as an innovative system that includes:

- ✓ Input - material and intellectual resources of innovation;
- ✓ The goal or output is an innovation that is being created (created);
- ✓ Feedback is the market, which is considered an external environment and determines the dimensions of the consumer self and the innovation being created.

According to Drucker (2000), innovative goals include the following:

- New products necessary to achieve marketing objectives;
- New products that become necessary as a result of technological changes;
- Use of new technologies or improvement of old ones in order to renew production and increase prices to a certain extent;
- Innovations in all areas of enterprise activity (Drucker, 2000).

The ultimate goal of innovative management is to ensure its long-term operation and increase the competitiveness of innovative products based on the effective organization of innovative processes. Indicators for evaluating the efficiency of the organization of an innovative enterprise are economic measures that compare the costs of innovative activities and the income from the sale of innovative products.

Organization of innovative activities is the process of systematization and ordering of innovative developments within a certain organizational structure. The organization of innovations consists of three main points:

- Subject of innovative activity - bringing people together for joint development and implementation of innovations;
- Set of activities;
- Clarity of the structure, that is, the creation of an organization that ensures orderly communication between all its departments (Alinov, 2000).

The work of the school in an innovative mode involves making changes to its educational system. Therefore, the management of the innovation process can be considered as the management of changes in the educational system. At the same time, when managing innovations in a developing educational institution, there is an objective need for changes in the management system itself.

Therefore, the management of the innovation process at school implies the management not of individual changes, but of the whole complex of changes, covering both the managed and the managing subsystems. Based on the works of and others, the authors of this study distinguish the following stages of innovation process management, which allows the development of a school-based on a synthesis of managerial functions:

- ➢ formation of the concept of innovation process management;
- ➢ development of a strategy for managing the innovative development of the school - the main directions and tasks of updating the educational system;
- ➢ determination of the content of innovations - selection of innovative ideas and projects that ensure the development of the school in accordance with the development goals;
- ➢ designing the innovation process: drawing up, preliminary examination, and adjustment of the development plan based on selected innovative ideas and projects;
- ➢ organization of innovative activity;
- ➢ control and examination of the innovation process and the results of innovation activity.

The works of researchers (Voronina, T.; Molchanova, O.; Abrameshin, A. 2001) on the issue under study show that the formation of the concept of managing the innovation process in the school as the

creation of a generalized management plan that has a structural, functional and technological novelty and provides effective innovation within the school and purposeful development of the school based on innovation.

In the educational process of the school, the content of the very concept of managing the innovation process includes:

- structure of the management system (links, levels, subjects of management, as well as the relationship between them);
- list of functions of persons and collective subjects of management;
- mechanisms for the implementation of management functions, new forms, methods and techniques of management.

Like any process management, the innovation process should be interconnected and interdependent, namely:

- fulfillment of instructions and recommendations of higher educational authorities;
- introduction of new achievements of pedagogical science and related sciences into pedagogical practice;
- development of advanced pedagogical experience in general and within the school;
- studying and taking into account the educational needs of students, the wishes of parents and the social environment;
- promotion of innovative ideas, development, examination, and implementation of innovations within the school;
- increasing the innovative potential of the school, as the ability of education participants to implement innovative activities (Osipov, 2003; Sidorov, 2006).

Research Materials and Methods

A modern, rural school is becoming adaptive, striving to prepare graduates for life in new socio-economic conditions, while at the same time adapting to their personal characteristics. The social order, expressed for the purposes of education, prioritizes not only the formation of a high level of knowledge among graduates but the development of their research skills and creative abilities. According to the dialectical understanding of the world, educational systems functioning in natural conditions have the ability to evolve based on the continuity of transitions from one state to another.

The most obvious example of such an evolution is the process of school evolution, in which the following main stages can be distinguished:

- formation (creation of a new school, including the creation of material conditions for functioning, selection of personnel, formation of a contingent of students, the primary organization of the educational process, selection and improvement of the practical use of the necessary pedagogical technologies, etc.);
- stable functioning (at this stage, the educational process is carried out on the basis of organizational forms, programs, textbooks, and pedagogical technologies traditional for this school);
- development (the school enters this stage when the former content of education and pedagogical technologies come into conflict with the new conditions, and the needs of society, students, and teachers).

The implementation of the results of pedagogical research includes familiarization of practitioners with the results of the study, justification of the feasibility of their implementation, the formation of the need for the application of scientific results in their work and others). The analysis of works (Konarzhevsky, 1999) shows that the management of the innovation process in the context of the holistic development of the school includes the following aspects:

- work with teaching staff, aimed at creating prerequisites for innovative and pedagogical activities;
- work with students, involving the study and consideration of the interests and educational needs of students, the creation of conditions for the adaptation of children to the ongoing transformations;

- work with parents aimed at forming a positive attitude of the family towards innovations introduced at school and involving parents in participating in the innovation process;
- improving the work of the aggregate subject of intra-school management in order to maximize the use of resources available at the school;
- implementation of relations with the environment surrounding the school in order to most fully meet the educational needs of the society and attract additional resources to the school;
- implementation of control, analysis and regulation of innovation activities;
- implementation of information support for innovation activities.

An analysis of scientific and methodological works on managing the development of educational systems and the ideas and technologies contained in them make it possible to single out the following stages in the formation of the concept of managing the innovation process at school (Figure 1):

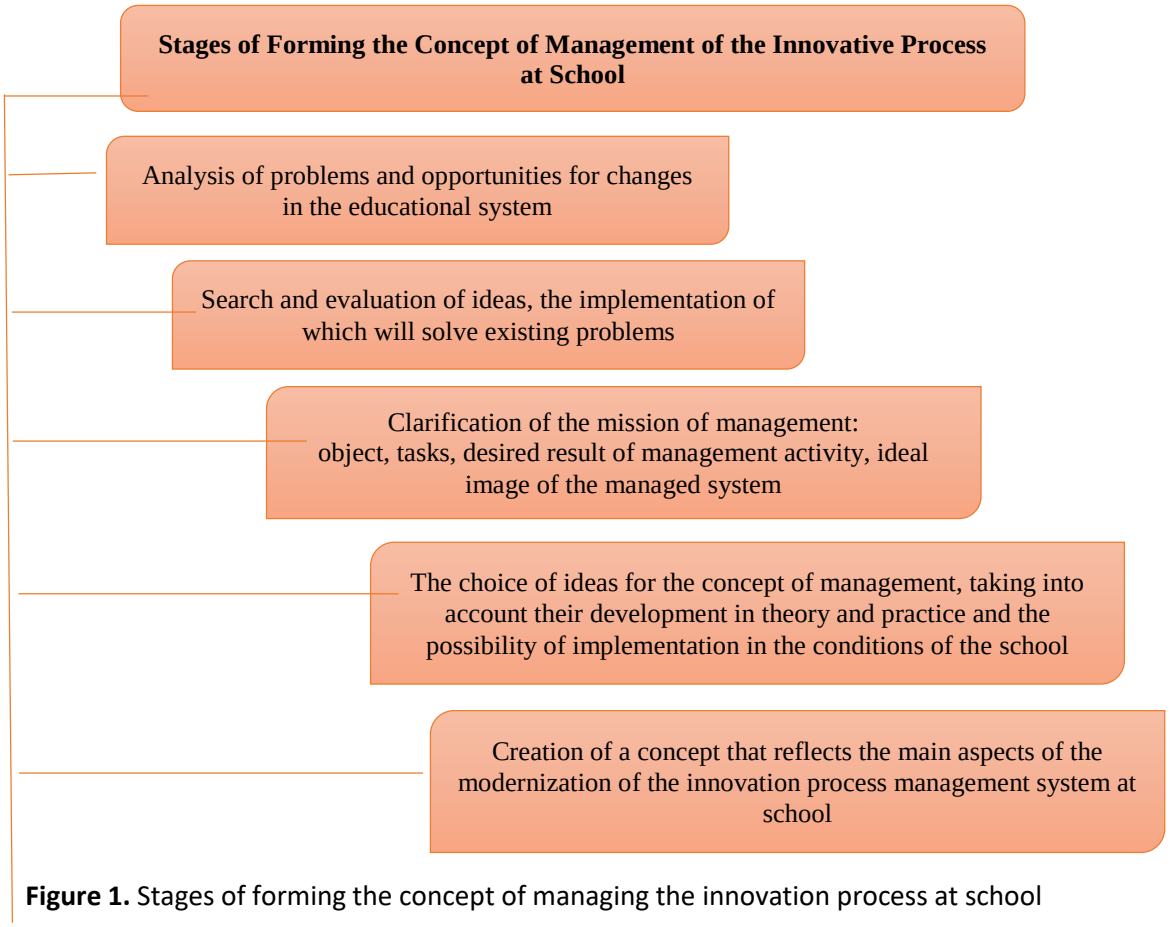

Figure 1. Stages of forming the concept of managing the innovation process at school

Humanistic pedagogy has developed a number of requirements for the innovation process carried out at school changing the target setting of the school;

- reorientation of the internal personal attitudes of the teacher to the humanistic essence of innovation;
- individualization and differentiation of training and education;
- creation of a favorable socio-psychological and subject-spatial educational environment;
- ensuring social and psychological protection of children;
- creation of conditions for the development of inclinations and abilities of each student;
- faith in the student, in his strength and capabilities, acceptance of the child as he is;
- ensuring the success of training and education;
- validity of the level of development of each student;
- humanization of educational relations;
- humanization of education, strengthening its universal, interdisciplinary orientation;
- scientific and methodological support of the innovation process.

Research Results and Discussions

Based on the analysis of pedagogical literature, the management of the innovation process in the theory and practice of education is most effective if:

- management is adaptive in nature and is carried out at three main levels of adaptation: basic logical, meta-level, meta-meta-level;
- innovation process management covers all aspects of management activities;
- the specifics of the management of the innovation process are reflected in the management functions and mechanisms for their implementation, as well as in the forms, methods, techniques, and management technologies used;
- management involves changing the management system in accordance with a certain concept of managing the innovation process;
- the innovation process management system is a synthesis of linear-functional and program-target structures;
- the innovation process is designed and implemented as a process of solving problems objectively existing in the school and ensures the development of the educational system based on the available opportunities.

The modern rural school is the executor of the mission of the education system and one of the important tools for the revival of the socio-cultural and economic infrastructure of the village. The peculiarity of the educational environment of rural schools has positive and negative sides. So the positives are:

- proximity to the natural environment and close contact with nature;
- preservation of folk traditions and culture;
- close connection of labor education;
- proximity to family and school;
- the orderliness of rural life.

There are also negative aspects such as the limited, closed interpersonal space, the lack of a system for studying the personality of schoolchildren, the lack of a differentiated approach in the education process, the weak introduction of modern educational technologies, the lack of qualified teaching staff, etc.

The school is and remains the center of the educational environment. In the countryside, there is close interaction between the family and the school, which makes it possible to carry out the educational process and cover various aspects of rural life. The above aspects of the rural school determine the general approaches to the development and implementation of the strategy for managing the innovative development of the rural school, which helps to clarify the main directions and prospects for the development of the educational system. In the works of researchers on strategic management Repin (2004), Fatkhutdinov (2002), it is noted that the management strategy of a social system should be based on legal, scientific, and methodological support, material resources, structures, mechanisms, and technologies for the implementation of managerial ideas embedded in the strategy. If the development of a strategy for managing the innovative development of a school is considered, then it is necessary to take into account:

- identifying the needs of the educational system of the school in development;
- to determine the goals and directions of development of the school on the basis of innovations, and criteria for the effectiveness of managing the innovation process;
- development of the content of innovations that ensure the development of the school;
- training of teaching staff for innovative activities;
- modeling of structural neoplasms necessary for the implementation of the innovation process

Innovative development at school covers all aspects of a holistic pedagogical process and leads to the need to consider the school in the totality of the theory of a holistic pedagogical process and the systemic nature of education a holistic pedagogical process can be considered as a synthetic meta-process, including more private processes (training and education) and process components;

the implementation of a holistic pedagogical process is ensured by the functioning of many educational subsystems that form a single educational system in any individual school (Uteshkalieva & Saginova, 2021).

Conclusions

To sum up, in the development strategy of the school in the management of the innovation process, it is necessary to be guided by the program-target principle within the school management, which implies such as (1) setting and systematization of management goals in accordance with the social order, the state of the controlled system and the personal goals of the participants in the educational process; (2) compliance with all aspects of school development management, according to the established hierarchy of goals; (3) determination of the school development strategy based on the analysis of the state of the educational system "school" and the identified development prospects; (4) strengthening mutual understanding between the subjects of management regarding the goals set and the developed strategy for the development of the school (Bykova, 2001).

Thus, in the context of the formation of a market and competitive-dynamic external environment, as well as changes in the mission, goals and renewal of the education system in the Republic of Kazakhstan, the need to develop a strategy for managing the quality of education in a rural school is revealed. The rural school is the center of educational work and should carry out cooperation between the family and the student. Rural society, human closeness to nature, humanistic traditions of folk culture, contribute to close interaction with the outside world, awareness of the importance of nature in human life, the acquisition of labor skills, love for the native land and respect for it.

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